THE POLYCHAETE WORMS
DEFINITIONS AND KEYS TO THE ORDERS, FAMILIES AND GENERA
THE POLYCHAETE WORMS
Definitions and Keys to the Orders, Families and Genera

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREFACE</td>
<td>VII</td>
</tr>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>IX</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>CHARACTERS USED TO DEFINE HIGHER TAXA</td>
<td>2</td>
</tr>
<tr>
<td>CLASSIFICATION OF POLYCHAETES</td>
<td>7</td>
</tr>
<tr>
<td>ORDERS OF POLYCHAETES</td>
<td>9</td>
</tr>
<tr>
<td>KEY TO FAMILIES</td>
<td>9</td>
</tr>
<tr>
<td>ORDER ORBINIIIDA</td>
<td>14</td>
</tr>
<tr>
<td>ORDER CTENODRILIDA</td>
<td>19</td>
</tr>
<tr>
<td>ORDER PSAMMODRILIDA</td>
<td>20</td>
</tr>
<tr>
<td>ORDER COSSURIDA</td>
<td>21</td>
</tr>
<tr>
<td>ORDER SPIONIDA</td>
<td>21</td>
</tr>
<tr>
<td>ORDER CAPITELLIDA</td>
<td>31</td>
</tr>
<tr>
<td>ORDER OPHELIIIDA</td>
<td>41</td>
</tr>
<tr>
<td>ORDER PHYLLODOCIDA</td>
<td>45</td>
</tr>
<tr>
<td>ORDER AMPHINOMIDA</td>
<td>100</td>
</tr>
<tr>
<td>ORDER SPINHERIDA</td>
<td>103</td>
</tr>
<tr>
<td>ORDER EUNICIDA</td>
<td>104</td>
</tr>
<tr>
<td>ORDER STERNASPIDA</td>
<td>114</td>
</tr>
<tr>
<td>ORDER OWENIIIDA</td>
<td>114</td>
</tr>
<tr>
<td>ORDER FLABELLIGERIDA</td>
<td>115</td>
</tr>
<tr>
<td>ORDER FAUVELIOPSIDA</td>
<td>117</td>
</tr>
<tr>
<td>ORDER TEREPELLIDA</td>
<td>118</td>
</tr>
<tr>
<td>ORDER SABELLIDA</td>
<td>135</td>
</tr>
<tr>
<td>FIVE &quot;ARCHIANNELIDAN&quot; FAMILIES</td>
<td>152</td>
</tr>
<tr>
<td>GLOSSARY</td>
<td>156</td>
</tr>
<tr>
<td>LITERATURE CITED</td>
<td>161</td>
</tr>
<tr>
<td>INDEX</td>
<td>180</td>
</tr>
</tbody>
</table>
Preface

THE STUDY of polychaetes used to be a leisurely occupation, practised calmly and slowly, and the presence of these worms hardly ever penetrated the consciousness of any but the small group of invertebrate zoologists and phylogeneticists interested in annulated creatures. This is hardly the case any longer.

Studies of marine benthos have demonstrated that these animals may be wholly dominant both in numbers of species and in numbers of specimens. In some areas they are even dominant in biomass. If any statements are to be made about the biology of the benthic environments, some note must be taken of the polychaetes. Furthermore, the keeping of some of these animals in culture has proved feasible, and some polychaetes even have become famous for their value as test animals in polluted areas. The development of some polychaetes appears to be genetically interesting, and studies of evolutionary rates and genotypic and phenotypic adaptations in these worms may prove very illuminating to our understanding of the benthic environment.

All of these developments make it important that the major morphological and anatomical features be well understood, and preferably that the terminology and taxonomic categories be agreed upon by most workers. This review is an attempt at summarizing current information about the taxonomy and morphology of these animals. During the reviewing process, it became painfully obvious to me how exceedingly poorly known the group is and how few generalizations can be made on the ecology and evolution of the polychaetes. I hope this review will bring forth a spate of investigations, by persons wishing to prove me wrong in my phylogenetic speculations, but also by persons willing to put in the hard work needed to fill in the gaps in our knowledge.

I apologize to my fellow polychaete workers for introducing a complex superstructure in a group which so far has been remarkably innocent of such frills. A great number of very sound partial schemes have been suggested from time to time. These have been only partially considered. The discussion is complex enough without the inclusion of speculations as to how each author would have completed his or her scheme, provided that he or she had had the evidence and inclination to do so.

Kristian Fauchald
19 May 1976
Los Angeles
Acknowledgments

This review is a direct outcome of a lecture I gave during a class in polychaete biology at Santa Catalina Marine Biological Laboratory in 1973. It has benefited greatly from discussions with all of the students in the class, but perhaps especially Bill Kennedy was instrumental in pushing me into giving the lecture in the first place. I have also discussed parts of the paper with Ray Emerson, Tom Kauwing, Fred Piltz and Bob Smith. My co-teacher at Catalina, Paul C. Schroeder, was a great help in formulating some of these ideas. Some of the ideas presented here were also discussed with the late Dr. Olga Hartman, whose sound advice was always valued by me. Dr. Pat Hutchings advised me of some errors in the terebellid key, for which I am grateful. The good illustrations were made by Ms. Catherine Link; the others I am responsible for. Ms. JoAnne Woodcock expertly typed most of the manuscript, prepared the index and cleaned up my English where needed, for which I am grateful. I am also very grateful to Mr. R. Edward Ostermeyer for seeing the paper through.

I would wish to thank Dr. Robert J. Lavenberg, Natural History Museum of Los Angeles County, for prodding me into writing this book in this format and for his constant encouragement and enthusiasm for what grew from a moderately long key to families to a rather more massive offering. I am also very grateful to Dr. Bernard C. Abbott, Allan Hancock Foundation, University of Southern California, for his support and enthusiasm and for letting me have the time to do the writing on this paper.
THE POLYCHAETE WORMS
DEFINITIONS AND KEYS TO THE ORDERS, FAMILIES AND GENERA

BY KRISTIAN FAUCHALD

ABSTRACT: A review of the classification of the Class Polychaeta (Annelida) with comments on the characters used to identify the different included taxa has led to the recognition of seventeen orders. All taxa down to the generic level are defined and a phylogenetic sequence suggested. Keys are presented to the families and genera of the Polychaetes.

INTRODUCTION
Polychaeta is part of the old, diffuse concept Vermes, a group that perhaps can best be defined as comprising all animals that are longer than wide and non-vertebrate. For the last seventy years or so, the polychaetes have been grouped with the oligochaetes and hirudineans and a few smaller groups into the phylum Annelida. This phylum contains segmented, coelomate worms in which a secondary loss of segmentation may have taken place, but in which traces of such segmentation at least can be recognized internally. Other, more formal definition of the phylum can be found in standard text-books. Definition of the annelid classes has varied, however, everyday recognition of members of the three major classes has never been a problem: The Hirudinea contains the leeches, the Oligochaeta the earthworms and their allies, and the Polychaeta marine worms, such as the sandworm (nereids) and bloodworms (glycerids) used for bait in parts of the world. The three classes appeared also, at least grossly, to be separated ecologically in that the leeches were supposed to be parasitic, the earthworms terrestrial and the polychaetes were most common in the marine environment. This separation is obviously unsatisfactory and as information about these animals accumulated towards the end of the last century, most workers settled on a grouping which associated the leeches and the earthworms with each other in one group opposed to the polychaetes. Members of both the former classes are hermaphroditic and have various complex glands associated with reproduction. Furthermore, both leeches and earthworms lack parapodia (fleshy unjointed segmental appendages) and the setae, if present, only rarely occur in bundles. These two groups were considered more advanced than the marine, dioecious polychaetes. The polychaetes have been defined for the last seventy years as dioecious, marine annelids with parapodia bearing numerous setae. They also should have anterior appendages of various sorts (antennae, palps, tentacular cirri) and the gonadal ducts should be simple.

These definitions work if some of the smaller groups are disregarded. If these groups are taken into account, as they must, the only separation that consistently can be made between the oligochaetes/leeches and the polychaetes, is the presence in the former grouping of hermaphroditic gonads limited to a few segments. Some hermaphroditic polychaetes are known, but these usually have gonads in a large fraction of the total number of segments. It is then difficult to give a good, consistent and practically useful definition of what is meant by a polychaete, but a definition along the lines suggested below, should separate them from the other annelids with reasonable accuracy.

The polychaetes are multi-segmented annelids with parapodia; setae are present in distinct fascicles. They are dioecious and have simple exit ducts from the
gonads. They are usually marine, more rarely freshwater and only rarely terrestrial or parasitic in habitat. Any of these features need not be present and none of them is essential for the recognition of an animal as a polychaete.

This topic has been treated in considerably greater detail by Clark (1969) and to a lesser extent by Fauchald (1974a).

A key morphological feature and at the same time one of the most important taxonomic characters of the polychaetes is the setal (chaetal) construction. The setae are ectodermal derivatives, formed by ectodermal cells that during the development have migrated to a position well below the rest of the ectodermally derived epidermis. Each seta consists of a bundle of filaments laid down by a basal chaetoblast and up to several lateral cells. The material in the setae is a glycoprotein, consisting of chitin (a polysaccharide) and a protein cross-linked at the time of formation. The formation of structural details in the setae is very well controlled, but exactly how this takes place has only partially been clarified. The best current review of this topic was made by O’Clair and Cloney (1974) from which most of the above information has been gleaned.

Polychaetes traditionally are separated into two large orders, ERRANTIA and SEDENTARIA (Audouin and Milne Edwards 1834, pp. 24-26). The separation is based on the development of the anterior end and the life habits of the included species.

The errants are supposed to have a large number of equal body segments. The anterior appendages are few in number and differentiated into palps, antennae, tentacular cirri, etc. These worms are considered free-living and, generally, should be rapacious in habits. All polychaetes with jaws are included in this order; thus the onuphids, despite their tubicolous habits, are considered errants since their large jaw-apparatus resembles the jaw-apparatus in other, non-tubicolous eunicidlike animals.

The sedentaries are supposed to have a limited number of body segments. The body may be separated into different regions. Anterior appendages may be absent or a few to many similar appendages may be present. The sedentaries have short parapodia associated with their tubicolous or burrowing habits and are usually deposit- or filter-feeders.

These definitions have not changed much over time (cf. Grube 1850, p. 281 and tables; Fauvel 1923a, pp. 27-29; Hartmann-Schroder 1971, p. 29). The advantage of the system is that the bulk of the 8,000+ described species of polychaetes separates into two roughly similar groups in terms of numbers of species and genera as well as families. The separation is otherwise unsatisfactory since neither order can clearly be defined. Several attempts have been made to subdivide the polychaetes in a more acceptable manner (Dales 1962, pp. 424-425; Clark 1969, p. 47). Polychaete taxonomists have tended to disregard these attempts and have continued to treat the polychaetes as if the class consisted of two orders (Fauvel 1958, pp. 166-190; Hartmann-Schroder 1971, p. 29) or subclasses (Uschakov 1955a), or have treated the group as if it consisted of about 75 distinct and unrelated families (Hartman 1968, 1969). The problem with all proposed schemes is that they are internally inconsistent. Furthermore, they give no better solutions to classificatory problems than the old, admittedly artificial, separation into two orders.

The three most ambitious recent proposals were by Dales (1962), Storch (1968) and Clark (1969). Dales used the variable structures of the eversible stomodeal region (pharynx) to separate different groups. The arrangement of the body-wall musculature was used by Storch. Clark used a variety of different structures to characterize his eight orders. These authors gave no formal definition of any taxon above the family level (except by inference from contained taxa) and it has been difficult to evaluate their schemes.

CHARACTERS USED TO DEFINE HIGHER TAXA

Major anatomical and morphological features were reviewed during a study of the phylogeny of the polychaetes (Fauchald 1974a). Below is given a survey of the findings with an expanded discussion of their taxonomic aspects.

A. Prostomium. The prostomium usually is distinct and may have or lack appendages. In several families it is more or less fused with the peristomium and the first segments. The degree of fusion is difficult to determine even in an examination of the nervous system so the degree of distinctness of the prostomium is a character that can have no great taxonomic value (see Benham 1894, 1896). Prostomial appendages include antennae and palps. Antennae are innervated through single roots directly from the brain; palps always have double roots, either from the brain or from the circumsophageal ring (Akesson 1963; Orrhage 1966). Antennae are always sensory; palps may be sensory or may be used as feeding appendages. The presence of either one or both categories of appendages is considered here of great importance. The position of the palps varies from ventral to dorsal, from frontal to occipital. The position and function of the palps furnish important taxonomic characters. It is impossible to distinguish any other classes of prostomial appendages either on morphological or anatomical grounds.

B. Peristomium. The larval peristomium is the immediate prototrochal region of the trochophora larva;
it may persist as the adult peristomium at least in some forms and it appears to be completely pre-segmental in nature, at least in some forms (Akesson 1967). However, the structure called the peristomium in most taxonomic studies consists of a fusion of this larvally derived structure and one or more true segments. The larvally derived peristomium may carry a single pair of dorsal cirri called peristomial cirri. The fused segments may carry parapodial remnants called tentacular cirri. The number of tentacular cirri vary from one to four pairs in the hesionids; other families tend to have a constant number, or at least only a few alternative numbers (nereids, syllids, phyllodocids, etc.). Fused segments are often present, even if tentacular cirri are absent.

It would be valuable to distinguish the two kinds of peristomia, but current usage seems ingrained and little would be gained by coining a new term; it should, however, be remembered that the current term may cover two very different structures.

C. Eversible pharynx. Most polychaetes can evert a part of the anterior digestive tract. Two different constructions can be recognized (Dales 1962). A ventral plate-muscle pharynx is present in several forms (Eu­nicea, Amphipomida, etc.); others have an axial pharynx that is developed symmetrically, or at least nearly symmetrically. The axial pharynx may be followed by a strongly muscular region (nereids, nephtyids, glyc­erids, etc.) or this musculature may be absent (arenic­olids, maldanids, etc.). Usually each family has a characteristic kind of pharynx, but in some families (e.g., Spionidae) both plate-muscle and axial pharynges are present (Orrhage 1966). Some plate-muscle pharynges are poorly muscularized and may be difficult to distinguish from weakly developed axial pharynges so the apparent overlap in distribution of the two kinds of pharynges may in part be due to definitory problems. This problem suggests that the structure of the pharynx cannot be used as the single definitory character for higher taxa. The detailed structure of the pharynx, especially the equipment of jaws, teeth and other chitinized structures associated with the anterior end, are very important characters at the generic and specific levels. The variability of the jaw-apparatus of several members of the super-family Eunicea is presently under investigation. Preliminarly, it appears that the detailed structure of the jaws is correlated very precisely to other variable morphological features and to environmental variables (Fauchald and Smith, in preparation).

D. Parapodia. Polychaete parapodia can be bi-ramous, with both noto- and neuropodia developed, or uniramous with only the neuropodia developed. In the latter case, the notopodia are considered secondarily reduced (Fauchald 1974a). The presence of notopodia is a very important character at the supra-familial and ordinal levels as is the presence of acicula and setae. The detailed development of each ramus with the various parapodial lobes and cirri is very important at the generic and specific levels. The presence of branchiae associated with the parapodia is of variable importance. The presence of branchiae may not even be considered a specific character (Fauchald 1970 on Eunice (Niciton) cariboea and Palola spp.); in other cases the presence may be used as a generic character (Asychis and Brachioasychis). Generally, however, the presence of branchiae is a specific character, but with generic
importance where warranted by evidence. Branchiae are of sufficient biological importance, so fairly good evidence must be presented to demonstrate that these structures are of less than specific importance.

E. Setae. Numerous kinds of setae have been described (uncini, limbate setae, pectinate setae, subacicular hooks, composite spinigers and falcigers, etc.). The basic kind of setae in each parapodial ramus is usually a family character, but not uniquely so. Thus, all phyllodocids have composite setae, but not all polychaetes with composite setae are phyllodocids. The detailed construction of the setae is important at the specific level. The importance of accurate examination of the setae still is underestimated by most taxonomists; precise observations require close microscopic work to elucidate them and this kind of work may be necessary even in routine identifications. Moreover, recent studies with scanning electron microscope have demonstrated clearly the importance of accurate work on the setae (Thomassin and Picard 1972).

F. Nephridia. The structure and distribution of nephridia have been used at the subfamilial and generic levels (Hessle 1917 on terebellids). The character may be of wider usefulness at higher levels, but the variation in these features has been too little studied in most families to make the character useful at the present time.

Most polychaete families are characterized by a complex set of features and cannot be identified by reference to a single structure. The proposed taxonomic schemes have failed because they did not take this into account. They all were based on two or perhaps three manifestations in one important structure. By defining each manifestation precisely, apparent "intermediate" forms appeared and had to be included in one or another category as an exception or be left outside the proposed system. Usually, the "intermediate" form would be loosely appended to one taxon or another; the definition of the taxon would then be left intact. It became impossible to find these "hidden" taxa in the system.

SOME USEFUL TECHNIQUES

The following comments are necessarily incomplete and are meant only as a first-hand guide to work on polychaetes, especially the handling necessary to perform identificatory work, excluding the handling necessary for other kinds of investigations on either live or dead polychaetes. The main topics covered are collection, screening, fixation and preservation and the most common techniques in laboratory handling.

Collection. Polychaetes are found nearly everywhere in the marine environment and thus can be caught with every kind of gear imaginable. They are soft-bodied animals, and hand-collected specimens tend to be rather poorly treated. The most complete, and thus most easily identifiable specimens will be caught with gear that takes chunks of the environment and in situations where the animals are allowed to crawl out, or where the material is gently screened. Even in S.C.U.B.A. collection it is advisable to collect masses of material, rocks, seaweed tufts, sand-samples, etc. and put them in separate plastic bags or similar waterproof sample bags for later treatment. Most polychaetes are small and active animals; it is therefore useless to put a bottom sample in the ordinary game-bags used in diving, since most of the worms will escape before the sample can be treated further.

Shipboard sampling can be done with any of several kinds of a series of gear, quantitative as well as qualitative. If dredges are used, I recommend hauls as short as practicable, since the churning of the material in the dredge will tend to grind up the polychaetes or disturb them enough to make them autotomize appendages and, often, the whole posterior end.

Samples of hard substrates, algal mats, rubble, etc. should be put in a large container of some sort, covered completely with sea water and be left standing undisturbed for several hours. The samples should be placed in the dark or at least in the shade and should be kept cool, though not necessarily refrigerated below the ambient temperature at the sampling site. It is especially important to leave the sample in the dark if it contains algae in quantity. As the oxygen concentration in the water decreases, the polychaetes will leave the substrate and congregate around the rim of the vessel at the air-water interface. They can easily be scooped from the surface with either a small screen (0.5 mm mesh-size) or simply a spoon. If the sample contains a large number of motile, large animals, such as crabs or brittle-stars, it is best to remove most or all of these as soon as possible.

The samples should be left standing for several hours (2-12 hours) depending on the lighting, the quantity of water in relation to sample size, the temperature, etc. After the samples have been treated in this manner, the substrate should be carefully sorted through-plucked to pieces if necessary-and the water screened for animals that left the substrate but did not reach the surface. This whole process should be done as quickly as possible, since polychaetes deteriorate very rapidly after death. The method will not quantitatively remove polychaetes, since some polychaetes are unable to leave their tubes or burrows and others generally do not approach the surface, even when the water becomes very foul. The process can be speeded up by adding 7% MgCl₂, but we have not found this to be any great advantage.

Screening. Samples of soft substrates, such as sands and muds, must be screened. Quantitative benthic studies now routinely use 1 mm screens, but these undersample the polychaetes badly, both in numbers of
species and in specimens. The use of 0.75 mm screens does not improve matters greatly, but 0.5 mm screens appear to catch most polychaetes quantitatively. In inshore areas, the sands and gravel will make the use of 0.5 mm screens rather impractical, but if a complete survey of the fauna is contemplated, this cannot be avoided. Thus, the objective of the study undertaken must be considered carefully. I would generally recommend that, for each area studied, at least some samples be screened with a double set of screens, both 1.0 and 0.5 mm, and the results compared so that the level of inaccuracy engendered by the use of 1.0 mm screens can be estimated. This has to be done for every major sediment type and cannot be guessed at from one sediment type to the next, nor from one geographical location to the next. This is because the fraction of small species appears to vary geographically.

Samples should under any circumstances be washed gently with very large quantities of water. It is useful to have the water prescreened so that pelagic organisms can be avoided, and deep-water samples should be treated with water as cold as possible. Nothing is gained by hurrying the screening process, but each sample should be screened as soon as possible after getting it on deck. Deep-water samples that cannot be screened immediately should be refrigerated. It is of the utmost importance for good results that the screening process be done carefully; poorly screened samples contain a large number of mangled specimens, and such specimens usually cannot be identified. The net result will be a waste of sampling time and effort and, not least, loss of time needed for identification of the specimens after the samples have been returned to the laboratory. In terms of the time and effort needed for the different parts of the processing of a single sample, we now generally calculate that on the average it takes about 50 minutes of shipboard time to take and process a single shelf sample with a box-core and about three weeks of manhours to adequately treat and interpret this sample in the lab. Thus, the few minutes of ship time to be gained in preparing the samples poorly will be offset by the need for a larger number of replicate samples to get adequate numbers for mathematical treatments in the lab.

Once the sediment has been removed from the screens as completely as possible, the retained material should be chased down to one side of the screen with the help of a gentle stream of water applied to the outside of the screen. Do not sort or pick through the material on the screens; non-preserved polychaetes should be handled as little as possible and never moved at all except with the help of a gentle stream of water applied to the outside of screens or elsewhere.

Fixation and Preservation. - For the last few years we have routinely narcotized the whole sample as retained on the screens. The material on the screens is washed down onto a large enamel pan with as little sea water as possible. The pan is then flooded with a solution of 7% MgCl, in sea water and allowed to stand for about half an hour. Then the contents of the pan are poured carefully through a screen and transferred, with as little water as possible, to a sample jar. The narcotizing solution can be used several times if so desired.

Standard fixating agent for polychaetes is 10% neutralized formalin in sea water. The most commonly used neutralizing agent is borax (Na,B₄O₇, technical grade). The sample should fill no more than one-third of the sample jar and the jar should be completely filled with the formalin solution. The jar should be capped and gently but thoroughly inverted several times to get complete mixing. Allow the sample to settle. Decant off about one-half of the solution and fill the jar with fresh formalin solution. It is much better to split a sample into several jars than to fill one jar completely with the entire sample and get incomplete and unsatisfactory fixation.

Histological fixatives can also be used on bulk samples, and in general such fixation is better on small, fragile polychaetes if done prior to any sorting. If such fixatives are used, the ratio between sample and fixative must be even lower than the one indicated above, and the fixative should be changed twice in rapid succession to avoid dilution effects.

Samples should be left in formalin for at least 24 hours and can be left in the fixative for several weeks. However, after 24 hours, the samples are ready to be transferred to the preservative, usually 70% isopropyl or ethyl alcohol in distilled water. Before transfer, the samples must be washed in fresh water once or twice to remove the salt; if this is not done, setae and other details will become the crystallization sites for salt crystals, and these are difficult to remove after they have formed. One change of preservative is necessary to ensure full strength.

DO NOT ATTEMPT TO USE ETHYL ALCOHOL AS A FIXATIVE, even if sensitivity to formalin becomes a problem. The specimens become completely unusable after a short period of time, and again the fraction of unidentifiable specimens goes up drastically. Postfixation with formalin of material originally fixed in alcohol does not work.

Specimens treated as recommended above usually retain most of their appendages, and a large fraction of complete specimens is usually present. However, a certain number of incomplete specimens are to be expected in any treatment, especially with standard narcotizing time as suggested above. The treatment suggested is rather more elaborate than usual, but we have found that we are amply rewarded by a much higher than usual fraction of identifiable specimens. Thus, less replication of samples is needed in benthic surveys and this in itself represents a savings in both time and money.
Laboratory Treatment of Samples, Identificatory Techniques. - The equipment needed to identify polychaetes includes one stereo microscope per person and one compound microscope per two persons, as the minimum. The compound microscope must be capable of magnifications up to 1100 times, and the stereo microscopes should have magnifications to about 100 times. A focusable microscope lamp is necessary for use with the stereo microscope. Each person will also need two pairs of watchmaker’s forceps, two needles (we use insect pins glued to applicator sticks with epoxy glue), fine scissors, a small scalpel (we use pieces of razor blades glued to applicator sticks with epoxy glue), a small bottle of glycerol alcohol mixed with one-half glycerol and one-half 70% alcohol, a bottle of immersion oil, depression slides and flat slides, cover slips, petri dishes of various sizes (preferably with tight-fitting lids), cotton, paper, and #2 pencils (HB or F works well).

The sorting and identification of polychaetes is a two-step operation. Each sample should first be sorted to family under a stereo microscope. The samples must be sorted while completely submerged in alcohol, and since light from the microscope lamp is apt to evaporate the alcohol it should be refreshed from time to time. Polychaetes always have to be treated while completely submerged, and after being transferred to alcohol cannot be left dry for more than a few minutes at a time. Small polychaetes tend to dry out very quickly, and dried out polychaetes are largely unidentifiable.

Sorting can be done directly into vials completely filled with alcohol, and each vial receives a label with the name of the contained taxon, as well as with the station number for that particular sample. It is imperative to do this immediately rather than having to remember the content and position of each vial later. Use good, high-rag-content paper of sufficient weight (20 pound or higher) and a good pencil. The labels should be big enough to stand up in the vial unsupported, but not so large as to cover the contents, and they should end up well below the upper margin of the vial. We prefer to use straight-sided vials, capped with cotton plugs, and to store these in jars filled with alcohol. Screw-capped vials almost invariably have a shoulder which makes it difficult to remove specimens and labels when needed. Screwcaps normally are not air tight, so the vials will have to be stored within a larger jar regardless.

After the sample has been sorted to family, we collect the members of each family in a single jar. Thus, the sample is no longer intact as such, but has been distributed taxonomically among families. It is thus of very great importance that careful and accurate notes be taken on the numbers of vials for each station, so that later the station can be reconstructed accurately on paper. This is done because we have found it considerably more efficient to identify the polychaetes family by family in larger numbers. It is much easier to compare specimens from different samples, and the number of dubious identifications can be decreased drastically by this means. If the samples are to be stored as units, the vials can always be reunited afterwards if desired.

When polychaetes are being identified, certain standard observations should always be made. Always find the anterior end and take note of the number and arrangement of anterior appendages. Scan the body for obvious differences in parapodial structures and for such features as the position and number of branchiae. Most specimens preserved as indicated above will be relatively easy to handle with two pairs of forceps, and it is usually much easier to move the specimen than to move the dish. This sort of scan is usually all that is needed to get a polychaete to family.

To identify the animals to genus and species, more accurate observations are usually necessary and various dissections must be performed. It is always necessary to remove a parapodium, if nothing else, because a good look at the setae is needed. This can be done with the use of two pairs of forceps, a scalpel or iris scissors. For most medium-sized polychaetes in good condition, just pulling off a parapodium with a pair of forceps is the easiest method. Care must be taken that both parapodial rami and associated cirri and branchiae come off. Some workers find it easier to use scissors or scalpel, and these instruments must be used on poorly preserved specimens or on larger animals. The parapodium should be mounted on a slide; larger ones must be mounted on depression slides, but normally a flat slide is better, since depression slides cannot be used with high-power compound microscopes. Generally, the parapodium should be mounted with the anterior side facing the observer; however, in certain families and genera, a posterior view may be more informative. Before mounting the parapodium, look at some appropriate parapodial illustrations showing the features to be observed. A parapodium mounted in a dorso-ventral position gives no more information than does looking at the whole animal, so a mount showing both notopodium and neuropodium is necessary. We use glycerol-alcohol for these mounts and only rarely make permanent mounts.

Which parapodium should be removed depends on which family is being studied. Generally, a median parapodium from a long series of similar-looking parapodia will be best, but in special cases the anterior-most or one specific parapodium will have to be removed to study some specific detail of importance in that taxon. Thus, in members of the genus Pista, for example, anterior, median and posterior thoracic parapodia must be removed, and in the genus Magelona...
of the ninth parapodium must be detailed. Again, it is worthwhile to look through the key to be used before deciding which parapodium and, in some cases, how many parapodia, should be removed. It is also worthwhile to scan the body of the animal carefully before deciding on a specific parapodium, to see that the setae are as complete as possible so no extra mounts of setae become necessary. Setal distribution varies from one group of polychaetes to another; if it is possible to remove one single parapodium and get all setal types represented at once, this saves wear and tear on the specimens and also saves time in preparation.

Generally, parapodial structures are most easily observed at relatively low magnifications under the compound microscope, but critical decisions, especially on structures on top of a thick preparation, may be most easily followed at higher magnifications. Setal structures, especially the presence of fine hairs along the cutting edge of simple setae, are best seen under oil immersion with 100x objectives. It does not help much to use very high oculars; generally, a 10x ocular is more than adequate. If available light is insufficient for using the immersion objective, attempt to put immersion oil also between the condensor and the lower side of the slide. Be sure to adjust the lighting of the compound microscope every time the magnification is switched; it gives a much more satisfactory picture of the structure and will also, in the long run, save the eyesight of the worker.

Dissection of the anterior end of the polychaete may also be necessary for observation of the structure of the eversible pharynx or jaw structures. Important structures are situated in the midline, dorsally or ventrally or both; thus, a dissection should avoid cuts into the midlines of the animals. We generally make a longitudinal slit on the dorsal side, well lateral to the midline. The length and position of the slit will depend on the purpose of the dissection and on the relative position of the eversible pharynx. The pharynx may be preserved in the completely retracted position or in various stages of eversion; jaw structures are usually situated anterior in the body, even in forms with a long pharynx. If the purpose of the dissection is observation of the lining of the pharynx in one of the forms with a long pharynx, the slit can be made farther back than usual.

We usually continue by making transverse slits at both ends of the longitudinal one. This makes it possible to lift a flap of tissue containing the body-wall proper. We have found it most useful to leave the pharynx and the jaws in situ as much as possible; they are almost invariably lost if removed. Especially in the case of the complex jaw structures of the eunicid polychaetes, it is important to treat them in a similar manner in all specimens, so that they are all flattened to a similar degree when the observations are being made, etc. The jaws in these forms are always observed from the dorsal side and the jaw formulae are given from the posterior to the anterior end, the left jaw being mentioned first in each formula.

The pharyngeal lining has characteristic structures in members of several families; it is usually not necessary to remove the lining in nephthyids and phyllodocids, but in order to characterize the lining of members of glycerids and goniods, this must be done. It is of great importance that the lining be well oriented in the goniods, since the position of the different kinds of pharyngeal organs is considered of taxonomic importance. The fine structure of the glycerid pharyngeal organs cannot be seen except in oil immersion, and critical lighting is of the utmost importance for a clarification of these structures.

Parts that have been dissected out are best put in a small, separate vial stored within the larger vial with the specimens. Leaving small parts loose in the vial will invariably lead to their loss.

**CLASSIFICATION OF POLYCHAETES**

The scheme proposed below left, also Table 1), is based on phylogenetic ideas presented elsewhere (Fauchald 1974a). The sequence of families indicates an increasing morphological distance from the ancestral polychaete as this was defined on that occasion, but since the several orders and families are considered the results of a rapid radiation in Pre-Cambrian to Cambrian times (Fauchald 1974a), this sequential arrangement can only poorly represent the phylogenetic pattern.

Major anatomical as well as morphological features were used to define the orders. This may make them difficult to use in practical taxonomic work. The framework formed by including the anatomical features is more satisfactory in that each order now can be defined to exclude all non-members.

Theoretically different evidence should be used to define each taxonomic level. One feature (e.g., the structure of the eversible pharynx) once used at one taxonomic level, should not be used at another (lower) level within the same classificatory plan. This sort of separation was attempted here, but was only partially successful, in that one feature (e.g., the structure of the eversible pharynx) may have been used at the family level in one order, but at the sub-ordinal or superfamilial levels in other orders.

Suborders have been recognized only where warranted; no attempts were made to create intermediate categories in all orders. Families not included in any intermediate category are listed alphabetically at the end of each order. The sequence of families otherwise indicates phylogenetic relationships within each order.
TABLE 1  
Survey of Polychaete Orders, Suborders, Superfamilies and Families.

<table>
<thead>
<tr>
<th>Order</th>
<th>Suborder</th>
<th>Superfamily</th>
<th>Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>O. ORBINIDAE</td>
<td>F. Orbinidae</td>
<td>F. Piscicolidae</td>
<td>1. O. STERNASPIDA</td>
</tr>
<tr>
<td></td>
<td>F. Paranidae</td>
<td>F. Scalibregnidae</td>
<td>F. Stemaspidae</td>
</tr>
<tr>
<td>2. O. CTENODRILIDA</td>
<td>F. Ctenodrilida</td>
<td>F. Polyhymenidae</td>
<td>F. OWENIDAE</td>
</tr>
<tr>
<td></td>
<td>F. Paranodrilida</td>
<td>F. Lepadodocidae</td>
<td>F. Owenida</td>
</tr>
<tr>
<td>3. O. PSAMMODRILIDA</td>
<td>F. Psammodrilida</td>
<td>F. Aciculidae</td>
<td>14. O. FLABELLIGERIDA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F. Lopadorhynchidae</td>
<td>F. Flabelligeridae</td>
</tr>
<tr>
<td>4. O. COSSURIDA</td>
<td>F. Cosurida</td>
<td>F. Terebellida</td>
<td>F. Poeobidida</td>
</tr>
<tr>
<td>5. O. SPIONIDA</td>
<td>SO. Apistiformia</td>
<td>F. Chrysopetalida</td>
<td>15. O. FAUVELIOPIGIDA</td>
</tr>
<tr>
<td></td>
<td>F. Apistobranchiida</td>
<td>F. Alcopedida</td>
<td>F. Fausteliporidae</td>
</tr>
<tr>
<td></td>
<td>F. Spionida</td>
<td>F. Polynoidida</td>
<td>F. Fauvelioporidae</td>
</tr>
<tr>
<td></td>
<td>F. Mageloniida</td>
<td>F. Polyodontida</td>
<td>F. Sabellariida</td>
</tr>
<tr>
<td></td>
<td>F. Trochochaetida</td>
<td>F. Pholoidalida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td>6. O. CAPTELLIDA</td>
<td>F. Poecilochaetida</td>
<td>F. Eulepethida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td></td>
<td>F. Heteropodida</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td></td>
<td>SO. Chaetopteriformia</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td></td>
<td>F. Cirratuliformia</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td></td>
<td>F. Cirratulida</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td></td>
<td>F. Acrocririda</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td>7. O. OPHELIDIDA</td>
<td>SO. Aphroditiformia</td>
<td>F. Sigalionida</td>
<td>16. O. TEREPELLIDA</td>
</tr>
<tr>
<td></td>
<td>F. Aphroditida</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td>8. O. PHYLLODOCIDA</td>
<td>SO. Phyllodociformia</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td></td>
<td>F. Phyllodocida</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td>9. O. AMPHINOMIDA</td>
<td>F. Polyhymenida</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td></td>
<td>F. Polyodontida</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td>10. O. SPINHERIDIA</td>
<td>F. Alcopedida</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td></td>
<td>F. Alcopedida</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td>11. O. EUNICIDA</td>
<td>F. P. Eunicea</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td></td>
<td>F. Onuphida</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td>12. O. STERNASPIDA</td>
<td>F. Eunicea</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td></td>
<td>F. Onciferae</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td>13. O. OWENIDAE</td>
<td>F. Eunicida</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td></td>
<td>F. Onciferae</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td>14. O. FLABELLIGERIDA</td>
<td>F. Eunicida</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
<tr>
<td></td>
<td>F. Onciferae</td>
<td>F. Sigalionida</td>
<td>F. Sabellida</td>
</tr>
</tbody>
</table>

All known taxa to the generic level have been defined. Some taxa can be characterized by a single unique structure. The absence of this structure in all other taxa at that level has been left unstated to save space.

Preferably, keys should have been made first to order and within each order, to family. For several reasons, this approach was abandoned. Identification of orders may be possible only after a detailed anatomical study; the orders are justifiable scientifically, but rather difficult in practical taxonomic work, as mentioned above. The general approach to keys taken here is that they are tools to make it possible to identify the taxa swiftly and easily and with as little damage to the specimens as possible. For that reason one master key to families is proposed. Furthermore, all keys were made reversible. If one has a fairly good idea of what kind of animal one has at hand from an illustration or otherwise, one can work backwards into the key to check the identification. The keys were made strictly dichotomous; trick wording was avoided. However, as in all other keys, the usage of adjectives and adverbs is rather different from common English usage. The family key was intended to discriminate between specimens that had lost deciduous features such as branchiae or antennae, etc., in addition to complete specimens. Because of this and because of the general variability of key features within each family, several families key out at different points.

The generic keys are dependent on the presence of deciduous features. Most of these keys are short enough to allow scanning of the total key for necessary corrections if such features have been lost.

Under all circumstances, identifications made through the key should be checked by using the definitions of genera given. Introduction of a genus into the faunal lists should not be attempted based on identifications made through the keys in this paper. For publication purposes, the original literature must be consulted. A name erroneously introduced in the literature for any area is in practice indelible. Sloppiness has been the cause of many errors in the polychaete literature than all other causes combined.

The keys and definitions given are wholly inadequate as a base for description of new genera, especially in the larger families. The keys are intended as aids in getting a first approximation in identification. Once achieved, a series of very valuable regional handbooks are available. Such include Ushakov (1955a and 1972), Hartmann-Schröder (1971), Hartman (1968, 1969), Imajima and Hartman (1964), Fauvel (1953), Day (1967) and Banse and Hobson (1974). Older, but
still indispensable are the handbooks by Fauvel (1923a, 1927), Friedrich (1938) and Berkeley and Berkeley (1948, 1952). These books can be used for a second approximation to the identificatory problems. However, before publication, the original research papers must be consulted.

The review below is separated into several distinct parts. The family key is followed by an order by order review of all the families. For each family, a definition may be followed by a brief note, especially noting features useful in field identification. Major recent reviews are also mentioned at this point. Then comes a key to genera and definitions of all contained genera; followed by taxonomic notes. These explain new taxonomic combinations and taxa and specific positions taken in this paper. The type-species is named for all genera and an approximate number of species is given. Finally, a list of invalid genera has been added.

Illustrations are given for one member of each family: as much as possible, identification features have been illustrated.

A glossary contains most of the terms used, except those in general usage in invertebrate zoology; where necessary, small line drawings have been added to the glossary to illustrate idiomatic usage, etc.

The literature cited contains references to the original descriptions of all genera listed, except the invalid ones and to major revisions and handbooks.

It should be noted that this paper contains little that is wholly new; in most cases I have followed the most recent major revision of any family, or followed clues indicated by revisions currently under way. It is hoped that this compilation of information may make it simpler to get more complete revisions made for each family where needed. However, such a revision must be based on materials, not on descriptions. A major revision is a long and very laborious process, but must be undertaken; it is wholly unsatisfactory to base such revisions on previous descriptions only, since interpretation of descriptions frequently is dependent on poorly understood and used terminology; a fact that frequently has obscured close similarities in structure (cfr. Fauchald and Belman 1972; Blake 1975).

Ultimately, one would hope that by organizing and defining each known taxon as clearly as possible, it will be easier to debate the classification and phylogeny of polychaetes sensibly; as stated by Clark (1969), the polychaetes do present an intractable problem of phylogeny for the time being.

**ORDERS OF POLYCHAETES**

The following polychaete orders are recognized: ORBINIIA, CTENODRILIDA, PSAMMODRILIDA, COSSURIDA, SPIONIDA, CAPITELLIDA, OPHELHIDA, PHYLLODOCIDA, AMPHINOMIDA, SPINThERIDA, EUNICIDA, STERNASPIDA, OWENI DA, FLABELLIGERIDA, FAUVELIOPGIDA, TEREBELLIDA, SABELLIDA.

Members of the old order ERRANTIA are separated into three orders, PHYLLODOCIDA, by far the largest with most of the well-known families, AMPHINOMIDA and EUNICIDA. In addition, the small ecto-parasitic spintherids have been assigned to their own order.

The bulk of the recognized orders thus comes from the old collective group (or order) SEDENTARIA. This group was never adequately defined, because two very disparate subgroups had to be included; the highly modified species now included in the orders STERNASPIDA, OWENIIA, FLABELLIGERIDA, TEREBELLIDA and SABELLIDA, and the simple-bodied forms now included in the orders ORBINIIA, CTENODRILIDA, PSAMMODRILIDA, COSSURIDA, SPIONIDA, CAPITELLIDA and OPHELHIDA. The latter seven orders contain structurally rather simple forms, but this should be taken to indicate that the orders for that reason are related closely to each other. These forms are about as far apart as any other grouping of polychaetes that might be proposed, judging from differences in tagmatization, parapodial development and setal distribution. They could have been included under the old concept DRILOMORPHA (cfr. Uschakov 1955a, Dales 1962; Clark 1969), but defining this concept would have been very nearly impossible. The approach taken here, was that major different body constructions were given the rank of order and that modifications on these major body plans were given familial rank. Intermediate taxa were employed only where appropriate.

### KEY TO FAMILIES

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
<th>Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a.</td>
<td>External segmentation and setae absent</td>
<td>2</td>
</tr>
<tr>
<td>1b.</td>
<td>External segmentation and/or setae present</td>
<td>4</td>
</tr>
<tr>
<td>2a (1a)</td>
<td>Paired antennae on the prostomium</td>
<td>3</td>
</tr>
<tr>
<td>2b (1a)</td>
<td>Paired antennae absent; tactile hairs along the body; small interstitial forms</td>
<td>DINOPHILIDAE</td>
</tr>
<tr>
<td>3a (2a)</td>
<td>Body long and slender; interstitial forms</td>
<td>PROTODRILIDAE</td>
</tr>
<tr>
<td>3b (2a)</td>
<td>Body short and saclike, pelagic</td>
<td>(in part) POEOBIIDAE</td>
</tr>
<tr>
<td>4a (1b)</td>
<td>Body a flattened disc with indistinct segmentation; ectoparasitic</td>
<td>SPINThERIDAE</td>
</tr>
<tr>
<td>4b (lb).</td>
<td>Body not a flattened disc; segmentation usually distinct, if indistinct, then body clearly longer than wide</td>
<td></td>
</tr>
<tr>
<td>5a (4b).</td>
<td>Dorsum with series of elytrae (scales) or distinct elytral scars present at the dorsal side of notopodial bases in several segments; felt of matted notosetae may be present</td>
<td></td>
</tr>
<tr>
<td>5b (4b).</td>
<td>Dorsum without elytrae, elytral scars or felt</td>
<td></td>
</tr>
<tr>
<td>6a (5a).</td>
<td>Neuracbuca distally hammer-headed</td>
<td></td>
</tr>
<tr>
<td>6b (5a).</td>
<td>Neuracbuca distally pointed</td>
<td></td>
</tr>
<tr>
<td>7a (6b).</td>
<td>Prostomium with a single median antenna; dorsum with felt, or notosetae harpoon-shaped or held erect over the dorsum</td>
<td></td>
</tr>
<tr>
<td>7b (6b).</td>
<td>Prostomium with one to three antennae; dorsum without felt; notosetae usually distinctly lateral in position, never harpoon-shaped</td>
<td></td>
</tr>
<tr>
<td>8a (7b).</td>
<td>Neurosetae composite</td>
<td></td>
</tr>
<tr>
<td>8b (7b).</td>
<td>Neurosetae simple</td>
<td></td>
</tr>
<tr>
<td>9a (8a).</td>
<td>All posterior segments with elytra; prostomium with one to three antennae</td>
<td></td>
</tr>
<tr>
<td>9b (8a).</td>
<td>Elytrae alternate with dorsal cirri along the whole length of the body; one antenna present</td>
<td></td>
</tr>
<tr>
<td>10a (8b).</td>
<td>Spinning glands present; median antenna, if present, attached near the posterior or middle of the prostomium; notosetae absent</td>
<td></td>
</tr>
<tr>
<td>10b (8b).</td>
<td>Spinning glands absent; median antenna attached at the anterior margin of the prostomium; notosetae usually present</td>
<td></td>
</tr>
<tr>
<td>11a (5b).</td>
<td>Notopodia with expanded, golden or brassy setae that more or less cover the dorsum</td>
<td></td>
</tr>
<tr>
<td>11b (5b).</td>
<td>Notosetae otherwise (may be absent)</td>
<td></td>
</tr>
<tr>
<td>12a (11a).</td>
<td>Prostomium with large facial tubercle and a median antenna; notosetae in rosettes</td>
<td></td>
</tr>
<tr>
<td>12b (11a).</td>
<td>Prostomium without a facial tubercle; paired lateral and a median antenna present; notosetae in transverse rows</td>
<td></td>
</tr>
<tr>
<td>13a (11b).</td>
<td>Posterior end covered ventrally by a chitinous shield</td>
<td></td>
</tr>
<tr>
<td>13b (11b).</td>
<td>Posterior end not covered by a shield</td>
<td></td>
</tr>
<tr>
<td>14a (13b).</td>
<td>Prostomium completely retracted between the first parapodia which have three pairs of tentacular cirri, partially supported by acicula</td>
<td></td>
</tr>
<tr>
<td>14b (13b).</td>
<td>Prostomium not completely retracted between the first parapodia which are otherwise equipped</td>
<td></td>
</tr>
<tr>
<td>15a (14b).</td>
<td>Anterior end with one or several series of long, specialized setae either covering the retractable anterior end or forming an operculum or a series of long protective spines (paleae)</td>
<td></td>
</tr>
<tr>
<td>15b (14b).</td>
<td>Anterior end without exceptionally long, specialized setae (NOTE: Short, strong hooks may be present)</td>
<td></td>
</tr>
<tr>
<td>16a (15a).</td>
<td>Specialized setae long and chambered, forming a protective cage around the retractable anterior end; body with numerous epithelial papillae</td>
<td></td>
</tr>
<tr>
<td>16b (15a).</td>
<td>Specialized anterior setae do not form a protective cage; anterior end not retractable; skin-papillae few and small, or absent; setae otherwise</td>
<td></td>
</tr>
<tr>
<td>17a (16b).</td>
<td>Specialized setae slender, distally curved, often spinous; prostomium with seven antennae</td>
<td></td>
</tr>
<tr>
<td>17b (16b).</td>
<td>Specialized setae stout, smooth and not distally curved; prostomium without appendages or with numerous tentacles</td>
<td></td>
</tr>
<tr>
<td>18a (17b).</td>
<td>Specialized setae in a transverse row; tube conical, usually formed of closely fitted sand-grains</td>
<td></td>
</tr>
<tr>
<td>18b (17b).</td>
<td>Specialized anterior setae either as a fan-shaped group of paleae on either side of the anterior end or as an operculum to the tube</td>
<td></td>
</tr>
<tr>
<td>19a (18b).</td>
<td>Specialized setae form paleae; anterior end with two to four pairs of branchiae</td>
<td></td>
</tr>
<tr>
<td>19b (18b).</td>
<td>Specialized setae form an operculum; anterior end without branchiae</td>
<td></td>
</tr>
<tr>
<td>20a (15b).</td>
<td>Anterior end, including in part the prostomium, transformed into a tentacular crown</td>
<td></td>
</tr>
<tr>
<td>20b (15b).</td>
<td>Anterior end not transformed into a tentacular crown (NOTE: Antennae and tentacular cirri may be crowded near the anterior end)</td>
<td></td>
</tr>
<tr>
<td>21a (20a).</td>
<td>Tube calcareous; thoracic membrane present</td>
<td></td>
</tr>
<tr>
<td>21b (20a).</td>
<td>Tube mucoid or horny, often covered with sand-grains; thoracal membrane absent</td>
<td></td>
</tr>
<tr>
<td>22a (21a).</td>
<td>Tube irregularly twisted or straight, sometimes coiled near base; body symmetrical; more than four thoracic setigers</td>
<td></td>
</tr>
</tbody>
</table>
THE POLYCHAETE WORMS

1976

22b (21a). Tube completely coiled; body asymmetrical; four thoracic setigers present

SPIORORBIDAE

(Usually considered a sub-family of the SERPULIDAE)

23a (21b). Parapodia with uncini in one or a few distinct rows; tentacular crown with smooth or pennate radiules

24

23b (21b). Small uncini massed in dense fields in the neuropodia only; short tentacular crown with branching tentacles

OWENIIDAE (part)

24a (23a). Digestive tract recurved with anus far anteriorly; thorax without hooks except in the first setiger

CAOBANGIIDAE

24b (23a). Digestive tract straight with far posterior or terminal anus; thorax with hooks in most setigers

SABELLIDA

25a (20b). Setiger 4 with one or a few thick spines; some median parapodia strongly modified, usually fan-shaped; tubes parchmentlike, or, if horny, distinctly annulated

CHAETOPODERIDAE

25b (20b). Setiger 4 without thick spines (NOTE: Other setigers may have modified setae); no parapodia fan-shaped; tubes never parchmentlike, if horny, then without annotations

26

26a (25b). Numerous tentacles on the lower side of the prostomium or on the peristomium; branchiae, if present, limited to a few pairs of anterior setigers

27

26b (25b). Anterior end with a limited (10 or fewer pairs, usually) number of antennae and tentacular cirri, or without appendages

29

27a (26a). Branchiae in a transverse or oblique row or grouped in two groups on either side of the anterior dorsum, usually digitiform and smooth, more rarely bipinnate or lamellate (NOTE: Branchiae are often lost, but scars remain); buccal tentacles retractable; uncini with teeth in one or a few rows

AMPHARETIDAE (part)

27b (26a). Branchiae, if present, on two-three successive segments, stalked or sessile, branched or as numerous filaments, rarely smooth; buccal tentacles non-retractable; uncini with several teeth in one or more transverse rows above the main fang (crested)

28

28a (27b). Thoracic uncini long-handled, abdominal ones short-handled

TRICHOBRANCHIDAE

28b (27b). Both thoracic and abdominal uncini short-handled; sometimes with a posterior prolongation in thoracic uncini

TEREBELLIDAE

29a (26b). Prostomium with at least one pair of antennae; peristomium usually with paired palps or tentacular cirri

30

29b (26b). Prostomium without appendages or with a single antenna; peristomium with paired dorsal palps, maximally two pairs of tentacular cirri or without appendages

58

30a (29a). Prostomium continued posteriorly in a caruncle; large notosetae furcate; others smooth or serrated.

31

30b (29a). Caruncle absent; furcate notosetae, if present, small, or furcate setae only kind of setae present.

32

31a (30a). Notosetae arranged in transverse rows on dorsum; branchiae shorter than setae.

EUPHROSINIDAE

31b (30a). Notosetae in tufts on the notopodial lobes; branchiae conspicuous branching tufts

AMPHINOMIDAE

32a (30b). Palps absent

33

32b (30b). Palps present, sometimes as ventrolateral pads on the peristomium or fused to the anterior end of the prostomium so that the latter appear cleft, but usually free and digitate

49

33a (32a). Setae absent; acicula present only in the prolonged acicular lobes of the second segment (first segment in juveniles); otherwise absent

TOMOPTERIDAE

33b (32a). Setae or acicula or both present in most segments

34

34a (33b). Prostomium long and conical; usually annulated, with two pairs of antennae at the tip

35

34b (33b). Prostomium no more than twice as long as wide, never annulated; antennae long or short

36

35a (34a). Eversible pharynx with four jaws in a cross; parapodia either all uniramous or all biramous

GLYCERIDAE

35b (34a). Eversible pharynx with more than four jaws; parapodia uniramous anteriorly and biramous posteriorly

GONIADIDAE

36a (34b). Jaws present

37

36b (34b). Jaws absent

40

37a (36a). Each jaws consisting of a series of denticles in a row

DORVILLEIDAE (part)

37b (36a). Each jaw consisting of a single piece

38

38a (37b). Four or five pairs of jaws

LYSARETIDAE

38b (37b). A single pair of jaws present

39

39a (38b). Both composite and simple setae present, parasitic in decapod crustaceans

IPHITIMIDAE

39b (38b). All setae composite, parasitic in fish

ICHTHYOTOMIDAE
40a (38b). One pair of antennae; interstitial forms

40b (36b). More than one pair of antennae

41a (40b). Eyes larger than the rest of the prostomium, with well-defined lenses and pigment layers

41b (40b). Eyes, if present, smaller than the prostomium proper, usually small pigment cups, but lensed eyes occur

42a (41b). Series of large epithelial capsules on the dorsum; two or three pairs of lateral antennae and one median, unpaired antenna

42b (41b). Epithelial capsules absent (NOTE: Dorsal cirri of phyllodocids may be inflated, but are associated with the parapodia rather than situated on the dorsum)

43a (42b). Dorsal cirri large and foliose

43b (42b). Dorsal cirri, if present, cirriform

44a (43b). Setae absent; with a few pairs of appendages anteriorly and posteriorly, parasitic in lobsters

44b (43b). Setae present; several pairs of appendages along the body

45a (44b). All setae composite, pelagic

45b (44b). At least some setae simple, benthic or parasitic forms

46a (45b). With ciliary bands on the dorsum of each segment in addition to a large ciliary organ on the prostomium; minute interstitial forms

46b (45b). External ciliation limited mostly to small patches in sensory and respiratory organs, small or large forms

47a (46b). Five prostomial antennae, inquilines in bivalved mollusks

47b (46b). Four antennae, free-living benthic forms

48a (47b). Interramal cirri between the noto- and neuropodia in most forms, all setae simple

48b (47b). Interramal cirri absent; notosetae simple, neurosetae composite

49a (32b). Palps bi- or multiarticulated

49b (32b). Palps simple, sometimes fused to the prostomium so the latter appears cleft or forming ventrolateral pads on the peristomium

50a (49a). Palps multiarticulated; tentacular cirri absent

50b (49a). Palps biarticulated; at least one pair of tentacular cirri

51a (50b). Pharynx with paired jaws; paragnaths or soft papillae or both on the surface of the everted pharynx or pharynx smooth, parapodia usually biramous

51b (50b). Pharynx usually without jaws; paragnaths or pharyngeal papillae always absent; everted pharynx often with a cleft of distal papillae or lappets, parapodia often sub-biramous or uniramous

52a (49b). Palps ventrolateral pads on the peristomium; five occipital and two frontal antennae

52b (49b). Palps either fused anteriorly to the prostomium or as free ventrolateral projections; maximally five antennae

53a (52b). Palps free ventrolateral projections, sometimes fused to each other

53b (52b). Palps fused to the prostomium so that the latter appears anteriorly cleft

54a (53a). Prostomium longer than wide, with a pair of antennae at the tip

54b (53a). Prostomium no longer than wide (NOTE: Fused palps may make it appear longer than it is)

55a (54b). Jaws present

55b (54b). Jaws absent

56a (53b). Parapodia strongly prolonged, with long supportive acicula; anterior part of the digestive tract not visibly separated into distinct parts, pelagic

56b (53b). Parapodia not strongly prolonged; acicula short; anterior part of the digestive tract with a visible proventriculus in most species

57a (53b). Eversible pharynx, if present, unarmed

57b (53b). Eversible pharynx with four pairs of upper and one pair of lower jaws

58a (29b). Anterior end, including both pro- and peristomium without appendages (NOTE: Appendages may be present on some anterior setigers)

58b (29b). Prostomium with a single median antenna, or peristomium with paired palps or tentacular cirri or both pro- and peristomium equipped as indicated

59a (58a). Paired palps on the first or one of the first postperistomial segments

59b (58a). Paired palps absent
1976

THE POLYCHAETE WORMS

60a (59a). Both composite falcigers and simple setae present

60b (59b). All setae simple, distally curved or straight, sometimes acicular

61a (59b). With a single mid-dorsal palp on one of the first setigers (setigers 3-6 usually) ... COSSURIDAE

61b (59b). Mid-dorsal palp absent

62a (61b). With series of long, slender branchial filaments and tentacular and dorsal cirri along the body (often lost, scars remain) ... CIRRATULIDAE (part)

62b (61b). Branchial filaments and tentacular cirri absent or limited to a few segments

63a (62b). Parapodia strongly reduced so that the setae appear sessile on the body-wall; all setae simple, true capillary setae absent

63b (62b). Parapodia usually well developed or at least present as low folds; setae usually of several different kinds, including in most cases true capillary setae

64a (63a). Thorax with series of long dorsal cirri supported by acicula

64b (63a). Body usually not clearly regionated; apart from papillae and reduced parapodia, other appendages absent

65a (64b). At least some setae with an internal structure of small chambers

65b (64b). No setae chambered

66a (65b). With a papilla between the rami of each parapodium; setae smooth and slightly recurved

66b (64b). Without papillae between the rami; setae otherwise

67a (66b). Setae in four fascicles on each segment (biramous condition)

67b (66b). Setae in two fascicles on each segment (uniramous condition)

68a (63b). Prostomium an oblique plaque, usually bordered by a flange

68b (63b). Prostomium pointed, rounded or blunt

69a (68a). Setae include anterior spines, rostrate long-shafted uncini and spinose or smooth capillaries; segments usually elongated (bamboo-worms)

69b (68a). Setae include biliminate and spatulate kinds, long-handled uncini and companion-setae; segments not prolonged

70a (68b). Body separated into two regions with different kinds of setae in a thoracic and abdominal region (NOTE: Regions may sometimes also be definable on parapodial features)

70b (68b). Body not separated into regions; setal distribution and parapodial shapes grade along the body

71a (70a). Thorax with lateral parapodia, abdomen with both noto- and neuropodia in dorsal positions

71b (70a). Parapodia lateral in all parts of the body; notopodia often reduced in posterior segments and neuropodia may form nearly complete cinctures

72a (71b). Slender capillary setae in thorax and sometimes in the first few abdominal segments only; branchiae, if present, retractable filaments on the abdomen

72b (71b). Slender capillary setae present on anterior, median and sometimes posterior parts of the body, including the branchial region; branchiae non-retractable, bushy or simple filaments

73a (70b). Anterior end with complex jaw-apparatus

73b (70b). Jaw-apparatus absent

74a (73a). Each jaw consisting of a series of small denticles

74b (73a). Each jaw consisting of a single piece

75a (74b). Hooded hooks present in at least some setigers; one pair of maxillary carriers

75b (74b). Hooded hooks absent; three maxillary carriers

76a (73b). Branchiae present on maximally 15-20 segments, starting from one of setigers 4-10

76b (73b). Branchiae, if present, either limited to the extreme anterior end, or found scattered over a large part of the body

77a (76b). Setae include anterior spines, rostrate long-shafted uncini and spinose or smooth capillaries; segments usually elongated (bamboo-worms)

77b (76b). Setal distribution otherwise; segments rarely elongated

78a (77b). Setae include simple capillaries and simple bifid falcigers in both noto- and neuropodia in a long region of the body

78b (77b). Simple bifid falcigers absent

79a (78b). Prostomium an elongated cone, usually more than twice as long as wide, nearly always articulated
79b (78b). Prostomium less than twice as long as wide, may be bluntly conical, rounded or truncate, never articulated

80a (79a). Eversible pharynx with four jaws; parapodia either all uniramous or all biramous

80b (79a). Eversible pharynx with more than four jaws; anterior parapodia uniramous, posterior ones biramous

GLYCERIDAE (part)

81a (79b). Parapodia rounded lobes with large, easily dehiscent cirri; pelagic

TYPHLOSCOLECIDA

81b (79b). Parapodia low folds or blunt, button-shaped projections; cirri, if present, cirriform

ACROCIRRIDAE (part)

82a (81 b). Composite falcigers present in anterior setigers

82b (81 b). All setae simple

83a (82b). Neurosetae uncinial in structure

83b (82b). Uncini absent

84a (83b). All setae simple capillaries; branchiae cirriform, pectinate or absent; prostomium entire, pointed or rounded

84b (83b). Furcate and acicular setae usually present; branchiae, if present, limited to the anterior end and strongly arborescent; prostomium T-shaped or bifid

SCALIBREGMIDA

85a (58b). Prostomium with a median antenna

85b (58b). Prostomium without appendages

86a (58a). Branchiae present on maximally 15-20 segments first starting from one of setigers 4-10

86b (58a). Branchial distribution otherwise or branchiae absent

87a (58b). Notopodial cirri flask-shaped in some setigers, plumose setae absent

POECILOCHAETIDAE

87b (58b). Notopodial cirri cirriform or folioid, plumose setae present

SPIONIDA

88a (58a). With two pairs of tentacular cirri; setae composite

88b (58b). Without tentacular cirri; setae simple

89a (88a). Setal appendages long and slender; pelagic

IOSPILIDAE

89b (88a). Setal appendages short; parasitic

CALAMYZIDAE

90a (88b). With multiple series of small, long-shafted uncini in the neuropodia

OWENIIIDAE (part)

90b (88b). Uncini in single rows or absent

91a (90a). Prostomium flattened and spatulate; as wide as the widest part of the body

MAGELONIDAE

91b (90b). Prostomium not flattened; distinctly narrower than the widest part of the body

HETEROSPIONIDAE

92a (91a). Parapodia inconspicuous; abdominal segments prolonged with setae forming complete cinctures around the body

92b (91b). Parapodia well developed; abdominal segments usually not prolonged; setae limited to lateral tufts

93a (92b). All parapodia biramous, except possibly the first one

93b (92b). Median parapodia uniramous

TROCHOCHAETIDAE

94a (93b). Uncini absent; notopodia with acicula, but without setae; true branchiae absent

APISTOBRANCHIDAE

94b (93b). Uncini normally present, at least in the neuropodia; notopodia with setae in addition to acicula; branchiae present or absent

95a (94a). With two pairs of tentacular cirri; setae simple

95b (94b). Without tentacular cirri; setae simple

ORDER ORBINIIDA

Prostomium without appendages; maximally two setigerous anterior segments present; no additional cephalized segments present. Palps absent; eversible pharynx either an axial sac or a ventrolateral pad. Parapodia biramous; all setae simple, including capillary setae and usually acicular spines and serrated or spinose setae.

FAMILY ORBINIIDAE HARTMAN 1942

Orbiniida with lateral parapodia in a thoracic region and, usually, dorsal parapodia in an abdominal region.

Prostomium without appendages, one or two setigerous segments present anteriorly; no peristomial appendages. A saclike proboscis present. All setae simple, including capillaries, simple hooks and sometimes brush-topped, bifid or furcate setae.

The orbiniids have been the subject of several comprehensive studies, including Hartman (1957), Pettibone (1957a) and Day (1973). The major generic groupings appear clear and were reviewed by Day (1973) for the subfamily Orbiniinae. The subfamily Protoariciinae has yet to be reviewed in detail.
FIGURE 2. (A), Family ORBINIIDAE, *Orthinia johnsoni*, anterior end, after Hartman 1969, 5x; (B), transverse section of the abdomen of the above, 18x; (C), Family PARAONIDAE, *Cirrophores sp.*, anterior end, diagrammatic, about 22x; (D), Family QUESTIDAE, *Questa caudicirra*, posterior seta, after Hartman 1966, 54x; (E) anterior end of the above, 24x.

### KEY TO GENERA

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<tr>
<td>1a</td>
<td>Two asetigerous anterior segments</td>
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<td>1b</td>
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<td>Orbiniella</td>
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<td>2b (1a)</td>
<td>Branchiae absent</td>
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<td>3a (2b)</td>
<td>Branchiae present</td>
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<td>3b (2b)</td>
<td>Branchiae present on all but a few anterior segments</td>
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<td>4a (3b)</td>
<td>Branchiae limited to abdominal segments</td>
<td>Protoariciella</td>
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<td>4b (3b)</td>
<td>Only crenulated capillaries present</td>
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<td>5b (3b)</td>
<td>Crenulated capillaries and other kinds of setae present</td>
<td>Scoloplella</td>
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<td>5a (4b)</td>
<td>Abdominal neurosetae include swan-shaped hooks</td>
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<td>5b (4b)</td>
<td>Swan-shaped hooks absent</td>
<td>Proscoplos</td>
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<td>6a (5b)</td>
<td>Abdominal neurosetae all crenulated capillaries; prostomium rounded</td>
<td>Protoaricia</td>
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<td>6b (5b)</td>
<td>Abdominal neurosetae include acicular hooks; prostomium pointed</td>
<td>Schroederella</td>
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<td>7a (1b)</td>
<td>Branchiae absent</td>
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<td>7b (1b)</td>
<td>Branchiae present on at least some segments</td>
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<td>8a (7b)</td>
<td>Prostomium rounded or truncate</td>
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<td>8b (7b)</td>
<td>Prostomium more or less pointed</td>
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<td>9a (8b)</td>
<td>All thoracic parapodia with only slender, pointed setae</td>
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<tr>
<td>9b (8b)</td>
<td>Some thoracic neuropodia with setae of another kind</td>
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<td>10a (9a)</td>
<td>Abdominal neuropodia with acicular spines</td>
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I 1a (10b). Thoracic neuropodia of two abruptly different kinds
12b (11a). Posterior thoracic neuropodia with thick, modified spines associated with a glandular pouch. Phyllo
13a (11b). Some thoracic segments with rows of papillae along the ventrum, papillae sometimes also on parapodial postsetal ridges
13b (11b). Without rows of papillae on the ventrum
14a (13b). Median and posterior abdominal neuropodia with thick acicula, projecting from the parapodial lobes; branchiae usually present from fifth or sixth segment Scoloplos (Leodamas)
14b (13b). Thick projecting acicula absent; branchiae usually not present before tenth segment

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**Generic Definitions**


ORBINIINAE with pointed prostomium, abdominal branchiae and all thoracic setae crenulated capillaries. Twelve thoracic segments; transition from thorax to abdomen abrupt. Abdominal notopodia with crenulated capillaries and furcate setae; abdominal neuropodia with crenulated capillaries and acicular spines.


ORBINIINAE with pointed prostomium, branchiae not present before segment 8; posterior thoracic neuropodia with two or fewer papillae; ventral papillae absent. Thoracic neurosetae include anterior brush-topped setae, crenulated capillaries and in some cases blunt hooks.


ORBINIINAE with pointed prostomium, branchiae not present before setiger 9; posterior thoracic neuropodia with two papillae and maximally two ventral papillae; never more than four papillae combined. All neurosetae crenulated capillaries; notosetae crenulated capillaries and in some cases furcate setae.

Microrbinia Hartman 1965, *M. linea* Hartman 1965; only species.

ORBINIINAE with conical prostomium; branchiae and accessory papillae absent. Separation between thorax and abdomen indistinct. First notosetae smooth capillaries; other notosetae camered capillaries and posterior notosetae curved and serrated acicular spines. Neurosetae similar.

Naimeris Blainville 1828, *Nais quadricuspida* Fabricius 1780; 18 species.

ORBINIINAE with rounded or truncate prostomium, branchiae first present from any segment from 2-23. Maximally two accessory papillae on posterior parapodia, ventral papillae absent. Thoracic neurosetae include crenulated capillaries, hooks and intermediate forms. Abdominal notosetae crenulated capillaries and sometimes furcate setae.


ORBINIINAE with pointed prostomium and first pair of branchiae on setiger 5-9. Posterior thoracic parapodia with several accessory papillae and numerous ventral papillae; with a combined total of at least five papillae on each segment. Thoracic neurosetae include hooks (or subuluncini) and crenulated capillaries. Furcate and capillary setae present in abdominal notopodia.


PROTOARICIINAE with rounded or pointed prostomium and without branchiae. Thoracic setae all camered or crenulated capillaries; abdominal setae include crenulated capillaries, acicular setae and sometimes furcate setae.

Phyllo Kinberg 1866b, *P. felix* Kinberg 1866b; 19 species.

ORBINIINAE with pointed prostomium and branchiae first present from setiger 5-7. Posterior thoracic parapodia with several accessory papillae and numerous ventral papillae present. At least five papillae in combined total present on a segment. Thoracic neurosetae include crenulated capillaries, heavy hooks and heavy spear-shaped setae.


PROTOARICIINAE with rounded prostomium and stout branchiae present from setiger 8. Transition from thorax to abdomen indistinct. Setae include crenulated capillaries and one or two swan-shaped hooks in posterior neuropodia.

Protoaricia Czerniavsky 1881a, *Aricia oerstedii* Claparede 1864; 2 species.

PROTOARICIINAE with rounded prostomium and branchiae limited to abdominal segments. Thoracic
neurosetae include crenulated capillaries, hooks and subuluncini; abdominal neurosetae all crenulated capillaries.


PROTOARIICINAE with pointed prostomium and branchiae present on all but a few anterior segments (from setiger 3 in type species). Thoracic notosetae all are crenulated capillaries; acicular setae present in posterior notopodia. Neurosetae include thick hooks with three teeth; slender acicular setae with flat teeth, crenulated capillaries and thick smooth spines in posterior segments.


PROTOARIICINAE with strongly pointed prostomium and branchiae present on the abdomen. Notosetae include crenulated capillaries and acicular spines in far posterior segments. Neurosetae include crenulated capillaries and acicular hooks.

*Scolopella* Day 1963, *S. capensis* Day 1963; only species.

PROTOARIICINAE with pointed prostomium and branchiae present on the abdomen. All setae crenulated capillaries.

*Scoloplos* Blainville 1828, *Lumbricus armiger* O.F. Muller 1776; 38 species.

ORBINIINAE with pointed prostomium and branchiae first present from setiger 5 or later. Accessory papillae never exceeding four, including both ventral and parapodial kinds. Thoracic neurosetae include blunt hooks and crenulated capillaries (may be absent). Abdominal notosetae include crenulated capillaries, furcate setae and spines.

Subgenus *Scoloplos*: Species with first branchiae on setigers 8-10 or later; without emerging notacicula in posterior setigers.

Subgenus *Leodamas*: Species with first branchiae on setiger 5-6; with heavy emerging notacicula in posterior setigers.

Invalid Genera

*Alcandra* Kinberg 1866b, see *Scoloplos* (Leodamas)

*Anthostoma* Schmarda 1861, see *Naineris*

*Aricia* Savigny 1820, see *Orbinia*

*Branchetus* Chamberlin 1919c, see *Scoloplos* (Leodamas)

*Chytie* Grube 1855, indeterminable

*Cisela* Muller 1858, indeterminable

*Labotas* Kinberg 1866b, see *Scoloplos*

*Lacydes* Kinberg 1866b, see *Naineris*

*Naidonereis* Malin gren 1867, error for *Naineris*

*Theodisca* Muller 1858, see *Naineris*

*Theostoma* Eisig 1914, see *Protoaricia*

*Venadis* Castelnau 1842, see *Orbinia*

Incertae Sedis


Resembles the orbiniids in setal structures, but appears to differ in other features. Prostomium a simple triangular lobe; two asetigerous segments present. Parapodia biramous with very strongly reduced parapodial lobes. Notosetae all slender and camerated; most neurosetae similar, but shorter; in addition heavy acicular spines present in posterior neuropodia.

FAMILY PARAONIDAE CERRUTI 1909

Body long and slender with lateral parapodia. Prostomium with a single antenna or antennae absent. Branchiae present on a limited number of median setigers in most species. All setae simple, including capillaries and various, usually postbranchial, hooks or otherwise modified setae.

The key given below is based on the important revision by Strelzov (1973); some features are taken from Fauchald (1972). Strelzov recognized only two genera with prostomial antennae. *Cirrophorus* and *Aricidea*: the latter with a series of subgenera; these subgenera are here considered distinct genera.

**Key to Genera**

1a. Setae present from the first segment

1b. Setae present from the second segment

2a (1b). Modified setae notopodial

2b (1b). Modified setae, if present, neuropodial

3a (2b). Prostomium with a median antenna

3b (2b). Prostomium without a median antenna

4a (3a). Modified setae absent

4b (3a). Modified setae present

5a (4b). Modified setae either pseudocomposite or curved with a subterminal arista on concave side of the shaft

Apaionis

Cirrophorus

Aedicira

Aricidea
### Generic Definitions

- Median antenna present. Modified setae neuropodial; each strongly curved distally, or bifid with several aristae or with a short stiff beard.

**Aedicira** Hartman 1957, *Aricidea Pacifica* Hartman 1944c; only species.
- Median antenna present. All setae slender capillaries; those in the neuropodial fascicles often shorter than the notopodial ones.

- Median antenna present. Modified setae slightly thicker than the non-modified capillary setae; somewhat more abruptly tapering; or tapering abruptly near the middle, giving the outer part of the seta the appearance of a long, smooth arista.

**Aparaonis** Hartman 1965, *A. abyssalis* Hartman 1965; only species.
- Setae present in the first segment; three pairs of branchiae on segments 2-4. All setae simple capillaries.

**Aricidea** Webster 1879b, *A. fragilis* Webster 1879b; 7 species.
- Median antenna present; modified setae either pseudo-composite or recurved with a subterminal arista arising from the concave side of the shaft.

**Cirrophorus** Ehlers 1908, *C. branchiatus* Ehlers 1908; 10 species.
- Median antenna present or absent; modified setae present in the postbranchial notopodial fascicles.

- Nuchal organs on the peristomium; median antenna absent. Modified setae absent.

**Paraonis** Cernuti 1909, *Aonides fulgens* Levinsen 1884; 2 species.
- Nuchal organs prostomial; median antenna absent. Modified setae neuropodial.

**Sabidius** Strelzov 1973, *Paraonis cornatus* Hartman 1965; only species.

- Nuchal organs prostomial; median antenna absent. Modified setae neuropodial. Prostomial terminal sense organs present. More than three prebranchial setigers present.

### Taxonomic Notes

The generic subdivision given above, differs markedly from the more traditional pattern summarized by Fauchald (1972). Strelzov (1973) introduced several new taxonomic characters to the ones previously in common usage. The presence of prostomial ciliary bands, of prostomial terminal sense organs and the localization of the nuchal organs must now be investigated.

Similar characters have been used in other families, and it is anticipated that they will gain acceptance also in the treatment of the paraonids.

### Invalid Genus

**Levinsenia** Mesnil 1897, see *Paraonis*.

Several other genera, such as *Paraonides*, *Paradoneis* and others used in the traditional sub-division of the family, may be invalid. Until the value of Strelzov's system has been tested, I hesitate to treat these genera as invalid.

### FAMILY QUESTIDAE HARMAN 1966a

Body long and slender. Prostomium without appendages. One asetigerous anterior segment present. Pharynx with a muscular pad. Parapodia biramous with reduced lobes. Branchiae and anal cirri present or
absent. Setae include serrated capillaries, bidentate hooks and trifurcate spines.

As remarked by Hobson (1970) the questids have the 
gonads limited to a few segments; this generally is 
considered the key feature separating the oligochaetes

from the polychaetes (Fauchald 1974a). However, the 
questids have several different kinds of setae; a feature 
rarely found among the oligochaetes. It is quite pos-

sible that the family should be considered among the 
oligochaetes.

Key to Genera

la. Setae include capillaries and bidentate hooks; posterior cirriform branchiae present
   Questa

lb. Setae include capillaries, bidentate hooks and trifurcate spines; branchiae absent
   Novaquesta

Generic Definitions

   only species.
   
   Questa Harman 1966a, Q. caudicirra Hartman 1966a;
   only species.
   
   Questids with serrated capillary setae, bidentate 
   hooks and trifurcate spines with the middle tine shorter 
   and slenderer than the other; branchiae and anal cirri 
   absent.

ORDER CTENODRILIDA

Prostomium without appendages; palps absent. At 
least one asetigerous anterior segment present. Pro-
bosics a ventral muscular pad. Parapodia uni- or bi-
ramous; all setae simple. Parapodial lobes absent.

Members of this order are very small, generally 
grub-shaped polychaetes that tend to turn up in mass-
culture in aquaria more frequently than in the field 
(especially true for the ctenodrilids). Specimens of 
Ctenodrilus also have turned up associated with Flab-
belliderma commensalis at Santa Catalina Island and 
have the same dark purple pigmentation on sea urchins 
as these commensals do.

FAMILY CTENODRILIDAE KENNEL 1882

Body short or long, prostomium without appendages, 
palps absent. Pharynx a ventral muscular pad. Some 
anticipant segments may be fused and asetigerous; some 
segments with median dorsal cirri; paired lateral 
branchiae present in some juveniles. Setae in double fascicles; parapodial lobes absent.

This small family of tiny polychaetes recently has 
been reorganized and redefined by Hartmann-Schroder

(1971); it now is divided into two sub-families with 
three genera in all; each with only a few species.

Key to Genera

la. Body short and grublike, with few segments, unpaired dorsal cirri and branchiae absent
   CTENODRILINAE Ctenodrilus

lb. Body long and slender, with at least 15 segments; unpaired dorsal cirri on one or two anterior seg-
   ments or larval branchiae present
   RHAPHIDRILINAE 2

FIGURE 3. (A), Family CTENODRILIDAE, Ctenodrilus ser-
ratus, modified after Hartman 1944, 284x; (B), Family PARER-
GODRILIDAE, Stygocapitella subterranea, after Hattmann-
Schroder 1971, about 300x.
2a (lb). Unpaired dorsal cirri present; branchiae absent
2b (lb). Unpaired dorsal cirri absent; branchiae present

Generic Definitions

Ctenodrilus Claparede 1863, Parthenope cirrata Schmidt 1857; 2 species.
CTENODRILINAE. Body with maximally 15 segments; one achaetous segment present. Setae thick, marginally coarsely dentate or smooth.

Rhaphidrilus Monticelli 1910, R. nemasoma Monticelli 1910; only species.
RHAPHIDRILINAE. Body long and slender, with at least 18 segments; one asetigerous segment present. Setae include capillaries and genital spines in the adult males. Paired branchiae present in the juvenile stages.

Zeppelinia Vaillant 1890, Ctenodrilus monostylos Zeppelin 1883; 5 species.
RHAPHIDRILINAE. Body long and slender, with at least 18 segments; asetigerous segments absent.

Invalid Genera

Monostylos Vejdovsky 1884, see Zeppelinia

Parthenope Schmidt 1857, see Ctenodrilus

FAMILY PARERGODRILIDAE REISINGER 1960

Small, grub-shaped worms with at least one anterior asetigerous segment. Prostomium without appendages; parapodial lobes absent; setae present in single fascicles, each with one or a few setae only. Setae all simple.

The parergodrilids are very small worms, living either interstitially in shallow marine sands (Stygocapitella) or in rotting terrestrial plant material (Parergodrilus). The family is poorly known and understood; the revision by Hartmann-Schröder (1971) is followed here.

Key to Genera

La. Body not translucent, with 10-11 setigers; setae limbate and furcate
lb. Body translucent, 8-9 setigers present; all setae smooth rods

Stygocapitella
Parergodrilus

Parergodrilus Reisinger 1925, P. heiderti Reisinger 1925; only species.
One anterior and no posterior asetigerous segments; eight or nine setigers present. Setae all smooth rods, except copulatory hooks in males.

Stygocapitella Knollner 1934, S. subterranea Knollner 1934; only species.
Two anterior and two posterior asetigerous segments, ten or 11 setigers present. Setae include smooth, short bilimbate setae, smooth bilimbate setae with long, whiplike tips and short furcate setae with two accessory teeth in the crotch.

ORDER PSAMMODRILIDA

Prostomium without appendages, palps absent. At least one asetigerous anterior segment present. Noto-podia in a median region strongly prolonged and supported by acicula. Parapodia biramous; neuropodial tori present in one form, otherwise parapodial lobes absent (except for the cirri mentioned above); all setae simple.

FAMILY PSAMMODRILIDAE SWEDMARK 1952

Small, grub-shaped worms. Pro- and peristomium without appendages; palps absent. Parapodia, except

FIGLa4. (A), Family PSAMMODRILIDAE, Psammmodriloides fanieli after Swedmark 1958, about 50x; (B), Family COSSURIDAE, Cossura brunnea, after Fauchald 1972, 12.5x.
the thoracic dorsal cirri reduced; abdominal neuropodial tori present in one form.

As remarked by Swedmark (1958), these small interstitial worms are very isolated among the polychaetes.

The first form described, *Psammodrilus balanoglossoides* Swedmark, is unique in that the eversible pharynx is formed from the longitudinal body muscles.

### Key to Genera

1a. Dorsal cirri decreasing evenly in length from the first to the sixth thoracic segment; abdominal uncinigers with several uncini

   *Psammodrilus* Swedmark 1952, *P. balanoglossoides* Swedmark 1952; only species.

   Body in three regions: head, pharyngeal region and trunk. Six thoracic setigers with dorsal cirri supported by acicula; up to about thirty abdominal setigers; each with several uncini in each neuropodium. Pharyngeal apparatus present.

1b. Dorsal cirri increasing in length from first to fourth segment; those of segments five and six very short; single uncini present in abdominal neuropodia

   *Psammodriloides* Swedmark 1958, *P. fauvelli* Swedmark 1958; only species.

   Body with two distinct regions: head and trunk; six thoracic setigers, each with a dorsal cirrus supported by an aciculum. Ten abdominal setigers; each with a single uncinus in each neuropodium. Eversible pharynx absent.

### Generic Definitions

*Psammodriloides* Swedmark 1958, *P. fauvelli* Swedmark 1958; only species.

Body with two distinct regions: head and trunk; six thoracic setigers, each with a dorsal cirrus supported by an aciculum. Ten abdominal setigers; each with a single uncinus in each neuropodium. Eversible pharynx absent.

*Psammodrilus* Swedmark 1952, *P. balanoglossoides* Swedmark 1952; only species.

Body in three regions: head, pharyngeal region and trunk. Six thoracic setigers with dorsal cirri supported by acicula; up to about thirty abdominal setigers; each with several uncini in each neuropodium. Pharyngeal apparatus present.

### ORDER COSSURIDA

Prostomium without appendages; a single peristomial asetigerous segment present; a single median palp present on the dorsum of an anterior setiger (usually between setigers 3 and 6). Proboscis a ventral pad. Parapodia biramous, with very low parapodial lobes; all setae simple.

### FAMILY COSSURIDAE (1963)

Prostomium without appendages, a single median palp present dorsally on one anterior setiger; proboscis a ventral pad. Parapodia biramous, with reduced parapodial lobes. All setae simple, including bilimbate or hirsute setae in two or more fascicles; thick spines and capillary setae present in the abdomen of some forms.

Cossurids are common in sand and especially in deep slope and abyssal muds. They are burrowers, and apparently feed on detritus with the help of the pharynx. The palp in this case appears to be sensory, and perhaps may additionally be respiratory in function since it is well-equipped with blood-vessels (Fauchald in preparation).

The only currently described genus is *Cossura* Webster and Benedict, (1887) with genotype *C. longocirrata* Webster and Benedict (1887) with a total of about fifteen species. Two of these differ rather sharply from the others and may deserve separate generic standing.

### ORDER SPIONIDA

Prostomium distinct, without appendages or with an occipital antenna. A pair or two groups of grooved feeding palps usually present anteriorly, either on the prostomium or on an anterior segment. Paired tentacular cirri sometimes present at the base of the palps. Pharynx either axial or as a ventral pad. Parapodia well developed or reduced. All setae simple.

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**Figure 5.** (A), Family APISTOBRANCHIDAE, *Aipistobranchus tullbergi*, ventral view, after Pettibone 1963, 1 Ox; (B), dorsal view of the above, 1 Ox; (C), Family TROCHOCHAEIDAE, *Trochochaetus multisetae*, lateral view, after Pettibone 1963, 1 Ox; (D), Family SPIONIDAE, *Buccarda proboscidea*, modified after Hartman 1969, 25x.
Key to Suborders

1a. Body separated into at least two distinct regions; uncini present
1b. Body rarely separated into distinct regions; uncini always absent

2a (1b) Palps at the junction of the pro- and peristomium; parapodial lobes well developed at least in some setigers
2b (lb) Palps post-peristomial in origin; parapodial lobes poorly developed

Suborder Spioniformia

Spioniforms with the anterior end inflated and the rest of the body cylindrical. Prostomium without appendages, but with palps attached at the postectal margins. Parapodia biramous, parapodial lobes mostly cirriform, but serrated postsetal lobes present in some setigers. All setae simple, mainly capillaries.

The apistobranchids are known for one genus, Apistobranchus Levinsen 1883, with type species Aricia tullbergi Theel 1879. A total of three species currently are recognized.

Apistobranchids are in fact not as rare as the low number of species should indicate; they are, as some of their spionid relatives, not limited to a tubicolous existence, but will feed from loosely constructed burrows. Most commonly found in shelly sands, sands and muds.

Invalid Genera

Ethocles Webster and Benedict 1887, see Apistobranchus
Skardaria Wesenberg-Lund 1951, see Apistobranchus

Key to Genera

1a. Each branchia with several (maximally seven) processes in median parapodia
1b. Branchia, if present, single process

2a (1b) One setiger with strongly modified setae
2b (lb) Setae change gradually along the body, no segment with remarkably different setae (except large hooks in the first setiger)

3a (2a) Setiger 16 modified
3b (2a) Either setiger 4 or 5 modified

4a (3b) Setiger 4 modified
4b (3b) Setiger 5 modified

5a (4b) Neuropodial uncini distally trifid
5b (4b) Neuropodial uncini distally bifid or entire

6a (5b) Branchiae first present from setiger 2
6b (5b) Branchiae first present posterior to the modified segment

7a (6b) Setae in modified segment arranged in a horseshoe-shaped series
7b (6b) Setae in the modified segment in a straight line or a small patch

8a (2b) Branchiae absent; first neuropodia with stout hooks
8b Branchiae present

FAMILY SPIONIDAE GRUBE 1850

Spioniforms with body elongated. Prostomium anteriorly blunt, with frontal horns, or pointed; an ocipital papilla may be present, other appendages absent. Palps at the postectal comers of the prostomium. Parapodia biramous, parapodial lobes cirriform or foliose, never serrated. All setae simple, including capillaries and bi- or multidentate, hooded or non-hooded hooks.

Spionids are very common in all environments. Some forms are burrowers (Polydora, Boccardia et al.) in calcareous substrata or in rock; others build permanent tubes in soft substrata and some forms combine the two activities. Numerous forms are free-living in sands and muds. Species of some genera, most frequently perhaps of Prionospio sensu latu and of the Polydora/Boccardia complex, very likely are present in any kind of benthic marine soft-bottom sample taken anywhere on the globe. Members of the genus Aonides are dominant forms in sandy beaches in temperate and warm areas of the world (Foster 1971).

The spionids usually lose their palps, and frequently most of their branchiae in fixation. This is especially true in those genera where the structure of the branchiae is important for species separation. Attempts at identification of these taxa on incomplete material should be avoided; the family is speciose and serious errors are easily introduced into the literature, if care is not taken at all identificatory levels.
8b (2b). At least one pair of branchiae present; first neuropodia without stout hooks   | 9  
9a (8b). Branchiae present on nearly the whole body  | 10  
9b (8b). Branchiae limited to less than half the length of the body | 19  
10a (9a). Branchiae present from setiger 1 | 11  
10b (9a). Branchiae present from setiger 2 | 14  
11a (10a). Accessory branchiae on some segments |  
11b (10a). Accessory branchiae absent | 12  
12a (11b). Posterior notopodia with uncini | Marenzelleria  
12b (11b). Notosetae all capillaries | Spio  
13a (12b). Prostomium anteriorly rounded | Malacoceros  
13b (12b). Prostomium with laterofrontal horns | Scolelepis  
14a (10b). Posterior notopodia with uncini |  
14b (10b). All notosetae capillaries |  
15a (14b). Prostomium with laterofrontal horns |  
15b (14b). Prostomium anteriorly blunt or pointed |  
16a (15a). Branchiae partially fused to the notopodial postsetal lobes | Rhynchospio  
16b (15a). Branchiae completely separated from the notopodial postsetal lobes | Mesospio  
17a (15b). Occipital antenna absent | Microspio  
17b (15b). Occipital antenna present | Pseudomalacoceros  
18a (17b). Branchiae partially fused to the notopodial postsetal lobes | Laonice  
18b (17b). Branchiae completely separated from the notopodial postsetal lobes | Streblospio  
19a (9b). A single pair of branchiae present |  
19b (9b). At least two pairs of branchiae present |  
20a (19b). Branchiae concentrated in a medio-posterior region, except in the males, where an additional single pair is present on the second setiger | Pygospio  
20b (19b). Branchiae concentrated near the anterior end only |  
21a (20b). Peristomium forms large lateral wings on either side of the prostomium | Paraprionospio  
21b (20b). Peristomium does not form lateral wings on the sides of the prostomium | Aquilaspio  
22a (21a). Three pairs of pinnate branchiae present from setiger 1 | Minaspio  
22b (21a). Branchiae otherwise, first present from setiger 2 | Aonides  
23a (22b). Two to four pairs of branchiae present | Scolecolepides  
23b (22b). At least six pairs of branchiae present |  
24a (21b). Prostomium anteriorly pointed |  
24b (21b). Prostomium anteriorly blunt or with frontal horns |  
25a (24b). Prostomium with frontal horns |  
25b (24b). Prostomium anteriorly rounded |  
26a (25b). Branchiae two pairs on setigers 3-4 | Anaspio  
26b (25b). Four pairs of branchiae from setiger 2 |  
27a (26b). Three first pairs of branchiae cirriform, the last pinnate | Aporprionospio  
27b (26b). Branchiae cirriform or pinnate in another pattern | Prionospio  

**Generic Definitions**

*Anaspio* Chamberlin 1920, *A. boreus*, Chamberlin 1920; only species.

Prostomium anteriorly rounded. Two pairs of branchiae on setigers 3 and 4; free from the notopodial postsetal lobes. Notosetae all capillaries (in 36 setigers); neuropodia with uncini from setigers 10-11. Anterior parapodial lobes very large and foliose.

*Aonides* Claparede 1864, *Nerine oxycephala* Sars 1862; 7 species.

Prostomium anteriorly pointed. Branchiae from setiger 2, present on anterior end only; completely free from the notopodial postsetal lobes. Anterior setigers with capillary setae only; posterior parapodia with uncini in both rami. Neuropodial postsetal lobes smooth.


Prostomium anteriorly blunt; peristomium without lateral wings. Four pairs of branchiae from setiger 2; first three cirriform, fourth pinnate. All anterior setae capillaries; posteriorly uncini in both rami. Neuropodial postsetal lobes large and foliose in setiger 2.

Prostomium anteriorly blunt; peristomium with large lateral wings; first setiger more or less reduced. Two to four pairs of branchiae from setiger 2. All anterior setae capillaries; posterior setigers with uncini in both rami.

*Boccardia* Carazzi 1895, *Polydora (Leucodore) polybranchia* Haswell 1885; 15 species.

Prostomium anteriorly blunt or bifid. Branchiae present from setiger 2. Fifth setiger modified with strong setae; in other setigers, all notopodia with capillaries only; neuropodia posteriorly with uncini.

*Dispio* Hartman 1951a, *D. uncinata* Hartman 1951a; 5 species.

Prostomium anteriorly blunt; peristomium enfolding sides of prostomium. Branchiae present from setiger 1 to the end of the body; at least partially fused to the notopodial postsetal lobes; accessory branchiae present in some setigers. Notosetae all capillaries; neurosetae include capillaries and uncini in median and posterior setigers.


Prostomium anteriorly rounded; occipital antenna present. Branchiae present from setiger 2 to the middle of the body; completely free from the notopodial postsetal lobes. Notosetae all capillaries; neurosetae include capillaries and uncini. Genital pouches in at least some setigers.

*Malacoceros* Quatrefages 1843, *Spio vulgaris* Johnston 1827; 10 species.

Prostomium with lateral horns. Branchiae present from setiger 1, partially fused to the notopodial postsetal lobes. Notosetae all capillaries; neurosetae include capillaries and uncini in posterior setigers.

*Marenzelleria* Mesnil 1896, *M. witeni* Augener 1913b; only species.

Prostomium anteriorly rounded. Branchiae present from setiger 1, partially fused to the notopodial postsetal lobes. Anterior setigers with capillary setae in both rami; posteriorly uncini in both rami.

*Mesospio* Gravier 1911a, *M. moorei* Gravier 1911a; only species.

Prostomium with frontal horns. Branchiae present from the second setiger, completely free of the postsetal lobes. Notosetae all capillaries; neuropodia with uncini present from setiger 15. All anal cirri similar, short and tapering.

*Microspio* Mesnil 1896, *Spio mecznikowianus* Claparede 1870a; 10 species.

Prostomium anteriorly rounded. Branchiae present from setiger 2; partially fused to the notopodial postsetal lobes. Notosetae all capillaries; neuropodia posteriorly also with uncini.


Prostomium anteriorly blunt; peristomium with large lateral wings. Branchiae present from setiger 2 to about setiger 40, all cirriform. Anterior setae all capillaries in both rami; posterior end with uncini in both rami.

*Morants* Chamberlin 1919a, *M. duplex* Chamberlin 1919a; only species.

First four setigers with branchiae; fused to the notopodial postsetal lobes; setiger 16 with strongly modified setae. Curved hooks present in the first notopodia; all other notosetae capillary. Anterior neurosetae capillary, posterior ones uncini.

*Paraaprionospio* Caulery 1914b, *Prionospio pinnata* Ehlers 1901; 5 species.

Prostomium anteriorly rounded; peristomium with large lateral wings. Second segment asetigerous. Three pairs of pinnate branchiae present from setiger 1; parapodia of first setiger well developed. All anterior setae capillaries; posterior parapodia with uncini in both rami.

*Polybranchia* Potts 1928, *P. foxi* Potts 1928; only species.

Prostomium with frontal horns. Branchiae present from setiger 1; each branchia with maximally six to seven processes in median setigers. Capillary setae absent; all setae uncini in both rami.

*Polydora* Bosc 1802, *P. cornuta* Bose 1802; 65 species.

Prostomium anteriorly blunt or bifid. Branchiae not present before setiger 6. Setiger 5 with strongly modified, stout setae. Other setae include notopodial capillaries, sometimes also with simple posterior spines. Neuropodial uncini present from setiger 7–10 in most species.

*Polydorella* Augener 1914, *P. prolifera* Augener 1914; 2 species.

Prostomium anteriorly blunt. Branchiae from setiger 6. Fourth setiger modified with large, stout setae. Notosetae all capillaries, except in setiger 4; neuropodia with capillaries, but with uncini present from setiger 6.


Prostomium anteriorly blunt; peristomium without lateral wings. Four pairs of branchiae, either cirriform or pinnate or both, first present from setiger 2. Branchial parapodia with large postsetal lobes. All anterior setae capillaries; in median and posterior parapodia uncini also present.

*Pseudomalacoceros* Czernavsky 18816, *Nerinides cantabra* Rioja 1918; 11 species.

Prostomium anteriorly blunt or pointed; occipital antenna present. Branchiae present from setiger 2; at least partially fused to the notopodial postsetal lobes. Notosetae all capillaries; neurosetae include capillaries and uncini.
Pseudopolydora Czemiavsky 1881 b, Polydora antennata Claparede 1870a; 11 species.

Prostomium anteriorly blunt or bifid. Branchiae first present from setiger 7. Fifth setiger modified with large, thick setae arranged in a horseshoe-shaped pattern. Notosetae all capillaries; neurosetae include capillaries and posterior uncini.

Pygospio Claparede 1863, P. elegans Claparede 1863; 3 species.

Prostomium anteriorly rounded. Branchiae concentrated in a short posterior region, except in the males where a single pair is present on the second setiger; all are fused to the notopodial postsetal lobes. Notosetae all capillaries; neurosetae include capillaries and uncini.

Rhynchospio Hartman 1936b, R. arenincola Hartman 1936b; 4 species.

Prostomium with frontal horns. Branchiae present from setiger 2, partially fused to the notopodial postsetal lobes. All notosetae capillaries; neurosetae include capillaries and uncini.

Scolelepis Ehlers 1907, S. benhami Ehlers 1907; 3 species.

Prostomium with frontal horns. Branchiae present from setiger 1, limited to the anterior part of the body. Anterior setae all capillaries; posterior setae include capillaries and uncini in both rami.

Scolelepides Ehlers 1907, Lumbricus squamatus O.F. Miller 1806; 20 species.

Prostomium usually pointed, rarely blunt. Branchiae present from setiger 2, partially fused to the notopodial postsetal lobes. Neupopodial postsetal lobes notched at least in posterior setigers. Anterior setae all capillaries; posterior parapodia with uncini and capillaries in both rami.

Scolelepis Blainville 1828, Nereis filicornis O.F. Muller 1776; 15 species.

Prostomium anteriorly rounded. Branchiae present from setiger 1, at least anteriorly fused with the notopodial postsetal lobes. Notosetae all capillaries; neurosetae include capillaries and uncini.

Spatophanes Grube 1860, S. kroeyeri Grube 1860, 16 species.

Prostomium blunt or with frontal horns; occipital antenna present. Branchiae absent. First neuropodia with stout hooks; all other anterior setae capillaries; posterior neuropodia with uncini.

Streblospio Webster 1879a, S. benedicti Webster 1879a, 2 species.

Prostomium conical. A single pair of branchiae on setiger 1. Setiger 2 with a dorsal collar between the notopodia. Notosetae all capillaries; neurosetae anteriorly all capillaries, posteriorly also uncini.

Tripolydora Woodwick 1964, T. spinosa Woodwick 1964, only species.

Prostomium anteriorly rounded. Branchiae present from setiger 2. Fifth setiger modified, with a few modified setae only. Notosetae all capillaries; neurosetae include capillaries and trifid uncini first present from setiger 9.

**Taxonomic Note**

The above survey of the genera follows in the main Foster's (1971) survey of the fauna from the Gulf of Mexico, except that I have preferred to list all the taxa at the generic level, rather than use some of them as subgenera. From the number of species listed for each genus, it will be noted that I have been rather more conservative than Foster in retaining species. The family is one of the better studied, and best understood families. In addition to Foster's extensive review cited above, Hannerz (1956) and Soderstrom (1920) reviewed the major taxa. The biology of the more common forms also has been rather well studied, especially the reproductive biology of members of Polydora and Boccardia has been the subject of several studies by Blake (e.g. Blake 1971).

**Incertae Sedis**

Aberranm Hartman 1965, A. enigmatica Hartman 1965; only species.

Paired spioniform palps present; prostomium otherwise without appendages, eyes absent. Pharynx muscularized. One apodous segment present; all others with biramous parapodia. All setae simple capillaries. Dorsal and ventral cirri and small branchiae present.

According to Hartman (1965) this differs from the true spionids in that it has a muscular, rather than saclike pharynx; it further differs from the spionids in that it completely lacks hooks of any kind. This is not a larval form, in that one of the specimens described was ovigerous.

The structure of the proboscis may not be a very important feature in this group as noted by Orrhage (1966). The total absence of uncini may not be particularly surprising, considering how many spionid genera may lack such hooks in either of the two rami, or over long stretches of the body. However, it is considered best to leave the genus as a free-standing genus, until it can be better investigated.

**Invalid Genera**

Aonis Audouin and Milne Edwards 1833c, see Scolelepis Aonis Wagner 1885, indeterminable

Aristeopsis Johnson 1901, see Laonice

Bilobaria Sveshnikov 1959, larval forms

Carazzia Mesnil 1896, see Pseudopolydora Chaetosphaera Haecker 1896, larval forms
Cheironotus Costa 1861b, indeterminable (Polydora)  
Colobranchus Schmarda 1861, see Scolelepis  
Ctenospio Sars 1867, see Prionospio  
Diplost Montagu 1815, see Polydora  
Dipolydora Verrill 1881, see Polydora  
Euspio McIntosh 1915, see Spio  
Hekaterobranchus Buchanan 1890, see Streblospio  
Heterospio Czemialvsky 1881 b, see Spio  
Kinbergella McIntosh 1909, see Prionospio  
Leipoceras Mobius 1874, see Polydora  
Leucodora Johnston 1838, see Polydora  
Mandane Kinberg 1866b, indeterminable  
Neopygospio Berkeley and Berkeley 1954, see Pseudopolydora  
Nerine Johnston 1838, see Scolelepis  
Nerinides Mesnil 1896, see Pseudomalacoceros  
Nerioopsis Elders 1912, larval form  
Paramerine Czemialvsky 1881, we Aonides  
Perialla Kinberg 1866, questionably Boccardia  
Prospio Mesnil 1896, hypothetical  
Protopolydora Czemialvsky 1881 b, see Polydora  
Pseudoleucodore Czemialvsky 1881b, see Polydora  
Pseudonerine Czemialvsky 1881b, indeterminable  
Pseudonerine Augener 1926, see Scolelepis  
Pteriptyches Grube 1872a, see Prionospio  
Pygophyllum Schmarda 1861, indeterminable  
Scolecolepis Malmgren 1867, m is-spelling of Scolelepis  
Spione Orsted 1844, in Quatrefages 1865, indeterminable  
Spioneris Sars 1853, Nomen nudum  
Spionides Webster and Benedict 1887, see Laonice  
Uncinia Quatrefages 1865, see Scolelepis

FAMILY MAGELONIDAE  
CUNNINGHAM AND RAMAGE 1888

Spioniforms with long, slender bodies, separated into two regions. Prostomium flattened and anteriorly ovate or truncate, without appendages. Palps at the junction of the pro- and peristomium on the ventral side. Setae include capillaries and hooded bi- or multidentate hooks.

Magelonids currently are assigned to a single genus, Magelona Muller 1858, with type species M. papillicornis Muller 1858 and a total of about 35 described species. Dr. Meredith L. Jones of the Smithsonian Institution is revising the family. It is anticipated that more taxa may be recognized when this revision is completed.

Magelonids are common in sandy bottoms; they are rather characteristic with the flattened, shovel-shaped prostomium often much wider than the rest of the animal, which tends to be rather threadlike with very long segments. Magelonids build only very flimsy tube-structures and tend to move through the sediment.

Invalid Genera

Maec Johnston 1865, see Magelona  
Papillaria Sveshnikov 1959, larval form  
Rhynophylla Carrington 1865, see Magelona

FAMILY TROCHOCHAETIDAE PETTIBONE 1963

Body flattened cylindrical. Prostomium a flattened ridge with palps present at the postectal corners. First parapodia directed forwards along the sides of the prostomium. Setae capillaries, acicular falcate spines, fringed setae and straight spines.

The family is recognized for a single genus, Trochochaeta Levinsen 1884 with type species Disoma multisetosum Orsted 1844 and a total of nine recognized species. Pettibone (1963) correctly pointed out that the
name *Disoma*, originally applied to these animals by Orsted (1844), was used ten years earlier by Ehrenberg for a protozoan.

Trochochaetids are long, slender non-tubicolous spioniforms mainly reported from shallow water in soft substrates. They appear to be nowhere truly numerous, but frequently are reported from areas where quantitative benthic investigations have been undertaken.

Invalid Genera

*Cherusca* Muller 1858, indeterminable  
*Disoma* Orsted 1844, see *Trochochaeta*  
*Disomides* Chamberlin 1919c, see *Trochochaeta*  
*Nevaya* McIntosh 1911, see *Trochochaeta*  
*Pilearia* Sveshnikov 1963, larval forms  
*Thaumastoma* Webster and Benedict 1884, see *Trochochaeta*

The family Kalaminochaetidae Nolte, 1941 was described for two genera, *Kalaminochaeta* and *Kalumaria* both based on pelagic larval forms, possibly of a *Trochochaeta*, but not identifiable. The family and both genera are here considered invalid.

**FAMILY POECILOCHAETIDAE HANNERZ 1956**

Spioniforms with long, slender bodies. Prostomium small with either a frontal or a median antenna. Palps present at the postectal corners. First segment with or without setae, with one or two pairs of tentacular cirri. Parapodia biramous, with lateral sense-organs between rami. Setae include capillaries, pectinate, plumose and acicular setae. Dorsal and ventral cirri spindle or bottle-shaped.

**Key to Genera**

1. Antenna frontal, first segment with series of long setae  
2. Antenna median, first segment asetigerous  

**Generic Definitions**

*Elicodasia* Laubier and Ramos 1973, *E. mirabilis*  
Laubier and Ramos 1973; only species.

*Poecilochaetus* with a median antenna, without nuchal organ. First segment is asetigerous and first setiger lacks dorsal and ventral cirri. Neuropodial acicular spines are present in most setigers from segment 4.

*Poecilochaetus* Claparede 1875, *P. fulgoris* Claparede in Ehlers 1875; 12 species.

*Poecilochaetids* with a frontal antenna, nuchal organs present. First segment with long setae forming a cephalic cage and second setiger similar to all following segments. Neuropodial acicular spines present in a few anterior segments only.

**Taxonomic Notes**

Setae are present from the second segment in *Elicodasia* and from the first in *Poecilochaerus*.

**FAMILY HETEROSPIONIDAE HARTMAN 1963a**

Body with short thoracic and greatly prolonged abdominal setigers. Prostomium blunt without appendages; palps attached at the postectal corners. Long, filiform branchiae on the thoracic setigers. Setae in nearly complete cinctures around the abdomen; most simple capillaries, but some neurosetae are thickened and gently falcate.

The family is known for a single genus, *Heterospio* Ehlers 1874 with type species *H. longissima* Ehlers 1874 and for a total of four species.
Heterospionids have been reported from widely scattered areas, mainly in deep shelf and slope sediments; the family is poorly known and the several species may be considerably more common than their scattered records indicate. They are rather fragile and non-descript and thus easily overlooked if quantitative studies are not undertaken.

Invalid Genus

*Longosoma* Hartman 1944c, see *Heterospio*

**Suborder Chaetopteriformia**

Short palps on prostomium; pharynx a simple, non-eversible tube. Uncini present.

**FAMILY CHAETOPTERIDAE MALMGREN 1867**

Body with two or three distinct body-regions. Peristomium may have one or two pairs of tentacular cirri; palps of varying lengths always present. Anterior region with uniramous parapodia, median and posterior regions with biramous parapodia. Setae include capillary, limbate setae and modified spines in setiger 4. Pectiniform uncini present in posterior setigers.

**Key to Genera**

1a. Median notopodia bilobed
1b. Median notopodia never bilobed, may be fused

2a. (1a) A pair of small tentacular cirri present at the base of the large palps
2b. (1a) Tentacular cirri absent, palps large

3a. (1b) Some median notopodia fused to form dorsal fans, palps very short
3b. (1b) Notopodia never fused; palps large

**Generic Definitions**

*Chaetopterus* Cuvier 1827, *Tricoelia variopedatus* Renier 1804; only species.

Body divided in three distinct regions; anterior region with uniramous parapodia with lanceet-shaped setae, except setiger 4, which has stout spines. Median region with biramous parapodia; some posterior notopodia fused to form dorsal fans, all notopodia of median region asetigerous; neuropodia with pectinate uncini; posterior region with long, pointed notopodia with a few contained acicula, but no setae; neuropodia with pectiniform uncini.

*Mesochaetopterus* Potts 1914, *M. taylori* Potts 1914; 11 species.

Body with three regions; antennae absent. Median notopodia all simple, asetigerous; median neuropodia with uncini; posterior region with pointed notopodia with internal acicula; neuropodia with uncini.

*Phyllochaetopterus* Grube 1863, *P. gracillis* Grube 1863; 17 species.

Body with three distinct regions; antennae present. Median notopodia foliaceous, bilobed and asetigerous, neuropodia with pectinate uncini; posterior region with pointed notopodia supported by internal acicula; neuropodia with pectinate uncini.

*Spiochaetopterus* Sars 1853, *S. typicus* Sars 1856; 12 species.

Body with three distinct body-regions; antennae absent. Median notopodia bilobed and foliaceous; neuropodia with pectinate uncini; posterior region with pointed notopodia, supported by internal acicula, neuropodia with pectinate uncini.
Invalid Genera

Leptochaetopterus  Berkeley 1927, see Spiochaetopterus
Mesotrocha  Leuckart and Pagenstecher 1855, see Phyllochaetopterus
Ranzania  Claparede 1870b, see Mesochaetopterus
Ranzanides  Chamberlin 1919c, see Mesochaetopterus
Telepsavus  Costa 1861a, see Spiochaetopterus
Tricoelia  Renier 1804, see Chaetopterus

Suborder Cirratuliformia

One pair of grooved palps, or a group of grooved palps on one or several post-peristomial segments. Prostomium without appendages, eversible pharynx a thick ventral pad.

FAMILY CIRRATULIDAE CARUS 1863

Body cylindrical. Prostomium conical or blunt; peristomium fused with at least two segments. Parapodia reduced; slender filiform or clavate branchiae present on at least some setigers. All setae simple including capillaries and curved or excavate hooks.

Key to Genera

1a. A pair of long grooved palps attached on the anterior dorsum 2 1b. Two groups of grooved tentacular cirri present 5
2a (1a). All setae slender, distally pointed Tharyx 3 2b (1a). At least some setae either curved hooks or spines Dodecaceria 4
3a (2b). Acicular setae distally excavate; body usually dark green or brown Chaetozone 4 3b (2b). Acicular setae not excavate, body usually light colored Caullieriella 4
4a (3b). Acicular spines in posterior segments distally entire Pseudocirratulus 6 4b (3b). Acicular spines in posterior segments distally bi- or multifid Raricirrus 6
5a (1b). All setae acicular, falcate spines Cirratulus 8 5b (1b). At least some capillary setae present
6a (5b). Anterior region without long tentacular structures Timarete 8 6b (5b). One or more anterior segments with groups of long tentacular cirri or branchiae Cirriformia 8
7a (6b). Dorsal tentacular cirri first present posterior to the anteriormost branchiae Cirratulus 8 7b (6b). Dorsal tentacular cirri first present from the same segment as the anteriormost branchiae
8a (7b). Tentacular cirri on one segment only Timarete
8b (7b). Tentacular cirri on two or more segments

Generic Definitions

Caullieriella  Chamberlin 1919c,  Cirratulus bioculatus Keferstein 1862; 16 species.
Paired palps inserted dorsally anterior to, or at the first setiger. Setae include capillaries and distally bidentate or multidentate curved spines.

Chaetozone  Malmgren 1867,  C. setosa  Malmgren 1867; 19 species.
Paired palps inserted dorsally anterior to, or at the fast setiger. Setae include capillaries and distally entire, curved spines.

Cirratulus  Lamarck 1801,  Lumbricus cirratus O.F. Muller 1776, 25 species.
Cirratulids without palps; tentacular cirri present on one segment only; anteriormost branchiae present from the same segment. Setae include capillaries and acicular spines that are usually entire distally.
Cirriformia Hartman 1936a, Terebella tentaculata Montagu 1808; 26 species.

on one segment only; anteriormost branchiae present anterior to the tentacular cirri. Setae include capillaries and curved, distally entire spines.

Dodecaceria Orsted 1843b, D. concharum Orsted 1843b; 16 species.

Palps present; branchiae present on a few segments; filiform or clavate. Anterior setigers with capillary setae; median and posterior ones also with excavate stout spines. Posterior part of body often flattened and expanded.

Pseudocirratulus Augener 1922, P. kingstonensis Augener 1922; only species.

Palps absent, cirri and branchiae present on most segments; two achaetous anterior segments present. Setae all gently curved, entire spines or hooks.


Body anteriorly narrow, then abruptly broad at setiger 9 and tapering from there to the posterior end. Branchiae present on some anterior segments; setiger 13 with a pair of papillae. Setae include capillaries in the notopodia and neuropodia and curved hooks with dentate cutting edges.

Tharyx Webster and Benedict 1887, T. acutus Webster and Benedict 1887; 22 species.

Palps anterior to or at the first setae slender, capillary and smooth, but some All times with densely armed cutting edges.

Timarete Kinberg 1866b, Cirratulus ancylochaetus Schmarda 1861; 8 species.

Palps absent; tentacular cirri present on at least two anterior setigers; branchiae present from the same segment as the first tentacular cirri. Setae include notopodial capillaries and anteriorly neuropodial capillaries; posterior neuropodia with gently curved spines.

FAMILY ACROCIRRIDAEE BANSE 1969

Body either slender and elongate, or short and maggot-shaped. Prostomium blunt, paired palps usually present. Several segments usually crowded near the anterior end; these segments usually aseptigerous. Parapodia biramous with small parapodia; notosetae segmented and spinose; neurosetae compound hooded falicigers.

The acrocirids recently were recognized as a separate family, and even more recently, the genus Flabelligella known from several deep-water locations was transferred to this family (Orensanz 1974b).

Key to Genera

1a. Branchiae absent
1b. Branchiae present
2a (1b). Palpal bases well separated; epithelium densely papillated
2b (1 b). Palpal bases nearly abutting, epithelium nearly smooth

Generic Definitions

Acrocirrus Grube 1872b, Heterocirrus frontifilis Grube 1860; 8 species.

Acrocirrids with palps originating close together. Four pairs of gills; a papilla on third segment below the gill. Thorax of 12 segments; a row of papillae ventral to the neurosetae in all setigers.

Flabelligella Hartman 1965, F. papillata Hartman 1965; 5 species.

Acrocirrids without branchiae and palps; separation
between thorax and abdomen indistinct. Body-surface densely papillated. Anterior segments uniramous in some species.

*Macrochaeta* Grube 1850, *Nais clavicornis* Sars 1835; 6 species.

Acrocirrids with bases of palps separated by at least the width of the palps. Usually four pairs of branchiae. Number of thoracic segments variable; epidermis usually densely papillated. All parapodia biramous.

Invalid Genus

*Ledon* Webster and Benedict 1887, see *Macrochaeta*

**ORDER CAPITELLIDA**

Prostomium without appendages; palps absent. One or two anterior asetigerous segments. Parapodia biramous; neuropodia long transverse welts in at least some setigers. All setae simple, including capillaries and rostrate uncini.

**FAMILY CAPITELLIDAE GRUBE 1862**

Body cylindrical, usually slender. Prostomium short and truncate, without appendages. Thorax and abdomen defined on internal structures and parapodial development; generally, thorax with capillary setae and abdomen with rostrate hooded hooks.

Capitellids are among the most commonly encountered polychaetes; some forms, such as *Capitella capitata* are considered pollution indicators, in that they are capable of invading areas where disastrous defacement of natural or man-made causes has taken place (Grassle and Grassle 1974).

The anterior thorax of most capitellids is usually strongly areolated and they are usually reddish pink or brown. In general appearance, they are perhaps the most earthwormlike of the common marine polychaetes.

The characteristic rostrate uncini are small, making the determination of the first occurrence of these setae difficult. However, genera and species cannot be identified without this information. I have found it useful to rotate the specimen while counting the segments, trying to observe the setae as the light catches them. The rostrate uncini look truncate in this sort of observation, and the capillaries will retain their tapered appearance.

**Key to Genera**

1a. Three first setigers with capillary setae only  
1b. At least four setigers with capillary setae only  
2a (1a). Some thoracic segments with flanged hooks; twelve thoracic segments present  
2b (1a). Flanged hooks absent; either ten or thirteen thoracic segments present  
3a (2b). Setigers 7-8 with genital spines; ten thoracic segments  
3b (2b). Genital spines absent; 13 thoracic segments  
4a (3b). Four first setigers with capillary setae only  
4b (3b). At least five anterior setigers with capillary setae  
5a (4a). Genital spines present  
5b (4a). Genital spines absent

2
3
Peresiella

Capitomastus 9

Heteromastides

4
5
6
7
6a (5a). Genital spines in setigers 7-8; ten thoracic segments present

7a (5b). Thorax with 11 segments

8a (4b). Five setigers with capillary setae

8b (4b). At least six anterior setigers with capillary setae only

9a (8a). First setiger with both noto- and neuropodia; branchiae present

9b (8a). First setiger with notopodium only; branchiae absent

10a (8b). Six anterior setigers with capillary setae only

10b (8b). At least seven anterior setigers with capillary setae

11a (10a). Genital spines in setigers 8-9

11b (10a). Genital spines absent

12a (11b). Thorax with 11 segments

12b (11b). Thorax with 12 segments

13a (10b). Seven anterior setigers with capillary setae only

13b (10b). At least nine anterior setigers with capillary setae only

14a (13a). Genital spines present

14b (13a). Genital spines absent

15a (14a). Notopodial cirriform branchiae on some abdominal segments

15b (14a). Branchiae absent

16a (14b). Thorax with eight segments; all thoracic setigers with capillary setae only

16b (14b). Thorax with 12 segments; posterior thoracic setigers with hooks

17a (13b). Nine anterior setigers with capillary setae only

17b (13b). Ten or more anterior setigers with capillary setae

18a (17a). One anterior asetigerous segment present; notopodial acicula absent; thorax with ten segments...

18b (17a). Anterior asetigerous segment absent; notopodia with acicula; thorax with nine segments...

19a (17b). Ten first setigers with capillary setae only

19b (17b). At least 11 anterior setigers with capillary setae

20a (19a). First setiger with both noto- and neuropodia

20b (19a). First setiger with notopodium only

21a (20a). All thoracic setigers with capillary setae; all abdominal setigers with hooks only; mixed segments absent

21b (20b). At least one segment with mixed hooks and capillary setae

22a (21b). Two first abdominal segments with mixed hooks and capillary setae; thorax with eleven segments

22b (21b). Last thoracic segment with both hooks and capillary setae; twelve thoracic segments present

23a (19b). Eleven anterior setigers with capillary setae only

23b (19b). Twelve or more anterior setigers with capillary setae only

24a (23a). At least some capillary setae in the first two abdominal setigers

24b (23a). All abdominal segments with hooks only

25a (24a). First setiger with neuropodia only; first two abdominal setigers with capillary setae in both rami

25b (24a). First setiger with both noto- and neuropodia; first two abdominal setigers with hooks in the neuropodia and mixed hooks and capillary setae in the notopodia

26a (24b). Abdominal notopodial tori nearly coalesce; notopodial hooks absent

26b (24b). Abdominal notopodial tori well separated; notopodial hooks present

27a (23b). Twelve setigers with capillary setae only

27b (23b). Thirteen or more setigers with capillary setae only

28a (27a). Anal plaque with imbedded spines present

28b (27a). Anal end rounded or with anal cirri

29a (28b). Thirteenth setiger with both hooks and capillary setae

29b (28b). No setiger with both hooks and capillary setae present

30a (27b). Thirteen anterior setigers with capillary setae only

30b (27b). At least 15 anterior setigers with capillary setae

31 (29). Anal end with imbedded spines present

32 (28). Anal end rounded or with anal cirri

33 (29). Thirteenth setiger with both hooks and capillary setae

34 (29). No setiger with both hooks and capillary setae present

35 (30). At least 15 anterior setigers with capillary setae
31a (30a). First setiger with notopodia only
31b (30a). First setiger with both noto- and neuropodia
32a (31a). Thorax with 14 or 15 segments; one segment with both capillary setae and hooks present
32b (31a). Thorax with 15 to 18 segments; three or four segments with both capillary setae and hooks present

Leiocapitella
33a (31b). Thorax with 19 segments; branchiae neuropodial
33b (31b). Thorax with maximally 15 segments; branchiae, if present, notopodial
34a (33b). All notopodial setae capillary
34b (33b). Abdominal notopodial setae hooks

Pseudocapitella
35a (30b). At least 16 setigers with capillary setae only; additional four segments have both setae and hooks in the notopodia
35b (30b). Thoracic count otherwise; maximally two transitional segments present
36a (35b). First setiger with both noto- and neuropodia
36b (35b). First setiger with notopodia only
37a (36b). Twenty setigers with capillary setae
37b (37b). Seventeen or 18 setigers with capillary setae only


generic definitions
Anotomastus Hartman 1947, Eunotomastus gordioides Moore 1909; only species.
Thorax with 18 or 19 segments; one anterior asetigerous segment present; first setiger with notopodia only.
Up to segment 17 or 18 capillary setae only; segments 18 and 19 transitional with notopodial setae and neuropodia with mixed hooks and setae. Palmately branched branchiae in posterior segments.

Barantolla Southern 1921, B. sculpta Southern 1921; 2 species.
Thorax with 12 segments; one anterior asetigerous segment present; first setiger complete; up to segment 7 with capillary setae only; segment 8 with mixed setae and hooks in notopodia and hooks in neuropodia. Branchiae may be present in posterior segments.

Branchicapidella Fauvel 1932, B. singularis Fauvel 1932; 2 species.
Thorax with nine segments; asetigerous segment absent; first setiger complete. Up to segment 7, capillary setae only; segments 8-9 with genital spines. Notopodial cirriform branchiae present.

Capitella Blainville 1828, Lumbricus capitatus Fabricius 1780; 15 species.
Thorax with nine segments; asetigerous segment absent; first setiger complete. Either four first segments with capillary setae only; then three segments with mixed hooks and setae in both rami, then genital spines in segments 8-9. Or first seven segments with capillary setae only; then segments 8-9 with genital spines. Branchiae absent.

Capitellethus Chamberlin 1919c, Capitellides dispar Ehlers 1907; 3 species.
Thorax with 11 segments; asetigerous segment absent; first setiger with notopodia only. All thoracic setigers with capillary setae only; branchiae absent.

Capitellides Mesnil 1897b, C. giardi Mesnil 1897b; 3 species.
Thorax with nine segments; asetigerous segment absent; first setiger complete. First six setigers with capillary setae only; next three with hooks, except notopodia 8-9, which has genital spines. Branchiae absent.

Capitobranchus Day 1962, C. macgregori Day 1962; only species.
Thorax with 19 segments; one asetigerous segment present; first setiger complete. Up to segment 15 with capillary setae only; next four segments mixed with capillary setae in the notopodia and hooks in the neuropodia. Neuropodial branchiae present in posterior setigers.

Capitomastus Eisig 1887, Capitella minima Langerhans 1881; 3 species.
Thorax with ten segments; one asetigerous segment present; first setiger complete. Males: up to segment 5 with capillary setae only, the next two segments with hooks, segments 8-9 with genital spines. Females: up to segment 4 with capillary setae; the next three segments with hooks and segments 8-9 with genital spines.

Dasybranchetus Monro 1931, D. fauveli Monro 1931; only species.
Thorax with 16 segments; one asetigerous segment present; first setiger complete; all thoracic setigers with capillary setae. Branchiae not seen.

Dasybranchus Grube 1850, Dasymallus caducus Grube 1846; 10 species.
Thorax with 14 segments; one asetigerous segment present; first setiger complete; all thoracic setigers with capillary setae only. Simple or composite notopodial branchiae present.

Thorax with 11 segments; one asetigerous segment present; first setiger complete; all thoracic setigers with capillary setae only; branchiae absent.

Eunotomastus McIntosh 1885, E. grubei McIntosh 1885; only species.
Genus poorly defined: approximately 20 thoracic segments present; of which 16 have capillary setae only and the next four have mixed setae and hooks in the notopodial fascicles.

Heteromastides Augener 1914, H. bifidus Augener 1914; 2 species.
Thorax with 13 segments; one asetigerous segment present; first setiger complete. Up to segment 4, capillary setae only; segment 5 with mixed capillary setae and hooks in both rami; from segment 6, hooks only. Branchiae absent.

Heteromastus Eisig 1887, Capitella fliformis Claparede 1864; 7 species.
Thorax with 12 segments; one asetigerous segment present; first setiger complete. Up to segment 6, capillary setae only; from segment 7, all setae hooks. Notopodial branchiae present.

Thorax with 14 or 15 segments; one asetigerous segment present; first setiger with notopodia only. Up to segment 14 with capillary setae only; segment 15 with capillary setae in the notopodia and hooks in the neuropodia. Branchiae absent.

Leiocapitellides Hartmann-Schroder 1960a, L. analis Hartmann-Schroder 1960a; only species.
Thorax with eight segments; one asetigerous segment present; all thoracic segments with capillary setae only; first abdominal with notopodial capillary setae and neuropodial hooks. Branchiae absent.

Leiochridae Augener 1914, L. australis Augener 1914; 7 species.
Thorax with 13 segments; one asetigerous segment present; first setiger complete. All thoracic setigers with capillary setae only. Branchiae not seen.

Leiochris Ehlers 1908, L. alutaceus Ehlers 1908; only species.
Thorax with 13 or 14 segments; one asetigerous segment present; first setiger complete. Up to segment 13, capillary setae only; segment 14 with mixed setae and hooks in both rami. Branchiae absent.

Lumbricomastus Thomassin 1970, L. tulearensis Thomassin 1970; only species.
Thorax with 21 segments; one asetigerous segment present; first setiger with notopodia only. All thoracic setigers with capillary setae only. Branchial processes on posterior notopodia.

Mastobranchus Eisig 1887, M. trinchesii Eisig 1887; 4 species.
Thorax with 12 segments; one asetigerous segment present; first setiger complete. All thoracic setigers with capillary setae only; two first abdominal segments with mixed capillary setae and hooks in the notopodia and hooks in the neuropodia. Notopodial branchiae present.

Mediomastus Hartman 1944b, M. californiensis Hartman 1944b, 7 species.
Thorax with 11 segments; one asetigerous segment present; first setiger complete. Up to segment 5 with capillary setae only; thereafter, all hooks. Branchiae absent.

Neoheteromastus Hartman 1960, N. linens Hartman 1960; only species.
Thorax with 12 segments; one asetigerous segment present; first setiger with notopodia only. Up to segment 8 with capillary setae only; segment 9 with capillary setae in the notopodia and hooks in the neuropodia. Branchiae not seen.

Neomediomastus Hartman 1969, Mediomastus glabrus Hartman 1960; only species.
Thorax with 11 segments; one asetigerous segment present; first setiger with notopodia only. Up to segment 7 with capillary setae only, then all setigers with hooks. Small notopodial branchial processes present in far posterior setigers.

Neonotomastus Fauchald 1972, N. glabrus Fauchald 1972; only species.
Thorax with 11 segments; one asetigerous segment present; first setiger with notopodia only. All thoracic setigers with capillary setae only; first abdominal notopodia with capillary setae, second with mixed hooks and capillary setae. First abdominal neuropodia with mixed hooks and capillary setae; second with hooks only. Branchiae not seen.

Thorax with 12 segments; one asetigerous segment present; first setiger with neuropodia only. All thoracic setigers and the first two abdominal setigers with capillary setae only. Branchiae not seen.

Notomastus Sars 1850, N. latericeus Sars 1850; 34 species.
Thorax with 12 segments; one asetigerous segment
present; first setiger complete. All thoracic setigers with capillary setae only. Branchiae may be present.


Thorax with 12 segments; one asetigerous segment present; first setiger with neuropodia only. Up to segment 11 with capillary setae only; segment 12 with notopodial capillary setae and neuropodial hooks. Branchiae absent.

*Pseudoleiocapitella* Fauvel 1929, *Pulliella* n topodial capillary setae and neuropodial hooks.

Thorax with 11 segments; one asetigerous segment present; first setiger with notopodia only. Up to segment 6, capillary setae only; segment 7 with both capillary setae and hooks and neuropodia with hooks only. Branchiae absent.

*Parheteromastides* Hartmann-Schroder 1962a, *P. multiculatus* Hartmann-Schroder 1962a; only species.

Thorax with 11 segments; one asetigerous segment present; first setiger with notopodia only. Up to segment 4, capillary setae only; the remainder of thorax with modified, flanged hooks in at least some segments, capillary setae and normal hooks in the others.

*Protomastobranchus* Gallardo 1968, *P. huloti* Gallardo 1968; only species.

Thorax with 13 or 14 segments; one asetigerous segment present; first setiger complete. All notopodia with limbate capillary setae only; up to segment 13 or 14, capillary setae in neuropodia also; from there on, hooks.

*Pseudocapitella* Fauvel 1913, *P. incerta* Fauvel 1913; 2 species.

Thorax with 15 to 18 segments; one asetigerous segment present; first setiger with notopodia only. Up to segment 15, capillary setae only; next three with notopodial capillary setae and neuropodial hooks. Branchiae absent.

*Pseudoleiocapitella* Harmelin 1964, *P. fauveli* Harmelin 1964; only species.

Thorax with ten segments; one asetigerous segment present; first setiger complete. Up to segment 10, capillary setae only; first two abdominal segments with notopodial capillary setae and neuropodial hooks. Branchiae absent.


Thorax with nine segments; all with capillary setae.

First setiger complete. Branchiae absent; notopodial acicula present.


Thorax with 12 segments; one asetigerous segment present; first setiger complete; all thoracic setigers with capillary setae. Dorsal abdominal tori nearly coalesce, lack notopodial hooks. Simple branchiae present.

*Scyphoproctus* Gravier 1904, *S. djiboutensis* Gravier 1904; 7 species.

Thorax with 13 segments; one asetigerous segment present; first setiger complete. All thoracic setigers with capillary setae only. Expanded anal plaque with acicular imbedded spines present.

**Taxonomic Notes**

The generic sub-division of the capitellids is unsatisfactory; it is based on the number of thoracic segments, which may be difficult to see, and on the distribution of the capillary and hooked setae, which is easily enough seen, but poorly understood in terms of variability. The key to genera follows the traditional system, but has been based on the number of segments with capillary setae, rather than on the number of thoracic segments, since the former is the more easily observed character. A review only, such as the current one, cannot solve the problem of the number of valid capitellid genera, which must be based on the variability of all observable characters in a large amount of material.

The genus *Capitita* Hartman 1947, is considered here a synonym of *Mediomastus* Hartman 1944b, as first suggested by Hartmann-Schroder (1962a).

The genus *Bucherta* Rullier (1965a) is considered as the posterior end of a capitellid, probably of the genus *Dasybranchus* as first suggested by Gallardo (1968).

As stated above, the generic identification of capitellids is at best difficult. To make a review somewhat easier, a table has been constructed to indicate in a different manner the relationships between the genera.

It is of the utmost importance that the two concepts, segments and setigers, be kept apart, since both are used in key features of the capitellids.

**Invalid Genera**

*Ancistria* Quatrefages 1865, see *Heteromastus*

*Arenia* Quatrefages 1865, see *Notomastus*

*Areniella* Verrill 1874, questionably *Heteromastus*

*Branchoscolex* Schmarda 1861, see *Dasybranchus*

*Bucherta* Rullier 1965a, see *Dasybranchus*
The genus Eunotomastus is too incompletely known to be included in the table.
FAMILY ARENICOLIDAE JOHNSTON 1835

Body cylindrical, separated into two or three distinct regions. Prostomium without appendages. Notopodia bluntly truncate, neuropodia elongated tori. Notosetae capillary or limbate, neurosetae rostrate hooks. Branchiae present on some setigers in a median or posterior region.

With the exception of Branchiomalda, the arenicolids are not easily confused with any other polychaetes. The very thick, strongly areolated epidermis in most forms, the distinct branchial region with their strongly tufted branchiae and the habitat, makes it easy to recognize the "sand-worms" from all over the world. The family has been the object of very intensive studies by Wells and his students. Wells (1962) and other papers established the major classificatory criteria.

Key to Genera

1a. Body slender, branchiae first present from setiger 18, or later, as thick filaments arranged with maximally two or three in a tuft

Branchiomalda

1b. Body thick, branchiae first present from a more anterior setiger as thick tufts of very fine filaments

2

2a (1b). Asetose caudal end absent

Arenicolides

2b (1b). Asetose caudal end present

3

3a (2b). Neuropodia of branchial segment approach midventrally; a single pair of oesophageal sacs present

Arenicola

3b (2b). Neuropodia of branchial segments well separated; more than one pair of oesophageal sacs present

Abarenicola

Generic Definitions

Abarenicola Wells 1959, Arenicola claparedii Levinson 1884; 16 species and subspecies.

Three body-regions, including a prebranchial and branchial region as well as an aseose caudal end. Branchiae from setiger 7. Neuropodia widely separated in the branchial region. More than one pair of oesophageal sacs.

Arenicola Lamarck 1801, Lumbricus marinas Linnaeus 1758; 9 species and subspecies.

Three body-regions, including a prebranchial and branchial region as well as an aseose caudal end. Branchiae from setiger 7. Neuropodia approach midventrally in branchial segments. One pair of oesophageal sacs present.

Arenicolides Mesnil 1898, Arenicola ecaudata Johnston 1835; 2 species.

Two body-regions, including a prebranchial and a branchial region. Branchiae from setiger 12-17 to the posterior end. All neuropodia approach midventrally.

Branchiomalda Langerhans 1881, B. vincenti Langerhans 1881; only species.

Two body-regions, including a prebranchial and branchial region. Branchiae first present from setiger 18 or behind; as thick, sessile filaments, usually no more than three filaments in a group. All neuropodia widely separated.

Invalid Genera

Chorizobranchus Quatrefages 1865, see Arenicola

Clymenides Claparède 1863, see Arenicolides

Protocapitella Berkeley and Berkeley 1932, see Branchiomalda

Pteroscolex Lütken 1864, see Arenicola

Puparia Sveshnikov 1959, larval forms

Telethusae Savigny 1818, see Arenicola

FAMILY MALDANIDAE MALMGREN 1867

Capitelliform polychaetes with long cylindrical bodies, usually truncate at one or both ends; most species with long, cylindrical segments. Prostomium without appendages, with a pair of nuchal slits and a median cephalic keel. Notopodia short and rounded; neuropodia elongated tori. Notosetae smooth or spinose capillaries; neurosetae rostrate hooks, anterior modified spines present in several forms.

The bamboo-worms are recognized easily in that for once, the popular name of the members of this family makes sense; the long segments with the parapodia at one end, give the worms the jointed appearance of slender bamboo-shoots. However, even though easily recognized to family, they are not as easily identified to genus and species. It is necessary to have complete specimens to get them even to sub-family; or at least, one must have both anterior and posterior ends from the same specimen to get them safely iden-
Maldanids are especially common in shelf sediments. They are all tubicolous, with mud-walled tubes, and are usually quite large animals, often up to 20 cm in length. Most frequently the worms are darkly red or orange in life, often with lighter glandular fields and neuropodial tori.

The major taxonomic revision of the maldanids was done by Arwidsson (1907). He established the subfamilies and by and large the currently accepted genera. Another very important study, especially on members of the subfamily Euclumeninae, is that of Verrilli (1900).

The subfamilies are defined on the development of the anterior and posterior ends. These can be plain and rounded, or they may form flattened discs, plaques, or funnels. The anal plaque may have series of marginal anal cirri or be unadorned. The cephalic plaque always has paired nuchal slits, but is otherwise unadorned, except that the anterior point of the prostomium may project as a short palpode.

The subfamilies may be defined as follows:

**RHODININAE:** Anterior and posterior ends without plaques; posterior setigers with numerous encircling collars; uncini in double rows.

**LUMBRICLYMENINAE:** Anterior and posterior ends without plaques; posterior segments without collars; uncini in single rows.

**NICOMACHINAE:** Anterior end without plaque; anal plaque present; uncini in single rows.

**MALDANINAE:** Both anterior and posterior ends with plaques; anus dorsal.

**EUCLYMENINAE:** Anterior and posterior ends with plaques, anus terminal.

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**Key to Genera**

1a. Both cephalic and anal plaques absent  
2  
1b. At least anal plaque present  
7  

2a (1a). Rostrate uncini in double rows, posterior segments with encircling collars  
RHODININAE  

2b (1a). Rostrate uncini in single rows, posterior segments not collared  
LUMBRICLYMENINAE  

3a (2b). More than 20 setigers present  
4  
3b (2b). Nineteen setigers present  
Clymenopsis  

4a (3b). Setiger 4 with a deep encircling collar  
5  
4b (3b). Setiger 4 without collar  
Lumbriclymenella  

5a (4b). Pygidium with anus at the end of a simple, upturned, flattened cone  
Notoproctus  
5b (4b). Pygidium otherwise  
Lumbriclymene  

6a (5b). Pygidium flattened with anus dorsal  
Nichomachiniae  

6b (5b). Pygidium conical with anus terminal  
Micromaldane  

7a (1b). Cephalic plaque absent, anal plaque present  
9  
7b (1b). Both cephalic and anal plaques present  
Nicomache  

8a (7a). Rostrate uncini in all setigers  
9  
8b (7a). Acicular spines in first three setigers, thereafter rostrate uncini  
10  
9a (8b). Anal funnel symmetrically developed  

1976

THE POLYCHAETE WORMS

9b (8b). Anal funnel asymmetrical, with the dorsal side reduced
10a (7b). Anus dorsal
10b (7b). Anus terminal
11a (10a). Rostrate uncini in two or three series in most setigers
11b (10a). Rostrate uncini always in single series
12a (11b). First three setigers with acicular neuropodial spines
12b (11b). First setiger either without neurosetae or with rostrate uncini
13a (12b). Cephalic keel long and high, cephalic rim shallowly notched laterally
13b (12b). Cephalic keel short and low, cephalic rim deeply incised laterally
14a (13b). Numerous branchial filaments on median setigers
14b (13b). Branchial filaments absent
15a (10b). Series of vascular caeca cover the surface of the two last setigers
15b (10b). Vascular caeca absent
16a (15b). Anal plaque terminally smooth or gently crenulated
16b (15b). Anal plaque bordered by distinct anal cirri
17a (16a). First setiger with notosetae only; anal plaque gently crenulated
17b (16a). First setiger with noto- and neurosetae; anal plaque smooth
18a (16b). All anal cirri similar in length
18b (16b). Midventral anal cirrus (rarely two) distinctly longer than all other anal cirri
19a (18a). More than 30 setigers present
19b (18a). Nineteen or 20 setigers present
20a (19b). Acicular spines in the first neuropodia
20b (19b). First neurosetae rostrate uncini
21a (20a). Setiger 4 with a deep encircling collar
21b (20a). Setiger 4 without a collar
22a (20b). First setiger with notosetae only; anal plaque with numerous cirri
22b (20b). First setiger with both noto- and neurosetae; anal plaque with a few long cirri only
23a (18b). More than 30 setigers present
23b (18b). Eighteen to 20 setigers present
24a (23a). Setiger 4 with a deep encircling collar
24b (23a). Setiger 4 without a collar
25a (23b). Anterior neuropodia with rostrate uncini
25b (23b). Anterior neuropodia with acicular spines
26a (25b). Anal plaque with two large ventral and several shorter lateral and dorsal anal cirri
26b (25b). A single large ventral cirrus and several shorter lateral and dorsal anal cirri present
27a (26b). Nuchal slits short, straight and diverging anteriorly
27b (26b). Nuchal slits long, straight and parallel
28a (27b). Anal cone projecting well beyond the rim of the anal plaque
28b (27b). Anal cone low and not projecting beyond the rim of the anal plaque
29a (28b). Apart from the long ventral anal cirrus, all other anal cirri similar in length
29b (28b). Anal cirri of varying lengths

Generic Definitions

Abyssoclymene Hartman 1967, A. annularis Hartman 1967; only species.
EUCLYMENINAE. Nuchal slits straight. Nineteen setigers, first with notosetae only; anal plaque nearly smooth, gently crenulated along margin.
Asychis Kinberg 1867b, A. atlanticus Kinberg 1867b; 28 species.

Petaloproctus Malgrena 11
EUCLYMENINAE 15
Sonatsa 12
Clymaldane 13
Maldane 14
Branchioasychis Asychis 19
Johnstonia 16
Microclymene 17
Abyssoclymene 18
EUCLYMENINAE. Cephalic rim incised or entire; 18-20 setigers, acicular spines absent. Anal plaque with long midventral and shorter lateral and dorsal anal cirri.

Axiothella Verrill 1900, Axiotea catenata Malgrena 1865; 12 species.
EUCLYMENINAE. Cephalic rim incised or entire; 18-20 setigers, acicular spines absent. Anal plaque with long midventral and shorter lateral and dorsal anal cirri.

Branchioasychis Monro 1939c, B. colmani Monro 1939c; 3 species.
Clymaldane Mesnil and Fauvel 1939, C. sibogae Mesnil and Fauvel 1939; 2 species.


Clymenella Verrill 1873b. Clymene torquatus Leidy 1855; 7 species.

EUCLYMENINAE. Eighteen to 20 setigers; nuchal slits long and straight. Setiger 4 with deep encircling anterior collar; anterior neuropodia with acicular spines or strongly reduced uncini. Anal plaque with all cirri evenly long.

Clymene Verrill 1900, Clymene cingulata Ehlers 1887; 2 species.

LUMBRICLYMENINAE. Nineteen setigers; setiger 4 with deep encircling collar; nuchal slits strongly angled. First three neuropodia with spines.

Clymenura Verrill 1900, Clymene cirrata Ehlers 1887; 11 species.

EUCLYMENINAE. About 20 setigers; with large triangular glandular field on setiger 8. Nuchal slits long and straight. Acicular spines absent. Anal plaque a flattened disc with few long anal cirri; anal cone strongly projecting.

Euclyme Verrill 1900, Clymene oerstedii Claparede 1863; 27 species.

EUCLYMENINAE. Eighteen to 20 setigers; nuchal slits long and straight. Acicular spines present. Anal plaque with one long median and numerous evenly long anal cirri; anal cone low.

Gravierella Fauvel 1919, G. multianulata Fauvel 1919; only species.

EUCLYMENINAE. Numerous setigers, far posterior ones campanulate. Nuchal slits long and straight. Acicular spines absent. Anal plaque with the anal cirri increasing in length from the dorsal side towards the long midventral cirrus.

Heteroclymene Arwidsson 1907. H. robusta Arwidsson 1907; 3 species.

EUCLYMENINAE. Nineteen setigers; nuchal slits long and straight. Acicular spines in first neuropodia. Anal plaque with one long midventral and numerous shorter anal cirri of varying lengths. Anal cone low.

Isocirrus Arwidsson 1907. Clymene planiceps Sars 1872; 5 species.

EUCLYMENINAE. About 20 setigers; nuchal slits long and straight. Acicular spines in anterior neuropodia. Anal plaque with all cirri of the same length.

Johnstonia Quatrefages 1850b, J. clymeneoides Quatrefages 1850b; 2 species.

EUCLYMENINAE. Twenty-two setigers; nuchal slits long and straight. Acicular spines in the first neuropodia. Anal plaque with one long midventral and several shorter anal cirri. Two last setigers covered with series of vascular caeca.

Lumbriclymena Sars 1872, L. cylindrica ads Sars 1872; 5 species.

LUMBRICLYMENINAE. Nineteen setigers; nuchal slits strongly curved. Rostrate uncini in single rows; acicular spines present. Anal cone symmetrical, with circular cross-section.

Lumbriclymenella Arwidsson 1911a, L. robusta Arwidsson 1911a; only species.

LUMBRICLYMENINAE. Nineteen setigers; nuchal slits strongly curved. Uncini in single rows; acicular spines present. Anal end a simple upturned, flattened cone with anus distal.

Macroclyme Verrill 1900, Clymene producta Lewis 1897; 2 species.

EUCLYMENINAE. More than 30 setigers; nuchal slits long and straight. Acicular spines present in anterior neuropodia. Anal plaque with numerous evenly long cirri.

Macroclymeina Augener 1926, M. stewartensis Augener 1926; only species.

EUCLYMENINAE. More than 30 setigers; nuchal slits long and straight. Acicular spines absent. Setiger 4 with deep encircling collar. Anal plaque with a long midventral and numerous short, slender cirri; anal cone low.

Maldane Grube 1860, M. glebifex Grube 1860; 18 species.

MALDANINAE. Nineteen setigers; cephalic keel long and high; cephalic rim notched. Acicular spines absent.

Maldanea Mcintosh 1885, M. antarctica Mcintosh 1885; 8 species.

EUCLYMENINAE. Nineteen setigers; nuchal slits long and straight. Neurosetae absent from first setiger; acicular spines absent. Anal cone large; anal plaque with all cirri evenly short.

Microclymene Arwidsson 1907, M. acirrata Arwidsson 1907; 3 species.

EUCLYMENINAE. Nineteen to 20 setigers; nuchal slits long and straight. Acicular spines absent. Anal plaque smooth-rimmed.

Micromaldane Mesnil 1897a, M. ornithochaeta Mesnil 1897a; 2 species.

NICOMACFIINAE. Strongly curved, avicular uncini on all setigers; collars absent. Anal plaque with crenulated margin.

Nicomache Malmgren 1865, Sabella lumbricalis Fabricius 1780; 16 species.
NICOMACHINAE. Rostrate uncini in single rows; acicular spines in the first three neuropodia. Anal plaque with subequal anal cirri.

Notoproctus Arwidsson 1907, N. oculatus Arwidsson 1907; 9 species.


Petaloproctus Quatrefages 1865, P. terricolus Quatrefages 1865; 11 species.

NICOMACHINAE. Nineteen setigers. Acicular spines in the first neuropodia. Anal plaque asymmetrical with the dorsal side strongly reduced.

Praxillella Verrill 1881, Praxilla praetermissa Malmgren 1865; 20 species.

EUCLYMENINAE. Eighteen to 19 setigers; nuchal slits long and straight. Acicular spines in anterior neuropodia. Anal plaque short, with a long midventral and several shorter anal cirri. Anal cone very large, projecting well beyond the rim of the anal plaque.

Pratihura Verrill 1880, P. ornata Verrill 1880; 6 species.

LUMBRICLYMENINAE. Twenty to 29 or more setigers; nuchal slits strongly curved. Acicular spines in anterior and posterior neuropodia.

Proclymene Arwidsson 1907, Clymene muelleri Sars 1856; only species.

EUCLYMENINAE. Nineteen setigers; nuchal slits anteriorly curved. Acicular spines present in anterior neuropodia. Anal plaque with two large midventral and several shorter anal cirri.

Pseudoclymene Arwidsson 1907, Clymene quadrilobata Sars 1856; 2 species.

EUCLYMENINAE. Eighteen to 20 setigers, nuchal slits short, straight and diverging anteriorly. Acicular spines present; anal cirri all of the same length except the larger midventral one.

Rhodine Malmgren 1865, R. loveni Malmgren 1865; 8 species.

RHODININAE. Numbers of setigers variable; first setigers with notosetae only; acicular spines absent. Numerous encircling collars on posterior setigers. Uncini in double rows.

Sonatsa Chamberlin 1919c, S. meridionalis Chamberlin 1919c; only species.

MALDANINAE. Numbers of setigers unknown; prostomium with high, long cephalic keel; cephalic rim notched. Rostrate uncini in two or three series in some setigers.

Taxonomic Notes

The genus Chaponella Rullier 1972 is considered here in the Sabellidae; it resembles closely members of the genus Euchone, except for its loss of tentacular crown.

The genus Sonatsa was described originally in its own subfamily; the posterior end of the only known species remains unknown. The anterior end closely resembles well-known species of Maldane and the genus is considered here in the subfamily Maldaninae.

Invalid Genera

Arwidssonia McIntosh 1914b, see Euclymene
Axiothea Malmgren 1865, see Axiothella
Caesicirrus Arwidsson 1911b, see Euclymene
Chrysothemis Kinberg 1867b, see Asychis
Cllymene Oken 1815, indeterminable
Clymene Savigny 1818, indeterminable
Heteromaldane Ehlers 1908, see Maldane
Iphianissa Kinberg 1867b, questionably Praxillella
Leiocephalus Quatrefages 1865, see Euclymene
Leiochone Grube 1866b, see Maldane and Asychis
Leiochone Saint-Joseph 1894, see Clymenura
Maldanopsis Verrill 1900, see Asychis
Mandrocles Kinberg 1867, indeterminable
Neco Kinberg 1867b, see Mylitta
Nicomachella Levinsen 1884, see Petaloproctus
Paraxiothea Webster 1879a, see Clymenella
Petaloctymene Augener 1918, incompletely known
Praxilla Malmgren 1865, see Praxillella
Promaldane Mesnil 1897a, hypothetical
Sabaco Kinberg 1867b, see Asychis

ORDER OPHELIIDA

Prostomium without appendages; palps absent. Maximaly one anterior asetigerous segment present. Parapodia uniramous or (usually) biramous. All setae simple, including capillary setae. Rostrate hooks absent. All neuropodia short and truncate. Composite setae have been reported from a single species of the family Scalibregmidae; this form may be incorrectly assigned to family and in some respects resembles members of the Syllidae.

FAMILY OPHELIIDAE MALMGREN 1867

Body with a limited number of segments; often with a deep ventral furrow. Prostomium without appendages, blunt or conical. Parapodia biramous or uniramous, with small button-shaped parapodial lobes; all setae capillary, either smooth or marginally dentate. Opheliids have a series of three very distinct body-shapes. Some are short, thick and grub-shaped; others are very slender, nearly smooth and torpedo-shaped.
Finally, some are anteriorly inflated and posteriorly cylindrical or narrow. Opheliids are common animals in sandy and muddy bottoms and have been studied extensively by ecologists interested in sandy beaches.

Key to Genera

1a. Body fusiform without ventral groove  
1b. Body cylindrical with at least posterior ventrum deeply grooved  

2a (1a). Branchiae absent  
2b (1a). Branchiae present

3a (2b). First setiger appear in front of the mouth; all setae smooth  
3b (2b). First setiger appear behind the mouth; some setae spinose

4a (3b). Ventral groove present in posterior part of body only  
4b (3b). Ventral groove present along the whole body

5a (4a). Three body-regions, including inflated head, inflated anterior part and narrow posterior part; branchiae in posterior region only  
5b (4a). Body not clearly regionated, inflated anteriorly and grooved posteriorly; branchiae from setigers 8-10, if present

6a (5b). Branchiae absent  
6b (5b). Branchiae present

7a (6a). Lateral eyes absent  
7b (6a). Lateral eyes present

8a (7a). Lateral eyes absent  
8b (7a). Lateral eyes present

9a (8b). Anal tube short, all anal cirri of similar length  
9b (8b). Anal tube long, two internally attached ventral cirri present, dorsal anal cirri short

10a (9b). Branchiae, if present, along the whole body  
10b (9b). Branchiae always present, limited to the posterior end of body only

Generic Definitions

Ammotrypanella McIntosh 1879, *A. arctica* McIntosh 1879; only species.  
Ventral groove present along the whole body; branchiae present and limited to the posterior end only. Anal tube long and narrow, with two internally attached ventral cirri. Lateral eyes absent.

Antiobactrum Chamberlin 1919c, *Ophelina brasiliensis* Hansen 1882; only species.  
Ventral groove present along the whole body; branchiae present. Anal tube short and with all anal cirri of the same length. Lateral eyes absent; expanded palpode at the tip of the prostomium.

Armandia Filippi 1861, *A. cirrhosa* Filippi 1861; 18 species.  
Ventral groove along the whole body; branchiae present. Lateral eyes present; anal tube long and slender, with paired long internally attached ventral cirri and shorter dorsal cirri.

Dindymenides Chamberlin 1919c, *Dindymene concinna* Kinberg 1866b; 3 species.  
Body short and grublike without ventral furrow. Branchiae present. First setiger appears behind the mouth; some setae spinose.

Figure 12. (A), Family OPHELIIDAE, *Ophelia rathkei*, modified from Hartmann-Schroder, 1971, about 5x; (B), Family SCALIBREGMIDAE, Scalibregma *inflatum*, off Anacapa Island, California, 90 m, 5x.
The Polychaete Worms

1976

Euzonus Grube 1866, E. arcticus Grube 1866; 10 species.

Body with three regions: a head consisting of prostomium and one or two setigers, an anterior swollen region and a posterior region with ventral groove. Branchiae limited to posterior region. Last setiger of anterior region with specialized notopodia.

Kesun Chamberlin 1919c, K. fusus Chamberlin 1919c; 5 species.

Body short and grublike without ventral furrow. Branchiae absent. Last setigers without epipodial pads; anal cylinder furrowed, but without papillae.

Ophelina Savigny 1818, O. bicornis Savigny 1818; 32 species.

Body fusiform with inflated anterior end and ventral groove posteriorly. Branchiae rarely absent, on most setigers from setigers 8–10. No notopodial lobes modified.

Ophelina Orsted 1843b, O. acuminata Orsted 1843b; 44 species.

Body with ventral furrow along the whole length. Branchiae present, rarely absent, on most setigers. Anal cone long, with paired internally attached ventral cirri and shorter dorsal cirri. Lateral eyes absent.

Polyophthalmus Quatrefages 1850a, Nais pitta Dujardin 1839; 3 species.

Body with ventral furrow along the whole length. Branchiae absent; lateral eyes present. Anal tube short with small anal cirri.

Tachyrypane McIntosh 1879, T. jeffreysii McIntosh 1879; only species.

Body with ventral furrow along the whole length. Branchiae and lateral eyes absent. Anal tube cut away ventrally forming an open hood with marginal anal cirri.

Travisia Johnston 1840, T. forbesii Johnston 1840, 20 species.

Body short and grublike without a ventral groove. Branchiae present; posterior setigers with epipodial pads. Anal cirri all short and thick. All setae smooth; first setiger appears before the mouth.

Taxonomic Notes

I am presently following Hartmann-Schreder (1971) and others in accepting Ophelina as the valid name for worms often referred to under the generic name Ammotrypane. Hartmann-Schroder (1971) also recognized a series of subfamilies within this family. There are two distinct groups of genera within the family, but the differences between the groups and the size of the family does not seem to warrant such treatment.

Invalid Genera

Aloysina Claparede 1864, see Polyophthalmus
Ammotrypane Radke 1843, see Ophelina
Cassandane Kinberg 1866b, see Ophelina
Dindymene Kinberg 1866b, see Dindymenides
Ladice Kinberg 1866b, see Ophelina
Nais Dujardin 1839, see Polyophthalmus
Neomeris Costa 1844, see Ophelina
Nitetis Kinberg 1866b, see Ophelina
Omaria Grube 1869b, see Ophelina
Pygophelia Sars 1869, indeterminable
Terpsichore Kinberg 1866b, see Ophelina
Urostiphon Chamberlin 1919c, see Ophelina

Family Scalibregmidae Malmgren 1867

Body short and stocky or long and slender, often anteriorly inflated. Prostomium anteriorly bifid or with T-shaped frontal horns. Parapodia biramous, with small, triangular or button-shaped parapodia. Setae include capillaries and furcate setae and in some cases acicular spines. Composite setae reported in one species.

The scalibregmids contained up to a tw years ago a well-circumscribed group of forms; all characterized by having capillary and furcate setae; usually combined with a strongly wrinkled or areolated epidermis. During the last ten years several new forms have been added, making a definition of the family more difficult. Some of these forms (Proscalibregma and Scalispinigera) may in fact not be as closely associated with this family as previously indicated; especially the latter resembles forms usually associated with the order Phyllodocida. No attempts have been made below to move these genera to other families, but it is anticipated that the content of this family may change rather drastically in the near future.

Key to Genera

1a. Body short, maggotlike and inflated

1b. Body long, sometimes anteriorly inflated, but always with a slender posterior end

2a (1a). Two or three anterior asetigerous segments

2b (1a). One anterior asetigerous segment

3a (2b). Branchiae present

3b (2b). Branchiae absent

4. Neolipobranchius

Polyphysia

Lipobranchius
4a (lb).

Neurosetae composite heterogomph spinigers

4b (lb).

Neurosetae capillary, furcate or acicular

5a (4b).

Furcate setae absent

5b (4b).

Furcate setae present

6a (5b).

Median parapodia with long, digitate postsetal lobes

6b (5b).

Postsetal lobes short and triangular or absent

7a (6b).

Prostomium with long, cirriform frontal antenna

7b (6b).

Prostomium T-shaped, without appendages

8a (7b).

Neither dorsal nor ventral cirri present

8b (7b).

At least ventral cirri present

9a (8a).

Acicular setae present

9b (8a).

Acicular setae absent

10a (9b).

Eyes present

10b (9b).

Eyes absent

11a (8b).

Branchiae present

11b (8b).

Branchiae absent

12a (11a).

Acicular spines absent

12b (11a).

Acicular spines present

13a (12b).

Eyes present

13b (12b).

Eyes absent

14a (11b).

Dorsal cirri absent

14b (11b).

Dorsal cirri present

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**Generic Definitions**

_Asclocheilus_ Ashworth 1901. _Lipobranchius intermedius_ Saint-Joseph 1894; 4 species.

Body elongated, prostomium T-shaped, eyes absent. One asetigerous segment. Branchiae, dorsal and ventral cirri absent. Acicular spines in up to three anterior setigers; otherwise with furcate and capillary setae.

_Hyboscolex_ Schmarda 1861, _H. longiseta_ Schmarda 1861; 3 species.

Body elongated, prostomium T-shaped. Branchiae, dorsal and ventral cirri absent. Setae include capillaries and furcate setae. Eyes present.

_Kebuita_ Chamberlin 1919c, _Eumenia glabra_ Ehlers 1887; 2 species.


_Lipobranchius_ Cunningham and Ramage 1888, _Eumenia jeffreysii_ McIntosh 1869; only species.

Body short and maggotlike, prostomium bilobed; one asetigerous segment present. Branchiae absent. Acicular setae absent; furcate and capillary setae present.


Body short and maggotlike; prostomium a conical lobe. Two or three asetigerous anterior segments present. Acicular spines, furcate setae, branchiae and dorsal and ventral cirri absent. Eyes absent.

_Parasclerocheilus_ Fauvel 1928b, _P. branchiatus_ Fauvel 1928b; 2 species.

Body elongated; prostomium T-shaped; eyes present. One asetigerous segment present. Branchiae present. Dorsal cirri absent, ventral cirri present in posterior setigers. Acicular spines present in up to four anterior setigers; other setae include capillaries and furcate setae.

_Polyphysia_ Quatrefages 1865, _Eumenia crassa_ Orsted 1943b; 2 species.

Body short and maggotlike; prostomium bilobed; one asetigerous segment present. Branchiae present. Acicular spines absent; setae include furcate and capillary setae.


Body elongated; prostomium trapezoidal; eyes absent. No asetigerous segment present; all setae capillary; anus within a collar-shaped pygidium.

_Pseudoscalibregma_ Ashworth 1901, _Scalibregma parva_ Hansen 1878; 3 species.

Body elongated; prostomium T-shaped. One asetigerous segment present. Dorsal and ventral cirri present in posterior setigers. Branchiae absent. Furcate and capillary setae present; acicular spines present in some forms.

_Scalibregma_ Rathke 1843, _S. inflatum_ Rathke 1843, 4 species.
Body elongated; prostomium T-shaped. Eyes absent. One asetigerous segment present. Branchiae present. Capillary and furcate setae present; aciculur spines absent.


Body elongated; prostomium quadrangular with cirriform long antennae and nuchal organs. Dorsal and ventral cirri absent; smooth capillary setae in both rami, furcate setae in notopodia only. A muscular eversible pharynx present.

*Scalibregmides* Hartmann-Schroder 1965, *S. chilensis* Hartmann-Schroder 1965; only species.


Body elongated; prostomium rectangular; eyes present. One asetigerous segment present. Eyes present. Branchiae present. Acicular spines in first setiger; capillary and furcate setae present.

*Sclerocheilus* Grube 1863, *S. minutus* Grube 1863; 5 species.

Body elongated, prostomium T-shaped; one asetigerous segment present. Eyes present. Branchiae present. Acicular spines, furcate and capillary setae present.

**ORDER PHYLLODOCIDA**

Prostomium usually with at least one pair of antennae; palps, if present, frontal or frontolateral. Maximally two pairs of jaws present, but jaws often absent. Eversible pharynx always muscular and cylindrical. Parapodia distinct in most forms, supported by acicula at least in one ramus.

Apart from the amphinomids and eunicids and associated families, this order contains most members of the old order ERRANTIA. It is by far the most speciose of the polychaete orders. For that reason, it was considered appropriate to erect suborders and superfamilies within the order, even if some families are left without specific intermediate designation.

Most members of this order are modified moderately from the assumed ancestral condition (Fauchald 1974a) in that they have biramous parapodia and only one, or perhaps a few segments involved in the anterior tagma. Several families show varying levels of cephalization, indicating that this process is going on independently in these taxa. Similarly, a change in function of the notopodia from locomotory to defensive appears to have taken place independently in several of the groups.

It is possible to divide this order into several orders recognizing as such, taxa characterized as suborders here. However, the Phyllodocida is characterized by the same characters as all the other orders of polychaetes whereas the suborders of Phyllodocida are characterized by a slightly different set of characters, making such a change undesirable.

**Suborder Phyllodociformia**

Phyllodocida with at least two pairs of prostomial appendages and at least two pairs of tentacular cirri. Palps absent; eversible pharynx unarm ed; first parapodia lateral.

**FAMILY PHYLLODOCIDAE WILLIAMS 1851**

Phyllodociformia with long and slender bodies; prostomium with four or five antennae, eyes, when present, small. Two to four pairs of tentacular cirri present. Parapodia uniramous (usually) or biramous with the notopodia represented by a short stalk and large, foliose dorsal cirri held erect over the dorsum, rarely with acicula or setae. All neurosetae composite; notosetae, when present, simple.

The phyllodocids are common shallow-water polychaetes, more commonly associated with hard substrates than with sands and muds. They are frequently highly colored in life, and these colors are diagnostic, but fade very rapidly upon preservation. The phyllodocids produce copious amounts of mucus when
Figure 13. (A), Family ALCIOPIDAE, *Vanadis formosa*, off central California, pelagic, 10x; (B), setae of the above, 112x; (C), Family PHYLLODOCIDAE, *Anaitides groenlandica*, Cape Bay, Alaska, 43-70 m, 12x; (D), setae of the above, 100x; (E), median parapodium of the above, 19x; (F), Family LOPADORHYNCHIDAE, *Lopadorhynchas errans*, central Pacific Ocean, deep pelagic, setae from median setiger, 125x; (G), anterior end of the above, 10x; (H), Family PONTODORIDAE, *Pontodora pelagica*, modified after Uschakov, 1972, about 50x.
disturbed, and must be relaxed carefully before preservation. If possible, each specimen should be preserved separately. Important recent revisions include Hartmann-Schröder (1971); Uschakov (1972) and Banse (1973).

Important identificatory characters and methods of observations:

The most important characters in the Phyllodocidae includes the number and arrangement of antennae on the prostomium and the numbers of tentacular cirri and their arrangement on the first few segments (Bergström 1914). This latter character may be somewhat troublesome, in that varying fusions obscure the primitive arrangement. In principle, the first segment has a single, dorsal pair of tentacular cirri; the next segment usually both a dorsal and a ventral pair, and the third segment has dorsally a tentacular citrus and ventrally a normal parapodium. As stated above, discrepancies from this pattern are common, and are of great importance.

The best way to observe these structures is to hold the specimen with a pair of forceps so that one can look in at the animal in three-quarter dorsal view, and then rotate the animal slowly from dorsal to lateral positions. In this manner it is possible to follow the segmental furrows, most easily visible laterally, over towards the dorsal side, and reductions and fusions can be assessed. This whole process is best done under a stereo microscope, and I have found it helpful to use a low light-angle, so that strong shadows fall across the specimen.

In certain groups of species, the ventral tentacular cirri (on the second segment) may be foliaceous, often asymmetrical and flattened. Distortions in fixation of ordinary tapering ventral tentacular cirri may be misleading. The flattening of the ventral cirri is very striking and once seen, this character is never again confused with the distortions one can find in preserved material.

The papillation of the eversible pharynx is another important character and if the pharynx is not everted, dissection may be necessary. This is easily done, either ventrally or dorsally on most specimens, but may be difficult to do on smaller animals. However, in most cases it cannot be avoided.

Biramous and uniramous parapodia in the phyllodocida are exceedingly similar, and the difference essentially is defined by convention: the parapodia are considered biramous if the notopodia, i.e. the stems of the dorsal cirri, contain internal acicula, or if setae are present. It may be necessary to make parapodial preparations and observe these under the compound microscope to ascertain the presence or absence of the internal acicula. The blood-vessels in the notopodial rudiments may resemble the internal acicula, so the observations have to be rather careful.

\textit{Key to Genera}

1a. Two antennae present

1b. At least four antennae present

2a (1b). Two pairs of tentacular cirri on one segment

2b (1b). At least three pairs of tentacular cirri on two or three segments

3a (2a). Eversible pharynx diffusely papillated or smooth

3b (2a). Eversible pharynx with large lateral papillae in rows

4a (2b). Three pairs of tentacular cirri on two or three segments

4b (2b). Four pairs of tentacular cirri on three segments

5a (4a). Third segment with dorsal cirri

5b (4a). Third segment without dorsal cirri

6a (5b). Second segment with setae; dorsal and ventral cirri broadly ovate

6b (5b). Second segment without setae; dorsal and ventral cirri lanceolate

7a (4b). Parapodia biramous (with notacicula and sometimes with notosetae)

7b (4b). Parapodia uniramous (without notacicula or setae)

8a (7a). Ventral tentacular cirrus (on segment 2) foliaceous

8b (7a). Ventral tentacular cirr细 digitate or subulate

9a (8b). First tentacular segment a complete ring

9b (8b). First tentacular segment dorsally reduced

10a (9b). First segment with two pairs of cirri and setae

10b (9b). First segment with a single pair of cirri; setae first present from the second segment ...

11a (7b). Five antennae present

11b (7b). Four antennae present

12a (11a). Ventral tentacular cirrus (on segment 2) foliaceous

\textit{Cirrodoce}

2

\textit{Eteone}

3

\textit{Mysta}

4

\textit{Lugia}

5

\textit{Mystides}

6

\textit{Hesionura}

7

\textit{Hesperophyllum}

8

\textit{Austrophyllum}

9

\textit{Nipponophyllum}

10

\textit{Notophyllum}

11

\textit{Notophyllum}
12b (I la). Ventral tentacular cirri digitate or subulate 16
13a (12a). First segment dorsally reduced 14
13b (12a). All tentacular segments complete rings 15
14a (13a). Second tentacular segment with setae 17
14b (13a). Second tentacular segment without setae 18
Pterocirrus
15a (13b). Second tentacular segment with setae; proboscis papillated 19
Steggoa
15b (13b). Second tentacular segment without setae; proboscis smooth 20
Notalia
16a (12b). Nuchal epaulettes present 21
16b (12b). Nuchal epaulettes absent 22
17a (16a). First and second tentacular segment free from each other and complete rings 23
Vitiapia
17b (16a). First and second tentacular segment fused; first segment dorsally reduced 24
Vitiazphyllum
18a (16b). All three tentacular segments free from one another; pharynx papillated 25
Euimida
18b (16b). All three tentacular segments fused; first segment dorsally reduced 26
Vitiazphyllum
19a (18b). Reniform ventral cirri broadly attached transverse to the long axis of the parapodia 27
19b (18b). Ventral cirri narrowly attached; usually narrow and elongated 28
Eulalia
20a (19a). Pharyngeal papillae distally in six rows 29
Bergstroemia
20b (19a). Pharyngeal papillae dispersed 30
Clavadoce
21a (196). Pharynx with few papillae; second segment with setae 31
Pirakia
21b (19b). Pharynx with numerous papillae; second segment without setae 32
Eulalia
22a (ll b). All three tentacular segments form complete rings 33
........................................ Protonystides and Pseudeulalia (these two cannot be separated on current information).
22b (ll b). First two segments fused dorsally 34
23a (22b). Nuchal papillae absent 35
23b (22b). Nuchal papillae present 36
24a (23a). Tentacular cirri flattened 37
Nereiphyla
24b (23a). Tentacular cirri digitate or subulate 38
Generyllis
25a (23b). First and second segment fused to each other and to the prostomium 39
Chaetoparia
25b (23b). First and second segment fused to each other at least dorsally, but free from the prostomium .................................. 40
Prochaetoparia
26a (25a). Simple enlarged setae in segments 2-4 41
26b (25a). Segments 2-4 with composite spinigers 42
27a (25b). First segment with a pair of small dorsolateral papillae in addition to the tentacular cirri 43
.......................................................... Prophyllodoce
27b (25b). First segment with tentacular cirri only 44
Sphaerodoce
28a (27b). First to third pair of tentacular cirri and the antenna globose, four pairs of cirri digitate 45
.......................................................... Phyllodoce
28b (27b). All pairs of tentacular cirri and the antennae digitate or subulate 46
29a (28b). Nuchal papilla on a posterior prolongation from the prostomium 47
Paranoids
29b (28b). Prostomium heart-shaped with the nuchal papilla in a posterior incision 48
30a (29b). Pharyngeal papillae basally in rows 49
Anaitides
30b (29b). Pharyngeal papillae basally dispersed 50
Phyllodoce

**Taxonomic Notes**

The system indicated above, follows in the main the principles first promulgated by Bergstrom (1914) and followed by most later authors. It incorporates the main features of the systems organized by Uschakov (1972) and Banse (1973). Certain taxa here considered genera often are considered as subgenera. This creates a problem of setting the relative taxonomic value of the same character in different parts of the family, to the subgeneric level in some cases and to the generic level in others (cf. Banse 1973). For the sake of consistency, these characters are here all considered to be of generic value.

**Generic Definitions**

**Anaitides** Czerniavsky 1882. *Phyllodoce groenlandica* Orsted 1843a; 28 species.

Phyllodocids with four antennae; heart-shaped prostomium with nuchal papilla in the crevice between the lobes. First segment dorsally reduced and partially fused to the second; all tentacular cirri cylindrical. Papillae in rows on the base of the eversible pharynx. Parapodia uniramous.

**Austrophyllum** Bergstrom 1914. *Eulalia charcoti* Gravier 1911b; 5 species.

Phyllodocids with five antennae; pentagonal or
rounded prostomium and without a nuchal papilla. All anterior segments complete and free from one another; all tentacular cirri cylindrical. Parapodia biramous.

**Bergstroemia** Banse 1973, *Eulalia nigriculata* Moore 1909; only species.

Phyllodocids with five antennae, pentagonal prostomium and without a nuchal papilla. All anterior segments free from one another, but the first dorsally reduced; all tentacular cirri cylindrical. Eversible pharynx with papillae in six rows distally. Parapodia uniramous, ventral cirrus large and reniform and attached transverse to the long axis of the parapodium.

**Chaetoparia** Malmgren 1867, *C. nilssonii* Malmgren 1867; only species. Phyllodocids with four antennae and a nuchal papilla; prostomium fused to the first segment, which, in turn, is fused to the second. All tentacular cirri cylindrical. Specialized, enlarged simple setae in segments 2-4.

**Citrodoce** Hartman and Fauchald 1971, *C. cristata* Hartman and Fauchald 1971; only species. Phyllodocids with two antennae, quadrangular prostomium and without nuchal organs. Three pairs of tentacular cirri on two segments; first segment with normal setae. A pair of auricular lobes attached between prostomium and first parapodia.

**Clavadoce** Hartman 1936c, *C. splendida* Hartman 1936c; 2 species. Phyllodocids with five antennae, pentagonal prostomium and no nuchal papilla. First segment dorsally reduced, but free from the other tentacular segments; all four pairs of tentacular cirri club-shaped and slightly flattened. Eversible pharynx with diffuse papillation. Parapodia uniramous, ventral cirrus large and reniform and attached transverse to the long axis of the parapodium.

**Eteone** Savigny 1818, *Nereis flava* Fabricius 1780; 40 species. Phyllodocids with four antennae; triangular or trapezoidal prostomium and a small nuchal papilla. All tentacular segments complete and free from one another; two pairs of cylindrical tentacular cirri present. Eversible pharynx with diffuse papillation. Parapodia uniramous.

**Eulalia** Savigny 1818, *Nereis viridis* Linnaeus 1767; 50 species. Phyllodocids with five antennae; pentagonal prostomium and no distinct nuchal papilla. All three tentacular segments free from one another and from the prostomium; all tentacular cirri cylindrical. Eversible pharynx diffusely papillated; parapodia uniramous.

**Eumida** Malmgren 1865, *Eulalia sanguinea* Orsted 1843b; 13 species. Phyllodocids with five antennae; pentagonal prostomium and indistinct nuchal papilla. First tentacular segment dorsally reduced and fused to the second; all tentacular cirri cylindrical. Eversible pharynx smooth or with very small papillae. Parapodia uniramous.

**Genetylis** Malmgren 1865, *G. lutea* Malmgren 1865; 11 species. Phyllodocids with four antennae; short wide prostomium and no nuchal papilla. First and second tentacular segments are fused and reduced dorsally; all tentacular cirri cylindrical. Eversible pharynx diffusely papillated. Parapodia uniramous.

**Hesionura** Hartmann-Schroder 1858, *H. fragilis* Hartmann-Schroder 1958; 9 species. Phyllodocids with four antennae, prolonged prostomium and no nuchal papilla. Two tentacular segments, free from each other and from the prostomium; all three pairs of tentacular cirri cylindrical. Third segment without dorsal cirrus.

**Hesperophyllum** Chamberlin 1919a, *H. tectum* Chamberlin 1919a; only species. Phyllodocids with five antennae, short and wide prostomium and no nuchal papilla. All tentacular segments complete; ventral cirrus foliaceous; all others cylindrical. Parapodia biramous; ventral cirrus large and transversely attached.

**Lugia** Quatrefages 1865, *Eteone aurantiaca* Schmarda 1861; 3 species. Phyllodocids with five antennae of which the median is very small; long prostomium and no nuchal papilla. Two tentacular segments with three pairs of tentacular cirri; all cylindrical. Third segment with dorsal cirrus. Parapodia uniramous.

**Mysta** Malmgren 1865, *M. barbata* Malmgren 1865; 6 species. Phyllodocids with four antennae; pentagonal prostomium and no nuchal papilla. Two pairs of tentacular cirri on first segment; all cirri cylindrical. Eversible pharynx with large lateral papillae in rows.

**Mystides** Theel 1879, *M. borealis* Theel 1879; 8 species. Phyllodocids with five antennae; long prostomium and no nuchal papillae. Three pairs of cylindrical tentacular cirri on two segments. Third segment without dorsal cirri.

**Nereiphylla** Blainville 1828, *N. paretii* Blainville 1828; 3 species. Phyllodocids with four antennae; short wide prostomium and no nuchal papilla. First and second segment fused and dorsally reduced; all tentacular cirri flattened. Eversible pharynx diffusely papillated. Parapodia uniramous; ventral cirrus reniform.
Phyllodocids with five antennae; pentagonal prostomium and no nuchal papilla. All tentacular segments free from one another; first segment dorsally reduced; all tentacular cirri cylindrical. Eversible pharynx with diffuse papillae. Parapodia uniramous.

**Protomystides** Czemiakovsky 1882. *Mystides bidentata* Langerhans 1880; only species.

Phyllodocids with four antennae and no nuchal papilla. All tentacular segments complete rings; three or four pairs of cylindrical tentacular cirri on three segments.

**Pseudoeulalia** Eliason 1962, *P. exigua* Eliason 1962; only species.

Phyllodocids with four antennae and no nuchal papilla. All tentacular segments are separate and complete rings; all tentacular cirri are cylindrical. Parapodia uniramous.

**Pterocirrus** Claparedé 1868, *Phyllocoeca (Eulalia) macroceros* Grube 1860; 10 species.

Phyllodocids with five antennae; heart-shaped prostomium and no nuchal papilla. First and second segment fused; first segment dorsally reduced; all tentacular cirri cylindrical. Parapodia uniramous; setae first present in the third segment.

**Sige** Malmgren, 1865. *S. fusigera* Malmgren, 1865; about five species.

Phyllodocids with five antennae, pentagonal prostomium and no nuchal papilla. All tentacular segments free from each other; first segment dorsally reduced; all tentacular cirri cylindrical. Parapodia uniramous; last pair of tentacular cirri (on third segment) digitate.

**Steggoa** Bergstrom 1914, *Phyllocoeca (Eulalia) quadraticeps* Grube 1878 (only species).

Phyllodocids with four antennae; heart-shaped prostomium with a nuchal papillae between the lobes. First and second segment fused; first segment dorsally reduced; all tentacular cirri cylindrical. First segment with a pair of small papillae dorsal to the tentacular cirri. Prostomium with diffuse papillae. Parapodia uniramous.

**Vitiazia** Uschakov 1953, *V. dogieli* Uschakov 1953; only species.
Phyllodocids with four large and one small median antenna; broadly truncate prostomium and paired nuchal epaulettes. All tentacular segments fully developed and separate from one another; tentacular cirri cylindrical. Parapodia uniramous.

_Vitiaziphyllum_ Uschakov 1972, _V. nuchalum_ Uschakov 1972; only species.

Phyllodocids with five antennae, broadly transverse prostomium and paired nuchal epaulettes. First and second segment fused; first segment reduced dorsally; all tentacular cirri cylindrical. Parapodia uniramous.

Invalid Genera

_Carobia_ Quatrefages 1865, see _Nereiphylla_
_Carobia_ (Paracarobia) Czemiavsky 1882, see _Anaitides_
_Carobia_ (Protocarobia) Czemiavsky 1882, see _Phyllodoce_

_Cirraria_ Sveshnikov 1959, larval forms
_Ericia_ Quatrefages 1865, see _Eulalia_ and _Sige_
_Eteonella_ McIntosh 1874, see _Eteone_
_Eteonides_ Hartmann-Schroder 1960a, see _Hesionura_
_Eulalides_ Czemiavsky 1882, see _Eumida_ (?)
_Eumenia_ Quatrefages 1865, error for _Eunomia_, indeterminable
_Eumida_ Verrill 1873b, error for _Eumida_
_Eunomia_ Risso 1826, indeterminable
_Eunophyllum_ Czemiavsky 1882, see _Notophyllum_
_Globiodoce_ Bergstrom 1914, lapsus calami for _Sphaerodocoe_
_Hypereeuone_ Bergstrom 1914, see _Eteone_
_Hypocirrus_ Giard 1913, indeterminable

**FAMILY ALCIOPIDAE EHLERS 1864**

Phyllodiciforms with slender, transparent long bodies found exclusively pelagically. Prostomium with five antennae and a pair of very large, spherical eyes. Three to five pairs of tentacular cirri. Parapodia uniramous, dorsal and ventral cirri foliaceous; setae simple or composite.

Alciopids are delicate, slender pelagic organisms, mainly known for their very large, complex camera-type eyes (Hermans and Eakin 1974). The pelagic polychaetes recently were reviewed by Dales and Peter (1972). The system indicated below, follows these two authors. The key to genera has been rewritten from Uschakov (1972).

**Key to Genera**

1a. Several anterior segments with rudimentary parapodia

1b. Anterior segments with fully developed parapodia

2a (1a). All setae simple capillaries

2b (1a). Setae composite spinigers

3a (2b). Parapodia distally with a cirriform appendage

3b (2b). Parapodia distally without a cirriform appendage

4a (1b). Parapodia with two distal cirriform appendages, nearly all setae composite spinigers

4b (1b). Parapodia without cirriform appendages, or with a single such appendage; simple or acicular setae present

5a (4b). All setae simple

5b (4b). At least some composite setae present

6a (5a). Parapodia with a cirriform appendage

6b (5a). Parapodia without cirriform appendages

7a (5b). Parapodia with cirriform appendages

7b (5b). Parapodia without cirriform appendages

8a (7b). Acicula barely extending beyond the tip of the parapodia

8b (7b). Aciculum prolonged, extending well beyond the tip of the parapodia
Generic Definitions

Alciopa Audouin and Milne Edwards 1833b, A. reynaudi Audouin and Milne Edwards 1833b; one, possibly three species.

Alciopids with parapodia fully developed on the anterior segments. Each parapodium with two digitiform cirri distally. Three or four pairs of tentacular cirri. Setae include numerous composite spinigers, but a few slender capillaries may be present.

Alciopina Claparede and Panceri 1867, A. parasitica Claparede and Panceri 1867; 2 species.

Alciopids with parapodia fully developed on anterior segments. Parapodia without digitiform cirri. Five pairs of tentacular cirri. All setae simple, including numerous slender capillaries and several shorter acicular setae.

Krohnia Quatrefages 1865, Alciopa lepidota Krohn 1845; 2 species.

Alciopids with parapodia fully developed on anterior segments. Parapodia with a single digitiform cirrus distally. Five pairs of tentacular cirri. All setae simple, including capillaries and thicker, acicular setae in anterior segments and ventrally in other parapodia.

Naiades delle Chiaje 1830, N. cantrainii delle Chiaje 1830; only species.

Alciopids with rudimentary parapodia on first three body segments. Three pairs of tentacular cirri. Parapodia without digitiform cirrus. All setae simple capillaries.

Plotohelmis Chamberlin 1919c, Rhynchonerella capitata Greeff 1876; 3 species.

Alciopids with parapodia fully developed on anterior segments. Four or five pairs of tentacular cirri present. Parapodia without digitiform distal cirrus. Setae of two kinds including simple acicular setae and composite setae with slender pointed appendages.

Rhynchonerella Costa 1862, R. gracilis Costa 1862; 5 species.

Alciopids with parapodia fully developed on anterior segments. Five pairs of tentacular cirri present. Parapodia with single digitiform distal cirrus. Setae of several kinds, including slender composite setae with long appendages, and shorter acicular setae simple or composite.

Torrea Quatrefages 1865, Alciopa candida delle Chiaje 1828; 2 species.

Alciopids with rudimentary parapodia on the two first segments. Three pairs of tentacular cirri. Parapodia without digitiform distal cirrus. All setae composite spinigers with long narrow appendages.

Vanadis Claparede 1870b, V. formosa Claparede 1870b; 13 species.

Alciopids with several segments with rudimentary parapodia, maximally ten segments. Three or four pairs of tentacular cirri. Each parapodium with a digitiform distal cirrus. All setae composite spinigers with long, slender appendages.

Wetello Stop-Bowitz 1948, Callizona gravieri Benham 1929; only species.

Alciopids with parapodia fully developed on all segments. Four pairs of tentacular cirri present. Each parapodium with a digitiform distal cirrus; acicula extending well beyond the tip of the parapodia. Setae include numerous composite spinigers with long, slender appendages and a few simple capillaries.

Invalid Genera

Asterope Claparede 1870b, see Torrea
Callizona Greeff 1876, see Rhynchonerella
Callizonella Apstein 1891, see Krohnia
Cleta Claparede 1870b, lapsus calami for Vanadis Coryneocephalus Levinsen 1885, see Alciopina
Greefa McIntosh 1885, see Alciopa
Halodora Greeff 1876, see Alciopa
Liocapa Costa 1862, see Torrea
Mauita Chamberlin 1919c, see Vanadis
Nauphanta Greeff 1876, see Alciopa

FAMILY LOPADORHYNCHIDAE CLAPAREDE

Exclusively pelagic, short-bodied phyllodociform polychaetes. Prostomium with four antennae and a pair of small eyes. Two or three pairs of tentacular cirri present. Parapodia imitations, dorsal and ventral cirrus cirriform; all setae composite except for modified anterior setae in some forms.

Members of this family often are considered as truly phyllodocids and are treated as such. It is preferable to segregate them in their own family; inclusion in the phyllodocids would make that family very difficult to define. Dales and Peter (1972) and Uschakov (1972) have given recent reviews; but the latter considered the lopadorhynchids as part of the phyllodocids.

Key to Genera

1a. Setae present at the base of the tentacular cirri
1b. Setae absent at the base of the tentacular cirri
2a (1a). Two pairs of tentacular cirri on one segment; parapodial cirri long and digitate

Valid Genera

Pelagobia
2b (Ia). Three pairs of tentacular cirri on two segments; parapodial cirri short
Maupasia

3a (Ib). First two or three parapodia modified and with large, simple setae
Lopadorhynchus

3b (Ib). All parapodia similar, all setae composite spinigers
Pedinosoma

Generic Definitions

Lopadorhynchus Grube 1855, L. brevis Grube 1855, 9 species.
Lopadorhynchids with three pairs of tentacular cirri on two segments; setae absent from tentacular segments. Two or sometimes three anterior setigers enlarged with markedly modified parapodia and simple setae. Normal segments with conical setal lobes and rounded presetal lobes. Normal setae composite with broad, oar-shaped appendages with dentate cutting margin.

Maupasia Viguer 1886, M. caeca Viguer 1886, 4 species.
Lopadorhynchids with three pairs of tentacular cirri on two segments; setae present on tentacular segments. All parapodia similar; each conical with short dorsal and ventral cirri. Setae include composite spinigers with slender appendages and sometimes simple setae in the first setiger.

Pedinosoma Reibisch 1895, P. curtain Reibisch 1895, only species.
Lopadorhynchids with two pairs of tentacular cirri on the first segment; no setae on tentacular segment. All parapodia similar, with small rounded dorsal cirri and long, slender ventral cirri. All setae composite spinigers.

Pelagobia Greeff 1879, P. longicirrata Greeff 1879, 2 species.
Lopadorhynchids with two pairs of tentacular cirri on first segment; setae present on tentacular segment. All parapodia similar with long setal lobes and very long dorsal and ventral cirri. All setae composite with narrowly oar-shaped, marginally dentate appendage.

Invalid Genera

Haliplana Treadwell 1943, see Maupasia
Haliplanes Reibisch 1895, see Maupasia
Halyplanes Reibisch 1893, see Maupasia
Hydrophanes Claparede 1870b, see Lopadorhynchus

Mastigethus Chamberlin 1919c, see Lopadorhynchus
Reibischia Bergstrom 1914. see Lopadorhynchus

FAMILY PONTODORIDAE BERGSTROM 1914
Phyllodociform, small, slender, pelagic polychaetes. Prostomium with four antennae, eyes small. Two pairs of tentacular cirri present. Slender, elongated uniramous parapodia with long dorsal cirri; setae composite.
The family is known for a single genus, Pontodora Greeff 1879 and a single species P. pelagica Greeff 1879. It has so far been reported from warm waters in the Atlantic Ocean and from colder waters in the Pacific Ocean (Uschakov 1972).

Invalid Genus

Epitoka Treadwell 1943, see Pontodora

Suborder Aphroditiformia
Phyllodocida with up to three antennae (may be absent); one pair of tentacular cirri; long ventral palps. Eversible pharynx, if armed, with two or four jaws. First parapodia directed forwards.

Superfamily Aphroditacea
Dorsal cirri alternating with elytrae in at least part of the body; notosetae cylindrical in cross-section, slender or thick. Prostomium not fused to the first setiger.

FAMILY APHRODITIDAE MALMGREN 1867
Aphroditaceans with dorsoventrally flattened bodies and one antenna present. Eversible pharynx with a pair of jaws or unarmored. Elytrae alternating with dorsal cirri; each marginally smooth or irregularly lobed. Notoxae of several kinds, including in some genera finely attenuated felt setae and in others harpoon-shaped, erect, flattened spines or cylindrical spines. All setae simple.

Key to Genera

1a. Dorsum covered with felted notosetae
1b. Dorsum without felt, or with a very few felt setae
2a (Ia). Stout supportive notosetae absent; facial tubercle absent
Heteraphrodita

2b (Ia). Stout supportive notosetae present; facial tubercle present
3a (Ib). Neurosetae distally bifid
Tricertia

3b (Ib). Neurosetae distally entire, but sometimes subdistally spurred
Aphroditia
**FIGURE 14.** Family APHRODITIDAE, *Aphrodita refulgida*, Halfmoon Bay, California, felt removed on right side, 2.5x.

| 4a (I b) | Harpoon-shaped notosetae present | Laetmonice |
| 4b (I b) | Harpoon-shaped notosetae absent | Aphrogenia |
| 5a (4b) | Notosetae sabre-shaped and smooth |  |
| Sb (4b) | Notosetae, if flattened, marginally serrated |
| 6a (5b) | Notosetae flattened and marginally serrated |
| 6b (Sb) | Notosetae cylindrical and smooth |

**Generic Definitions**


Facial tubercle present; felt present. Harpoon-shaped notosetae absent; other long supportive notosetae present.

*Aphrogenia* Kinberg 1855. *A. alba* Kinberg 1855; 5 species.

Facial tubercle present; felt absent. Harpoon-shaped notosetae absent; notosetae long, sabrelike or smooth and capillary.

*Hermionopsis* Seidler 1923. *H. levisetosa* Seidler 1923; only species.

Facial tubercle present; felt absent. Harpoon-shaped notosetae absent; notosetae long, straight and cylindrical without asperities.

*Heteraphrodita* Pettibone 1966a. *H. altoni* Pettibone 1966a; only species.

Facial tubercle absent; felt present. Stout supportive notosetae absent.


Facial tubercle present; felt absent. Harpoon-shaped notosetae present.

*Pontogenia* Claparede 1868. *Hermione chrysocoma* Baird 1865; only species.

Facial tubercle present; felt poorly developed or absent. Protective notosetae flattened and marginally serrated.

*Tricertia* Haswell 1883. *T. araeoceras* Haswell 1883; only species.

Facial tubercle present; felt present. Long protective notosetae present, flattened and curved. Neurosetae distally bifid.
**Taxonomic Notes**

The above treatment follows Pettibone (1966a) closely in that several genera (e.g. *Hermonia* Hartman 1959), generally considered valid, have been excluded from the named genera. The validity of *Tricertia* and *Hermonopsis* is doubtful; however, both have been defined on characters usually used in the group, and therefore, have been included.

**Invalid Genera**

*Barbularia* Sveshnikov 1959, *Cyanippa* Castelnau 1842, see *Aphrodita*


**FAMILY POLYNOIDAE MALMGREN 1867**

Aphroditaceans with dorsoventrally flattened bodies; one, two or, usually, three antennae present. Eversible pharynx with four jaws. Marginally smooth or fringed.

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**FIGURE 15. (A).** Family POLYNOIDAE. *Halosydna brevisetosa*. Sunset Bay, Oregon, intertidal, elytrae removed on left side, 10x; (B), Family POLYDONIDAE. *Polyodontes sp.*, off Santa Barbara, California, 84 m, elytrae removed on the right side, 15x.
elytrae alternate with dorsal cirri at least on the anterior end. All setae simple, notosetae variously developed, but never as felt- or harpoon-setae, and usually distinctly lateral in position.

The polynoids are the most commonly occurring scale-worms. They are usually medium-sized, rarely large worms. Forms with smooth elytrae are often commensals with other organisms; those with strongly ornamented elytrae tend to be free-living. Nearly 100 genera of scale-worms presently are recognized and more are being described every year; most genera are well defined and the species are recognizable, but within several of the larger genera (Harmonothoe, Lepidonotus, Halosydna) problems occur. Several taxa that usually are considered as subgenera under Harmonothoe have been considered as separate genera below. They differ from Harmonothoe sensu Srstcrn, in exactly the characters that usually are considered valid generic characters elsewhere in the family and cannot be related to Harmonothoe by overlap.

If possible, when preserving scale-worms, especially members of HARMOTHOINAE, care must be taken that scales are maintained with the specimens, since these furnish one of the best diagnostic characters for species identifications. The best way of doing this, is either to bulk-relax the whole sample (MS 222, or MgCl2) or, if the specimens are larger, preserve each scale-worm separately.

There are no recent reviews of the whole family; recent authors interested in these worms, include Hartman and Hartmann-Schroder, and especially Marian H. Pettibone of the Smithsonian Institution.

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**Key to Genera**

1a. Lateral antennae inserted posteriorly on the prostomium  
   1b. Lateral antennae inserted anteriorly
2a (1b). At least two antennae well developed  
   2b (1b). Median antenna well developed; lateral antennae reduced or absent
3a (2a). Median antenna present  
   3b (2a). Median antenna absent
4a (3a). Lateral antennae attached sub-distally or ventrally on the prostomium (ceratophores below the anterior points of the prostomium which maybe produced into cephalic peaks) HARMOTHOINAE  
   4b (3a). Lateral antennae attached distally on the prostomium (ceratophores continuations of the prostomium)
5a (2b). Fifteen pairs of elytrae  
   5b (2b). Maximally 13 pairs of elytrae
6a (5b). Prostomium consisting of two inflated lobes, 16-17 segments present  
   6b (5b). Prostomium a single unified lobe, with paired rounded anterior projections, 17-19 segments
7a (3b). Notosetae coarser than neurosetae  
   7b (3b). Notosetae much thinner than neurosetae
8a (4a). First setigers with simple, strongly curved hooks  
   8b (4a). Anterior hooks absent
9a (8a). Two segments with anterior hooks  
   9b (8a). Three segments with anterior hooks
10a (8b). Fourteen or fewer pairs of elytrae  
   10b (8b). Fifteen or more pairs of elytrae
11a (10a). Notosetae absent  
   11b (10a). Notosetae present
12a (11b). Eight or nine pairs of elytrae present, parapodia prolonged  
   12b (11b). Twelve to 14 pairs of elytrae present, parapodia short
13a (12b). Some notocirri with spherical subdistal inflations  
   13b (12b). Notocirri maximally gently inflated
14a (13b). Eyes very large and confluent  
   14b (13b). Eyes small
15a (10b). Fifteen pairs of elytrae  
   15b (10b). Sixteen or more pairs of elytrae
16a (15a). More than 50 segments present, only anterior part of body covered by elytrae  
   16b (15a). Less than 45 segments present; elytrae cover the whole body, or at most, the last 10-15 segments uncovered
17a (16a). Neurosetae with semilunar pockets
17b (16a). Neurosetae spinose or smooth, without pockets
18a (17b). Notosetae absent
18b (17b). Notosetae present
19a (18b). All notosetae thicker than or at least as thick as the neurosetae
19b (18b). At least some capillary notosetae present
20a (19a). Notosetae held erect over body
20b (19a). Notosetae short and lateral in position
21a (19b). Eyes reduced or absent, prostomium quadrangular
21b (19b). Eyes distinct, prostomium rounded
22a (21b). Notosetae mainly capillary, neurosetae unidentate
22b (21b). Notosetae mainly thick and blunt-tipped, neurosetae bidentate, except in far posterior setigers
23a (16b). Notosetae distinctly slenderer than the neurosetae
23b (16b). At least some notosetae as thick as or thicker than the neurosetae
24a (23a). Ventr al surface with paired foli osse appendages
24b (23a). Ventr al surface smooth
25a (24b). Most neurosetae bidentate
25b (24b). All neurosetae unidentate
26a (25b). Neurosetae slander, straight spines
26b (25b). Neurosetae distally falcate
27a (23b). Ventr al cirri foli osse, ventrum papil lose
27b (23b). Ventr al cirri d igitate, ventrum usually smooth
28a (27b). Neurosetae in part distally trifid
28b (27b). Neurosetae distally un- or bidentate
29a (28b). Neurosetae with semilunar pockets
29b (28b). Neurosetae spinose or nearly smooth
30a (29b). Notosetae with distal tufts of long hairs
30b (29b). Notosetae without distal tufts of hairs
31a (30b). Neurosetae distally with capillary tips
31b (30b). Neurosetae distally falcate, uni- or bi-dentate
32a (31a). Some neurosetae with fine, filamentous tips
32b (31a). All neurosetae with slender tips, but without filaments
33a (31b). All neurosetae unidentate
33b (31b). At least some neurosetae bidentate
34a (33a). Dorsal cirri alternating between short and long; short dorsal cirri basally inflated
34b (33a). All dorsal cirri similar in length, none basally inflated
35a (34b). Notosetae of two kinds, thick and slender
35b (34b). All notosetae thick and similar in shape
36a (35b). Eyes absent
36b (35b). Eyes present
37a (33b). Neurosetae distally pencillate
37b (33b). Neurosetae never pencillate
38a (37b). Both noto- and neurosetae slender; notosetae with capillary tips
38b (37b). Notosetae and most neurosetae coarse
39a (38b). Neurosetae include fuscate spines with subequal tips and slender, dentate capillaries
39b (38b). Neuropodial capillary setae absent
40a (39b). Some neurosetae deeply cleft with both teeth long and narrow
40b (39b). Neurosetae with main fangs very much larger than secondary teeth
41a (40b). Posterior eight to ten segments not covered by elytrae
41b (40b). Whole body covered by elytrae
42a (15b). Sixteen pairs of elytrae
42b (15b). Eighteen or more pairs of elytrae
43a (42a). Neurosetae with semilunar pockets
43b (42a). Neurosetae slender and serrate, semilunar pockets absent
44a (43b). Notosetae distinctly serrated
44b (43b). Neurosetae with a few spines
45a (44a). Posterior eight to ten segments not covered by elytrae
45b (44a). Whole body covered by elytrae
46a (43a). Neurosetae with semilunar pockets
46b (43a). Neurosetae slender and serrate, semilunar pockets absent
47a (46a). Notosetae distinctly serrated
47b (46a). Neurosetae with a few spines
| 45a (42b) | Eighteen pairs of elytra | *Acanthicolepis* | 46 |
| 45b (42b) | Nineteen or more pairs of elytra | | 47 |
| 46a (43b) | Neurosetae distinctly slenderer than neurosetae | | 48 |
| 46b (43b) | Neurosetae as thick as, or thicker than neurosetae | | 49 |
| 47a (46a) | Neurosetae with semilunar pockets | *Pottsiscalisetosus* | 50 |
| 47b (46a) | Semilunar pockets absent | | 51 |
| 48a (47b) | Neuropodia with subacicular digitiform lobes | *Parahololepidella* | 52 |
| 48b (47b) | Neuropodia with large, supra-acicular presetal lobes | *Grubeopolynoe* | 53 |
| 49a (46b) | All neurosetae unidentate | *Polyeuoa* | 54 |
| 49b (46b) | At least some neurosetae bidentate | | 55 |
| 50a (49b) | Neurosetae with long bare tips beyond the serrated regions | *Holopleidella* | 56 |
| 50b (49b) | Neurosetae with very short bare tips beyond the serrated region | *Neoholopleidella* | 57 |
| 51a (4b) | Palps represented by two small tubercles | *Bouchiria* | 58 |
| 51b (4b) | Palps well developed | | 59 |
| 52a (51b) | Ventral cirrus heavily fimbriated, ventrum with transverse rows of three papillae on each segment | *Lepidofimbria* | 60 |
| 52b (51b) | Ventral cirrus and ventrum smooth | | 61 |
| 53a (52b) | Neurosetae distally bifid with several small accessory teeth in the crotch | *Lepidogyra* | 62 |
| 53b (52b) | Neurosetae unidentate or bifid, rarely trifid; if bifid, then without accessory teeth | | 63 |
| 54a (53b) | Prostomium anteriorly produced into two large lobes with small lateral antennae attached distally | *Allmaniella* | 64 |
| 54b (53b) | Prostomium anteriorly tapering into the ceratophores | | 65 |
| 55a (54b) | Renal papillae greatly prolonged in some median setigers | *Bathymoorea* | 66 |
| 55b (54b) | Renal papillae of similar length in all setigers | | 67 |
| 56a (55b) | Notopodia completely reduced, neuropodium prolonged with the ventral cirrus attached near the middle | *Frennia* | 68 |
| 56b (55b) | Notopodia usually present; if absent, then neuropodia short with ventral cirri basal | | 69 |
| 57a (56b) | Twelve or 13 pairs of elytra | | 70 |
| 57b (56b) | More than 13 pairs of elytra | | 71 |
| 58a (57a) | With branchial filaments on the elytrophores | | 72 |
| 58b (57a) | Branchial filaments absent | | 73 |
| 59a (58a) | With pseudelytrae on non-elytrophoral, alternating segments posteriorly | *Euphionella* | 74 |
| 59b (58a) | Pseudelytrae absent | | 75 |
| 60a (59b) | Neurosetae coarsely spinose | *Chaetacanthus* | 76 |
| 60b (59b) | Neurosetae finely plumose | *Euphione* | 77 |
| 61a (58b) | Notopodia absent | *Drieschia* | 78 |
| 61b (58b) | Notopodia present | | 79 |
| 62a (61b) | With one very large bidentate hook in the middle of each neuropodial fascicle | *Sheila* | 80 |
| 62b (61b) | All neurosetae similar in thickness, none bidentate hooks | | 81 |
| 63a (62b) | Neurosetae distally trifurcate | *Hermenia* | 82 |
| 63b (62b) | Neurosetae distally entire | | 83 |
| 64a (63b) | Notopodia of two kinds, lancet-shaped and tapering and serrated | *Thormora* | 84 |
| 64b (63b) | Notopodia all of one kind, usually slender and serrated | | 85 |
| 65a (64b) | Pseudelytrae on non-elytrophoral segments | *Dilepidonotus* | 86 |
| 65b (64b) | Pseudelytrae absent | *Lepidonotus* | 87 |
| 66a (57b) | Fourteen pairs of elytra | | 88 |
| 66b (57b) | Fifteen or more pairs of elytra | | 89 |
| 67a (66a) | Neurosetae bidentate | *Lucopia* | 90 |
| 67b (66a) | Neurosetae entire | *Podarmus* | 91 |
| 68a (66b) | Only anterior half of body covered by elytra | *Pseudopolynoe* | 92 |
| 68b (66b) | Elytra on most parts of the body | | 93 |
| 69a (68b) | Fifteen pairs of elytra | | 94 |
| 69b (68b) | Sixteen or more pairs of elytra | | 95 |
| 70a (69a) | Neurosetae thin | *Parahalosydna* | 96 |
| 70b (69a) | Neurosetae as thick as, or thicker than the neurosetae | | 97 |
| 71a (70b) | All neurosetae unidentate | *Eulagisca* | 98 |
| 71b (70b) | At least some neurosetae bidentate | | 99 |
72a (71b). Dorsal cirri of two kinds, short and expanded or long and gently inflated  

72b (71b). All dorsal cirri long and slightly inflated subdistally  

73a (72b). Noto setae nearly smooth  

73b (72b). Noto setae densely serrated  

74a (69b). With 16 pairs of elytrae  

74b (69b). At least 17 pairs of elytrae  

75a (74b). Seventeen to 20 pairs of elytrae  

75b (74b). At least 21 pairs of elytrae  

76a (75a). Noto setae absent  

76b (75a). Noto setae present  

77a (76a). Dorsum with a median pustule on each segment  

77b (76a). Dorsal pustules absent  

78a (77b). Neurosetae with capillary tips  

78b (77b). Neurosetae with falcate tips  

79a (78a). Notosetae numerous, lateral antennae terminal  

79b (78b). Only few notosetae present; lateral antennae subterminal  

80a (79b). Noto setae present  

80b (79a). Noto setae absent  

81a (80a). Parapodia distally with series of long papillae  

81b (80a). Parapodia distally without papillae  

82a (81b). Neurosetae with semilunar pockets  

82b (81b). Neurosetae spinose or smooth  

83a (82b). Notosetae thinner than most neurosetae  

83b (82a). Notosetae as thick as, or thicker than the neurosetae  

84a (83a). Superior neurosetae slender and spinose, inferior ones acicular  

84b (83a). All neurosetae stout  

85a (84b). At least some neurosetae bidentate  

85b (84b). All neurosetae unidentate  

86a (85b). All neurosetae unidentate  

86b (85a). At least some neurosetae bidentate  

87a (86a). Ventrum with large segmentally arranged lamellae  

87b (86a). Ventrum smooth  

88a (80b). Lateral antennae subterminal, neurosetae few  

88b (86b). Lateral antennae terminal, neurosetae numerous  

89a (88b). Twenty-one or 22 pairs of elytrae; neurosetae with long, curved tips  

89b (88a). Numerous pairs of elytrae; neurosetae with short, straight or curved tips  

90a (88b). Ventral cirri with two-three knobs  

90b (88a). Ventral cirri smooth  

91a (90b). Antennal scales present  

91b (90a). Antennal scales absent  

92a (91a). Setae flattened, marginally serrated with long, slender tips; up to 30 pairs of elytrae  

92b (91a). Setae flattened, finely dentate and very abruptly tapering; 23 pairs of elytrae  

93a (92b). Neurosetae stout, falcate; pre- and postsetal neuropodial lobes of similar length  

93b (92a). Neurosetae slender; presetal lobes distinctly longer than the postsetal ones in the neuropodia  

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**Generic Definitions**

*Acanthicoles* McIntosh 1900, *Polynoe asperrima* Sars 1861; 3 species.


*Acholo* Claparede 1870b, *Nereis squamosa* delle Chiaje 1828; only species.

**LEPIDONOTINAE.** Numerous segments and elytrae. Cirriferous segments with T-shaped papillae. Neurosetae thinner than neurosetae, with transverse rows of spines. Neurosetae few, unidentate with serrated subdistal areas.

*Admetella* McIntosh 1885, *A. longipedata* McIntosh 1885; 2 species.

**LEPIDONOTINAE.** Up to 30 pairs of elytrae; 75 segments. Antennal scales at base of lateral antennae. Neurosetae absent; neurosetae long, flattened, finely...
marginally serrated with smooth tips. Neuropodia prolonged.

Adyte Saint-Joseph 1899, *Hermadion assimile* McIntosh 1876; only species.

HARMOTHOINAE. Fifteen pairs of elytrae; long posterior region without scales. Noto setae at least as thick as neuro setae, smooth with few spines. Neuro setae with semilunar pockets and faintly bifid tips; serrations faint. Presetal neuropodial lobes longer than postsetal ones.

*Alentia* Malmgren 1865, *Polynoe gelatinosa* Sars 1835; 3 species.


*Alentiana* Hartman 1942, *Polynoe aurantiaca* Verrill 1885; only species.

LEPIDONOTINAE. Seventeen to 20 pairs of elytrae; 36-39 segments. Noto setae absent. Neurosetae unidentate, serrated or smooth.

*Allmanniella* McIntosh 1885, *A. setubalensis* McIntosh 1885; 5 species.

LEPIDONOTINAE. More than 15, but less than 30 pairs of elytrae. Pro stomium anteriorly produced into two large lobes with the small lateral antennae attached distally. Noto setae thick and finely serrated; neuro setae of two kinds, upper slender and smooth, lower thicker, bidentate and vaguely serrated.

*Andresia* Prenant 1924, *A. ampullifera* Prenant 1924; only species.

HARMOTHOINAE. Thirteen to 14 pairs of elytrae; 32-33 segments. Noto setae thicker than neuro setae, coarsely serrated. Neurosetae unidentate, serrated. Some notocirri with large, spherical ampullae sub distally.


*Antinoe* Kinberg 1855, *A. microps* Kinberg 1855; 8 species.

HARMOTHOINAE. Fifteen pairs of elytrae. Noto setae thicker than neuro setae, blunt, transversely serrated. Neurosetae with slender tips, but not filamentously prolonged.

*Antinoella* Augener 1928b, *Antinoe sarsi* Kinberg in Malmgren 1865; 7 species.

HARMOTHOINAE. Fifteen pairs of elytrae; approximately 40 segments. Noto setae thicker than neuro setae with rows of spines. Neurosetae distally with slender, filamentous tips, often pilose.

*Arctoedia* Annenkova 1937, *Eupolynoe anticostiensis* McIntosh 1874; 2 species.

HARMOTHOINAE. Fifteen pairs of elytrae; 36 segments. Noto setae slenderer than neuro setae, with blunt or capillary tips. Upper neurosetae sharp-tipped; others bidentate.

*Arctonoella* Chamberlin 1920, *Polynoe vittata* Grube 1855; 4 species.

LEPIDONOTINAE. Forty or more pairs of elytrae, numerous segments. Lateral antennae subterminal. Noto setae few, thick, recurved uni- or bidentate with coarse serrations. Neurosetae few, thick and falcate, uni- or bidentate.

*Arctonoella* Buzhinskaya 1967, *Harmothoe sinagawaensis* Izuka 1912; only species.


HARMOTHOINAE. Fifteen pairs of elytrae, approximately 40 segments. Noto setae thicker than neurosetae, smooth or faintly serrated. Neurosetae varied: as large golden hooks in the second and third segment; otherwise uni- or bidentate, often spurred and subdistally inflated.


HARMOTHOINAE. Fifteen to 16 pairs of elytrae; 40-43 segments. Noto setae thicker than neurosetae with transverse rows of teeth. Neurosetae unidentate or bidentate, with the distal end pincillate.


HARMOTHOINAE. Fifteen pairs of elytrae, 35-36 segments. Noto setae distally with tuft of long, fine hairs, otherwise blunt and serrated. Neurosetae unidentate, with a few coarse teeth on the cutting edge.


LEPIDONOTINAE. Twenty-three pairs of elytrae, 58 segments. Noto setae absent, notopodia reduced. Neuropodia prolonged, with slender, flattened setae, finely dentate and distally very abruptly tapering.


LEPIDONOTINAE. Numbers of elytrae not known, 35 segments. Noto setae short and slender, neuro setae
thicker, long, bidentate and marginally serrated. Renal papillae greatly prolonged in some median setigers.

*Benhamipolyne* Pettibone 1970d, *Lepidostenia antipathica* Benham 1927; only species.

LEPIDONOTINAE. More than 17 pairs of elytrae; numerous segments. Notosetae absent. Neurosetae thick, falcate with weakly marked serrations.


LEPIDONOTINAE. Numbers of pairs of elytrae and segments not known. Notosetae absent; neurosetae include slender capillary setae with long slender spines and thicker more acicular, but otherwise similar setae ventrally. Palps reduced to two small tubercles. Numerous stalked papillae present on the parapodia.

*Bylgides* Chamberlin 1919c, *Bylgia elegans* Theel 1879; only species.

IPHIONINAE. Two antennae; facial tubercle absent. Notosetae coarser than neurosetae.


*Chaetacanthus* Seidler 1924, *Iphione magnifica* Grube 1875; 3 species.

LEPIDONOTINAE. Twelve pairs of elytrae, 26 segments. Elytrophores with branchiae. Neurosetae fine and capillary; neurosetae unidentate and spinose.


LEPIDONOTINAE. Twelve pairs of elytrae, 26 setigers. Notosetae slender and silky capillaries; neurosetae thicker, smooth and pointed. Dorsum of cirral segments crested; pseudelytrae present.

*Drieschia* Michaelsen 1892, *D. pelagica* Michaelsen 1892; 6 species.

LEPIDONOTINAE. Twelve to 13 pairs of elytrae; 26-27 segments. Notopodia absent; upper neurosetae capillary, lower thicker and slightly serrated.

*Drieschella* Augener and Pettibone in Pettibone 19704, *D. maculata* Augener and Pettibonein Pettibone 19704; only species.

LEPIDONOTINAE. Twenty pairs of small elytrae; 47 segments. Notosetae absent; neurosetae slender and tapering to capillary tips. Presetal lobes longer than postsetal ones; acicular lobes not projecting.


HARMOTHOINAE. Fifteen pairs of elytrae; posterior half of body not covered by elytrae. Notosetae mainly capillaries, a few thicker blunt setae present. Neurosetae thicker than notosetae, mainly unidentate, but a few bidentates also present. Prostomium round, eyes conspicuous.


HARMOTHOINAE. Fifteen pairs of elytrae; 36-40 segments. Notosetae thicker than neurosetae with rows of teeth. Some neurosetae distally split with both parts about equally long and thick; other neurosetae slender and unidentate.

*Eulagisca* McIntosh 1885, *E. corrientis* McIntosh 1885; 3 species.

LEPIDONOTINAE. Fifteen pairs of elytrae; 37 segments. Lateral antennae subterminal; facial tubercle present. Notosetae slender, numerous, pectinate, thicker than the neurosetae. Neurosetae slender and tapering to capillary tips.


HARMOTHOINAE. Fifteen pairs of elytrae, approximately 40 segments. Notosetae thicker than neurosetae with rows of spines; neurosetae all unidentate, with more or less well-marked spinose region.

*Euphione* McIntosh 1885, *E. elisabethae* McIntosh 1885; 6 species.

LEPIDONOTINAE. Twelve pairs of elytrae, short-bodied. Elytrophores with branchiae. Neurosetae capillary; neurosetae thicker, unidentate and laterally covered with fine hairs.


*Fremia* Viguier 1912, *F. dubia* Viguier 1912; 2 species.

LEPIDONOTINAE. Numbers of pairs of elytrae and segments not known. Notopodia completely reduced; neuropodia strongly prolonged with ventral cirri attached near the middle. All setae slender, smooth capillaries.

*Gastrolepida* Schmarda 1861, *G. clavigera* Schmarda 1861; only species.

LEPIDONOTINAE. More than 21 pairs of elytrae. Notosetae and neurosetae similar in thickness; notosetae blunt and serrated; neurosetae unidentate and serrated. Antennae and dorsal cirri strongly inflated substially, with slender tips. Ventrum with large lamellae.
**Grubeopolynoe** Pettibone 1969b, *Poly noe tuts* Grube 1855; only species.

**HARMOTHOINA E.** Fifteen pairs of elytra; approximately 40 segments. Most notosetae capillary with fine dentition. Neurosetae thicker than notosetae, distally unidentate, serrated.

**Gorelia** Bergstrom 1916, *Malmgrenia crassicirriss* Willey 1902; only species.

**HARMOTHOINA E.** Fifteen pairs of elytra; 38-40 segments. Notosetae shorter and thicker than the neurosetae, finely serrated. Neurosetae in part distally trifid.

**Grubeopolynoe** Pettibone 1969b, *Poly noe tuts* Grube 1855; only species.

**HARMOTHOINA E.** Fifty or more pairs of elytra; numerous segments. Notosetae slenderer than neurosetae; of two kinds, short and blunt and slender and tapering. Neurosetae all of one kind, vaguely bidentate or unidentate, serrated. Neurosetae thick, uni- or bidentate, subdistally serrated. Neurosetae distally uni- or bidentate, subdistally serrated.

**Halosydnella** Hartman 1938, *Halosydn a australis* Kinberg 1855; 9 species.

**LEPIDONOTINAE.** Twenty-one pairs of elytra; 45 segments. Notosetae finer than neurosetae; pointed with coarse serrations.

**Halosyd nopsis** Uschakov and Wit 1959, *Halosydn a pilosa* Horst 1917; only species.

**LEPIDONOTINAE.** Twenty-seven pairs of elytra, body covered. Notosetae finer than neurosetae, finely serrated; neurosetae nearly smooth and unidentate. Distal end of parapodia with series of large papillae.

**Harmothoe** Kinberg 1855, *H. spinosa* Kinberg 1855; 120 species.

**HARMOTHOINA E.** Fifteen pairs of elytra; approximately 40 segments. Notosetae thicker than neurosetae; with rows of spines. Neurosetae at least in part bidentate, but usually also some unidentate in inferior positions.

**Hartmania** Pettibone 1955, *H. moorei* Pettibone 1955; only species.

**HARMOTHOINA E.** Fifteen pairs of elytra; 40 segments. Notosetae finer than neurosetae, tapering to sharp tips. Neurosetae tapering to sharp, pointed tips, not falcate.

**Hemilepida** Schmarda 1861, *H. tuberculata* Schmarda 1861; 4 species.

**HARMOTHOINA E.** Fifteen pairs of elytra; posterior part of body not covered by elytra. Notosetae as thick as neurosetae, vaguely serrated. Neurosetae distally bi- or unidentate.

**Herdmanella** Darboux 1899, *Polynoe ascidioides* McIntosh 1885; 3 species.

**HARMOTHOINA E.** Eight to 9 pairs of elytra; 15-17 segments. Notosetae spinose, neurosetae less so, both conspicuously long and unidentate, parapodia prolonged.

**Hermadion** Kinberg 1855, *H. magalhaensi* Kinberg 1855; 5 species.

**HARMOTHOINA E.** Fifteen pairs of elytra; more than 50 segments. Notosetae thicker than neurosetae and strongly serrated. Neurosetae uni- or bidentate, serrated. Notosetae held erect over body.

**Hermenia** Grube 1856, *H. verruculosa* Grube 1856; 2 species.

**LEPIDONOTINAE.** Twelve pairs of elytra, small, not overlapping. Notosetae few, slender and serrated; neurosetae distally trifurcate.

**Hesperonoe** Chamberlin 1919, *Harmothoe complanata* Johnson 1901; 4 species.

**HARMOTHOINA E.** Fifteen pairs of elytra; 36-38 segments. Notosetae in part at least as thick as neurosetae; of two kinds; thick serrated and blunt and slender, serrated and pointed. Neurosetae all unidentate, and serrated, usually slender superior and thick in inferior positions.

**Heteropolynoe** Bidenkap 1907, *H. nordgaardi* Bidenkap 1907; only species.

**HARMOTHOINA E.** Numbers of pairs of elytrae not known, 58 segments. Notosetae absent, all neurosetae unidentate and marginally serrated, slender in superior and coarse in inferior positions.

**Hololepida** Moore 1905, *H. magna* Moore 1905; 3 species.

**LEPIDONOTINAE.** Numerous pairs of elytrae, numerous segments. Notosetae few in numbers, capillary; neurosetae thicker, of two kinds, tanceate and bidentate with transverse rows of pockets. Nuchal flap present.

**Hololepidda** Willey 1905, *H. commensalis* Willey 1905; 5 species.

**HARMOTHOINA E.** Twenty-six or more pairs of elytrae; 55 or more segments. Notosetae at least as thick as neurosetae, nearly smooth with blunt tips. Neurosetae distally bidentate or entire.

**Hyperhalosydn a** Augener 1922, *Lepidonotus striatus* Kinberg 1855; 2 species.

**LEPIDONOTINAE.** Twenty-one to 22 pairs of elytrae; 50 segments. Notosetae few, short, curved
and blunt. Neurosetae bidentate with long, curved tips. Lateral antennae terminal.

**Intoshella** Darboux 1899. *Polynoe (Langerhansia) euplectellae* McIntosh 1885; 3 species.

**HARMOTHOINAE.** Fifteen pairs of elytrae, approximately 40 segments. Noto- and neurosetae similar in thickness; notosetae smooth-tipped, weakly serrated; neurosetae unidentate, more distinctly serrated. Eyes absent.

**Iphione** Kinberg 1855, *Polynoe muricata* Savigny 1818, 4 species.

**IPHIONINAE.** Thirteen pairs of elytra; notosetae capillary, neurosetae serrated and distally entire.

**Kermadecella** Darboux 1899. *Polynoe magnipalpa* McIntosh 1885; only species.

**HARMOTHOINAE.** Fifteen pairs of elytrae, short body. Notosetae thicker than neurosetae, serrated. Neurosetae with transverse rows of spines; distally unidentate. Dorsal cirri alternating long and short, the short ones basally inflated.

**Lagisca** Malmgren 1865, *Polynoe rarispina* Sars 1861; 24 species.

**HARMOTHOINAE.** Fifteen pairs of elytrae, approximately 50 segments. Noto- and neurosetae about equally thick. Notosetae with dense rows of teeth; neurosetae at least in part bidentate; all neurosetae serrated. Posterior 8-10 segments not covered by elytrae.

**Lepidasthenia** Malmgren 1867, *Polynoe elegans* Gmbe 1840; 37 species.

**LEPIDONOTINAЕ.** Numerous pairs of elytrae and segments. Notosetae few, usually blunt; neurosetae numerous, uni- or bidentate, most are thicker than notosetae except inferior ones in each fascicle. Lateral antennae terminal.

**Lepidastheniella** Monro 1924, *Polynoe comma* Thomson 1902; 3 species.

**LEPIDONOTINAЕ.** Up to 90 pairs of elytrae; covering the body. Notosetae thinner than neurosetae, ringed with spines. Neurosetae spinose and distally entire.


**LEPIDONOTINAЕ.** Numbers of pairs of elytrae and segments not known. Ventrum with transverse row of three papillae on each segment; ventral sinus heavily funbriated. Notosetae assent; neurosetae smooth and distally entire.

**Lepidogyra** Hartman 1967, *L. alba* Hartman 1967; only species,

**LEPIDONOTINAЕ.** Numbers of pairs of elytrae and segments not known. Notosetae coarser than neuroseta; neurosetae spinose, distally bifid with a series of accessory teeth in the crotch between the two major teeth.

**Lepidonotus** Leach 1816, *Aphrodita clava* Montagu 1808; 65 species.

**LEPIDONOTINAЕ.** Twelve pairs of elytrae; 26 segments. Notosetae finer than neurosetae, all tapering, with whorls of spines. Neurosetae with rows of coarse teeth; rarely bidentate, usually unidentate.

**Leucta** Malmgren 1867, *Polynoe nivea* Sars 1863; only species.

**HARMOTHOINAE.** Sixteen pairs of elytrae, short-bodied. Notosetae coarser than neurosetae and serrated. Neurosetae long, slender, unidentate and serrated.

**Lucopia** Pillai 1965, *L. magnicirra* Pillai 1965; only species.

**LEPIDONOTINAЕ.** Fourteen pairs of elytrae; 27 segments. Notosetae absent; neurosetae bidentate and serrated. Dorsal cirri strongly inflated.

**Macellicephalus** McIntosh 1885, *M. mirabilis* McIntosh 1885; 18 species.

**MACELLICEPHALINAE.** Eight to 13 pairs of elytrae; 17-29 segments. Notosetae few or absent, if present then with marginal teeth. Neurosetae long, usually paddle-shaped.

**Macellicephaloides** Uschakov 1955b, *M. grandicirra* Uschakov 1955b; only species.

**MACELLICEPHALINAE.** Maximal 9 pairs of elytrae; 16-17 segments. Notosetae absent. Neurosetae long, marginally dentate. Prostomium with two very strongly inflated lobes.

**Macelloides** Uschakov 1957, *M. antarctica* Uschakov 1957; only species.

**MACELLICEPHALINAE.** Fifteen pairs of elytrae; 30 segments. Notosetae absent. Neurosetae distally inflated.

**Maiogrenia** McIntosh 1874, *M. whiteavesi* McIntosh 1874; 9 species.

**LEPIDONOTINAЕ.** Fifteen pairs of elytrae; 36-41 segments. Notosetae and neurosetae similar in thickness. Neurosetae nearly smooth; neurosetae uni- or bidentate with very small secondary teeth. Lateral antennae subterminal.

**Maiogreniella** Hartman 1967, *M. dicirra* Hartman 1967; only species.

**LEPIDONOTINAЕ.** Fifteen pairs of elytrae; 41-56 segments. Notosetae and neurosetae similar in thickness; notosetae falcate, nearly smooth. Neurosetae bidentate with long, slender secondary tooth. Dorsal cirri of two kinds; long and slender and short and expanded.
HARMOTHOINAE. Fifteen pairs of elytrae; 39-41 segments. Notosetae thicker than neurosetae, few in number; smooth or faintly structured. Neurosetae of two kinds: numerous slender dentate with capillary tips; few furcates with subequal blunt tips.

Neimidia Malmgren 1865, N. torelli Malmgren 1865; 9 species.

HARMOTHOINAE. Fifteen pairs of elytrae; posterior part of body without elytrae. Notosetae mainly capillaries, but a few thick spines present; neurosetae mainly unidentate, but a few bidentate setae present. Prostomium quadrangular, eyes missing or strongly reduced.

Neoholoolepidella Pettibone 1969b, N. murrayi Pettibone 1969b; only species.

HARMOTHOINAE. Fifty or more pairs of elytrae; numerous segments. Notosetae thicker than neurosetae, nearly smooth, with blunt tips. Neurosetae with very short bare tip beyond a dense spinose region; distally bidentate and serrated edges.

Paradyte Pettibone 1969a, Polynoe crinaidicola Potts 1910; 2 species.

HARMOTHOINAE. Fifteen pairs of elytrae; 40 segments. Notosetae thicker than neurosetae, sabrelike with entire or slightly notched tips, nearly smooth. Neurosetae of two kinds: supracircular ones with semilunar pockets, slender, spinose and with bifid tips. Subacicular ones thicker, with semilunar pockets and entire tips.

Parahalosydra Horst 1915a, P. sibogae Horst 1915a; 4 species.

LEPIDONOTINAE. Fifteen pairs of elytrae; short-bodied. Notosetae thinner than neurosetae, serrated. Neurosetae unidentate and serrated along both edges.

Paraholoolepidella Pettibone 1969b, Holoolepidella greefii Augener 1918; 2 species.

HARMOTHOINAE. Numerous pairs of elytrae and segments. Notosetae slenderer than neurosetae, but still thick. Neurosetae very thin, slightly hooked, entire and very faintly spinose. Neuropodia with subacicular digitiform process.

Paralepidonotus Horst 1915a, Polynoe ampullifera Grube 1878; 4 species.

LEPIDONOTINAE. Fifteen pairs of elytrae; 38 segments. Notosetae thicker than the neurosetae; densely serrated. Neurosetae at least in part bidentate.

Perolepis Ehlers 1908, P. regularis Ehlers 1908; only species.

LEPIDONOTINAE. Numerous pairs of elytrae and segments. Notosetae absent; neurosetae distally bidentate. Ventral cirri with three knobs; cirrophores enlarged dorsally; pre- and postsetal lobes of similar length.


HARMOTHOINAE. Fourteen pairs of elytrae, less than 40 segments. Notosetae slender and spinose with capillary tips; neurosetae similar in thickness; distally spinose and spinigerous. Ventral surface with paired foliose appendages on each segment.

Phyllosheilla Pettibone 1961, P. wigleyi Pettibone 1961; only species.

HARMOTHOINAE. Fifteen pairs of elytrae; less than 50 segments. Notosetae thicker than neurosetae, spinose. Neurosetae smooth and distally bidentate. Ventral cirri foliose, ventral surface papillated.

Podarmus Chamberlin 1919c, P. ploa Chamberlin 1919c; 2 species.

LEPIDONOTINAE. Fourteen pairs of elytrae, 30 segments. Notosetae absent; neurosetae all distally entire; of two kinds, thick and straight or slender and capillary.

Polynoe Savigny 1818, P. scolopendrina Savigny 1818; 17 species.

HARMOTHOINAE. Fifteen pairs of elytrae; posterior part of body not covered by elytrae. Notosetae mainly thick and blunt-tipped, but a few capillary setae present. Nearly all neurosetae bidentate, except usually one or two unidentate in each of the posterior setigers; most neurosetae coarser than the notosetae.

Polynoella McIntosh 1885, P. laevis McIntosh 1885; 3 species.

HARMOTHOINAE. Nineteen to 30 pairs of elytrae, posterior part of body not covered by elytrae. Notosetae thicker than neurosetae, faintly serrated. Neurosetae unidentate, subdistally expanded and dentate.

Polynoe Savigny 1818, P. scolopendrina Savigny 1818; 17 species.

HARMOTHOINAE. Fifteen pairs of elytrae; posterior part of body not covered by elytrae. Notosetae mainly thick and blunt-tipped, but a few capillary setae present. Nearly all neurosetae bidentate, except usually one or two unidentate in each of the posterior setigers; most neurosetae coarser than the notosetae.

Potsiscalisetosus Pettibone 1969a, Scalisetosus prae­longus Marenzeller 1902; only species.

HARMOTHOINAE. Twenty-eight or more pairs of elytrae; numerous segments. Notosetae finer than neurosetae; tapered to blunt tips, serrated. Neurosetae with semilunar pockets, distally entire and more or less falcate.

Pseudohalosydra Fauvel 1913, P. rosea Fauvel 1913; only species.

LEPIDONOTINAE. At least 20 pairs of elytrae; numerous segments. Notosetae spinose and capillary;
neurosetae of two kinds; superior ones slender and spiralled spinose; inferior ones acicular and spinose.

**Pseudopolyne** Day 1962, *Polyne inhaeae* Day 1951; only species.

**LEPIDONOTINAE.** Fifteen to 17 pairs of elytrae; posterior half of body not covered by elytra. Notosetae finer than neurosetae, serrated; neurosetae bi- or unidentate, serrated.

Robertianella McIntosh 1885, *R. synophthalma* McIntosh 1885; only species.

**HARMOTHOINAE.** Thirteen pairs of elytrae; approximately 30 segments. Neuro- and neurosetae of similar thickness; notosetae blunt, nearly smooth; neurosetae distally minutely notched, nearly smooth. Eyes very large and nearly confluent on the prostomium.

Scalisetosus McIntosh 1885, *S. ceramensis* McIntosh 1885; 8 species.

**HARMOTHOINAE.** Sixteen pairs of elytrae; 40 segments. Notosetae much coarser than neurosetae, with a few spines only. Neurosetae slender, distally entire and spinose. Both noto- and neuropodia with long lobes.

*Sheila* Monro 1930, *S. bathypelagica* Monro 1930; only species.

**LEPIDONOTINAE.** Thirteen pairs of elytrae; 29 segments. Notosetae slender, dentate capillaries; neurosetae of several kinds: numerous superior dentate capillaries; most of the others coarse, dentate and entire; one very large bidentate hook in the middle of each fascicle.


**HARMOTHOINAE.** Fifteen to 16 pairs of elytrae; approximately 40 segments. Notosetae similar in thickness to the neurosetae; with spinose pockets and slightly notched tips. Neurosetae with semilunar pockets, spinose and distally bidentate.


**LEPIDONOTINAE.** More than 21 pairs of elytrae and more than 50 segments. Notosetae absent; neurosetae slender with spinose regions and entire tips. Presetal lobes longer than postsetal ones.

**Tenonta** Nichols 1969, *T. kitsapensis* Nichols 1969; only species.

**HARMOTHOINAE.** Fifteen pairs of elytrae; approximately 40 segments. All setae similar in thickness; all slender; notosetae capillary, neurosetae in part bidentate.

**Thormora** Baird 1865, *T. juksesii* Baird 1865; 5 species.

**LEPIDONOTINAE.** Twelve pairs of elytrae; short-bodied. Notosetae of two kinds; short and lancet-shaped, and longer, serrated and tapering. Neurosetae serrated and unidentate.

Uncopolitanoe Hartmann-Schroder 1960a, *U. corallicola* Hartmann-Schroder 1960a; only species.

**HARMOTHOINAE.** Numbers of elytrae not known, approximately 44 segments. Notopodia absent; first three neuropodia with strongly curved hooks; others with uni-or bidentate setae with serrated subdistal areas.

Weberia Horst 1915b, *w. pustulate* Horst 1915b; 3 species.

**LEPIDONOTINAE.** Eighteen pairs of elytrae; short-bodied. Notosetae absent; neurosetae unidentate and curved. Ventral cirri absent except in second segment; dorsum with a pustule on each segment.

Invalid Genera

Agnodice McIntosh 1885, see *Lagisca*

Bathyne Ditlevsen 1917, see *Weberia*

Bylgia Theel 1879, see *Bylgides*

Chaetosphaera Haecker 1898, larvae of several genera

Dasytus Malmgren 1867, see *Acanthicoelipsis* Eumolpe Oken 1807, see *Lepidonus* Eupolynoe McIntosh 1874, see *Eucranta* Evarne, Malmgren 1865, see *Harmothoe* Evarnella Chamberlin 1919c, see *Harmothoe* Gastroceratella Darboux 1899, see *Thormora* Halosynoides Seidler 1924, see *Arctonoe* Harmopsides Chamberlin 1919c, see *Lepidasthenia* Iphitonella McIntosh 1885, see *Iphione* Laenilla Malmgren 1865, see *Harmothoe* Langerhansia McIntosh 1885, see *Intosheila* Lepidometria Webster 1879b, see *Lepidasthenia* Nectochaeta Marenzeller 1892, in part *Lepidasthenia*, also generally polynoid larvae and juveniles

Norepa Baird 1865, see *Iphione* Nychia Malmgren 1865, see *Gattyana* Oligolepis Levinsen 1887, see *Macellicepha* Paranychia Czerniavsky 1882, questionably *Lagisca* Parapolyne Czerniavsky 1882, see *Polyne* Parmensis Malmgren 1867, see *Harmothoe* Physalidonotus Ehlers 1905, see *Euphione* Photolepis Chamberlin 1919c, see *Drieschia* Quetieria Viguier 1911, juvenile form Tricosmochaeta Morgera 1918, see *Harmothoe*

Aphroditeaceans with dorsoventrally flattened bodies. Two or three antennae present, median antenna when
present, attached dorsally or posteriorly on the pro stomium (antennae may be absent). Eversible pharynx with four jaws. Marginally fringed or smooth elytra alternate with dorsal cirri in all setigers. All setae simple. Spinning glands present.

The polyodontids are large, solid-bodied scale worms, usually covered with thick, loosely constructed tubes consisting of thin threads filled with clay or sand particles. The most important recent revision was made by Strelzov (1968b).

Key to Genera

1a. Ommatophores present
1b. Ommatophores absent

2a (1a). Two antennae present
2b (1a). Three antennae present

3a (2a). Ommatophores fused in the midline
3b (2a). Ommatophores separated from each other

4a (2b). Superior neurosetae long and tapering, more or less hirsute
4b (2b). Superior neurosetae short and brush-topped

5a (1b). Three antennae present
5b (1b). antennae absent

Neopanthalis Strelzov 1968b, N. pelamida Strelzov 1968b; only species. Ommatophores and antennae absent. Setae include long, slender ones with awnlike spines, thick, colorless and tapering, slightly curved with pilose middle part, acicular in appearance, thick, with broad lance-shaped ends and transverse rows of fine hairs.

Restio Moore 1903, R. aenus Moore 1903; only species. Ommatophores and antennae absent. Setae include long, slender ones with awnlike spines, thick, colorless and tapering, slightly curved with pilose middle part, acicular in appearance, thick, with broad lance-shaped ends and transverse rows of fine hairs.

Taxonomic Note

Pseudopanthalis Fauvel (1957), described in this family, appears to be synonymous with *Sthenelanella* in the family Sigalionidae.

Invalid Genera

Acetes Audouin and Milne Edwards 1832, see *Polyodontes*
Euarche Ehlers 1887, see *Eupanthalis*
Eupompe Kinberg 1855, see *Polyodontes*
Lepidia Savigny in Audouin and Milne Edwards 1832, see *Panthalis*.

Pholoididae new name

Aphroditaceans with flattened bodies. One median antenna present. Four jaws present. Fringed elytra alternate with dorsal cirri in all setigers. Each elytron with concentric rings. Neurosetae composite, notosetae simple.

The family consists of one genus, *Pholoides* Pruvot 1895 with genotype *P. dorsipapillata* Pruvot 1895. The family-name is to replace Peisidicidae Hartman.

Generic Definitions

*Eupanthalis* McIntosh 1876, E. *kinbergi* McIntosh 1876; 8 species.
Ommatophores absent, three antennae present; median antenna attached dorso-posteriorly. Setae include slender, pilose tapering capillaries; bluntly acicu lar, aristate ones with pilose shafts, and side-shaped, dentate ones.

*Eupolyodontes* Buchanan 1894, E. *cornishii* Buchanan 1894; 5 species.
Ommatophores present and separated from each other. Two frontal antennae present; small nuchal papilla present. Setae include bipinnate pencillate setae; serrulate setae and smooth, acicular spines.

*Neopanthalis* Strelzov 1968b, N. *pelamida* Strelzov 1968b; only species.
Ommatophores present but fused in the midline. Lateral antennae short and inserted dorsally on the ommatophores.

*Panthalis* Kinberg 1855, *P. oerstedii* Kinberg 1855; 12 species.
Ommatophores present and separated; three antennae present. Setae include short brush-topped setae; thick, blunt acicular setae with rows of teeth subdistally and dentate side-shaped setae.

Ommatophores present and separated; three antennae present. Setae include long, tapering hirsute ones; stout acicular setae with or without aristae, usually hirsute or dentate; and dentate sickle-shaped setae.
FIGURE 16. (A), Family Pholoididae, *Pholoides aspera*, Mugu Submarine Canyon, California, about 100 m, 50x; (B), elytron of the above, 50x; (C), Family Eupleptidae, *Grubeuleptis fimbriata*, Consag Rock, Golfo de California, elytron, 1x; (D), diagram of the anterior end of the above, 8x; (E), median parapodium of the above, 25x; (F), anterior end of the above, first two elytraphores removed, 10x.
and Fauchald 1971, based on the genus Peisidice Johnson 1897. There appears to be no reason to maintain a separation between the two genera; the older name has priority, and the family name should be based on this generic name. Four species are presently considered valid.

Invalid Genera

Parapholoe Hartmann-Schroder 1965, see Pholoides
Peisidice Johnson 1897, see Pholoides

Key to Genera

la. Elytra 12 pairs, increasing in length progressively, followed by posterior pseudelytrae 2
lb. Elytra more than 12 pairs; the first 12 pairs increasing in length posteriorly; the more posterior pairs smaller 3
2a (la). Elytra with lateral border notched  Pareulepis
2b (la). Elytra with flattened lateral marginal lappets  Grubeulepis
3a (lb). Elytra with lateral borders notched  Eulepethus
3b (lb). Elytra with flattened lateral marginal lappets  Mexieulepis

Taxonomic Note

The pseudelytra referred to in the key are sessile in contrast to the true elytrae, which are equipped with distinct elytraphores. They are in the same general position as the elytrae and appear to have similar functions.

Generic Definitions

Eulepethus Chamberlin 1919c, Eulepis hamifera Grube 1875; only species.

Body with 60-70 segments. Elytrae with marginal notches on segments 2,4,5,7 ... 21,24 and from segment 28 small elytrae with entire margins on every segment.

Grubeulepis Pettibone 1969e, Eulepis funbriata Treadwell 1901; 7 species.

Body with about 38 segments. Elytrae with flattened marginal lappets including in all twelve pairs, on segments 2,4,5,7 ... 21,24; pseudelytrae begin on segments 26-29.


Body with about 50 segments. Elytrae with flattened marginal lappets, including numerous pairs, on segments 2,4,5,7 ... 21,24; smaller elytrae on every segment starting on segments 27 or 28.

Pareulepis Darboux 1899, Eulepis wyvillei McIntosh 1855; 2 species.

Body with about 37 segments. Twelve pairs of elytrae on segments 2,4,5,7 ... 21,24; all with lateral border notched. Pseudelytrae begin on segment 28.

Invalid Genus

Eulepis Grube 1875, see Eulepethus

FAMILY SIGALIONIDAE MALMGREN 1867

Aphroditaceans with quadrangular or flattened bodies. One to three antennae present; four jaws present. Marginally fringed elytrae alternate with dorsal cirri on anterior setigers and are present on all posterior setigers. Neurosetae composite, notosetae simple.

Sigalionids are common in soft bottoms; they tend to be long-bodied and the scales are usually rather closely appended to the bodies. This, combined with the well-developed notopodial fascicles of setae, tend to give them a rather quadrangular appearance. The sigalionids are presently under revision by Pettibone, who has already published a series of important monographs (Pettibone 1969c, 1970a, 1970b, 1970e, 1971b, 1971c). The key given below must be considered provisional.

Key to Genera

la. One median antenna present 2
lb. At least two antennae present 3
FIGURE 17. Family SIGALIONIDAE, *Sthenolepis japonica*, Bay of Nha Trang, Viet Nam, 50 m, 25x.

1. Composite neurosetae with long, slender, articulated appendages
2a (1a).
   - Composite neurosetae short, smooth unidentate falcigers
   2b (1a).
3a (1b).
   - Two antennae present
3b (1b).
   - Three antennae present
4a (3b).
   - Lateral antennae on the prostomium proper; all antennae with short ceratophores or short and inconspicuous
4b (3b).
   - Lateral antennae fused to first setiger; median antenna with large median ceratophore
5a (4a).
   - Eyes large, antennae with ceratophores
5b (4a).
   - Eyes small, antennae without ceratophores
6a (4b).
   - Median ceratophore without auricles
6b (4b).
   - Median ceratophore with auricles
7a (6a).
   - Dorsal cirri absent on setiger 3; elytrae not sand-incrusted
7b (6a).
   - Dorsal cirri present on setiger 3; elytrae sand-incrusted
8a (7a).
   - Neurosetae composite spinigers with short, canaliculated appendages
8b (7a).
   - Neurosetae composite, unidentate falcigers with marginally serrated appendages
9a (7b).
   - Elytrae small, leaving the middle of the dorsum uncovered; neurosetae with short bidentate appendages
9b (7b).
   - Elytra covering the dorsum, neurosetae with uni- or bidentate appendages of varying lengths
10a (6b).
   - Auricles large, auricles also present on the tentacular segment
10b (6b).
   - Auricles small, absent from tentacular segment
11a (10b).
   - All neurosetae composite unidentate falcigers with relatively short, straight appendages
11b (10b).
   - At least some neurosetae otherwise (bidentate, or with articulated, canaliculated or spinigerous appendages
12a (1 1b).
   - Ventral cirri covered medially by long papillae
12b (1 1b).
   - Ventral cirri smooth
13a (126).
   - Parapodial lobes and styloides covered with fine fimbriae
13b (12b).
   - Parapodial lobes and styloides smooth
14a (13b).
   - Long dorsal cirri on setiger 3
14b (13b).
   - Dorsal cirri absent from setiger 3

*Mayella*

*Pholoe*

*Sigalion*

*Euthalenessa*

*Thalenessa*

*Leanira*

*Pareupholoe*

*Euphloe*

*Psammolyce*

*Horstileanira*

*Sthenelanella*

*Willeystenelais*

*Fimbriosthenelais*

*Neoleanira*
15a (14b). At least some neuropodial falcigers present
15b (14b). All neurosetae spinigerous
16a (15b). Dorsal tubercle present on setiger 3
16b (15a). Dorsal tubercle absent from setiger 3

**Generic Definitions**

Three antennae; auricles present. Dorsal cirrus on setiger 3 absent. All neurosetae spinigerous, with canaliculated appendages.

*Eupholoe* McIntosh 1885. *E. philippinensis* McIntosh 1885; only species.

*Euthalenessa* Darboux 1899. *Thalenessa digitata* McIntosh 1885; 8 species.
Three small antennae, all on the prostomium, ceratophores present. Two pairs of large eyes. Neuropodia with large foliose lobes anteriorly. Neurosetae either simple and spinose or composite with distally bidentate appendages.

*Fimbriosthenelais* Pettibone 1971b. *Sthenelais longipinnis* Grube 1870a; 2 species.
Three antennae; auricles present. No dorsal cirrus on setiger 3. All parapodial lobes and stylodes fimbriated. Neurosetae either simple and spinose or composite with distally bidentate, short, slender and articulated appendages.

Three antennae, large auricles, auricles present also on the tentacular segment. Setiger 3 with prominent dorsal tubercle. Neurosetae simple and spinose and composite spinigers with long, canaliculated appendages; a few may be bidentate.

Three small antennae; auricles absent. No dorsal cirrus on setiger 3. Neurosetae composite spinigers with relatively short, canaliculated appendages.

One antenna, auricles absent. Neurosetae composite spinigers with articulated appendages.

Three antennae; auricles present. Long dorsal cirri on setiger 3. Neurosetae composite spinigers with canaliculated, relatively short appendages.

*Pareupholoe* Hartmann-Schroder 1962a. *P. fimbriatus* Hartmann-Schroder 1962a; only species.
Three antennae; auricles present. No dorsal cirrus on setiger 3. Neurosetae composite, unidentate falcigers with serrated cutting edge.

*Psammolyce* Kinberg 1855. *P. flava* Kinberg 1855; 26 species.
Three antennae, auricles absent. Third setiger with long dorsal cirri. Neurosetae composite falcigers with uni- or bidentate appendages of varying lengths. Elytrae cover body, sand-incrusted.

Two lateral antennae; auricles absent. Neurosetae simple and spinose or composite with appendages of varying lengths, multiarticulated and bidentate.

*Sthenelais* Kinberg 1855. *S. helenae* Kinberg 1855; 45 species.
Three antennae, auricles present. No dorsal cirrus on setiger 3. Neurosetae include simple spinose and two kinds of falcigers, stout with short, bidentate appendages, and slenderer falcigers with articulated appendages.

Three antennae; auricles present. No dorsal cirrus on setiger 3. All neurosetae with short, unidentate appendages.

*Sthenolepis* Willey 1905. *Leanira japonica* McIntosh 1885; 20 species.
Three antennae; auricles present. With dorsal tubercles on setiger 3. Neurosetae all composite spinigers with canaliculated appendages.

*Thalenessa* Baird 1868. *Sigalion edwardsi* Kinberg 1855; 8 species.
Three small antennae, all on the prostomium, ceratophores absent. Two pairs of small eyes. Neurosetae composite falcigers and a few simple spinose setae.

*Willeysthenelais* Pettibone 1971b. *Sthenelais diplocirrus* Grube 1875; only species.
Three antennae; auricles present. No dorsal cirri on setiger 3. Neurosetae simple spinose or composite falcigers with thick, short appendages or more slender with articulated appendages. Ventral cirri covered medially with long papillae.

Invalid Genera

*Conconia* Schmarda 1861, see *Sthenelais*
*Euleanira* Horst 1916a, see *Sthenelanella*
*Eusigalion* Augener 1918, see *Thalenessa*
*Eusigalion* Mcintosh 1876, see *Sthenelais* and *Leanira*
*Haswellia* Darboux 1899, see *Euthalenessa*
*Lepidopleurus* Claparede 1868, see *Psammolyce*
*Pologenia* Schmarda 1861, see *Psammolyce*

*Polylepis* Grube 1878. see *Psammolyce*
*Pseudeupanthalis* Fauvel 1957, see *Sthenelanella*

Superfamily Chrysopetalacea

Elytrae absent; notosetae flattened and expanded paleae covering the dorsum. Prostomium not fused to the first setiger.

FAMILY CHRYSOPETALIDAE EHLERS 1864

Chrysopetalaceans with short or long bodies, usually strongly flattened. Three antennae. Notosetae in transverse rows, held erect over the dorsum or covering the back as tiles on a roof. Neurosetae composite.

Chrysopetalids and palmyrids are very similar; the two families are often considered synonymous, in which case the name Palmyridae applies (cf. Day 1967).

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**FIGURE 18.** (A), Family **CHRYSOPETALIDAE**, *Chrysopetalum occidentale*, off Santa Catalina Island, California, 50 m, whole animal, 10x; (B), anterior end of the above, setae of four first notopodia removed on the right side, 50x; (C), notoseta (palea) of the above, 200x; (D), Family **PALMYRIDAE**, *Palmyra aurifera*, Eniwetok, Marshall Islands, shallow subtidal, notosetae removed on four first segments on the right side and on the first segment on the left, 75x; (E), notoseta (palea) of the above, 50x.
Key to Genera

1a. Notozetae cylindrical rather than flattened, not covering dorsum  
Dysponetus

1b. Notozetae flattened paleae

2a (1b). Prostomium without a conspicuous caruncle, body long, consisting of many segments ... Bhawania

2b (1b). Prostomium with a conspicuous caruncle overlapping the peristomium; body short

3a (2b). First segment with asymmetrical ventral cirri; dorsal paleae of two abruptly different kinds

3b (2b). First segment with paired similar cirri; dorsal paleae of one kind only

Generic Definitions

Bhawania Schmarda 1861, B. myriolepis Schmarda 1861; 9 species.

Body with up to 300 segments, completely covered by paleae. Caruncle absent, prostomium retractile under a fold from the first setigers. Palette of one or two kinds, broad and narrow; neurosetae composite falicgers with blades of varying lengths.

Chrysopetalum Ehlers 1864, Palmyra debilis Grube 1855; 5 species.

Body with about 40 segments, completely covered by paleae. Caruncle present. Paleae of one kind only; first segment with paired, similar ventral cirri.

Dysponetus Levinsen 1879, D. pygmaeus Levinsen 1879; 4 species.

Body with few segments, not covered by paleae. Caruncle absent. Notozetae cylindrical and erect over the dorsum.

Paleanotus Schmarda 1861, P. chrysolepis Schmarda 1861; 6 species.

Body with about 40 segments, completely covered by paleae. Caruncle may be present. Paleae of two kinds, abruptly differing in shape. First segment with strongly asymmetrical ventral cirri.

Invalid Genera

Heteropale Johnson 1897, see Paleanotus

Psectra Grube 1868a, see Bhawania

Taphus Webster and Benedict 1887, see Dysponetus

FAMILY PALMYRIDAE KINBERG 1858


The palmyrids are known for one genus, Palmyra Savigny 1818 with genotype P. aurifera Savigny 1818 and possibly for one or two more species; most described forms are considered synonyms of P. aurifera or indeterminable. The family is limited to shallow water, usually sandy or generally hard substrates in warm water and appear to be most common in the western Pacific Ocean.
Key to Genera

1a. Median unpaired antennae present .......................... 2
1b. Median unpaired antennae absent ..............................

2a (1 b). With two pairs of similar cephalic appendages .......................... Pisionella
2b (1b). With three pairs of cephalic appendages of different structure .......................... Pisionidens

3a (2b). First segment asetigerous and apodous; proboscis unarmed .......................... Anoplopisione
3b (2b). No apodous and asetigerous segment present; proboscis with four jaws .......................... Pisione

Generic Definitions

Anoplopisione  Laubier 1967b, A. minuta  Laubier 1967b; only species.

Pisionids with palps and two pairs of tentacular cirri present. Proboscis unarmed; first segment without parapodia and setae.

Pisione  Grube 1857, P. oerstedtii  Grube 1857; 11 species.

Pisionids with palps and two pairs of tentacular cirri present. Proboscis with four jaws; all anterior segments with parapodia and setae.

Pisionella  Hartman 1939, P. hancocki  Hartman 1939; only species.

Pisionids with palps and two pairs of similar cephalic appendages. Proboscis with four jaws; all anterior segments with parapodia and setae.

Pisionidens  Aiyar and Alikunhi 1943, Pisionella indica

Pisionidens with two pairs of similar cephalic appendages. Proboscis with four jaws; all segments with parapodia and setae.

Invalid Genera

Fauveliella  Tebble 1953, see Pisionidens
Pisionella  Aiyar and Alikunhi 1940, see Pisionidens
Praegeria  Southern 1914, see Pisione

Suborder Nereidiformia

Phyllodocida with at least one pair of antennae; at least one pair of tentacular cirri; palps short and usually distally blunt, frequently biarticulated. Eversible pharynx, if armed, with one pair of lateral jaws and sometimes with accessory denticles. First parapodia lateral.

FAMILY HESIONIDAE SARS 1862

Relatively short-bodied, dorsoventrally flattened worms. Two or three antennae (antennae rarely absent); palps may be absent or have from one to three articles. Two to eight pairs of tentacular cirri present. Jaws may be present. Parapodia uniramous or biramous, but notopodia always reduced compared to the neuropodia. Dorsal cirri long and slender. Neurosetae composite; notosetae, if present, simple.

The hesionids are one of the least known families of polychaetes; the generic sub-division suggested by the key below is very tentative; a large number of additional genera may be expected described within a few years. Hesionids are common animals in hard substrates and in shallow water; they are more rarely found in deep water. They tend to be fragile and fragment easily upon collection; generally hesionids should be handled as scale-worms: each specimen preserved separately.

Key to Genera

1a. Two pairs of tentacular cirri; five antennae .......................... Hesiosyllis
1b. At least three pairs of tentacular cirri; maximally three antennae .......................... 2
2a (1b). Four or more pairs of tentacular cirri .......................... 3
2b (1b). Three pairs of tentacular cirri .......................... 7
3a (2a). Five or more pairs of tentacular cirri .......................... 4
3b (2a). Four pairs of tentacular cirri .......................... 8
4a (3a). Five pairs of tentacular cirri .......................... Friedericiella
4b (3a). Six or more pairs of tentacular cirri .......................... 5
5a (4b). Seven or more pairs of tentacular cirri .......................... Periboea
5b (4b). Six pairs of tentacular cirri .......................... 6
6a (5a). Seven pairs of tentacular cirri .......................... Orseis
6b (5a). Eight pairs of tentacular cirri .......................... 12
7a (2b). Parapodia uniramous .......................... Alikunhia
7b (2b). Parapodia biramous ..........................
8a (3b). Parapodia distinctly uniramous
8b (3b). Parapodia sub-biramous or biramous
9a (8a). First setiger with large hooks
9b (8a). First setiger without hooks
10b (8b). Antennae present
11a (10b). Tentacular cirri on three segments (1-2-1); dorsal cirri articulated
| 11b (1ob). | Tentacular cirri on two segments (2-2); dorsal cirri smooth | Hesionides |
| 12a (5b). | All parapodia uniramous | 13 |
| 12b (5b). | At least some parapodia sub-biramous or biramous | 17 |
| 13a (12a). | First three segments dorsally reduced | Syllidia |
| 13b (12a). | Maximally first segment dorsally reduced | 14 |
| 14a (13b). | Tentacular cirri on four segments (first reduced) so that they appear as 3-2-1 | Syllidia |
| 14b (13b). | Tentacular cirri on three segments (2-2-2) | 15 |
| 15a (14b). | Pharynx distally with a circlet of fine fimbriae | Parasyllidea |
| 15b (14b). | Pharynx with either eleven or twenty-one distal papillae | 16 |
| 16a (15b). | Pharynx with 21 distal papillae | Neopodarke |
| 16b (15b). | Pharynx with eleven distal papillae | Micropodarke |
| 17a (12b). | Three antennae present | 18 |
| 17b (12b). | Two antennae present | 21 |
| 18a (17a). | Median antenna attached medially or posteriorly on the prostomium | Microphthalmus |
| 18b (17a). | Median antenna attached frontally | 19 |
| 19a (18b). | Palpi simple | Heteropodarke |
| 19b (18b). | Palpi biarticulated | 20 |
| 20a (19b). | Setae present from the second segment | Ophiodromus |
| 20b (19b). | Setae present from the fourth segment | Podarke |
| 21a (17b). | Dorsal cirri smooth | Paraebesione |
| 21b (17b). | Dorsal cirri articulated | Nereimyra |
| 22a (6b). | Three antennae | 23 |
| 22b (6b). | Two antennae | 27 |
| 23a (22a). | Median antenna attached medially or posteriorly on the prostomium | 24 |
| 23b (22a). | Median antenna attached frontally | 26 |
| 24a (23b). | Eversible pharynx distally fimbriated | Amphiduros |
| 24b (23b). | Eversible pharynx distally papillated | 25 |
| 25a (24b). | Parapodia uniramous | Leocratides |
| 25b (24b). | Parapodia biramous | Leocrates |
| 26a (23b). | Setae present from the second segment | Gyptis |
| 26b (23b). | Setae present from the fifth (or fourth) segment | Podarkeopsis |
| 27a (22b). | Notopodia with falcate spines | Hesiospina |
| 27b (22b). | Parapodia uniramous | 28 |
| 28a (27b). | Palps absent | Hesione |
| 28b (27b). | Palps present | 29 |
| 29a (28b). | Setae present from the fourth segment | Wesenbergia |
| 29b (28b). | Setae present from the third segment | 30 |
| 30a (29b). | Eversible pharynx smooth | Dalhousiella |
| 30b (29b). | Eversible pharynx distally fimbriated | Kefersteinia |

**Generic Definitions**


Three antennae, palps and three pairs of tentacular cirri present. Parapodia biramous. Eversible pharynx distally papillated, jaws absent.


*Bonuaria* Pillai 1965, *B. parva* Pillai 1965; only species.

Antennae absent; biarticulated palps and four pairs of tentacular cirri present. Parapodia biramous.

*Dalhousiella* McIntosh 1901, *D. carpenteri* McIntosh 1901; 5 species.

Two antennae; biarticulated palps and eight pairs of tentacular cirri present. Parapodia uniramous, first setae in third segment. Eversible pharynx distally smooth, jaws absent.

*Friedericella* Laubier 1967c, *Hesionella pacifica* Friedrich 1956; only species.
Three antennae, simple palps and five pairs of tentacular cirri present. Parapodia biramous, first setae in fourth segment.

Gyptis Marion and Bobretzky 1875, G. propinqua
Marion and Bobretzky 1875; 16 species.
Three antennae, biarticulated palps and eight pairs of tentacular cirri present. Parapodia biramous; first setae in second segment. Eversible pharynx with 40 distal papillae, jaws absent.

Hesiocaeca Hartman 1965, H. bermudensis Hartman 1965; only species.
Three antennae, biarticulated palps and four pairs of tentacular cirri present. Parapodia uniramous, first setae in third segment. Eversible pharynx distally smooth, jaws absent.

Hesionella Hartman 1939b, H. mccullochae Hartman 1939b; only species.
Two antennae, palps absent, four pairs of tentacular cirri present. Parapodia sub-biramous.

Hesionides Friedrich 1937, H. arenaria Friedrich 1937; 3 species.
Three antennae, biarticulated palps and four pairs of tentacular cirri present. Parapodia sub-biramous to biramous, first setae in third segment. Eversible pharynx with ten distal papillae and two longer cirri, jaws absent.

Hesiopina Imajima and Hartman 1964, Kefersteinia similis Hessle 1925; only species.
Two antennae, palps absent, four pairs of tentacular cirri present. Parapodia biramous. Eversible pharynx with 21-27 distal papillae; jaws absent. Notopodial falcate spines present.

Five antennæ (four frontal, one dorsal), smooth palps and two pairs of tentacular cirri present. Parapodia biramous. Eversible pharynx with ten distal papillæ; jaws and teeth present.

Heteropodarke Hartmann-Schroder 1962a, H. heteromorpha Hartmann-Schroder 1962a; only species.
Three antennæ, smooth palps and six pairs of tentacular cirri present. Parapodia sub-biramous.

Kefersteinia Quatrefages 1865, Psamathe cirrata Keferstein 1862; only species.
Two antennæ, biarticulated palps and eight pairs of tentacular cirri present. Parapodia uniramous, setae from fourth segment. Eversible pharynx with distal circle of fimbriae; jaws absent.

Leocrates Kinberg 1866b, L. chinensis Kinberg 1866b; 11 species.
Three antennæ, biarticulated palps and eight pairs of tentacular cirri present. Parapodia biramous. Eversible pharynx with jaws. Median antenna attached posteriorly.

Leocrates Ehlers 1908, L. filamentosus Ehlers 1908; only species.
Three antennæ, biarticulated palps and eight pairs of tentacular cirri present. Parapodia uniramous. Eversible pharynx with jaws. Median antenna attached posteriorly.

Microphthalmus Mecznikow 1865, M. sczelkowii Mecznikow 1865; 13 species.

Neopodarke Hartman 1965, N. woodsholea Hartman 1965; only species.
Two antennæ, biarticulated palps and six pairs of tentacular cirri present. Parapodia uniramous, first setae in fourth segment. Eversible pharynx with 21 distal papillae, jaws absent.

Nereimyra Blainville 1828, Nereis punctata O.F. Müller 1776; 12 species.
Two antennæ, biarticulated palps and six pairs of tentacular cirri present. Parapodia uniramous, first setae in fourth segment. Eversible pharynx with circle of papillæ distally, jaws present.

Ophiodromus Sars 1862, Nereis flexuosa delle Chiaje 1825; 11 species.
Three antennæ, biarticulated palps and six pairs of tentacular cirri present. Parapodia biramous, first setae in second segment. Eversible pharynx distally with many fine fimbriae; jaws absent.

Oriseis Ehlers 1864, O. pulvis Ehlers 1864; 5 species.
Three antennæ, simple palps and three pairs of tentacular cirri present. Parapodia uniramous, first setae in second segment. Median antenna attached posteriorly.
**THE POLYCHAETE WORMS**

**Parahesione** Pettibone 1956, *Podarke luteola* Webster 1880; 2 species.

Two antennae, simple palps and six pairs of tentacular cirri present. Parapodia biramous, first setae in second segment. Eversible pharynx with distal circket of fimbriae, jaws absent.

**Parasyllidea** Pettibone 1961, *P. humesi* Pettibone 1916; only species.

Two antennae, biarticulated palps and six pairs of tentacular cirri present. Parapodia uniramous; first setae in third segment. Eversible pharynx with a distal circket of fimbriae, jaws absent. First segment reduced.

**Periboea** Ehlers 1864, *P. tongocirrata* Ehlers 1864; only species.

Two antennae, triarticulated long palps and seven pairs of tentacular cirri present. Parapodia sub-biramous, first setae in fourth segment. Eversible pharynx with a circket of papillae, ? jaws absent.

**Podarke Ex AUCTORE;** confused, possibly about 12 species.

Three antennae, biarticulated palps and six pairs of tentacular cirri present. Parapodia biramous, first setae from fourth segment. Eversible pharynx with a circket of papillae, ? jaws absent.

**Podarkeopsis** Laubier 1961b, *P. galangauta* Laubier 1961b; only species.

Three antennae, biarticulated palps and eight pairs of tentacular cirri present. Parapodia biramous, first setae on fourth visible segment (fifth segment). Eversible pharynx with circket of papillae, jaws absent.

**Struvela** Hartmann-Schroder 1959, *S. noodi* Hamann-Schroder 1959; only species.

Two antennae, biarticulated palps, four pairs of tentacular cirri present. Uniramous parapodia, first setae in third segment. First setiger with large hooks.

**Syllidia** Quatrefages 1865, *S. armata* Quatrefages 1865; 5 species.

Two antennae, biarticulated palps and six pairs of tentacular cirri present. Parapodia uniramous, first setae in second segment. Eversible pharynx with jaws. First to third segment dorsally reduced.

**Syllidia ExAuctore;** confused, possibly five species.

Two pairs of antennae, biarticulated palps and six pairs of tentacular cirri present. Parapodia uniramous, first setae in fourth segment.


Two antennae, biarticulated palps and eight pairs of tentacular cirri present. Parapodia uniramous, first setae in fourth segment.

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**Taxonomic Notes**

The genus *Podarke* usually is considered a synonym of *Ophiodromus*. However, the concept as usually used, differs slightly from *Ophiodromus*, and has been included in the key and in the definitions. The same is true of the concept *Syllidia* as it has been used in the literature, compared to the version originally proposed.

The key is wholly dependent on correct identification of the numbers of pairs of tentacular cirri. This is perhaps best observed on the lateral side of the animal, and with the light coming in under a low angle, so that each tentacular citrus will cast a shadow. Most hesionids have dehiscent antennae and tentacular cirri so this may be the only means of getting the numbers of anterior appendages correctly identified.

Hesionids in general are rather fragile, and have to be handled very carefully in collections; the only exceptions are the large, and rather solid-bodied members of the genus *Hesione*.

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**Invalid Genera**

*Anophthalmus* Alikunhi 1949, see *Alikunhia*.

*Anoploneis* Giard 1882, see *Ophiodromus*.

*Castalia* Savigny 1820, see *Nereimyra*.

*Cirrolyllis* Schmarda 1861, indeterminable.

*Dalhausia* McIntosh 1885, see *Leocrates*.

*Halimede* Rathke 1843, see *Nereimyra*.

*Mania* Quatrefages 1865, see *Ophiodromus*.

*Orthodromus* Ehlers 1908, see *Ophiodromus*.

*Oxydromus* Grube 1855, see *Gyptis*.

*Pseudocirrolyllis* Czerniavsky 1882, unidentifiable.

*Schmardiella* Czerniavsky 1882, unidentifiable.

*Stephania* Claparede 1870b, see *Ophiodromus*.

*Telamone* Claparede 1868, see *Hesione*.

*Tyrrhena* Claparede 1868, see *Leocrates*.

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**FAMILY PILARGIIDAE SAINT-JOSEPH** 1899

Nereidiforms with ribbon-shaped or cylindrical bodies. Two or three antennae present (rarely absent). Palps simple or biarticulated; two pairs of tentacular cirri (rarely absent). Proboscis unarmad. Parapodia biramous, but notopodia always reduced. Setae simple; notosetae sometimes as a thick spine or hook. Notosetae may be absent.

Pilaridiids have been the subject of two recent revisions on the generic level, Pearson (1970), and Emerson and Fauhald (1971). Pettibone (1966b) added to the generic descriptions and revised several species. Pilargiiids are never really numerous, but are present in most areas in moderate numbers; they tend to be associated with shelf depths and moderately coarse to mixed sediments.
Key to Genera

1a. Notopodia with stout emergent hooks or spines

1b. Notopodia without emergent hooks or spines

2a (1a). Notopodia with recurved emergent hooks

2b (1a). Notopodia with stout, straight spines

3a (2a). Peristomium dorsally entire

3b (2a). Peristomium dorsally incised

4a (3b). Dorsal and ventral cirri reduced or absent; parapodia reduced, body subcylindrical

4b (3b). Dorsal and ventral cirri well developed, parapodia well developed, body dorso-ventrally flattened

5a (4b). Antennae shorter than palps; integument papillated

5b (4b). Antennae longer than palps, integument smooth

6a (2b). Prostomial antennae present; parapodia sharply set off from body

6b (2b). Prostomial antennae absent; parapodia distinct, but not set off from body

7a (6b). Tentacular cirri present; palps absent

7b (6b). Tentacular cirri absent, palps present

8a (6b). Prostomial antennae and tentacular cirri absent

8b (6b). Prostomial antennae and tentacular cirri present

9a (8b). Prostomium with two antennae, biarticulate palps present

9b (8b). Prostomium with three antennae; palps without palpostyles

Generic Definitions


Body flattened, with two antennae, biarticulate palps, two pairs of tentacular cirri. Peristomium dorsally entire. Antennae shorter than palps. Emergent notopodial hooks present.

**Ancistrosyllis** McIntosh 1879, *A. groenlandica* McIntosh 1879; 7 species.


**Cabira** Webster 1879b, *C. incerta* Webster 1879b; 2 species.

Body cylindrical, with three antennae, biarticulate palps and two pairs of tentacular cirri. Peristomium dorsally incised. Dorsal and ventral cirri reduced, parapodia poorly developed. Emergent notopodial hooks present.


Body cylindrical without antennae and palps; two pairs of tentacular cirri present. Emergent notopodial spines present.

**Loandalia** Monro 1936, *L. aberrans* Monro 1936; only species.

Body cylindrical with biarticulate palps; antennae and tentacular cirri absent. Emergent spines absent.

**Otopsis** Ditlevsen 1917, *O. longipes* Ditlevsen 1917; 3 species.

Body flattened; three antennae and two pairs of tentacular cirri present; palps present, but not articulated. Emergent spines absent.


Body cylindrical; biarticulate palps present; antennae and tentacular cirri absent. Emergent notopodial spines present.

**Pilargis** Saint-Joseph 1899, *P. verrucosa* Saint-Joseph 1899; 7 species.

Body flattened; two antennae, biarticulate palps and two pairs of tentacular cirri present. Emergent spines absent.

**Sigambra** Müller 1858, *S. grubii* Müller 1858; 11 species.

Body flattened, three antennae, biarticulate palps and two pairs of tentacular cirri present. Antennae longer than palps. Emergent notopodial hooks present.

**Synelmis** Chamberlin 1919c, *S. simplex* Chamberlin 1919c; 6 species.

Body cylindrical, with three antennae, biarticulate palps and two pairs of tentacular cirri present. Emergent notopodial spines present.

Taxonomic Note

**Talehsapia** Fauvel 1932, with genotype *T. annandalei* Fauvel 1932, has been considered a member of the family. As noted by Emerson and Fauchald (1971), it cannot be considered a pilargiid, and has been considered an incertaine Sents. *T. annandalei* as reported by
Fauvel (1935) and Mesnil and Fauvel (1939) differ from the species as originally described; they are considered here as unidentifiable *Parandalia* spp. (Olga Hartman, personal communication).

**Invalid Genera**

*Glyphohesione* Friedrich 1951, see *Synelmis*

*Harpochaeta* Korschelt 1893, see *Ancistrosyllis*

*Hermundura* Muller 1858, indeterminable

*Kynephorus* Ehlers 1920, see *Synelmis*

*Phronia* Webster 1879b, See *Pilargis*

**FAMILY SYLLIDAE GRUBE. 1850**

Small to medium-sized nereidiform polychaetes with usually slender bodies (sometimes dorsoventrally flattened). Three antennae and simple palps present, the latter sometimes fused to each other. Two pairs of tentacular cirri. Eversible pharynx armed with a single tooth or a circle of smaller teeth or unarmored. Proventricles present in nearly all forms. Parapodia uniramous, dorsal cirri usually conspicuous, setae simple or composite.

The syllids are very common shallow-water forms, and tend to be most numerous on hard substrates; however, one sub-family, *Exogoninae*, also is well represented in abyssal depths. In certain genera (*Trypanosyllis*, *Autolytus* and others), the structure of the trepan, the denticles along the cutting edge of the eversible pharynx, is of great importance. The pharynx is only rarely everted in preserved material. The examination of the trepan can be done through the body-wall, if the specimen is very small and unpigmented. Larger specimens, more than .5 mm across, or pigmented specimens will have to be dissected. Examination of the eversible pharynx cannot be dispensed with in this family, even at the generic level, as is amply demonstrated in the key below. Similarly, close examination of the structure of the setae is also necessary, making the identification of syllids a time-consuming occupation. Parapodia from anterior, median and posterior region should be mounted on a slide for setal examination under a compound microscope, and the whole specimens should be scanned for modified setae of any kind.

Recent monographs include Imajima (1966a-d 1967) who, in a series of papers revised the Japanese syllids. Gidholm has published a series of papers on the sub-family *Autolytinae* (e.g. *Gidholm* 1962) and more are expected. Hartmann-Schroder has also concentrated considerable attention on the syllids. Revision of the California fauna is under way and may be expected within a few years (Piltz, in preparation).

**Key to Genera**

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
<th>Genera</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a.</td>
<td>Ventral cirri absent</td>
<td>AUTOLYTINAE</td>
</tr>
<tr>
<td>1b.</td>
<td>Ventral cirri present</td>
<td></td>
</tr>
<tr>
<td>2a (1a).</td>
<td>Dorsal cirri on first setiger only</td>
<td>Procerastea</td>
</tr>
<tr>
<td>2b (1a).</td>
<td>Dorsal cirri on most setigers</td>
<td></td>
</tr>
<tr>
<td>3a (2b).</td>
<td>All setae simple, occipital flap present</td>
<td>Alluaudella</td>
</tr>
<tr>
<td>3b (2b).</td>
<td>At least some setae composite, occipital flap absent</td>
<td></td>
</tr>
<tr>
<td>4a (3b).</td>
<td>Dorsal cirri cylindrical</td>
<td></td>
</tr>
<tr>
<td>4b (3b).</td>
<td>Dorsal cirri clavate or foliose</td>
<td></td>
</tr>
<tr>
<td>5a (4a).</td>
<td>Bayonet-setae thick-shafted; segmental ciliary bands absent</td>
<td>Procerea</td>
</tr>
<tr>
<td>5b (4a).</td>
<td>Bayonet-setae thin-shafted; ciliary bands present on every segment</td>
<td>Autolytus</td>
</tr>
<tr>
<td>6a (4b).</td>
<td>Eversible pharynx unarmed</td>
<td>Phyllosyllis</td>
</tr>
<tr>
<td>6b (4b).</td>
<td>Eversible pharynx with teeth</td>
<td></td>
</tr>
<tr>
<td>7a (6b).</td>
<td>With projecting nuchal lobes, rather than flattened nuchal epaulettes</td>
<td>Autosyllis</td>
</tr>
<tr>
<td>7b (6b).</td>
<td>Nuchal organs flattened epaulettes</td>
<td>Umbellisyllis</td>
</tr>
<tr>
<td>8a (7b).</td>
<td>Antennae and dorsal cirri clavate</td>
<td>Myrianida</td>
</tr>
<tr>
<td>8b (7b).</td>
<td>Antennae cylindrical, dorsal cirri flattened</td>
<td></td>
</tr>
<tr>
<td>9a (1b).</td>
<td>Small forms (usually less than 8 mm) - palps fused for at least half their lengths</td>
<td>EXOGONINAE</td>
</tr>
</tbody>
</table>

II

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
<th>Genera</th>
</tr>
</thead>
<tbody>
<tr>
<td>9b (1b).</td>
<td>Larger forms, palps, if fused at all, only fused basally</td>
<td>EUSYLLINAE</td>
</tr>
<tr>
<td>10a (9b).</td>
<td>Palps fused at base; dorsal cirri smooth or irregularly wrinkled</td>
<td>SYLLINAE</td>
</tr>
<tr>
<td>10b (9b).</td>
<td>Palpi free to base or absent; dorsal cirri articulated</td>
<td>Exogonella</td>
</tr>
<tr>
<td>11a (9a).</td>
<td>Antennae, tentacular and dorsal cirri absent</td>
<td></td>
</tr>
<tr>
<td>11b (9a).</td>
<td>At least tentacular cirri present, usually also antennae and dorsal cirri</td>
<td></td>
</tr>
<tr>
<td>12a (11b).</td>
<td>Two pairs of tentacular cirri present</td>
<td></td>
</tr>
<tr>
<td>12b (11b).</td>
<td>One pair of tentacular cirri present</td>
<td></td>
</tr>
<tr>
<td>Step 1</td>
<td>Step 2</td>
<td>Step 3</td>
</tr>
<tr>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>13a</td>
<td>12a</td>
<td>Antennae absent</td>
</tr>
<tr>
<td>13b</td>
<td>12a</td>
<td>Three antennae present</td>
</tr>
<tr>
<td>14a</td>
<td>13b</td>
<td>Eversible pharynx non-muscular and sinuous</td>
</tr>
<tr>
<td>14b</td>
<td>13b</td>
<td>Eversible pharynx at least partially muscular, straight</td>
</tr>
<tr>
<td>15a</td>
<td>14b</td>
<td>Dorsal cirri long and filiform</td>
</tr>
<tr>
<td>15b</td>
<td>14b</td>
<td>Dorsal cirri globular</td>
</tr>
<tr>
<td>16a</td>
<td>15b</td>
<td>Body with dorsal globular papillae in addition to the dorsal cirri</td>
</tr>
<tr>
<td>16b</td>
<td>15b</td>
<td>Body without dorsal globular papillae</td>
</tr>
<tr>
<td>17a</td>
<td>12b</td>
<td>One antenna present; dorsal cirri rudimentary</td>
</tr>
<tr>
<td>17b</td>
<td>12b</td>
<td>Three antennae present; dorsal cirri well developed if sometimes short</td>
</tr>
<tr>
<td>18a</td>
<td>17b</td>
<td>Dorsal cirri long and slender</td>
</tr>
<tr>
<td>18b</td>
<td>17b</td>
<td>Dorsal cirri short, ovoid or pyriform</td>
</tr>
<tr>
<td>19a</td>
<td>18a</td>
<td>Parapodia with erect, contractile dorsal lobes</td>
</tr>
<tr>
<td>19b</td>
<td>18a</td>
<td>Parapodia without dorsal lobes</td>
</tr>
<tr>
<td>20a</td>
<td>18b</td>
<td>Eversible pharynx unarmed</td>
</tr>
<tr>
<td>20b</td>
<td>18b</td>
<td>Eversible pharynx with a single anterior tooth</td>
</tr>
<tr>
<td>21a</td>
<td>20a</td>
<td>Ventral cirri fused to lower edge of parapodia</td>
</tr>
<tr>
<td>21b</td>
<td>20a</td>
<td>Ventrial cirri free from parapodia</td>
</tr>
<tr>
<td>22a</td>
<td>20b</td>
<td>Dorsal cirri pyriform (flask-shaped)</td>
</tr>
<tr>
<td>22b</td>
<td>20b</td>
<td>Dorsal cirri papilliform or ovoid</td>
</tr>
<tr>
<td>23a</td>
<td>10a</td>
<td>Eversible pharynx either with a single tooth or with a circlet of smaller teeth</td>
</tr>
<tr>
<td>23b</td>
<td>10a</td>
<td>Eversible pharynx with a single large tooth</td>
</tr>
<tr>
<td>24a</td>
<td>23b</td>
<td>Eversible pharynx with a series of teeth</td>
</tr>
<tr>
<td>24b</td>
<td>23b</td>
<td>Eversible pharynx with a series of teeth</td>
</tr>
<tr>
<td>25a</td>
<td>23a</td>
<td>Dorsum covered with small papillae</td>
</tr>
<tr>
<td>25b</td>
<td>23a</td>
<td>Dorsum without papillae</td>
</tr>
<tr>
<td>26a</td>
<td>25b</td>
<td>Pharynx with an internal valve</td>
</tr>
<tr>
<td>26b</td>
<td>25b</td>
<td>Pharynx without an internal valve</td>
</tr>
<tr>
<td>27a</td>
<td>26b</td>
<td>Tentacular cirri absent; dorsal cirri rudimentary</td>
</tr>
<tr>
<td>27b</td>
<td>26b</td>
<td>Tentacular cirri present; dorsal cirri well developed</td>
</tr>
<tr>
<td>28a</td>
<td>27b</td>
<td>Antennae and tentacular cirri very short</td>
</tr>
<tr>
<td>28b</td>
<td>27b</td>
<td>Antennae and tentacular cirri not noticeably short</td>
</tr>
<tr>
<td>29a</td>
<td>28b</td>
<td>Enlarged knobbed acicula present in anterior parapodia</td>
</tr>
<tr>
<td>29b</td>
<td>28b</td>
<td>Enlarged knobbed acicula absent</td>
</tr>
<tr>
<td>30a</td>
<td>24a</td>
<td>Notacicula present</td>
</tr>
<tr>
<td>30b</td>
<td>24a</td>
<td>Notacicula absent</td>
</tr>
<tr>
<td>31a</td>
<td>30b</td>
<td>Antennae and dorsal cirri absent</td>
</tr>
<tr>
<td>31b</td>
<td>30b</td>
<td>Antennae and dorsal cirri present</td>
</tr>
<tr>
<td>32a</td>
<td>31b</td>
<td>Three first segments fused with six pairs of tentacular cirri</td>
</tr>
<tr>
<td>32b</td>
<td>31b</td>
<td>Maximally two pairs of tentacular cirri on one segment</td>
</tr>
<tr>
<td>33a</td>
<td>32b</td>
<td>One pair of tentacular cirri present</td>
</tr>
<tr>
<td>33b</td>
<td>32b</td>
<td>Two pairs of tentacular cirri present</td>
</tr>
<tr>
<td>34a</td>
<td>33a</td>
<td>Dorsal cirri flattened</td>
</tr>
<tr>
<td>34b</td>
<td>33a</td>
<td>Dorsal cirri cylindrical</td>
</tr>
<tr>
<td>35a</td>
<td>34b</td>
<td>Composite setae spinigerous</td>
</tr>
<tr>
<td>35b</td>
<td>34b</td>
<td>Composite setae falcigerous</td>
</tr>
<tr>
<td>36a</td>
<td>33b</td>
<td>Tentacular and dorsal cirri very large, ovoid and inflated</td>
</tr>
<tr>
<td>36b</td>
<td>33b</td>
<td>Tentacular and dorsal cirri more or less cylindrical</td>
</tr>
<tr>
<td>37a</td>
<td>36b</td>
<td>Middorsal tooth situated posterior in the eversible pharynx</td>
</tr>
<tr>
<td>37b</td>
<td>36b</td>
<td>Middorsal tooth situated anterior in the eversible pharynx</td>
</tr>
<tr>
<td>38a</td>
<td>37b</td>
<td>Anterior margin of eversible pharynx denticulated</td>
</tr>
<tr>
<td>38b</td>
<td>37b</td>
<td>Anterior margin of eversible pharynx smooth</td>
</tr>
<tr>
<td>39a</td>
<td>38a</td>
<td>Median body-region with furcate, thick simple setae</td>
</tr>
<tr>
<td>39b</td>
<td>38a</td>
<td>Median body-region with composite falcigers</td>
</tr>
<tr>
<td>40a</td>
<td>38b</td>
<td>Parapodia long, palps twice as long as prostomium</td>
</tr>
<tr>
<td>40b</td>
<td>38b</td>
<td>Parapodia short and conical; palps maximally as long as prostomium</td>
</tr>
<tr>
<td>41a</td>
<td>24b</td>
<td>Eversible pharynx with a series of very small teeth</td>
</tr>
</tbody>
</table>
41 b (24b). Eversible pharynx with a limited number of large teeth

42a (41b). Body short, with few segments; large nuchal epaulettes present

42b (41b). Body longer, with numerous segments; nuchal epaulettes absent

43a (lob). Palps absent; first segment with parapodia and setae

43b (10b). Palps present, first segment without parapodia and setae; usually with tentacular cirri

44a (43b). Eversible pharynx with a single tooth, a trepan or both

44b (43b). Eversible pharynx unarmed

45a (44a). Eversible pharynx with a trepan of several teeth; sometimes with an additional larger single tooth

45b (44a). Eversible pharynx with a single tooth

46a (44b). Dorsum covered with small papillae

46b (44b). Dorsum smooth

47a (46b). Parapodia with long, digitate distal lobes

47b (46b). Parapodia without distal lobes

48a (47b). Paired, posteriorly directed nuchal lappets present

48b (47b). Nuchal lappets absent

49a (45b). Palps as long as prostomium; body cylindrical

49b (45b). Palpi small and conical; body flattened

50a (45a). Middorsal tooth attached posteriorly

50b (45a). Middorsal tooth attached anteriorly

51a (50b). Setae simple, distally furcate or subdistally bossed

51b (50b). At least some setae composite

52a (51b). Dorsal cirri in posterior region alternately long and slender or large, bulbously fusiform

52b (51b). Dorsal cirri may alternate between long and short, but all are of similar thickness

53a (52b). Tentacular and dorsal cirri with very few articles; dorsal cirri absent from second segment

53b (52b). Tentacular and dorsal cirri with at least five articles; dorsal cirri present on second segment

54a (53b). Parapodia with pseudocomposite and simple setae in addition to the composite ones

54b (53b). Parapodia maximally with two simple setae in addition to the composite ones

55a (54b). Both composite spinigers and falcigers present

55b (54b). Only composite falcigers present

**Generic Definitions**

*Alluaudella* Gravier 1905c, *A. madagascariensis* Gravier 1905c; 2 species.

**AUTOLYTINAE.** Three short antennae and occipital flap present. Palps completely fused; two pairs of tentacular cirri; setae all simple. Eversible pharynx unarmed.

*Amblyosyllis* Grube 1857, *A. rhombeata* Grube 1857; 8 species.

**EUSYLLINAE.** Three long antennae, long palps separated to the base. Dorsal cirri wrinkled. Paired long nuchal epaulettes present. Eversible pharynx with six or seven bi- or pentacuspids teeth.

*Anguillosyllis* Day 1963, *A. capensis* Day 1963; only species.

**EXOGONINAE.** Long slender forms with three minute antennae; one pair of tentacular cirri; eversible pharynx unarmed. Parapodia with long contractile dorsal lobes.

*Ateleyllis* Pruvot 1930, *A. rubrofasciata* Pruvot 1930; only species.

**EUSYLLINAE.** Three antennae, palps separated to the base. Antennae and tentacular cirri very short; large occipital flap present. Eversible pharynx unarmed. Dorsal cirri emerge well above base of parapodia.

*Autolytus* Grube 1850, *Nereis prolifera* O.F. Muller 1788; 110 species.

**AUTOLYTINAE.** Three antennae, two pairs of tentacular cirri; first dorsal cirri longer than the rest. Nuchal epaulettes present. Eversible pharynx with trepan with varying number of teeth. Each segment with ciliated band. Bayonet setae thin-shafted.


**AUTOLYTINAE.** Three antennae, two pairs of tentacular cirri; first dorsal cirri short. Dorsal cirri clavate or foliose; nuchal projecting lobes present.

*Branchiosyllis* Ehlers 1887, *B. oculata* Ehlers 1887; 5 species.

**SYLLINAE.** Palps free to base; two pairs of tentacular cirri. Parapodia with long digitate distal lobes attached pre- and postsetally. Eversible pharynx unarmed.
**Brania** Quatrefages 1866, *Exogone pusilla* Dujardin 1851; 21 species.

**EXOGONINAE.** Two pairs of tentacular cirri; dorsal cirri long and filiform. Dorsal cirri longer than, ventral cirri as long as the setal lobes. Palpi as long as prostomium. Eversible pharynx with anterior dorsal tooth.


**EXOGONINAE.** Three short, ovate antennae; one pair of tentacular cirri; dorsal cirri long, slender and smooth, eversible pharynx unarmed. Composite spinigers.

**Campesyllis** Chamberlin 1919a, *C. minor* Chamberlin 1919a; only species.

**EXOGONINAE.** Three short antennae; two pairs of tentacular cirri. Eversible pharynx sinuous and non-muscular.

**Clavisyllis** Knox 1957, *C. anernata* Knox 1957; only species.

**EUSYLLINAE.** Three antennae; two pairs of tentacular cirri; prominent nuchal epaulettes present. Eversible pharynx smooth-rimmed with single dorsal tooth. Tentacular and dorsal cirri large, ovoid and inflated.


**EUSYLLINAE.** Three antennae, two pairs of tentacular cirri; nuchal ridges present or absent. Palps very large and lingulate; parapodia long. Eversible pharynx with middorsal tooth, smooth-rimmed or with a few teeth.

**Ehlersia** Quatrefages 1865, *Syllis sexoculata* Ehlers 1864; 15 species.

**SYLLINAE.** Three antennae and two pairs of tentacular cirri; all anterior appendages articulated (except palps). Eversible pharynx with middorsal tooth. Setae include composite spinigers and falcigers and in posterior setigers one or two simple setae per fascicle.

**Eudontosyllis** Knox 1960, *E. acciculata* Knox 1960; only species.

**EUSYLLINAE.** Tentacular and dorsal cirri articulated, ventral cirri foliose. Eversible pharynx with middorsal tooth and denticulated margin; occipital flap present. Notacricula present.

**Euryssylis** Ehlers 1864, *E. tuberculata* Ehlers 1864; 3 species.

**EXOGONINAE.** Body short and flattened. Three globular antennae; tentacular cirri and dorsal cirri also globular. Eversible pharynx with a trepan with 10 teeth and a middorsal tooth present. Dorsum covered with rows of globular papillae.

**Eusyllis** Malmgren 1867, *E. blomstrandi* Malmgren 1867; 27 species.

**EUSYLLINAE.** Three antennae and two pairs of tentacular cirri. Eversible pharynx with middorsal tooth, margin denticulated. Occipital flap may be present. Setae composite falcigers.

**Exogone** Orsted 1845, *E. naidina* Orsted 1845; 40 species.

**EXOGONINAE.** Three antennae; one pair of tentacular cirri. Dorsal and ventral cirri shorter than setal lobes; dorsal cirri ovoid or papilliform. Eversible pharynx with a single tooth.


**EXOGONINAE.** Antennae, tentacular and dorsal cirri absent. Eversible pharynx with a single tooth.


**EXOGONINAE.** Antennae absent; two pairs of tentacular cirri present. Eversible pharynx with a single tooth.

**Exogonoides** Day 1963, *E. antennata* Day 1963; only species.

**EXOGONINAE.** Three ovoid antennae; one pair of ovoid tentacular cirri. Dorsal cirri ovoid; ventral cirri fused to parapodia. Eversible pharynx unarmed.

**Fauvelia** Gravier 1900, *F. martinensis* Gravier 1900; only species.

**EUSYLLINAE.** Antennae absent; tentacular cirri absent; dorsal cirri rudimentary. Eversible pharynx unarmed.

**Geminosyllis** Imajima 1966c, *Trypanosyllis (Trypanedenta)* ohma Imajima and Hartman 1964; only species.

**SYLLINAE.** Body subcylindrical; three antennae, two pairs of tentacular cirri. Eversible pharynx with trepan of ten teeth and in addition a single large tooth. All antennae and cirri slender and articulated.

**Haplosyllides** Augener 1922, *H. floridana* Augener 1922; only species.

**SYLLINAE.** Three antennae; parapodia absent. First segment with parapodia and setae. Dorsal cirri long, ventral cirri short, all cirri smooth.

**Haplosyllis** Langerhans 1879, *Syllis spongicola* Grube 1855; 10 species.

**SYLLINAE.** Three antennae, two pairs of tentacular cirri; all cirri articulated and slender. Eversible pharynx with single tooth. Setae simple, distally furcate or with a subdistal boss or knob.
Irmula Ehlers 1913, 1. *spissipes* Ehlers 1913; only species.

**EUSYLLINAE.** Three antennae; six pairs of tentacular cirri on three fused segments. All cirri smooth. Eversible pharynx with anterior single tooth.


**EUSYLLINAE.** Flattened, small form. Three foliaceous antennae; one pair of tentacular cirri. Eversible pharynx with single tooth. Dorsal cirri flattened; ventral cirri cylindrical. Eversible pharynx with trepan with varying numbers of teeth.

*Myrianida Milne Edwards 1845,* *Nereis pinnigera* Montagu 1808; 8 species.

**AUTOLYTINAE.** Three antennae; two pairs of tentacular cirri. All dorsal cirri flattened; antennae cylindrical. Eversible pharynx with trepan with varying numbers of teeth.

*Odontosyllis* Claparede 1863, *Syllis fuigurans* Audouin and Milne Edwards 1833a; 35 species.

**EUSYLLINAE.** Three antennae; two pairs of tentacular cirri. Occipital flap usually present. Eversible pharynx with a series (less than 20) curved teeth.

*Opisthodonta* Langerhans 1879, *O. morena* Langerhans 1879; 2 species.

**EUSYLLINAE.** Three antennae; two pairs of tentacular cirri; all antennae and cirri smooth. Eversible pharynx with a single large, posteriorly located tooth. Some anterior parapodia with very thick acicula.

*Opisthodonta* Langerhans 1879, *O. brunnea* Langerhans 1879; 10 species.

**SYLLINAE.** Three antennae; two pairs of tentacular cirri; occipital flap may be present. All antennae and cirri articulated. Eversible pharynx with posteriorly attached mid-dorsal tooth; anterior margin smooth.

*Parapionosyllis* Fauvel 1923, *Pionosyllis gestans* Pierantoni 1903; 9 species.

**EUSYLLINAE.** Three antennae; one pair of tentacular cirri. Eversible pharynx with a single tooth. Composite setae spinigerous.

*Paraperosyllis* Hartmann-Schroder 1960a, *P. sexoculata* Hartmann-Schroder 1960a; 2 species.

**SYLLINAE.** Three antennae and two pairs of tentacular cirri. Prostomium with paired posteriorly directed nuchal lappets. All appendages articulated. Eversible pharynx unarmed.


**SYLLINAE.** Three antennae; two pairs of tentacular cirri. Dorsal cirri anteriorly all slender and moniliform; posteriorly alternating between slender and large, bulbously fusiform cirri. Eversible pharynx with mid-dorsal tooth.


**SYLLINAE.** Three antennae; two pairs of tentacular cirri; eversible pharynx with single tooth. All composite setae falcigers; one or two simple setae present in each of the posterior setigers. All antennae and cirri with less than five articles; second segment without dorsal cirri.

*Parautolytus* Ehlers 1900, *P. fasciatus* Ehlers 1900; 2 species.

**EUSYLLINAE.** Three antennae; two pairs of tentacular cirri. Antennae and cirri smooth. Eversible pharynx finely denticulated, large tooth absent.

*Petitia* Siewing 1955, *P. amphophthalmus* Siewing 1955; only species.

**EUSYLLINAE.** Three antennae; one pair of tentacular cirri. Palpi biarticulate in adults. Eversible pharynx with a single tooth. Composite setae falcigerous.

*Pharyngeovalvata* Day 1951, *P. natalensis* Day 1951; only species.

**EUSYLLINAE.** Three antennae; two pairs of tentacular cirri. Occipital flap present. Pharynx with valve; teeth absent.

*Phyllosyllis* Ehlers 1897, *P. albida* Ehlers 1897; only species.

**AUTOLYTINAE.** Three antennae; first segment setose, with two large, foliaceous cirri. Eversible pharynx without teeth. Dorsal cirri foliaceous.


**EUSYLLINAE.** Three antennae; two pairs of tentacular cirri. Tentacular and dorsal cirri smooth and cylindrical. Eversible pharynx with single tooth; anterior margin smooth.


**EXOONINAE.** Body short, three globular antennae; tentacular cirri and dorsal cirri also globular. Eversible pharynx with a trepan with ten teeth; a single tooth also present. Dorsal globular papillae absent.

*Proceraea* Ehlers 1864, *P. picta* Ehlers 1864; 7 species.

**AUTOLYTINAE.** Three antennae; two pairs of tentacular cirri. Palps small and ventrally located. Eversible

**Procerastea** Langerhans 1884, *P. nematodes* Langerhans 1884; 3 species.

**AUTOLYTINAE.** Three antennae, two pairs of tentacular cirri. Dorsal cirri on first setiger only. Eversible pharynx with trepan with numerous teeth.

**Pseudosyllides** Augener 1927b, *P. curacaoensis* Augener 1927b; only species.

**SYLLINAE.** Three antennae; two pairs of tentacular cirri. Eversible pharynx unarmed. Dorsal cirri present on second segment.

**Spermosyllis** Claparede 1864, *S. tortilosa* Claparede 1864; 3 species.

**EXOGONINAE.** One antenna and one pair of tentacular cirri. Antennae and cirri strongly articulated. Eversible pharynx unarmed with a smooth margin.

**Sphaerosyllis** Claparede 1863, *S. hystrix* Claparede 1863; 28 species.

**AUTOLYTINAE.** Three antennae; one pair of tentacular cirri. Antennae and cirri strongly articulated. Eversible pharynx with a single tooth. Dorsal cirri rudimentary, ventral cirri absent.

**Syllides** Orsted 1845, *S. longocirrata* Orsted 1845; 13 species.

**EUSYLLINAE.** Three antennae and two pairs of tentacular cirri. Eversible pharynx unarmed; distal margin of pharynx smooth. No enlarged setae or acicula.

**Syllis** Savigny 1818, *S. monilaris* Savigny 1818; 45 species.

**SYLLINAE.** Three antennae; two pairs of tentacular cirri. All articulated. Eversible pharynx with a single tooth. Pseudocomposite and simple setae present in addition to the composite setae in all parts of the body.

*Synsyllis* Verrill 1900, *S. longigularis* Verrill 1900; 2 species.

**EUSYLLINAE.** Three antennae and two pairs of tentacular cirri. Eversible pharynx with mid-dorsal tooth; margin denticulated. Middle part of body with large, distally furcate simple setae.

**Trypanosyllis** Claparede 1864, *Syllis zebra* Grube 1860; 26 species.

**SYLLINAE.** Body flattened with numerous short segments. Three antennae and two pairs of tentacular cirri; all articulated. Trepan with several teeth; a single tooth may be present.

**Typosyllis** Langerhans 1879, *Syllis krohnti* Ehlers 1864; 89 species.

**SYLLINAE.** Three antennae and two pairs of tentacular cirri; all articulated. Eversible pharynx with a single tooth. Setae include uni- or bidentate falcigers in addition to one or two simple setae in each of the posterior setigers.

**Umbrillosyllis** Sars 1869, *U. fasciata* Sars 1869; 2 species.

**AUTOLYTINAE.** Three clavate antennae; two pairs of tentacular cirri. Nuchal organs foliaceous. Dorsal cirri clavate.

**Xenosyllis** Marion and Bobretzky 1875, *Syllis scabra* Ehlers 1864; 2 species.

**SYLLINAE.** Three short, thick antennae; two pairs of tentacular cirri. Tentacular cirri and dorsal cirri with few moniliform or collared articles. Dorsum covered with small papillae. Eversible pharynx unarmed.

### Taxonomic Notes

The subfamilies have been accepted strictly as defined above; as a consequence several of the genera have been moved from one subfamily to another. This is not considered to be of any great importance: the differences between the subfamilies, especially between the **EUSYLLINAE** and **SYLLINAE** appear to be of more practical than scientific value.

The genus *Irmula* was originally described in the Hesionidae. It was moved to Syllidae by Day (1967). It has a very isolated position in the family due to the presence of three modified anterior segments with six pairs of tentacular cirri. However, the structure of pharynx, parapodia and setae is typically syllid, so it appears best to retain it in the Syllidae.

**Hesiomyx** Wesenberg-Lund 1950, described as intermediary between the syllids and the hesionids, is treated here among the latter, in that the structure of the pharynx, setae, parapodia and tentacular cirri appear to resemble members of that family much more than it resembles any member of the Syllidae.
Invalid Genera

Amytis Savigny 1818, see Procereaea
Anoplosyllis Claparede 1868, see Syllides
Aporosyllis Quatrefages 1865, see Syllis
Autolytides Malaguin 1893, see Autolytus
Brachysyllis Imajima and Hartman 1964, see Diplosyllis
Chaetosyllis Malmgren 1867, see Ehlersia
Cirrosyllis Schmarda 1861, see Amblyosyllis and Autolytus
Claparedia Quatrefages 1865, see Eusyllis (?)
Criithida Goss 1855, see Autolytus
Cystonereis Kolliker in Koch 1846, see Exogone
Desmosyllis Verrill 1890, see Autolytus
Diplocereae Grube 1850, see Autolytus
Doveria Quatrefages in Milne Edwards 1848, NonMen

Eucaerus Ehlers 1864, see Myrianida
Euromedusa Kinberg 1866b, see Trypanosyllis
Exotokes Ehlers 1864, see Exogone
Gattiola Johnston 1863, see Amblyosyllis
Gnathosyllis Schmarda 1861, see Syllis
Gossia Quatrefages 1865, see Exogone (?)
Gruea Quatrefages 1865, see Brania
Grubeosyllis Verrill 1900, see Brania
Hemisyllis Verrill 1900, see Brania
Hesperidina Chamberlin 1919a, ?Odentosyllis
Heterosyllis Clapareda 1863, indeterminable
Ioda Johnston 1840, see Syllis
Isosyllis Ehlers 1864, see Typosyllis
Lalage Müller 1858, NonMen (see Syllis)
Lengerhansia Czerniavsky 1882, see Ehlersia
Lambedora Kinberg 1866b, indeterminable
Lapithas Kinberg 1866b, indeterminable
Lophosyllis Sans 1867, indeterminable
Lycastis Savigny 1818, see Typosyllis
Microsyllis Claparede 1863, questionably Exogone
Monocerrina Costa 1861a, indeterminable
Nereisyllis Blainville 1828, see Syllis
Nicottia Costa 1864, see Amblyosyllis
Ophylax Ehlers 1864, see Exogone
Paedophyla Clapareda 1868, see Exogone
Pagenstecheria Quatrefages 1865, see Typosyllis
Parasyllis Foss 1912, NonMen
Parexogone Mesnil and Caillet 1916, see Exogone
Periboea Kinberg 1866b, indeterminable
Photocharis Ehrenberg 1835, indeterminable
Platysyllis Grube 1878, indeterminable
Podonereis Blainville 1818, see Autolytus
Polybrotichus Orsted 1843a, see Procereaea
Polymastus Clapareda 1864, see Eusyllis
Polynice Savigny in Grube 1850, questionably Autolytus
Procorne Ehlers 1864, see Odontosyllis
Protogrubea Czemiavsky 1881a, see Brania
Pseudosyllides Czemiavsky 1882, see Amblyosyllis
Pterautolytus Ehlers 1907, see Autolytus
Pterosyllis Claparede 1863, see Amblyosyllis
Sacconereis Muller 1853, see Autolytus
Salvatoria McIntosh 1885, see Brania
Schmardia Quatrefages 1865, see Exogone
Stephanosyllis Claparede 1864, see Procereaea
Syllia Quatrefages 1865, see Exogone
Syzyline Grube 1860, see Autolytus
Syzyline Clapareda 1864, see Exogone
Tetraglene Grube 1863, see Trypanosyllis
Thee Kinberg 1866b, see Typosyllis
Thylaciphorus Quatrefages 1865, see Amblyosyllis
Trichosyllis Schmarda 1861, see Syllis
Virnovia Langerhans 1879, see Umbellisyllis
Xenosyllides Perejaslavzeva in Jakubova 1930, questionably Umbellisyllis

FAMILY CALAMYZIDAE HARTMANN-SCHRODER 1971


The only known genus and species, Calamyzas amphictenica Arvidsson 1932 is parasitic on the ampharetid polychaete, Amphiactis gunneri (Sars 1835) from Sweden. A review can be found in Hartmann-Schroder 1971.

FAMILY NEREIDAE JOHNSTON 1845

Elongated, multi-segmented nereidiform polychaetes. Two, rarely one, antennae; palps biarticulated. Two or four pairs of tentacular cirri. Eversible pharynx with a pair of jaws and often accessory denticles or papillae. Parapodia nearly always biramous, usually with complex flattened lobes and cirri. Setae composite or simple, spinggerous or falcigerous.

The nereids are common forms in all depths, and penetrate freshwater and to a very limited extent, even terrestrial environments (Pflugfelder 1933). Some nereids are easy to maintain under laboratory conditions and have been used extensively for experimental research. The most popular of the nereids thus used, is Hediste diversicolor, referred to in the experimental literature incorrectly as Nereis diversicolor in most cases; in other cases, more correctly as Neanthes diversicolor.

Some critical problems are associated with the recognition of species within the family, in that all species...
cannot be recognized on strictly morphological characters (Smith 1958). It is suspected that in fact a series of widespread species (*Nereis pelagica*, *Neanthes virens*, *Platynereis dumerilii* and others) may turn out to be species-complexes, defined on non-morphological features. It is thus of importance that the provenance of experimental organisms be stated clearly in all publications.

**Key to Genera**

1a. Peristomium forms a large ventral collar

1b. Peristomium not ventrally enlarged

2a (lb). Some notopodia with pectinate branchiae

2b (I b). Branchiae absent

3a (2a). Branchiae arise from the dorsal cirrus; all setae composite spinigers

3b (3a). Branchiae arise from the dorsal cirrus; all setae composite spinigers

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Figs 21. (A), Family NEREIDAE, *Nereis vexillosa*, Boiler Bay, Oregon, intertidal, dorsal view, 10x; (B), ventral view of the above, 10x; (C) and (D), diagrams of the pharyngeal areas of nereids, in ventral and dorsal views; (E), median parapodium of the above, 25x; (F), median parapodium of *N. vexillosa* from Dillon Beach, California, 50x.
<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Taxon</th>
</tr>
</thead>
<tbody>
<tr>
<td>3b</td>
<td>Branchiae arise from the notopodial lobes; some composite falcigers present</td>
<td>Dendronereides</td>
</tr>
<tr>
<td>4a</td>
<td>Anterior ventrum with transverse fleshy ridges</td>
<td>Australonereis</td>
</tr>
<tr>
<td>4b</td>
<td>Anterior ventrum smooth</td>
<td></td>
</tr>
<tr>
<td>5a</td>
<td>Antennae absent</td>
<td></td>
</tr>
<tr>
<td>5b</td>
<td>At least one antenna present</td>
<td></td>
</tr>
<tr>
<td>6a</td>
<td>Two pairs of tentacular cirri present; anterior apodous segment absent</td>
<td>Micronereis</td>
</tr>
<tr>
<td>6b</td>
<td>Three pairs of tentacular cirri present; anterior apodous segment present</td>
<td>Cryptonereis</td>
</tr>
<tr>
<td>7a</td>
<td>A single median antenna present</td>
<td></td>
</tr>
<tr>
<td>7b</td>
<td>Two antennae present</td>
<td></td>
</tr>
<tr>
<td>8a</td>
<td>Paragnaths present on the maxillary ring; parapodia biramous (except the first two)</td>
<td></td>
</tr>
<tr>
<td>8b</td>
<td>Paragnaths absent; parapodia uniramous</td>
<td></td>
</tr>
<tr>
<td>9a</td>
<td>Notocirri of parapodia 5-7 broadly elytraeform</td>
<td></td>
</tr>
<tr>
<td>9b</td>
<td>Notocirri of parapodia 5-7 cylindrical and cirriform</td>
<td></td>
</tr>
<tr>
<td>10a</td>
<td>Notopodia strongly reduced or absent</td>
<td></td>
</tr>
<tr>
<td>10b</td>
<td>Median and posterior notopodia well developed, with lobes and setae</td>
<td></td>
</tr>
<tr>
<td>11a</td>
<td>Noto setae present</td>
<td>Namanereis</td>
</tr>
<tr>
<td>11b</td>
<td>Noto setae absent</td>
<td></td>
</tr>
<tr>
<td>12a</td>
<td>Tentacular cirri articulated</td>
<td>Lycastoides</td>
</tr>
<tr>
<td>12b</td>
<td>Tentacular cirri smooth</td>
<td></td>
</tr>
<tr>
<td>13a</td>
<td>Notacicula present; antennae and cirri well developed</td>
<td>Namalycaetis</td>
</tr>
<tr>
<td>13b</td>
<td>Notacicula absent; antennae and cirri reduced</td>
<td></td>
</tr>
<tr>
<td>14a</td>
<td>Eversible pharynx with either papillae or paragnaths or both, in addition to the jaws</td>
<td></td>
</tr>
<tr>
<td>14b</td>
<td>Eversible pharynx with jaws, but otherwise smooth</td>
<td></td>
</tr>
<tr>
<td>15a</td>
<td>Eversible pharynx with soft papillae only</td>
<td></td>
</tr>
<tr>
<td>15b</td>
<td>Eversible pharynx with at least some paragnaths</td>
<td></td>
</tr>
<tr>
<td>16a</td>
<td>Two pairs of tentacular cirri; apodous segment absent</td>
<td>Micronereides</td>
</tr>
<tr>
<td>16b</td>
<td>Four pairs of tentacular cirri; apodous segment present</td>
<td></td>
</tr>
<tr>
<td>17a</td>
<td>Dorsal cirri attached basally on the notopodial superior lobes</td>
<td></td>
</tr>
<tr>
<td>17b</td>
<td>Dorsal cirri attached distally on the notopodial superior lobes</td>
<td></td>
</tr>
<tr>
<td>18a</td>
<td>Notopodial homogomph falcigers present in posterior setigers</td>
<td>Rullierinereis</td>
</tr>
<tr>
<td>18b</td>
<td>Notopodial homogomph falcigers absent</td>
<td></td>
</tr>
<tr>
<td>19a</td>
<td>Superior notopodial lobes long and straplike; inferior neuropodial lobe absent</td>
<td></td>
</tr>
<tr>
<td>19b</td>
<td>Superior notopodial lobes large and foliöse; inferior neuropodial lobes present</td>
<td></td>
</tr>
<tr>
<td>20a</td>
<td>Pharyngeal papillae at least in part in tufts</td>
<td></td>
</tr>
<tr>
<td>20b</td>
<td>Pharyngeal papillae solitary</td>
<td></td>
</tr>
<tr>
<td>21a</td>
<td>All setae homogomph spinigers</td>
<td></td>
</tr>
<tr>
<td>21b</td>
<td>Setae include also neuropodial homogomph falcigers in posterior setigers</td>
<td></td>
</tr>
<tr>
<td>22a</td>
<td>Ventral cirri double at least in some setigers</td>
<td></td>
</tr>
<tr>
<td>22b</td>
<td>All ventral cirri simple</td>
<td></td>
</tr>
<tr>
<td>23a</td>
<td>Accessory dorsal cirri on some anterior setigers; posterior dorsal cirri long and whiplike</td>
<td>Gymnonereis</td>
</tr>
<tr>
<td>23b</td>
<td>Accessory dorsal cirri absent; posterior dorsal cirri not whiplike</td>
<td></td>
</tr>
<tr>
<td>24a</td>
<td>Pharyngeal papillae on both rings; inferior neuropodial lobes absent; dorsal cirri distally attached ...</td>
<td>Tylorrhynchus</td>
</tr>
<tr>
<td>24b</td>
<td>Pharyngeal papillae on oral ring only; inferior neuropodial lobes present; dorsal cirri basally attached</td>
<td>Kinbergineres</td>
</tr>
<tr>
<td>25a</td>
<td>Eversible pharynx with both papillae and paragnaths</td>
<td></td>
</tr>
<tr>
<td>25b</td>
<td>Papillae absent, paragnaths present</td>
<td></td>
</tr>
<tr>
<td>26a</td>
<td>Paragnaths present on one pharyngeal ring only</td>
<td></td>
</tr>
<tr>
<td>26b</td>
<td>Paragnaths present on both pharyngeal rings</td>
<td></td>
</tr>
<tr>
<td>27a</td>
<td>Paragnaths present on the maxillary ring only</td>
<td></td>
</tr>
<tr>
<td>27b</td>
<td>Paragnaths present on the oral ring only</td>
<td></td>
</tr>
<tr>
<td>28a</td>
<td>Paragnaths in eight groups, all rod-shaped</td>
<td></td>
</tr>
<tr>
<td>28b</td>
<td>Paragnaths in patches and bands, all conical</td>
<td></td>
</tr>
<tr>
<td>29a</td>
<td>Notopodial homogomph falcigers present in posterior setigers</td>
<td></td>
</tr>
<tr>
<td>29b</td>
<td>Notopodial homogomph falcigers absent</td>
<td></td>
</tr>
</tbody>
</table>
30a (26b). All paragnaths conical
30b (26b). Cones and in addition either transverse or pectinate paragnaths or both present on the pharynx.
31a (30a). All setae homogomph spinigers
31b (30a). At least some falcigers present
32a (31b). Middle and posterior neuropodia with single homogomph falcigers
32b (31b). Homogomph falcigers, if present, in notopodial positions
33a (32b). With blunt simple falcigers in notopodia
33b (32b). Simple falcigers absent, composite falcigers present or absent
34a (33b). Notopodial homogomph falcigers present in posterior setigers
34b (33b). Notopodial homogomph falcigers absent
35a (30b). Paragnaths include pectinate bars and usually small patches of cones; transverse smooth bars absent
35b (30b). Paragnaths include transverse smooth bars, patches of cones and sometimes pectinate bars
36a (35b). Superior notopodial lobes greatly expanded in posterior setigers; pectinate bars usually present
36b (35b). Superior notopodial lobes not expanded in any setigers; pectinate bars absent

Generic Definitions

**Australonereis** Hartman 1954, *Nereis (Leonnates) ehlersi* Augener 1913a; only species.
Eversible pharynx with soft papillae on the maxillary ring, oral ring bare. Four pairs of tentacular cirri; biramous parapodia. Notosetae homogomph spinigers; neurosetae homo- and heterogomph falcigers. With fleshy transverse ridges across anterior ventrum.

**Ceratocephale** Malmgren 1867, *C. loveni* Malmgren 1867; 11 species.
Eversible pharynx with soft papillae on both rings. Four pairs of tentacular cirri; biramous parapodia. Setae include homogomph and heterogomph spinigers and heterogomph falcigers. Ventral cirri double on at least some setigers, usually on most.

**Ceratonereis** Kinberg 1866a, *C. mirabilis* Kinberg 1866a; 53 species.
Eversible pharynx with paragnaths on the maxillary ring only. Four pairs of tentacular cirri; biramous parapodia. Notosetae include homogomph spinigers and falcigers; neurosetae homo- and heterogomph spinigers and heterogomph falcigers. Dorsal cirri attached basally to the superior notopodial lobe; inferior neuropodial lobe may be present.

**Cheilonereis** Benham 1916, *Nereis cyclus* Harrington 1897; 2 species.
Eversible pharynx with conical paragnaths on both rings. Four pairs of tentacular cirri; biramous parapodia. Notosetae homogomph spinigers; neurosetae homogomph spinigers and heterogomph falcigers. Superior notopodial lobes large and foliose with dorsal cirrus attached medially. Peristomium greatly expanded ventrally.

**Cirronereis** Kinberg 1866a, *C. gracilis* Kinberg 1866a; only species.
Eversible pharynx with conical paragnaths on both rings. Four pairs of tentacular cirri; biramous parapodia. Notosetae include homogomph spinigers and blunt simple falcigers; neurosetae heterogomph spinigers and falcigers.

**Cryptonereis** Gibbs 1971, *C. malaitae* Gibbs 1971; only species.
Eversible pharynx without paragnaths or papillae. Three pairs of tentacular cirri; uniramous parapodia. Neurosetae heterogomph spinigers and falcigers. Frontal antennae absent; at maturity, parapodia biramous with capillary setae.

**Dawbinia** Benham 1950, *D. aucklandica* Benham 1950; only species.
Eversible pharynx without paragnaths or papillae. Two pairs of tentacular cirri; parapodia uniramous. Neurosetae homogomph spinigers and heterogomph falcigers. A single median antenna present.

**Dendronereides** Southern 1921, *D. heteropoda* Southern 1921; 2 species.
Eversible pharynx with soft papillae on both rings. Four pairs of tentacular cirri; parapodia biramous. Branchiae present as a subdivision of the notopodial superior lobes. Neuropodial inferior lobes absent. Notosetae homogomph spinigers; neurosetae home- and heterogomph spinigers and heterogomph falcigers.

**Eunereis** Mahngren 1867, *Nereis longissima* Johnston 1840; 7 species.
Eversible pharynx with paragnaths on oral ring only. Four pairs of tentacular cirri; parapodia biramous. Notosetae homogomph spinigers and falcigers; neurosetae homogomph spinigers and heterogomph falcigers.

**Gymnonereis** Horst 1919a, *Gymnorhynchus sibogae* Horst 1918; 2 species.

Eversible pharynx with papillae on the oral ring only. Four pairs of tentacular cirri; parapodia biramous. Accessory dorsal cirri present on some anterior segments; posterior dorsal cirri long and whiplike. All setae homogomph or slightly hemigomph spinigers.

**Hediste** Malmgren 1867. *Nereis diversicolor* O.F. Maller 1776; only species.

Eversible pharynx with conical paragnaths on both rings. Four pairs of tentacular cirri; parapodia biramous. Notosetae homogomph spinigers. Neurosetae homogomph spinigers and heterogomph falcigers. A single homogomph falciger present in median and posterior neuropodia.

**Kainonereis** Chamberlin 1919c, *K. alata* Chamberlin 1919c; only species.

Eversible pharynx without paragnaths or papillae. Four pairs of tentacular cirri present; parapodia biramous. Antennae bifid at the tips; broad elytraeform dorsal cirri on parapodia 5-7.

**Laeonereis** Hartman 1945. *Nereis (Leptonereis) inermis* Hoagland 1920; only species.

Eversible pharynx with soft papillae on the oral ring only. Four pairs of tentacular cirri; parapodia biramous. Antennae bifid at the tips; broad elytraeform dorsal cirri on parapodia 5-7.

**Kinberginereis** Pettibone 1971a, *Nereis (Leptonereis) inermis* Hoagland 1920; only species.

Eversible pharynx without paragnaths or papillae. Four pairs of tentacular cirri present; parapodia biramous. Antennae bifid at the tips; broad elytraeform dorsal cirri on parapodia.

**Kinberginereis** Pettibone 1971a, *Nereis (Leptonereis) inermis* Hoagland 1920; only species.

Eversible pharynx with soft papillae on the oral ring only. Four pairs of tentacular cirri; parapodia biramous. Antennae bifid at the tips; broad elytraeform dorsal cirri on parapodia 5-7.

**Laeonereis** Hartman 1945. *Nereis culveri* Webster 1879a; 6 species.

Eversible pharynx with tufts of papillae on both rings and large solitary papillae on area VI. Four pairs of tentacular cirri; parapodia biramous. Notosetae homogomph spinigers; neurosetae homogomph and heterogomph spinigers. Inferior neuropodial lobe present; dorsal cirri basal.

**Leonastes** Kinberg 1866a, *L. indicus* Kinberg 1866a; 10 species.

Eversible pharynx with papillae on the oral ring and paragnaths on the maxillary ring. Four pairs of tentacular cirri; parapodia biramous. Notosetae homogomph spinigers; neurosetae heterogomph falcigers with coarsely serrated blades.

**Leptonereis** Kinberg 1866a, *L. laevis* Kinberg 1866a; 2 species.

Eversible pharynx without papillae and paragnaths. Four pairs of tentacular cirri, parapodia biramous.

Superior notopodial lobes large and foliose in posterior setigers. Notosetae homogomph spinigers; neurosetae heterogomph spinigers and falcigers; the latter with long appendages. Inferior neuropodial lobe present.

**Lycastopsis** Augener 1922, *L. boomeri* Augener 1922; 6 species.

Eversible pharynx without papillae or paragnaths. Four pairs of tentacular cirri present; parapodia uniramous. Neurosetae heterogomph spinigers and falcigers. Tentacular cirri jointed; eyes absent.

**Micronereides** Claparede 1863, *M. capensis* Claparede 1863; 5 species.

Eversible pharynx without papillae or paragnaths. Two pairs of tentacular cirri present; parapodia biramous. Apodous segment absent. All setae homogomph spinigers.

**Micronereis** Claparede 1863, *M. variegata* Claparede 1863; 5 species.

Eversible pharynx without papillae or paragnaths. Two pairs of tentacular cirri present; parapodia biramous. Apodous segment absent. Antennae absent. All setae homogomph spinigers.


Eversible pharynx without papillae or paragnaths. Four pairs of tentacular cirri; parapodia sub-biramous or uniramous. Neurosetae usually absent; neurosetae heterogomph spinigers and falcigers. Neuropodia with a single setal lobe only. Notopodial superior lobes prolonged in posterior setigers.


Eversible pharynx smooth or with soft papillae. Three or four pairs of tentacular cirri present; parapodia biramous with notopodia strongly reduced. Neurosetae include heterogomph spinigers and falcigers.

**Neanthes** Kinberg 1866a, *N. vaalii* Kinberg 1866a; 50 species.

Eversible pharynx with conical paragnaths on both rings. Four pairs of tentacular cirri; parapodia biramous. Notosetae homogomph spinigers; neurosetae homo- and heterogomph spinigers and heterogomph falcigers.

**Nectoneanthes** Imajima 1972, *Nereis (Alitta) oxypoda* Marenzeller 1879; 2 species.

Eversible pharynx with conical paragnaths on both rings. Four pairs of tentacular cirri present; parapodia
heterogomph falcigers. Neursetae include homogomph spinigers and falcigers, the latter in median and posterior setigers; neursetae include homo- and heterogomph spinigers and heterogomph falcigers.

_Nereis_ Linnaeus 1758, _N. pelagica_ Linnaeus 1758; 134 species.

Eversible pharynx with conical paragnaths on both rings. Four pairs of tentacular cirri present; parapodia biramous. Notosetae include homogomph spinigers and falcigers, the latter in median and posterior setigers; neursetae include homo- and heterogomph spinigers and heterogomph falcigers.

_Nicon_ Kinberg 1866a, _N. pictus_ Kinberg 1866a; 15 species.

Eversible pharynx without papillae or paragnaths. Four pairs of tentacular cirri; parapodia biramous. Notosetae homogomph spinigers; neursetae homogomph spinigers and falcigers. Inferior neuropodial lobes absent.

_Perinereis_ Kinberg 1866a, _P. novaehollandiae_ Kinberg 1866a; 60 species.

Eversible pharynx with conical and transverse paragnaths on both rings; four pairs of tentacular cirri; parapodia biramous. Notosetae homogomph spinigers; neursetae homogomph spinigers and heterogomph falcigers.

_Plasyneries_ Kinberg 1866a, _P. magalhaensis_ Kinberg 1866a; 20 species.

Eversible pharynx with paragnaths on both rings, including cones, and pectinate bars. Four pairs of tentacular cirri; parapodia biramous. Notosetae homogomph spinigers and falcigers, the latter sometimes fused to form simple falcigers; neursetae include homo- and heterogomph spinigers and heterogomph falcigers.

_Pseudonereis_ Kinberg 1866a, _P. gallapagensis_ Kinberg 1866a; 7 species.

Eversible pharynx with paragnaths on both rings, including cones, transverse smooth bars and pectinate bars. Four pairs of tentacular cirri; parapodia biramous. Notosetae include homogomph spinigers and falcigers; neursetae homogomph spinigers and heterogomph falcigers.

_Rullierinereis_ Pettibone 1971a, _Leptonereis zebra_ Rullier 1963; 5 species.

Eversible pharynx without papillae or paragnaths. Four pairs of tentacular cirri; parapodia biramous. Notosetae include homogomph spinigers and falcigers, the latter in posterior setigers; neursetae homo- and heterogomph spinigers and heterogomph falcigers. Inferior neuropodial lobes present.

_Solomononereis_ Gibbs 1971, _S. maranensis_ Gibbs 1971; only species.

Eversible pharynx with eight groups of rod-shaped paragnaths on the maxillary ring; oral ring bare. Four pairs of tentacular cirri; parapodia biramous. Notosetae include homogomph spinigers and falcigers; neursetae hemi-, heterogomph spinigers and heterogomph falcigers.


Eversible pharynx without papillae or paragnaths. Four pairs of tentacular cirri; parapodia biramous. Notosetae homogomph spinigers; neursetae homogomph spinigers and heterogomph falcigers.

_Inferior neuropodial lobes present.

_Typhonereis_ Fauvel 1911, _T. bogoyavlenskyi_ Fauvel 1911; 2 species.

Eversible pharynx with soft papillae on the maxillary ring only. Four pairs of tentacular cirri present; parapodia biramous. All setae homogomph spinigers.

_Tylo rhynchus_ Grube 1869a, _Nereis heterochaeta_ Quatrefages 1865; 2 species.

Eversible pharynx with soft papillae on both rings. Four pairs of tentacular cirri; parapodia biramous. Notosetae hemi- and heterogomph spinigers and heterogomph falcigers. Inferior neuropodial lobes absent.

_Unanereis_ Day 1962, _U. macgregori_ Day 1962; only species.

Eversible pharynx with conical paragnaths on the maxillary ring. Four pairs of tentacular cirri; parapodia biramous. Notosetae homogomph spinigers and falcigers; neursetae homo- and heterogomph spinigers and heterogomph falcigers. A single median antenna present.

_Websterinereis_ Pettibone 1971a, _Nereis tridentata_ Webster 1880; only species.

Eversible pharynx with paragnaths on the oral ring only. Four pairs of tentacular cirri; parapodia biramous. Notosetae homogomph spinigers; neursetae homogomph spinigers and heterogomph falcigers.

**Taxonomic Notes**

The generic subdivision of the nereids has been based mainly on the pharyngeal structures and the presence of specific kinds of setae in the parapodial rami. Both characters are subject to some variation within each genus, and especially the pharyngeal structures require accurate dissection of the anterior end. Pettibone (1971a) introduced characters of the parapodial lobes (called ligules by Pettibone) as major features in the generic identification; this may be valid, but the character has the distinct drawback that it is dependent on interpretation of shapes, which is noto-
riously dependent on the experience of the observer, and very difficult to quantify. Pettibone in the same paper lumped series of species based on overlapping ranges in different characters; this is unfortunate, since the variability within any single population of these animals has never been examined and quantified in detail. The generic key given above, reflects the added insights of Pettibone at the generic level, but the numbers of species indicated for each genus is higher than as given by Pettibone, reflecting the more conservative approach taken to lumping at the specific level in this study.

Invalid Genera

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Nereidiform polychaetes with cylindrical bodies, three antennae and simple palps. Eversible pharynx unarmed. Two pairs of tentacular cirri present. Parapodia biramous, but notopodia reduced to dorsal cirri supported by internal acicula. All setae simple. Sexual dimorphism present, with small males; inquilines in bivalves.

This family is known for a single genus, *Antonbruunia* Hartman and Boss 1965 with genotype *A. viridis* living in the mantle cavity of the bivalve *Lucina fosteri* Hartman and Boss.

Suborder Glyceriformia

Phyllocodida with two pairs of antennae; palps and tentacular cirri absent. Proboscis either unarmed, with four jaws or with a circket of jaws. First parapodia lateral.

FAMILY GLYCERIDAE GRUBE 1850

Glyceriform polychaetes with long, slender bodies and conical prostomia. Eversible pharynx with four jaws in a cross. Parapodia either all biramous or all uniramous. Neurosetae composite; notosetae, when present, simple.

The glycerids are long, slender polychaetes with numerous segments. Perhaps their most noticeable feature is the very long, cylindrical eversible pharynx, which they will evert when disturbed. At the tip of the pharynx are four short, usually black jaws. Glycerids are present, mainly in soft sandy or muddy substrates, in all depths; they are rarely present in large numbers. They appear to be mainly carnivores.

Key to Genera

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<td>la.</td>
<td>Parapodia uniramous throughout</td>
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<td>lb.</td>
<td>Parapodia biramous throughout</td>
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<td>2a (lb.)</td>
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<td>2b (lb.)</td>
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<td>Uncinereis</td>
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FAMILY Antonbruunidae  NEW NAME

Nereidiform polychaetes with cylindrical bodies, three antennae and simple palps. Eversible pharynx unarmed. Two pairs of tentacular cirri present. Parapodia biramous, but notopodia reduced to dorsal cirri supported by internal acicula. All setae simple. Sexual dimorphism present, with small males; inquilines in bivalves.

This family is known for a single genus, *Antonbruunia* Hartman and Boss 1965 with genotype *A. viridis* living in the mantle cavity of the bivalve *Lucina fosteri* Hartman and Boss.

Suborder Glyceriformia

Phyllocodida with two pairs of antennae; palps and tentacular cirri absent. Proboscis either unarmed, with four jaws or with a circket of jaws. First parapodia lateral.

FAMILY GLYCERIDAE GRUBE 1850

Glyceriform polychaetes with long, slender bodies and conical prostomia. Eversible pharynx with four jaws in a cross. Parapodia either all biramous or all uniramous. Neurosetae composite; notosetae, when present, simple.

The glycerids are long, slender polychaetes with numerous segments. Perhaps their most noticeable feature is the very long, cylindrical eversible pharynx, which they will evert when disturbed. At the tip of the pharynx are four short, usually black jaws. Glycerids are present, mainly in soft sandy or muddy substrates, in all depths; they are rarely present in large numbers. They appear to be mainly carnivores.
Prostomium long, with seven to ten vague annuli; aileron of jaws rod-shaped. Pharyngeal organs elongate oval or filamentous. Parapodia uniramous; all setae composite spinigers.

**Taxonomic Notes**

The generic subdivision, essentially in two major genera, has been stable for the last 50 years and not much change is anticipated. Identification of species, especially in certain groups of *Glycera* is quite difficult, and the number of species may be subject to considerable adjustment. Specific identification depends on study of the pharyngeal organs, in addition to parapodial lobes and branchiae. Pharyngeal organs can be characterized only by very close work under compound microscopes. It is of great importance that the light be very accurately adjusted, since the characteristic ridges may be very difficult to see and depend on the full resolution of the microscope, not because of their small sizes, but because of their structure. Branchiae may be retractable, and frequently are retracted in parts of the body; the whole body must be scanned for the presence or absence of these structures.

**Invalid Genera**

*Euglycera* Verrill 1881, see *Glycera*
*Hamiglycera* Ehlers 1908, see *Glycera*
*Hemipodua* Kinberg 1866b, see *Hemipodus*
*Proboscidea* Blainville 1825, see *Glycera*
*Rhynchobolus* Claparede 1868, see *Glycera*
*Telake* Chamberlin 1919c, see *Glycera*
2b (lb). Eversible pharynx with organs of one or a few kinds
3a (2a). Notosetae slender capillaries
3b (2a). Notosetae knobbed or falcate hooded hooks
4a (2b). Eversible pharynx with chevrons
4b (2b). Eversible pharynx without chevrons
5a (4a). Neuropodia with spinigers only
5b (4a). Neuropodia with both spinigers and falcigers
6a (4b). Neuropodia with spinigers only
6b (4b). At least some falcigers present
7a (6b). Notopodia reduced to a rounded knob with a few thick acicular setae and a citrus
7b (6b). Notopodia well developed
8a (7b). Anterior setae all falcigers; posterior ones both spinigers and falcigers
8b (7b). Anterior setae all falcigers, posterior ones all spinigers

**Generic Definitions**

Posterior segments biramous. Chevrons absent, pharyngeal organs large and of several kinds. Notosetae capillaries; neurosetae composite spinigers.

Posterior segments biramous. Chevrons absent; pharyngeal organs small and of one kind. Notosetae acicular; anterior neurosetae all falcigers, posterior neurosetae both falcigers and spinigers.

*Glycine* Muller 1858, *G. multidens* Muller 1858; 20 species.
Posterior segments biramous. Chevrons absent; pharyngeal organs large and of several kinds. Notosetae knobbed or falcate hooded hooks; neurosetae composite spinigers.

*Goniada* Audouin and Milne Edwards 1833b, *G. emerita* Audouin and Milne Edwards 1833b; 34 species.
Posterior segments biramous. Chevrons present; pharyngeal organs small, mainly of one kind. Notosetae acicular or capillary; neurosetae composite spinigers.

*Goniadella* Hartman 1950, *Eone gracilis* Verrill 1873b; 2 species.
Posterior segments biramous. Chevrons present; pharyngeal organs of one kind. Composite spinigers and falcigers present on all neuropodia.

Posterior segments biramous. Chevrons absent. Notopodia reduced to short rounded lobes with a cirrus and one or two coarse acicular setae. All neurosetae composite falcigers.

*Goniadopsis* Fauvel 1928a, *G. agnesiae* Fauvel 1928a; 3 species.

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**Posterior segments biramous. Chevrons absent.**
Neuropodia in unimous part of body with composite falcigers; those in biramous part, spinigers. Notosetae acicular spines.

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**Figure 23.** (A), Family GONIADIDAE, *Glycine armigera*, anterior end with pharynx half everted, after Hartman, 1950, 12.5x; (B), *Goniada brunnea*, median parapodium, posterior view, after Hartman, 1950, 31x; (C), anterior end of the above, 25x.
**Ophioglycera** Verrill 1885, *O. gigantea* Verrill 1885; 6 species.

*Posterior segments biramous. Chevrons absent, pharyngeal organs of one kind and short. Notosetae slender and acicular; all neurosetae composite spinigers.*


All segments uniramous. Chevrons present. Neurosetae include composite falcigers and spinigers in all parapodia.

**Taxonomic Notes**

The genera appear well established in the Goniadidae. The only difficult point in the key above appears in dichotomy 2 on the question of a few or many kinds of pharyngeal organs. In *Glycide* and *Bathyglycide* at least three distinct kinds of organs are present; in most species at least two kinds are distinctly chitinized projections. In the other genera, most species have only one kind of pharyngeal organ, but in some cases two kinds may be identifiable.

**Invalid Genera**

*Eone* Malmgren 1866, see *Glycide*

*Epicaste* Kinberg 1866b, see *Glycide*

*Lacharis* Kinberg 1866b, indeterminable

*Leonnatus* Kinberg 1866b, see *Goniada*

**FAMILY LACYDONIIDAE BERGSTROM 1914**

Glyceriform polychaetes with short and slender bodies; prostomium trapezoidal in outline; eversible pharynx unarm ed. First parapodia uni- or biramous, all others biramous. Neurosetae composite, notosetae simple.

The lacydoniids somewhat resembles the nepthyids, in that both noto- and neuropodia are developed equally, but the parapodia and setal structures, as well as the structure of the prostomium, ally them more closely with the glycerids than with any other group of polychaetes. They traditionally have been considered as an appendix to the phyllodociform polychaetes, mainly because of the lack of proboscideal armament. The lacydoniids recently were reviewed by Uschakov (1972); the present treatment follows his closely.

**Key to Genera**

1a. Tentacular cirri present

1b. Tentacular cirri absent

2a (1b). Antennae short and biarticulated; first setiger uniramous

2b (1b). Antennae long and smooth; first setiger biramous

**Generic Definitions**

*Lacydonia* Marion and Bobretzky 1875, *L. miranda* Marion and Bobretzky 1875; 4 species.

Antennae short and smooth; tentacular cirri present; first two-three parapodia uniramous.

*Paralacydonia* Fauvel 1913, *P. paradoxa* Fauvel 1913; 3 species.

Antennae short and biarticulated; tentacular cirri absent; only first parapodia uniramous.

*Pseudolacydonia* Rullier 1965b, *P. cae ca* Rullier 1965b; only species.

Antennae long and slender, not articulated; tentacular cirri absent; all parapodia biramous.

The following five families do not appear to be closely related to any other Phyllodocida nor are they obviously related to each other. *They are listed in alphabetical order.*
The three families with pelagic members, Iospilidae, Tomopteridae and Typhloscolecidae, usually are considered with the bulk of the other pelagic polychaetes, most of which are related to the Phyllodocidae. This connection seems based on adaptive convergences to the pelagic environment, such as a frequently foliose condition of the parapodial lobes; a reduction in the number and importance of the setae and the lightly built, often translucent bodies in these forms.

The nephtyids and sphaerodorids either are considered related to the glyceriforms or placed in the vicinity of the nereids. The nephtyids are extremely poorly cephalized compared to most other polychaetes, in that even the first setiger carries small, but recognizable parapodia and setae. The lack of cephalization places the nephtyids close to the phyllodocids, from which they differ sharply in the development of the parapodia, in that they have one pair of antennae and one pair of palps, according to the innervation pattern whereas the phyllodocids have at least two pairs of antennae and true palps are absent. For these reasons, it appears for the time being best to leave the nephtyids as a free-standing family within the order Phyllodocida. The sphaerodorids, however, appear to have an extensive and varied degree of cephalization (FauChald 1974b) and appear isolated in the Phyllodocida. They are not related to the nephtyids. The iospilids differ from the phyllodociform families in the presence of palps and the lack of antennae. The same can be said for the tomopterids and the typhloscolecids (Uschakov 1972).

In all five cases, the presence and structure of the anterior appendages (sometimes the lack of such appendages), makes it difficult to ally these forms with any other polychaetes. Rather than forcing the issue, and insist that all families must be allied with a sub-order, it here is considered best to leave all five as separate entities, without any commitment as to further affiliation.

**FAMILY IOSPILIDAE BERGSTROM 1914**

Pelagic, small, slender Phyllodocida. Prostomium without antennae; two short palps present. Parapodia uniramous, all setae composite. Eversible pharynx present, armed in some cases.

The iospilids often are considered allied with the phyllodocids, but appear to differ rather sharply from members of this family in most of the characters usually considered at the familial level. It is here considered a member of the order Phyllodocida, but has not been assigned to any suborder or super-familial group. The family was revised by Dales and Peter (1972) and Uschakov (1972).

![Figure 25. Family ISOPILIDAE, Phalacrophorus pictus borealis, modified after Uschakov, 1972, 90x.](image)

**Key to Genera**

1a. Eversible pharynx with a pair of curved jaws

1b. Eversible pharynx unarmed

2a (1b). Up to 11 anterior segments with reduced parapodia

2b (1b). Parapodia fully developed from segment 5

3a (2b). Dorsal and ventral cirri present, but small on segments 2-3

3b (2b). Dorsal and ventral cirri absent on segments 2-3

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<tr>
<td>Iospilopsis</td>
<td>Eversible pharynx unarmed</td>
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<tr>
<td>Paratiospilus</td>
<td>Up to 11 anterior segments with reduced parapodia</td>
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<tr>
<td>lospilus</td>
<td>Parapodia fully developed from segment 5</td>
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<td>Dorsal and ventral cirri present, but small on segments 2-3</td>
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<td>lospilus</td>
<td>Dorsal and ventral cirri absent on segments 2-3</td>
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Generic Definitions

Iospilopsis Augener 1922, I. antillensis Augener 1922; only species.
Upp to 11 anterior segments with rudimentary parapodia; jaws absent.

Iospilus Viguer 1886, I. phalacroides Viguer 1886; 2 species.
Maximally four anterior segments with reduced parapodia; dorsal and ventral cirri absent on segments 2 and 3; jaws absent.

Paraiospilus Viguer 1911, P. affinis Viguer 1911; only species.
Maximally four anterior segments with reduced parapodia; dorsal and ventral cirri present, but rudimentary on segments 2 and 3; jaws absent.

Phalacrophorus Greeff 1879, P. pictus Greeff 1879; 3 species.
Maximally ten anterior segments with reduced parapodia. Eversible pharynx with paired jaws.

FAMILY NEPHTYIDAE GRUBE 1850
Phyllodocida with long, slender bodies with quadrangular cross-sections. One pair of antennae and one pair of very short palps present. A pair of lateral jaws present. Parapodia biramous with both rami well developed with complex pre- and postsetal lobes. All setae simple. Interramal, respiratory cirri present in nearly all forms.
The nephtyids may superficially be confused with the sigalionids in that both groups have long, straight-sided bodies abruptly tapering anteriorly, and rather more gently posteriorly. However, the nephtyids lack obvious, long appendages anteriorly, and of course the scales present in the sigalionids. Nephtyids are present at all depths, and are most common in sandy and muddy substrates.

FIGURE 26. (A). Family NEPHTYIDAE. Nephtys californiensis, off Santa Catalina Island, California, 50 m, 15x; (B), median parapodium of the above, 15x; (C), Family SPHAERODORIDAE. Sphaerodoropsis sphaerulifer, off Santa Catalina Island, 70 m, 75x; (D), Family TOMOPTERIDAE. Tomopteris sp., off central California, pelagic, 5x; (E), parapodium of the above, 10x.
**Key to Genera**

1a. Interramal cirri rudimentary or absent  
    1b. Interramal cirri well developed, recurved or involute

2a (1b). Interramal cirri recurved  
    2b (1b). Interramal cirri involute

3a (2b). Eversible pharynx with subterminal and terminal papillae  
    3b (2b). Eversible pharynx without subterminal and terminal papillae

*Generic Definitions*

*Aglaophamus* Kinberg 1866b, *A. lyratus* Kinberg 1866b; 45 species.  
Eversible pharynx with 14 (rarely 16) rows of papillae. Interramal cirri involute; acicula distally hooked in most species.

Eversible pharynx without papillae. Interramal cirri involute, acicula distally hooked.

Eversible pharynx with 14 rows of papillae. Interramal cirri reduced or absent; acicula blunt-tipped, but not capped.

Eversible pharynx with 22 rows of papillae. Interramal cirri recurved; acicula in most forms with a distal cap.

**Taxonomic Notes**

Identification of nephtyids to genus can be tricky on small specimens; these tend to have small, nearly straight interramal cirri and one could identify these as *Micronephtys*, and the corresponding adults as *Nephtys*. Identification to species is not difficult, but care must be taken that appropriate segments are compared with each other (or with illustrations), since the shape of the parapodia changes along the length of the body. To overcome the problem of varying body-length, comparisons should be made on distinct fractions of the bodies (i.e. first third, second third and last third). The first start of the interramal cirri is seen best from the lateral side, and a probe must be used to lift the notopodial cirrus so that the small, barely emerging interramal cirrus can be seen on its ventral side. Recent revisions include Hartman (1950) and Fauchald (1968a).

**Invalid Genera**

*Aglaophene* Kinberg 1866b, see Aglaophamus  
*Aonis* Savigny 1822, see *Nephtys*  
*Diplobranchus* Quatrefages 1865, see *Nephtys*  
*Pellucidaria* Sveshnikov 1959, larval forms, no species named.  
*Portelia* Quatrefages 1865, see *Nephtys*

**Family Sphaerodoridae Malmgren 1867**

Small Phyllodocida with short and thick or long, relatively slender bodies. Two to six antennae and one pair of tentacular cirri present. Eversible pharynx unarmed. Uniramous parapodia with simple or composite setae. Dorsum with two to many rows of large spherical tubercles.

The sphaerodorids have been overlooked in most collections. They turn out to be quite frequent in deep-water samples, which tend to be better treated than shallow-water ones. It is probably only a question of time before they are found in relatively large numbers also in shallow water samples. Characteristically, they are short and grub-shaped or more slender, vermiform, and cannot be confused with any other group of polychaetes, except perhaps *Sphaerosyllis* (Syllidae), which has similar rows of tubercles, in the latter case, the dorsal cirri, along the dorsum. The setal structures, however, are quite different. Fauchald (1974b) reviewed the group.

**Key to Genera**

1a. Both dorsal and ventral surfaces smooth  
    1b. At least two rows of dorsal macrotubercles

2a (1b). Macrotubercles with terminal papillae  
    2b (1b). Macrotubercles distally rounded

3a (2a). Macrotubercles in four rows; terminal papillae very short  
    3b (2a). Macrotubercles in two rows; terminal papillae long

*Levidorum*  
2  
3  
6  
*Sphaerephesia*  
4
4a (3b). All setae simple
4b (3b). At least some setae composite
5a (4b). All setae composite apart from the recurved hooks in the first setiger
5b (4b). Both composite and simple setae in all setigers; apart from the first, which has simple recurved hooks

6a (2b). Macromerces stalked
6b (2b). Macrotubercles sessile
7a (6a). Median antenna as long as, or longer than, the lateral antennae
7b (6a). Median antenna shorter than the lateral antennae

8a (6b). All setae composite
8b (6b). All setae simple

**Generic Definitions**

**Clavodorum** Hartman and Fauchald 1971, C. atlanticum Hartman and Fauchald 1971; 5 species.
Stalked macrotubercles in six or eight rows; macrotubercles without terminal papillae. Anterior end with long median antenna and two pairs of lateral antennae. Setae composite.

**Commensodorum** Fauchald 1974b, Sphaerodoridium commensalis Lützen 1961; only species.
Sessile macrotubercles in four rows; macrotubercles without terminal papillae. Anterior end with a median and two pairs of lateral antennae; all anterior appendages short. Setae simple.

**Ephesiella** Chamberlin 1919c, Sphaerodorum abyssarum Hansen 1878; 9 species.
Two rows of macro- and two rows of microtubercles on the dorsum; the sessile macrotubercles with terminal papillae. Anterior end with a median and one or two pairs of lateral antennae. A large recurved hook present in the first setiger in most species; all other setae composite.

**Ephesiopsis** Hartman and Fauchald 1971, E. guayanae Hartman and Fauchald 1971; only species.
Two rows of macro- and two rows of microtubercles on the dorsum; the sessile macrotubercles with terminal papillae. Anterior end with a median and two pairs of lateral antennae. A large recurved hook in the first setiger; setae in other setigers both simple and composite.

**Levidorum** Hartman 1967, L. scotiarum Hartman 1967; only species.
All tubercles and papillae absent. Anterior end blunt; anterior appendages absent. Parapodia with two or three acicula; setae semicomposite or simple.

**Sphaerephesia** Fauchald 1972, S. longiseta Fauchald 1972; 3 species.
Four rows of sessile macrotubercles with short terminal papillae. Anterior end with a median and two or three pairs of lateral antennae. Setae composite.

**Sphaerodoridium** Lützen 1961, Sphaerodoridium claparedii Greeff 1866; only species.
Stalked macrotubercles without terminal papillae. Anterior end with a short median and two pairs of longer lateral antennae. Setae composite.

**Sphaerodoropsis** Hartman and Fauchald 1971, Sphaerodoridum sphaerulifer Moore 1911; 20 species.
Four or more rows of macrotubercles without terminal papillae. Anterior end with a median and two or three pairs of lateral antennae. Setae composite.

**Sphaerodorum** Ørsted 1843b, Ephesia gracilis Rathke 1843; 5 species.
Four rows of sessile macrotubercles with terminal papillae. Anterior end with a median and two pairs of lateral antennae. Setae simple, including in most species large recurved hooks in the first setiger.

**Invalid Genera**

**Bebryce** Johnston 1844, see *Sphaerodoridium*

**Ephesia** Rathke 1843, see *Sphaerodoridium*

**Hypephesia** Perrier 1897, see *Ephesiella*

**Pollicita** Johnston 1845, see *Sphaerodoridium*

**Thysanoplea** Schmidt 1857, questionably *Sphaerodoridium*

**FAMILY TOMOPTERIDAE GRUBE 1848**

Pelagic, transparent, flattened Phyllodocida. Prostomium fused with the first two segments; two antennae. Eversible pharynx unarmed. First segment well developed in juveniles and reduced in adults. Second segment in adults with a pair of long tentacular cirri supported by long acicula; setae absent. Parapodia biramous with elongated bases and short, foliöse rami. Glands of different kinds in the parapodia.

The tomopterids have been referred to the phyllodociform group of polychaetes, but differs rather sharply from these in the structure of the anterior end (Uschakov 1972) and appears best considered as a free-standing family in the order Phyllodocida. A number of genera have been described, but it appears best to consider the family as consisting of only two genera. Recent revisions include Dales and Peter (1972) and Uschakov (1972).
Key to Genera

**Enapteris** Rosa 1908, *Tomopteris euchaeta* Chun 1887; only species.
Parapodial rami with foliose lobes along the distal margin only. Tentacular cirri much longer than body.

**Tomopteris** Eschscholtz 1825, *T. onisciformis* Eschschultz 1825; 40 species.
Parapodia rami with foliose lobes surrounding most of the rami. Tentacular cirri shorter than, or about as long as the body.

**Invalid Genera**

**Briaraea** Quoy and Gaimard 1827, questionably

**Tomopteris**

**Escholtzia** Quatrefages 1865, see **Tomopteris**

**Johnstonella** Gosse 1853, see **Tomopteris**

**FAMILY TYPHLOSCOLECIDAe ULIANIN 1878**

Pelagic, transparent, fusiform or torpedo-shaped Phyllodocida. Prostomium without appendages; large foliose nuchal lobes present. Two pairs of tentacular cirri. Eversible pharynx unarmed, but with retort-organ. Parapodia uniramous, with large foliose dorsal and ventral cirri; setae simple.

The typhloscolecids are poorly studied in terms of their biology and even basic biological information is missing. Recent reviews are given by Uschakov (1972) and Dales and Peter (1972).

Key to Genera

1a. Tentacular cirri of second segment much longer than the body; parapodial fins restricted to the far distal part of each ramus  **Enapteris**

1b. Tentacular cirri as long as, or barely longer than the body; parapodial fins surround the distal part of the rami **Tomopteris**

**Generic Definitions**

**Enapteris**

Rosa 1908, *Tomopteris euchaeta* Chun 1887; only species.

Parapodial rami with foliose lobes along the distal margin only. Tentacular cirri much longer than body.

**Tomopteris**

Eschscholtz 1825, *T. onisciformis* Eschschultz 1825; 40 species.

Parapodia rami with foliose lobes surrounding most of the rami. Tentacular cirri shorter than, or about as long as the body.

**Invalid Genera**

**Briaraea** Quoy and Gaimard 1827, questionably

**Tomopteris**

**Escholtzia** Quatrefages 1865, see **Tomopteris**

**Johnstonella** Gosse 1853, see **Tomopteris**

**FAMILY TYPHLOSCOLECIDAe ULIANIN 1878**

Pelagic, transparent, fusiform or torpedo-shaped Phyllodocida. Prostomium without appendages; large foliose nuchal lobes present. Two pairs of tentacular cirri. Eversible pharynx unarmed, but with retort-organ. Parapodia uniramous, with large foliose dorsal and ventral cirri; setae simple.

The typhloscolecids are poorly studied in terms of their biology and even basic biological information is missing. Recent reviews are given by Uschakov (1972) and Dales and Peter (1972).

Key to Genera

1a. Prostomium with ciliated ridges dorsally and ventrally **Typhloscolex**

1b. Prostomium without ciliated ridges

2a (lb). Median prostomial papilla on the dorsal side present **Travisiopsis**

2b (lb). Prostomium without median dorsal papilla **Sagitella**

**Generic Definitions**

**Sagitella**

Wagner 1872, *S. kowalewskii* Wagner 1872; only species.

Prostomium without ciliated ridges; median antenna absent.

**Travisiopsis**

Levinsen 1885, *T. lobifera* Levinsen 1885; 6 species.

Prostomium without ciliated ridges; median antenna present (may be indistinct).

**Typhloscolex**

Busch 1851, *T. muelleri* Busch 1851; 6 species.

Prostomium with dorsal and ventral ciliated ridges; median antenna present.
**Taxonomic Notes**

The above definitions are after Uschakov (1972: 220-225); there appears to be differences in the structure of the nuchal organs in this family, and this may be of value as a generic character in a future revision.

**Invalid Genera**

*Acicularia* Langerhans 1878, see *Sagitella*

*Nuchubranchiata* Treadwell 1928, see *Travisiopsis*

*Plotobia* Chamberlin 1919c, see *Travisiopsis*

**ORDER AMPHINOMIDA**

Prostomium distinct, a caruncle present and at least one antenna. Pharynx with a muscular, rasplike eversible ventral pad; jaws absent. Parapodia distinct with branching branchiae on at least some setigers.

The family Spintheridae usually is associated with the Amphinomidae (Fauvel 1923a; Hartmann-Schroder 1971). The external resemblance of the ectoparasitic spintherids to the euphosinids first were remarked upon by Sars (1850:210) and next by Johnston (1865: 127-128). Augener (1913a:87), while recognizing the overall external similarity to the short-bodied amphinomids, found the differences sufficient to erect a new family for the single genus. Manton (1967:10 and 21) remarked upon the unique construction of the eversible pharynx in *Spinther* compared to all other polychaetes. The genus also differs sharply from the order Amphinomida in general and the erection of a separate order to contain this family seems warranted. The new order, Spintherida, is listed below (p. 103).

**FAMILY AMPHINOMIDAE SAVIGNY 1818**

Amphinomida with either elongate or ovate and flattened bodies. One to five antennae present; palps present. Noto- and neurosetae in tufts, notosetae protective spinous setae, at least in part. Branchiae in branching tufts.

The amphinomids are common in shallow water. They generally are referred to as fire-worms, since the spines can lead to general discomfort and infections, if they break off within the inflicted cuts. The amphinomids generally are highly colored shallow-water animals, with very distinct color patterns (cf. Fauvel 1953), but are also present, in less showy editions, in deeper water.

**Key to Genera**

1a. Caruncle completely absent; neurosetae simple hooks

1b. Caruncle present, usually well developed (may be difficult to discern in some species); neurosetae otherwise

2a (1b). Body ovate or fusiform

2b (1b). Body elongated with parallel sides and usually abruptly tapering anteriorly and posteriorly

3a (2a). Branchiae present on all setigers

3b (2a). Some setigers (anterior or posterior) without branchiae

4a (3b). One dorsal citrus per notopodium

4b (3b). Two dorsal cirri per notopodium

5a (4a). Caruncle with three parallel longitudinal ridges

5b (4a). Caruncle long and folded with indistinct lateral folds

6a (5b). Eyes absent, first pair of branchiae larger than the following ones

6b (5b). Eyes present, first branchiae not larger than the following ones

7a (4b). Caruncle with high central ridge and two wide flattened lateral folds

7b (4b). Lateral lobes of caruncle small and hidden under the central ridge, or absent

8a (7b). Caruncle wedge-shaped, without crest and folds

8b (7b). Caruncle with crest and folds

9a (8b). Caruncle high, loosely plaited and rugose

9b (8b). Caruncle low, narrowly plaited with a crenulated plate

10a (2b). Caruncle small and inconspicuous, stretching through maximally three segments

10b (2b). Caruncle large and conspicuous, stretching through at least three segments

11a (10a). Branchiae present on all segments from the second or third

11b (10a). Branchiae limited to the anterior part of the body

12a (11a). Caruncle broadly triangular or cordate

12b (11a). Caruncle narrow and elongated

13a (11b). First segment with large, anteriorly directed hooks

13b (11b). First segment without hooks

*Hipponoa*

*Branchamphinome*

*Benthoscolex*

*Bathycholeota*

*Chloeia*

*Notopygos*

*Sangiria*

*Chloenopsis*

*Parachloeia*

*Amphinome*

*Parenthythoe*

*Paramphinome*

*Linopherus*
FIGURE 28. (A), Family AMPHINOMIDAE, *Eurythoe complanata*, San Felipe, Golfo de California, intertidal, 10x; (B), median parapodium of the above, 10x; (C), Family EUPHROSINIDAE, *Euphrosine borealis*, Murchison Sound, Greenland, 100 m, 10x; (D), *Euphrosine* sp., off Point Loma, California, median parapodium, 19x; (E), Family SPINHERIAE, *Spinther* sp., Point Barrow, Alaska, dredged, 5x.
14a (10b). Caruncle longer than wide with a large smooth, sinuous median ridge nearly covering the narrow lateral parts

14b (10b). Caruncle about as long as wide or wider, median ridge, if present, narrow

15a (14b). Caruncle without distinct median ridge, with a few deep transverse folds

15b (14b). Caruncle with a distinct, smooth narrow ridge

16a (15b). Furcate setae absent

16b (15b). Furcate setae present

**Generic Definitions**

*Amphinome* Bruguière 1789, *Aphrodita rostrata* Pallas 1776; 12 species.

Body long; caruncle limited to the two-three first segments, broadly triangular or cordate. Dendritically branched branchiae on all segments from the second or third.

*Bathychloeia* Horst 1910, *B. sibogae* Horst 1910; only species.

Body short and ovate; caruncle large, folded with lateral folds. Bipinnate branchiae from segment 5, first pair larger than the others. Dorsal cirri single. Eyes absent.

*Benthoscolex* Horst 1912, *B. coeca* Horst 1912; 2 species.

Body short and ovate; caruncle with three longitudinal parallel ridges. Dendritically branched branchiae from setiger 6, especially strongly developed on posterior setigers. Dorsal cirri single, eyes absent.


Body ovate; caruncle with three digitate posteriorly directed lobes. Dendritically branched branchiae present on all setigers. Dorsal cirri single, eyes present.

*Chloeia* Savigny 1818, *Aphrodita flava* Pallas 1766; 19 species.


*Chloenopsis* new name, *Chloenea atlantica* McIntosh 1885; only species.

Body ovate, caruncle high, loosely plaited and rugose. Branchiae pennate. Dorsal cirri double; eyes present.

*Chloenea* Kinberg, 1867c is considered a synonym of *Chloeia. Chloenea* McIntosh, 1885 differs genetically from Kinberg’s genus and needs a new name. *Chloenopsis* is here proposed as the generic name for the species originally named *Chloenea atlantica* McIntosh, 1885.


Body long; caruncle long with a thick, sinuous, smooth median ridge covering the narrow folded lateral folds. Dendritically branched branchiae. Dorsal cirri single, eyes present.


Body long; caruncle about as wide as long, without a distinct median ridge, with several transverse folds. Branchiae dendritically branched, bushy in appearance. Dorsal cirri single, eyes present.


*Linopherus* Quatrefages 1865, *Amphinome incarunculata* Peters 1854; 14 species.

Small species, but elongated bodies in most forms; caruncle small and inconspicuous, reported absent in some forms. Branchiae tufted, present on some anterior setigers only. Dorsal cirri single, eyes present or absent.

*Notopygos* Grube 1855, *N. crinita* Grube 1855; 20 species.

Body ovate; caruncle with high central ridge and large flattened lateral lobes. Branchiae dendritically branched. Dorsal cirri double; eyes present.

*Parachloeia* Horst 1912, *P. marmorata* Horst 1912; only species.

Body ovate; caruncle low, narrowly plaited with crenulated plates. Branchiae poorly developed, with a few filaments only. Dorsal cirri double, eyes present.

*Paramphinome* Sars 1869, *Hipponoe jeffreyi* McIntosh 1868; 6 species.

Small forms, but long-bodied; caruncle short, Y-shaped or elongated. Branchiae tufted, limited to anterior setigers. Dorsal cirri single; eyes present or absent. First setiger with anteriorly directed hooks.

*Pareurythoe* Gustafson 1930, *P. japonica* Gustafson 1930; 9 species.

Body long; caruncle small, elongated, sinuous. Branchiae dendritically branched, present on most of the body. Dorsal cirri single, eyes present.
Pherecardia Horst 1886, *Hermodice striata* Kinberg 1857; 4 species. Body long; caruncle with a narrow smooth ridge bordered by wide lateral lobes with deep parallel folds on both sides. Branchiae bushy. Dorsal cirri single; eyes present.


Sangiria Horst 1911, *S. hystrix* Iloi 1911; only species. Body ovate; caruncle wedge-shaped without crest and folds. Branchiae with few filaments. Dorsal cirri double; eyes absent.

**Invalid Genera**

- *Amphibranchus* Kinberg 1867c, see *Hermodice*
- *Asloegia* Kinberg 1867c, see *Amphinome*
- *Blenda* Kinberg 1867c, see *Eurythoe*
- *Chloenea* Kinberg 1867c, see *Chloeia*
- *Chloochaeta* Kinberg 1867c, see *Chloeia*
- *Colonianella* Kinberg 1867c, see *Amphinome*
- *Didymobranchus* Schmarda 1861, indeterminable
- *Eucaranulatus* Malaquin and Dehorne 1907, see *Pherecardia*
- *Lenora* Grube 1878, see *Amphinome*
- *Linone* Kinberg 1867c, see *Notopygos*
- *Lycaretus* Kinberg 1867c, see *Eurythoe*
- *Metamphinome* Treadwell 1940, see *Hipponoa*
- *Pleione* Savigny 1818, possibly *Amphinome*
- *Pseudoerythoe* Fauvel 1932, see *Linopherus*
- *Rostraria* Haecker 1898, larval forms
- *Strategis* Kinberg 1867c, see *Chloeia*
- *Thesmia* Kinberg 1867c, see *Chloeia*
- *Thetisella* Baird 1870, larval forms
- *Veleda* Castelnau 1842, indeterminable
- *Zothea* Risso 1826, indeterminable

**FAMILY EUPHROSINIDAE WILLIAMS 1851**

Amphinomida with short and thick bodies. One pair of antennae; palps absent. Neurosetae in tufts, notosetae in transverse rows on the dorsum; branching branchiae in rows between the notosetae.

Euphrosinids often are considered in the amphinomids sensu latu. The two families are closely related, but the euphrosinids make up a distinct, compact group of forms, and it appears best to treat them separately.

**Key to Genera**

- Noto setae bifurcate, with cylindrical shafts
- Noto setae flattened, smooth paleae

**Generic Definitions**

- **Euphrosine** Savigny 1818, *E. myrtosa* Savigny 1818; 40 species. Short-bodied forms with short prostomium, caruncle with three longitudinal lobes. Branchiae in transverse rows in the dorsum of each segment. Setae include capillaries, and furcate setae.


**Taxonomic Note**

*Palmyreuphrosyne* appears, as noted by Fauvel (1913) to combine characters of the euphrosinids with those of the palmysids. Fauvel indicates that the ever sible pharynx of *Palmyreuphrosyne* should be ventral, smooth and cylindrical, which would ally the genus closely to *Palmyra* rather than to the amphinomidlike forms with their ventral plate-muscle pharynx. As indicated by Orrhage on several occasions, structure of the pharynx may not be an overwhelmingly strong character, and it appears best to await further study of these forms to decide the question. In the meantime, *Palmyreuphrosyne* is maintained where it was placed by its original describer, Fauvel (1913).

**Invalid Genus**

- *Lophonota* Costa 1841, see *Euphrosine*

**ORDER SPINTHERIDA**

Body ovate. Prostomium with a median antenna. Pharynx retractable and cylindrical (resembles a turbellarian pharynx). Notopodia represented by membranous ridges supported by simple or furcate setae. Neuropodia with composite, strongly curved hooks. Ectoparasitic on sponges.
Family Spintheridae

As the order, the family is known for a single genus, *Spinther* Johnston 1845, with the genotype, *S. oniscoideus* Johnston 1845. About 12 species presently are recognized.

Invalid Genera

*Cryptonota* Stimpson 1854, see *Spinther*  
*Oniscosoma* Sars 1850, see *Spinther*

ORDER EUNICIDA

Prostomium distinct, with or without appendages. Eversible pharynx ventrolateral, strongly muscular and with at least one pair of jaws. Parapodia distinct, with strongly developed neuropodia and reduced notopodia.

Superfamily Eunicea

Two to five pairs of lateral jaws (maxillae) and usually one pair of lower jaws (mandibles).

FAMILY ONUPHIDAE KINBERG 1865

*Eunicea* with two frontal and five occipital antennae. Maxillar carriers short; third carrier absent. Maxilla I smooth and curved. Notopodia represented by the base of the branchiae and the dorsal cirri, often supported by internal acicula. Setae include composite and pseudo-composite hooks and spinigers, pectinate setae, limbate setae and subacicular hooks.

Most onuphids are tubicolous, some of them carry the tube around (Hyalinoecia); others are sessile, but may be able to leave their tubes in emergencies (Schafer 1972). All species appear to be scavenging and feed on both plant and animal debris floating past their tube openings; others may actively hunt for debris. Onuphids tend to be common at all depths, and are, next to the lumbrinerids, the family of *Eunicea* best represented in deep water. Recent revisions were made by Fauchald (1968b, 1972).

![Figure 29. (A). Family Onuphidae, Notoria elegans, off Santa Barbara, California, 20 m, 15x; (B), maxillae of the above, 25x; (C), third parapodium of the above, 35x; (D), median parapodium of the above, 25x.](image)

Key to Genera

1a. Two or more anterior setigers with prolonged parapodia and modified setae

1b. Anterior parapodia not prolonged, or only first parapodium longer than the following ones

2a (1a). Two modified anterior setigers; these with uni- or bidentate hooks and capillary setae... *Paranorthia*

2b (1a). More than two modified anterior setigers

3a (2b). Modified parapodia with strongly curved, grapple-hook shaped setae... *Rhamphobrachium*

3b (2b). Modified parapodia with composite falcigers... *Americonuphis*

4a (III). Branchiae in part spiralled

4b (1b). Branchiae pectinate, simple or absent

5a (4a). Tentacular cirri absent... *Epidiopatra*

5b (4a). Tentacular cirri present

6a (5b). Frontal antennae short and conical, all dorsal cirri digitate... *Diopatra*
6b (5b). Frontal antennae long and slender, at least some dorsal cirri foliose
7a (4b). Tentacular cirri absent
7b (4b). Tentacular cirri present
8a (7a). Branchiae present
8b (7a). Branchiae absent
9a (7b). Branchiae in part pectinate
9b (7b). Branchiae simple or absent
10a (9b). Branchiae absent, dorsal cirri foliose in some anterior setigers
10b (9b). Branchiae present or absent, all dorsal cirri digitate

Generic Definitions

Frontal antennae short and conical; tentacular cirri present. Five or more anterior setigers modified with composite falcigers. Branchiae pectinate; dorsal cirri digitate.

*Diopatra* Audouin and Milne Edwards 1833b, *D. ambolensis* Audouin and Milne Edwards 1833b; 40 species.
Frontal antennae short and conical; tentacular cirri present. Anterior setigers and setae not modified. Branchiae spiralled, dorsal cirri digitate.

*Epidiopatra* Augener 1918, *E. hopferiana* Augener 1918; 5 species.
Frontal antennae short and conical; tentacular cirri absent. Anterior setigers and setae not modified. Branchiae spiralled, dorsal cirri digitate.

*Heptaceras* Ehlers 1868, *Diopatra phyllocirrus* Schmarda 1861; only species.
Frontal antennae long and slender; tentacular cirri present. Anterior setigers and setae not modified. Branchiae spiralled, dorsal cirri foliose in some setigers.

*Hyalinoecia* Malmgren 1867, *Nereis tubicola* O.F. Muller 1788; 20 species.
Frontal antennae short and conical; tentacular cirri absent. Anterior setigers and setae not modified. Branchiae present, simple and straplike in most species; dorsal cirri digitate.

*Nothria* Malmgren 1867, *Onuphis conchylega* Sars 1835; 40 species.
Frontal antennae short and conical; tentacular cirri present. Anterior setigers and setae not modified. Branchiae simple and straplike or absent, dorsal cirri digitate.

*Onuphis* Audouin and Milne Edwards 1833b, *O. eremita* Audouin and Milne Edwards 1833b; 60 species.
Frontal antennae short and conical, tentacular cirri present. Anterior setigers and setae not modified. Branchiae pectinate, dorsal cirri digitate.

Frontal antennae short and conical, tentacular cirri present. Anterior setigers and setae not modified. Branchiae absent, dorsal cirri foliose in some setigers.

*Paranorthia* Moore 1903, *P. brevicornuta* Moore 1903; 5 species.
Frontal antennae short and conical; tentacular cirri present. Two modified anterior setigers present with uni- and bidentate hooks and capillary setae. Branchiae simple and straplike or bifid, dorsal cirri digitate.

*Paronuphis* Ehlers 1887, *P. gracilis* Ehlers 1887; 5 species.

Frontal antennae short and conical, tentacular cirri present. Two or more anterior setigers modified with strongly curved, grapple-hooklike setae. Branchiae pectinate, dorsal cirri digitate.

**Taxonomic Notes**

*Nothria* often is considered a synonym of *Onuphis.* This is probably correct; species of both genera resemble each other closely. The separation is retained here for practical reasons, a final decision of this question will have to await the study of larger materials than is presently available.

Invalid Genera

*Leptoecia* Chamberlin 1919c, see *Paronuphis*
*Nereitube* Blainville 1828, see *Hyalinoecia*
*Northia* Johnston 1865, see *Nothria*
*Trapodia* Baird 1870, see *Onuphis*

**FAMILY EUNICIDAE SAVIGNY 1818**

Eunicea with from one to five occipital antennae. Maxillary carriers short; third carrier absent. Maxilla I
smooth and curved. Notopodia represented by branchiae and dorsal cirri, sometimes supported by internal acicula. Setae include composite falcigers and spinigers, limbate setae, pectinate setae and subacicular hooks.

The eunicids are among the largest of polychaetes, some *Eunice aphroditois* have been reported as long as two meters. Most species are associated with hard substrates and thus with shallow water (Fauchald 1969, 1970). Generally, the eunicids are considered carnivores, but some may be scavengers or live on large detrital particles. Tube-building is known for some species; others are burrowing into limestone or other calcium carbonate substrates. Major revisions include Hartman (1944a) and Fauchald (1970).

Key to Genera

1a. Five occipital antennae present
1b. One to three occipital antennae present
2a (1a). Tentacular cirri present
2b (1a). Tentacular cirri absent
3a (2a). Subacicular hooks present
3b (2a). Subacicular hooks absent
4a (3b). Composite setae falcigers
4b (3b). Composite setae spinigers
5a (2b). Branchiae present
5b (2b). Branchiae absent
6a (1 b). One occipital antenna present
6b (1 b). Three occipital antennae present

Generic Definitions

*Eunice* Cuvier 1817 (*nomen conservandum*) *Nereis aphroditois* Pallas 1788; 170 species.

Five occipital antennae; tentacular cirri present; branchiae present. Setae include limbate setae, pectinate setae, composite falcigers and subacicular hooks.


Five occipital antennae; tentacular cirri present; branchiae present. Setae include limbate setae, pectinate setae, composite spinigers and subacicular hooks.


Three occipital antennae; tentacular cirri and branchiae absent. Setae include limbate setae, pectinate setae, composite falcigers and subacicular hooks.

*Marphysa* Quatrefages 1865, *Nereis sanguinea* Montagu 1815; 50 species.

Five occipital antennae; tentacular cirri absent, branchiae present. Setae include limbate setae, pectinate setae, composite spinigers and falcigers and subacicular hooks.

*Nematonereis* Schmarda 1861, *N. unicorns* Schmarda 1861; 2 species.

One occipital antenna; tentacular cirri and branchiae absent. Setae include limbate and pectinate setae, composite spinigers and subacicular hooks.

*Palola* Gray 1847, *Eunice siciliensis* Grube 1840; 4 species.
Five occipital antennae; tentacular cirri and branchiae present. Setae include limbate and pectinate setae and composite falcigers.

Paramarphysa Ehlers 1887, P. longula Ehlers 1887; 4 species.

Five occipital antennae; tentacular cirri and branchiae absent. Setae include limbate and pectinate setae, composite falcigers and subacicular hooks.

**Taxonomic Notes**

Palola frequently is considered a subgenus of, or synonymous with Eunice. The latter is a large genus, and anything that can be done to subdivide it, appears to be of value. Members of Palola differ consistently and uniquely from the rest of the family not only in the characters listed above, but also in the deep scoop-shape of the mandibles. It thus appears valuable to retain the distinction, not least since it appears related to the ecology of the contained species.

Paramarphysa and Marphysa are very similar and can be separated only as indicated in the key; the separation is maintained here provisionally.

**Invalid Genera**

Amphelothrix Chamberlin 1919c, error for Aphelothrix, see Marphysa

Amphiro Kinberg 1865, see Marphysa

Amphiron Chamberlin 1919c, error for Amphiro, see Marphysa

Aphelothrix Chamberlin 1919c, see Marphysa

Blainvillea Quatrefages 1865, see Nematoneires

Eriphyle Kinberg 1865, see Eunice

Eunice Rafinesque 1815, NoMEN NuDuM (Eunice Cuvier 1817 is the valid name for the main genus in this family, fide Fauvel 1918:338).

Heteromarphysa Verrill 1900, indeterminable

Leodicí Savigny 1818, see Eunice

Lithognatha Stewart 1811, see Palola

Lycidice Williams 1851, error for Lysidice

Macdufa McIntosh 1885, see Marphysa

Mayeria Verrill 1900, see Eunice

Nauphanta Kinberg 1865, see Marphysa

Nausicaa Kinberg 1865, see Marphysa

Nereidonta Blainville 1828, see Eunice, Marphysa and Palola

Palpiglossus Wagner 1885, indeterminable

Pseudopalolo Friedlander in Woodworth 1907, see Lysidice

Tibiana Lamarck 1816, see Eunice

**FAMILY LUMBRINERIDAE MALMGREN 1867**

Eunicea without prostomial appendages, but sometimes with one to three nuchal papillae emerging from a pocket between the pro- and peristomium. Maxillary carriers short, third carrier absent. Maxilla I smooth and curved. Notopodia absent or represented by small, button-shaped projections, sometimes with internal acicula (but see Kuwaita below). Setae include limbate setae, simple and composite hooks. Subacicular hooks and pectinate setae are absent.

Most lumbrinerids are free-living, burrowing forms in sand or mud or between algal hold fasts and plant-roots. They are among the most common polychaetes in sandy and muddy bottoms in shelf-depths, but also occur in numbers in deep-water areas. Identification of lumbrinerids is dependent on very accurate work and is not altogether easy. Most dependable appears to be the structure of the anterior setigers, the structure of the jaw-apparatus and the detailed structure of the hooks. Length and shape of the parapodial lobes also are valuable characters, but care must be taken in noting the exact location of the parapodium examined in relation to the total length of the animal. This often is difficult since the lumbrinerids fragment readily.

An important character in most keys to species concerns the length of the posterior parapodial lobes in relation to the length of the anterior ones; usually stated as prolonged posterior lobes. The key feature in this character, is that the posterior lobes have to be distinctly longer than the anterior ones. With a fragmented specimen this may be impossible to observe; in such cases, it is of the utmost importance that both paths in a key be explored; in other words, that no assumption is made about the structure of the posterior lobes.

**Key to Genera**

1a. Parapodia with distinct dorsal cirri
   1b. Dorsal cirri absent

2a (1b). Pharyngeal apparatus absent
   2b (1b). Pharyngeal apparatus present

3a (2b). Branchiae absent
   3b (2b). Branchiae present

Kuwaita

Ophiuricola

Lumbrineris

Ninoe
FIGURE 31. (A), Family IPHITIMIDAE, *Iphitine loxorhynchi*, from *Loxorhynchus grandis*, Santa Catalina Island, California, 26x; (B), Family LUMBRINERIDAE, *Lumbrineris californiensis*, off Point Firmin, California, 30 m, anterior composite hooded hook, 385x; (C), posterior simple hooks of the above, 385x; (D), anterior end of the above, 16x; (E), 100th parapodium of the above, 53x; (F), third parapodium of the above, 53x; (G), Family ARABELLIDAE, *Arabella iricolor*, Dillon Beach, California, intertidal, 16x; (H), fifth parapodium of the above, 95x; (I), Family LYSARETIDAE, *Oenone fulgidula*, Bahia Magdalena, Baja California, 30 m, 26x; (J), fifteenth parapodium of the above, 52x.
**Key to Genera**

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a.</td>
<td>Hooded hooks distally bidentate</td>
<td></td>
</tr>
<tr>
<td>1b.</td>
<td>Hooded hooks, if present, distally multidentate (anterior parapodia may have incompletely formed hooks)</td>
<td></td>
</tr>
<tr>
<td>2a (1a).</td>
<td>Maxilla IV with a series of articulated spines; mandibles posteriorly bifid; maxillary carriers large and posteriorly expanded</td>
<td><em>Lumbrineriopsis</em></td>
</tr>
<tr>
<td>2b (1a).</td>
<td>Maxilla IV without denticles or articulated spines; mandibles posteriorly entire; maxillary carriers robust, subtriangular and not expanded posteriorly</td>
<td><em>Lumbrinerides</em></td>
</tr>
<tr>
<td>3a (1b).</td>
<td>Digitiform branchiae emerging from the postsetal lobes on a number of anterior setigers; maxillae IV, or III and IV usually with denticulated cutting edge</td>
<td><em>Ninoe</em></td>
</tr>
<tr>
<td>3b (1b).</td>
<td>If branchial structures present, they are in a different position; maxillae III and IV either smooth or with a few large teeth</td>
<td></td>
</tr>
<tr>
<td>4a (3b).</td>
<td>Anterior parapodia with composite hooded hooks; maxilla II with three large teeth; maxilla IV greatly expanded with a central thin area</td>
<td><em>Augeneria</em></td>
</tr>
<tr>
<td>4b (3b).</td>
<td>Parapodia with or without composite setae. Maxillae different</td>
<td><em>Lumbrineris</em></td>
</tr>
</tbody>
</table>

**Generic Definitions**


_Lumbrineris_ Blainville 1828, _L. latreilli_ Audouin and Milne Edwards 1834; 158 species.

_Lumbrineris_ without or with one to three nuchal papillae; dorsal cirri and branchiae absent. Jaw apparatus present.

_Ninoe_ Kinberg 1865, _N. chilensis_ Kinberg 1865; 28 species.

_Lumbrineris_ without nuchal papillae, dorsal cirri absent; branchiae present; jaw apparatus present.

_Ophiuricola_ Ludwig 1905, _O. cynips_ Ludwig 1905; only species.

_Lumbrineris_ without nuchal papillae, dorsal cirri or jaw apparatus.

**Taxonomic Notes**

Orenszan (1974a) described the two genera *Lumbrineriopsis* and *Lumbrinerides* with _L. mucronata_ (Ehlers 1908) and _L. gesae_ Orenszan 1974a as type species respectively. Both genera may be valid. The change in concept of the previously described *Augeneria* and *Ninoe* indicated in the alternative key above appears unfortunate and is not recommended for future adoption. Admittedly the genus *Lumbrineris* as presently accepted, contains a large number of rather different forms, but experience has taught me that surveys based on descriptions from the literature are considerably less valuable than ones based on actual specimens. It is now time to study the variability of the characters we are using to define the many species, so that we may use knowledge of this variability when we attempt to describe more genera in this family.

The genus _Kuwaita_ is isolated in the family and may belong to a different, perhaps undescribed family.

**Invalid Genera**

_Aotearia_ Benham 1927, see *Lumbrineris*

_Augeneria_ Monro 1930, see *Lumbrineris* (but see above)

_Cenogenus_ Chamberlin 1919c, see *Lumbrineris*

_Eranno_ Kinberg 1865, see *Lumbrineris*

_Lumbriconereis_ Grube 1840, see *Lumbrineris*

_Scoletoma_ Blainville 1828, see *Lumbrineris*

_Unciniseta_ Bidentak 1907, see *Lumbrineris*

_Zygolobus_ Grube 1863, see *Lumbrineris*

_Zygophyllus_ Grube 1863, error for *Zygolobus*, see *Lumbrineris*

**FAMILY IPHITIMIDAE FAUCHALD 1970**

_Eunicea_ with a single pair of frontal antennae. One pair of maxillary carriers fused to maxilla I, which is smooth and curved; third carrier is absent. Notopodia represented by simple or branched branchiae. Setae include simple and composite falcigers.

A single genus: _Iphitine_ Marenzeller 1902, with genotype _I. doederleini_ Marenzeller 1902, and five species are known.

All Iphitimidae are inquilines in branchial chambers of crustaceans; their feeding modes are unknown; it is possible that they parasitize the crustacean host; but little damage seems to be present on the branchial tissue of the host. Pilger (1972) and Fauchald (1970) reviewed the family.
Invalid Genera

Coelobranchus Izuka 1912, see Iphitime
Enonella Stimpson 1854, indeterminable

FAMILY ARABELLIDAE HARTMAN 1944a

Eunicea without prostomial appendages. Maxillary carriers long and narrow. A third carrier present. Maxilla I smooth or basally dentate; notopodia absent. Setae include limbate setae and in a number of cases, thick, emergent spines.

Arabellids resemble lumbrinerids closely in overall body-construction, but differ sharply from the latter in that they have long narrow maxillary carriers and have three, rather than two carriers. Arabellids are never tubicolous: they may be parasitic in other animals, usually in other polychaetes, but also in echiurans. They may be parasitic as juveniles and become free-living as adults (Pettibone 1957c), or may stay parasitic throughout life (Wirén 1886). Major revisions: Hartman 1944a; Pettibone 1957c; Fauchald 1970.

Key to Genera

1a. Acicular spines present
1b. Acicular spines absent
2a (1a). Maxillary apparatus represented by a single rod
2b (1a). Four or five pairs of jaws present
3a (2b). Maxilla I distally falcate
3b (2b). Maxilla I distally dentate
4a (1b). Maxillary apparatus absent
4b (1b). Maxillary apparatus present, but often reduced
5a (4b). Five pairs of maxillae present
5b (4b). Two or three pairs of maxillae present
6a (5b). Mandibles fused and horseshoe-shaped
6b (5b). Mandibles two triangular plates
7a (6b). Maxillary carriers anteriorly bilobed and fused along most of their lengths
7b (6b). Maxillary carriers anteriorly rounded and fused along their whole length

Arabellids with five pairs of maxillae and mandibles present. Parapodia without acicular spines.

Biborin Chamberlin 1919a, B. ecbola Chamberlin 1919a: only species.
Arabellids without maxillary apparatus, mandibles present. Parapodia without acicular spines.

Arabellids with the maxillary apparatus reduced to a single rod. Parapodia with acicular spines.

Drilonereis Claparede 1870b, Lumbriconereis filum Claparede 1868; 40 species.
Arabellids with four or five pairs of maxillae; mandibles usually present. Parapodia with acicular spines; maxilla I distally falcate.

Haematostreptus Wirén 1886, H. terebellites Wirén 1886; 2 species.
Arabellids with the maxillary apparatus consisting of two pairs of small plates, mandibles present and separate; unpaired carrier present. Acicular spines absent.

Arabellids with two pairs of minute maxillae and the carriers fused for part of their length. Acicular spines absent.

Notocirrus Schmarda 1861, N. chilensis Schmarda 1861; 10 species.
Arabellids with four or five pairs of maxillae, mandibles present. Maxillae I dentate to the tip. Acicular spines present.

Notopsis Ehlers 1868, Lais acutus Kinberg 1865; only species.
Arabellids with five pairs of maxillae and mandibles present. Acicular spines absent. Maxillae I proximally dentate.

Oligognathus Spengel 1882, O. bonelliae Spengel 1882: 2 species.
Arabellids with two or three pairs of maxillae present; mandibles fused into horseshoe-shaped piece. Acicular spines absent.

Taxonomic Notes
The generic sub-division is presently inconsistent in that in the group of arabellids with emergent acicular spines, forms with maxilla I distally falcate are con-
sidered generically distinct from forms with maxilla I distally dentate. The corresponding separation should split the genus Arabella so that the forms with maxilla I dentate should go to the genus Notopsilus, which has been defined in the generic definitions, but not considered in the key. This genus has been largely disregarded; it is not clear whether the best procedure would be to revise Arabella to separate the two sets of forms, or to fuse the well-known genera Notocirrus and Drilonereis to ensure generic conformity within the family.

Invalid Genera

Arabes Ehlers 1920, see Drilonereis

Aracoda Schmarda 1861, see Arabella, Notocirrus and Lumbrineris

Cenothrix Chamberlin 1919c, see Arabella

Labidognathus Caullery 1914a, see Drilonereis

Key to Genera

1a. One distinct peristomial segment present
1b. Two distinct peristomial segments present

2a (lb). One short antenna present
2b (lb). Three antennae present

3a (2b). Proximal end of maxilla I dentate; distal end falcate
3b (2b). Proximal end of maxilla I smooth or nearly smooth; each distal end with two large fangs...Lysarete

Generic Definitions

Halla Costa 1844, Nereis parthenopeia delle Chiaje 1828; 3 species.

Lysaretids with two distinct peristomial rings, three antennae and the distal end of maxilla I falcate. The proximal end of maxilla I is dentate.

Lysarete Kinberg 1865, L. brasiliensis Kinberg 1865; 2 species.

Lysaretids with two distinct peristomial rings, three antennae and the distal end of maxilla I divided into two large fangs. Proximal end of maxilla I smooth.

Oenone Savigny 1818, Aglaura fulgida Savigny 1818; 4 species.

Lysaretids with one distinct peristomial ring, three antennae and usually, distally falcate maxilla I. Proximal end of maxilla I dentate.

Tainokia Knox and Green 1972, T. iridescens Knox and Green 1972; only species.

Lysaretids with two distinct peristomial rings, one antenna and distally falcate maxilla I. Proximal end of maxilla I is dentate.

Taxonomic Notes

The number of species involved in the circumtropical complex referred to as Oenone fulgida has not been determined. Crossland (1924) investigated some of the variability of the jaw-apparatus, but did not have large enough materials to confirm or reject the presence of distinct sub-groups. Halla parthenopeia also has been reported from cosmopolitan areas and may be another species-complex.

Invalid Genera

Aenone Risso in Quatrefages 1865, indeterminable

Aglaura Savigny 1818, see Oenone

Aglaurides Ehlers 1868, see Oenone

Andromache Kinberg 1865, see Oenone

Cirrbranchia Ehlers 1868, see Halla

Danymene Kinberg 1865, indeterminable

Larymna Kinberg 1865, indeterminable

Plioceras Quatrefages 1865, see Halla

FAMILY DORVILLEIDAE CHAMBERLIN 1919C

Eunicea with two pairs of antennae. Maxillae consist of one or two series of small jaw-pieces and paired carriers; mandibles present. Notopodia reduced, but with setae and acicula in most forms. Setae include simple and composite hooks, furcate and limblate setae.

Dorvilleids are mainly small polychaetes, considered most common in shallow water, but recently recovered in increasing numbers from deeper water (Jumars 1974).
One pair of the antennae is referred to as palps; they differ in structure from the other pair, in that they often are articulated. Either one or both pairs may be reduced. The jaw-apparatus may also be reduced in some forms. Jumars (1974) has revised the generic classification of the family.

**Key to Genera**

1a. Notacicula present  
1b. Notacicula absent  
2a (1a). Furcate setae present  
2b (1a). Furcate setae absent  
3a (1b). Furcate or geniculate setae present  
3b (1b). Furcate or geniculate setae absent  
4a (3a). Palps well developed  
4b (3a). Second pair of antennae reduced or absent  
5a (3b). Only simple acicular setae present  
5b (3b). Both capillary and compound setae present  
6a (5b). Setae of first setiger markedly different from the others  
6b (5b). Setae of first setiger similar to others  
7a (6b). First antennae long and cirriform  
7b (6b). First antennae reduced and papilliform

**Generic Definitions**

*Apophyrotrocha* Jumars 1974, *A. mutabiliseta* Jumars 1974; only species.  
Dorvilleids with very long, cirriform antennae and well-developed palps. Dorsal cirri without acicula. Setae of two kinds, capillaries and composite heterogomph falcigers. Both pairs of carriers and the four basal plates of the jaws fused into a single structure.  

*Dorvillea* Parfitt 1866, *Staurocephalus rubrovittatus* Grube 1855; 15 species.  
Dorvilleids with both antennae and palps well developed and of the same length. Dorsal cirri with acicula. Setae include capillaries and heterogomph falcigers. Carriers and four rows of denticles always present; carriers may be variously fused to the basal plates.  

*Exallopus* Jumars 1974, *E. cropton* Jumars 1974; only species.  
Dorvilleids with both antennae and palps well developed and of the same length. Dorsal cirri absent. Setae include capillaries and composite heterogomph falcigers. One pair of carriers and two rows of denticles present; carriers fused to the basal plates.  

*Paraphyrotrocha* Hartmann-Schroder 1971, *Ophryotrocha isochaeta* Eliason 1962; only species.  
Dorvilleids with antennae and palps absent. Dorsal cirri absent. Only simple, acicular setae present. Four rows of denticles present, carriers and basal plates fused into one piece.


*Ophryotrocha* Claparede and Mecznikow 1869, *O. puerilis* Claparede and Mecznikow 1869; 11 species.  
Dorvilleids with antennae and palps reduced to papilliform projections. Dorsal cirri without acicula, may be absent. Setae include capillaries and heterogomph falcigers. Carriers and basal plates fused into a characteristic ice-tong shape. Four rows of denticles present.


**Figure 32.** Family **Dorvilleidae**, *Dorvillea articulata*, Newport, California, shallow subtidal, 50x.
Dorvilleids with well-developed palps; antennae small or absent. Dorsal cirri without acicula. Setae include capillaries, furcate setae and composite heterogomph setae. Carriers and four rows of denticles present; carriers sometimes fused with basal plates.

_Schistomeringos_ Jumars 1974, _Nereis rudolphii_ della Chiaje 1828; 10 species.

Dorvilleids with well-developed antennae and palps of approximately the same length. Dorsal cirri with acicula. Setae include capillaries, furcate setae and composite heterogomph falcigers. Four rows of denticles present; carriers may be fused with basal plates.

**Taxonomic Notes**

The genera of this family have been confused to a considerable extent, as noted by Pettibone (1961) and Jumars (1974). Thanks to these two surveys, the matter seems to have been adequately clarified.

**Invalid Genera**

_Anisoceras_ Grube 1856, see _Dorvillea_ and indeterminable

_Eteonopsis_ Esmark 1878, see _Ophryotrocha_

_Prionognathus_ Keferstein 1862, see _Schistomeringos_

_Staurocephalus_ Grube 1855, see _Dorvillea_

_Stauroceps_ Verrill 1900, see _Dorvillea_

_Stauronereis_ Verrill 1900, see _Dorvillea_ and _Schistomeringos_

_Telonereis_ Verrill 1900, see _Dorvillea_

The following two families are considered here free-standing, unrelated families of the order Eunicida. They are both very small, in terms of numbers of species, and parasitic on decapod crustaceans and fishes, respectively. Probably in response to this habit, they have been modified so that the only characters they have in common with other members of the order, is the structure of the jaw-apparatus, which makes them resemble members of the Eunicida more closely than they resemble members of any other jawed family.

**FAMILY HISTRIOBDELLIDAE VAILLANT 1890**

Eunicida with five antennae; one pair of lower jaws and a single lateral jaw. One pair of anterior and one pair of posterior appendages always present; a varying

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**FIGURE 33.** (A), Family _ICHTHYOTOMIDAE_. _Ichthyotomus sanguinarius_, combined from several sources, ventral view, about 30x; (B), Family _HISTRIOBDELLIDAE_. _Histriobdella homari_, from _Homarus americanus_, Woods Hole, Massachusetts, 95x; (C), Family _STERNASPIDAE_. _Sterneaspis scutata_, off Santa Catalina Island, 23 m, anterior end inverted, 5x; (D), the above with the anterior end everted, 10x.
number of lateral appendages also present. Setae absent. Parasitic on reptant decapod crustaceans.

Histriobdellids are known as parasites in the branchial chambers of crustaceans, both from fresh-water and marine environments. They are very small, and that, combined with their habitat makes it likely that they are considerably more common than the few scattered records indicate.

Key to Genera

1a. With a single pair of lateral appendages
1b. With at least two pairs of lateral appendages

The genera are defined as indicated in the key. Each genus is known in just a few species.

Histriobdella van Beneden 1858, H. homari van Beneden 1858, only species.

Stratiodylitus Haswell 1900, S. tasmanicus Haswell 1900, 4 species.

Invalid Genus

Histriodrilus Foettinger 1884, see Histriobdella

ORDER STERNASPIDA

Posterior ventrum covered by a stiff, chitinized, mineral-impregnated shield. Eversible pharynx axial, can be inverted with the first three setigers.

FAMILY STERNASPIDAE CARUS 1863

Short-bodied polychaetes with indistinct segmentation; prostomium without appendages. All setae simple, those in the first three setigers thick, falcate spines; those associated with the shield, slender capillaries.

The family is known for one genus, Sternaspis Otto 1821, with type species, Echinorhynchus scutatus Renier 1807. The total number of currently recognized species is about ten.

The sternaspids are among the most easily recognized polychaetes with the usually dark yellow or reddish chitinated shield. They are common in sandy and muddy substrates in all depths, but are perhaps most usually found in about 100-200 m depth. Sternaspids are only rarely found in large numbers. They are burrowers in the sand and mud.

Invalid Genera

Echinorhynchus Sen su Renier 1804, see Sternaspis

ORDER OWEINIIDA

Prostomium fused to the anterior segments; prostomium sometimes produced in lobes or as a folded membrane; proboscis a muscular pad. Neuropodial hooks in dense fields.

FAMILY OWEINIIDAE RIOJA 1917

Body cylindrical with long anterior segments and short posterior ones; tubicolous. Noto setae capillary, neurosetae very small bi- or tridentate hooks in dense fields.

The owei niids are characterizedly rather small, tubicolous animals, the tubes are usually short, and they are often capable of moving around with the tube. They have turned out to be quite frequently reported from moderate depths on the continental slopes, but do not appear to be common in abyssal depths. The shape of the rather characteristic small hooks has been well demonstrated by Thomassin and Picard (1972) with help of scanning electron microscope.

Key to Genera

1a. Prostomium anteriorly produced into a low collar or tentacular crown
1b. Prostomium rounded or bilobed
2a (1a). Prostomium forming a low collar, ventrally deeply incised
2b (1a). Prostomium forming a tentacular crown, ventrally entire
3a (1b). Prostomium deeply bilobed with paired palps
3b (1b). Prostomium rounded or bilobed

Galathwenia
Owenia
Myriowenia
3b (1b). Prostomium rounded, palps absent
4a (3b). First two or three setigers with notosetae only
4b (3b). Only first setiger with notosetae only

**Generic Definitions**

*Galathowenia* Kirkegaard 1959, *G. africana* Kirkegaard 1959; only species.
Prostomium anteriorly produced into a low collar that ventrally is deeply incised with one lobe overlapping the other. Eyes present. First three setigers without neurosetae.

Prostomium anteriorly rounded. First two or three setigers with notosetae only.

Prostomium anteriorly rounded. Only one anterior setiger with notosetae only.

Prostomium deeply bilobed with a pair of grooved palps attached anteriorly. First three setigers without neurosetae.

*Owenia* delle Chiaje 1841, *O. fusiformis* delle Chiaje 1841; 11 species.
Prostomium produced anteriorly into a low tentacular crown with flattened lobate projections. Three first setigers without neurosetae.

**Invalid Genera**

*Ammochares* Grube 1847, see *Owenia*
*Mitraria* Muller 1851, larval forms
*Ops* Carrington 1865, see *Owenia*
*Psammocollus* Grube 1868, see *Myriochele*

**ORDER FLABELLIGERIDA**

Anterior pharynx with ventrolateral muscular pad or unreinforced. Anterior end retractable within a sheath formed by the first setigers.

**FAMILY FLABELLIGERIDAE SAINT-JOSEPH 1894**

Body cylindrical or fusiform, most forms with epidermis covered by papillae. Pro- and peristomia retractable between the first three setigers. Prostomium a slender ridge with palps at the posterolateral sides. Peristomium with an expanded dorsal membrane carrying branchiae. Notosetae cross-barred or smooth, and slender; neurosetae either similar or more thickened.
spines or composite with falcate, unidentate or bidentate appendages.

The flabelligerids characteristically are heavily impregnated with sand or mud in a matrix of mucus; in some forms this mucus forms a complete smoothen casing for the animal \( \text{Flabelligera} \), but in most each individual papilla, which secretes the mucus, has its separate cover of particles. Dissection of the retractable anterior end is necessary for safe identification of the several similar genera. The number and structure of the branchiae and the structure of the branchial membrane are important identificatory characters.

**Key to Genera**

1a. Body with a distinct incision just posterior to the setigers carrying the cage-forming setae

1b. Body without distinct incisions

2a (lb). Neurosetae composite or pseudocomposite

2b (lb). Neurosetae entirely simple, but usually distinctly cross-barred

3a (2a). Body encased in a smooth continuous mucus sheath

3b (2a). Body with individual papillae covered with mucus and impregnated with debris

4a (2b). Branchiae absent

4b (2b). Branchiae present

5a (4b). Branchial membrane long, tongue-like, sometimes doubled

5b (4b). Branchial membrane short, rounded or triangular

6a (5a). Branchial membrane club-shaped, with branchial filaments attached distally on all sides... \( \text{Coppingeria} \)

6b (5a). Branchial membrane flattened, with branchial filaments attached on one side only

7a (5b). All setae capillary

7b (5b). At least some neurosetae acicular or falcigerous

8a (7a). Body anteriorly inflated with tapering posterior end

8b (7a). Body, short, flattened and nearly disc-shaped

9a (7b). Cephalic cage poorly developed or absent

9b (7b). Cephalic cage well developed

10a (9a). Neurosetae distinctly thicker than notosetae, four pairs of branchiae

10b (9a). Neurosetae only slightly thicker than notosetae; numerous pairs of branchiae

11a (9b). Body covered by a thick mucus sheath

11b (9b). Body not covered by a mucus sheath, often sand-incrusted

12a (11b). A long oral tube present

12b (11b). Oral tube absent

13a (12b). Notosetae serrated and plumose

13b (12b). Notosetae cross-barred capillaries

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**Generic Definitions**

**Brada** Stimpson 1854, \( B. \) *granola* Stimpson 1854; 21 species.


**Bradabyssa** Hartman 1967, \( B. \) *papillata* Hartman 1967; only species.


**Buskiella** McIntosh 1885, \( B. \) *abyssorum* McIntosh 1885; 2 species.

Body anteriorly inflated; mucus sheath covering the whole body. Cephalic cage present; parapodia very prominent. Oral tube present. Branchial membrane triangular with numerous branchial filaments. Neurosetae acicular.

**Coppingeria** Haswell 1892, \( C. \) *longisetosa* Haswell 1892; only species.

Body anteriorly inflated; cephalic cage present. Branchial membrane long, cylindrical and slender, with the branchial filaments attached on all sides distally. Neurosetae simple hooks.

**Diplocirrus** Haase 1915, \( T. \) *glauca* Malmgren 1867; 7 species.

Body anteriorly inflated; cephalic cage present in some forms. Four pairs of branchiae of two kinds on a short branchial membrane. All setae capillaries.

**Flabelligera** Hartman 1969, \( F. \) *commensalis* Moore 1909; only species.

**Flabelliderma** Hartman 1969, \( F. \) *commensalis* Moore 1909; only species.
Body cylindrical; body papillae covered with thick mucus and encrusted with debris. Cephalic cage present. Pseudocomposite hooks present in most neuropodia.

**Flabelligera** Sars 1829, *F. affinis* Sars 1829; 18 species.

Body cylindrical; covered completely by smooth mucus sheath. Cephalic cage present; pseudocomposite or composite hooks in the neuropodia.

**Ilyphagus** Chamberlin 1919c, *I. bythincola* Chamberlin 1919c; 11 species.

Body stout, flattened and nearly disc-shaped, covered with large papillae and mud- or sand-incrusted in most forms. Cephalic cage present in some forms. Four pairs of branchiae on a short branchial membrane. All setae capillaries.

**Pantoithrix** Chamberlin 1919c, *Pherusa chilensis* Schmarda 1861; only species.

Body anteriorly inflated; cephalic cage present. Noto-seetae serrated and plumose capillaries; neurosetae bidentate hooks. Six pairs of branchiae.

**Pherusa** Oken 1807, *Amphitrite plumosa* O.F. Müller 1776; 43 species.

Body anteriorly inflated; cephalic cage present. Either four or many pairs of branchiae on a short branchial membrane. Most neurosetae uni- or bidentate hooks.

**Pironis** Kinberg 1867b, *P. arenosus* Kinberg 1867b; 10 species.

Body anteriorly inflated; cephalic cage present. Branchial membrane prolonged, flattened and tongue-shaped, either single or double, with numerous branchial filaments. Neurosetae mostly uni- or bidentate hooks.

**Therochaeta** Chamberlin 1919c, *Sylarioides collarifer* Ehlers 1887; 6 species.

Anterior end inflated; cephalic cage present. A distinct incision present behind the last setiger that carries the cage setae. First post-incisional setiger with series of enlarged, usually anteriorly directed papillae. Composite hooks present on some anterior setigers in most species; otherwise simple neuropodial hooks.


**Troponiella** Caullery 1944, *T. avicularia* Caullery 1944; 3 species.

Anterior end inflated; cephalic cage very poorly developed or absent. Four pairs of branchiae on a short branchial membrane. Neurosetae bi- or unidentate hooks.

**Invalid Genera**

**Aristenina** Savigny in Quatrefages 1865, indeterminable

**Balanochaeta** Chamberlin 1919c, see *Pherusa*

**Chloromea** Dujardin 1839a, see *Flabelligera*

**Flemingia** Johnston 1846, see *Pherusa*

**Laphropeplus** Costa 1841, see *Pherusa*

**Pycnoderma** Grube 1877, see *Pherusa*

**Saphobranchia** Chamberlin 1919c, see *Diplocirrus*

**Semiodera** Chamberlin 1919c, see *Pironis*

**Siphonostoma** Rathke 1843, see *Flabelligera*

**Siphonostomata** Otto 1821, see *Flabelligera*

**Styliarioides** delle Chiaje 1841, see *Pherusa*

**Tecturella** Stimpson 1854, see *Flabelligera*

**Trophonya** Cuvier 1830, see *Pherusa*

**Zurus** Webster and Benedict 1887, indeterminable

**FAMILY POEOBIIDAE HEATH** 1930

Body saclike without external segmentation or setae. Anterior end fused to the rest of the body; containing a circle of eversible tentacles. Two distinct septa only polychaete characters. Pelagic.

The poeobiids are considered related to the flabelligerids because the anterior end is retractable, and because they have chlorocruorin as one of their pigments (Robbins 1965). The family contains a single genus and species, *Poeobius meseres* Heath 1930.

**Incertae Sedis**

**Enigma** Betrem 1924, *E. terwillei* Betrem 1924; only species.

Parapodia and setae absent, retractile branchiae and palps present; one septum observed, pelagic.

This form resembles the poeobiids in several respects, it has been reported only once, but unfortunately the original material has been lost (Hartman 1967).

**ORDER FAUVELIOPSIDA**

Pro- and peristomium without appendages. Pharynx with a ventral muscular pad. All setigers biramous with simple limbate setae and a small rounded papilla between the rami.

These small, deep-water polychaetes are incompletely known. They were grouped formerly with the flabelligerids from which they differ in that they lack the papillar investments, the retractile anterior end and the characteristic setae. The shape of the prostomium also is markedly different. Further information may demonstrate that they are related to other groups of polychaetes; a separate order appears justified for the time being.

**FAMILY FAUVELIOPSIDA HARTMAN** 1971

Small, smooth-bodied polychaetes without anterior appendages. Proboscis a ventral muscular pad. All
setigers biramous with simple limbate setae and a small rounded papilla between the rami. Parapodial lobes reduced.

The family was erected by Hartman (1971) for *Fauveliopsis* McIntosh, with type *F. challengeriae* McIntosh 1922, as well as for *Flabelligella* Hartman 1965, *Flota* Hartman 1967 and *Bruunilla* Hartman 1971. *Flabelligella* was shown to belong to the Acrocirridae by Orensanz (1974b) and are cited under that family above. *Flora* and *Bruunilla* differ sharply from *Fauveliopsis* and are characterized here as free-standing genera without obvious familial affiliations.

The whole family is then reduced to the type-genus, *Fauveliopsis*, with eight described species.

**Incertae Sedis**


Prostomium small and triangular attached ventral to the large peristomium. Peristomium with five tentacular cirri. Paired short palps lateral to the mouth as flat pads. Prominent lateral parapodia present; all biramous, both rami distally strongly pointed, with embedded acicula, setae absent. Dorsal and ventral cirri present on most segments.


Body with less than ten segments; short and flattened. Prostomium a simple conical lobe with a pair of tri-lobed processes. Pharynx muscular and eversible, scoop-shaped and open dorsally. Parapodia biramous with setae of two kinds; slender smooth acicular rods and thicker and cross-barred acicular setae. Body with papillae, especially on the parapodia. Encased in a thick mucus sheath, pelagic.

**ORDER TEREBELLIDA**

Prostomium without appendages; peristomium with a series of feeding appendages; pharynx with a ventral muscular pad. At least one pair of branchiae present (rarely absent).

**FAMILY SABELLARIIDAE JOHNSTON 1865**

Tubicolous polychaetes with the body in three regions; posterior region an asetigerous anal tube. Prostomium a narrow ridge fused laterally to the first setiger. Setae of first setiger forming an operculum with setae in one to three rows. Thorax with two rudimentary segments and three or four parathoracic setigers. Median region with notopodial pectinate uncini and ventral capillary setae.

The sabellariids are important as reef-builders in certain areas (Schafer 1972). All of them are tube-builders and tend to build on firm substrates; consequently, most of them are present in shallow water only, but members of two genera (*Phalacrostemma* and *Monorchos*) appear to be most common in slope depths.

**Key to Genera**

1a. With a single row of paleae in the operculum 2
   1b. With at least two rows of paleae in the operculum 3

2a (1a). The prolonged opercular peduncles free from one another
   2b (1a). Opercular peduncles short and fused

3a (2b). Two rows of paleae
   3b (2b). Three rows of paleae

4a (3b). Hooks absent
   4b (3a). A pair of large hooks dorsal and proximal to the opercular paleae

5a (4b). Three parathoracic setigers
   5b (4b). Four parathoracic setigers

6a (3b). Middle opercular paleae cover the inner ones; operculum flattened cone
   6b (3b). Middle opercular paleae not concealing the inner ones; operculum open and bristly

**Generic Definitions**

*Gunnarea* Johansson 1927, *Hermella capensis* Schmarda 1861; only species.

Two rows of paleae; opercular peduncles fused; hooks and accessory setae absent on operculum. Three parathoracic setigers.

*Idanthyrsus* Kinberg 1867b, *I. armatus* Kinberg 1867b; 5 species.

Two rows of paleae; opercular peduncles fused; hooks present dorsal and proximal to the paleae; accessory setae absent. Three parathoracic setigers.

*Lygdamis* Kinberg 1867b, *L. indicus* Kinberg 1867b; 12 species.

Two rows of paleae; opercular peduncles long and separated; hooks present dorsal and proximal to the paleae; accessory setae absent. Four parathoracic setigers.
**Monorchos** Treadwell 1926, *M. philippinensis* Treadwell 1926; 2 species.

A single row of paleae; opercular peduncles fused; hooks present dorsal and proximal to the paleae and two rows of accessory setae between the paleal rows. Three parathoracic setigers.

**Phalacrostroma** Marenzeller 1895, *P. cidariophilam* Marenzeller 1895; 5 species.

A single row of paleae; opercular peduncles long and separated; hooks present dorsal and proximal to the paleae; accessory setae absent. Four parathoracic setigers.

**Phragmatopoma** Morch 1863, *P. caudata* Morch 1863; 8 species.

Three rows of paleae; opercular peduncles short and fused; hooks and accessory setae absent. Three parathoracic setigers. Middle opercular paleae covers the inner ones; operculum conical.

**Sabellaria** Savigny 1818, *Sabella alveolata* Linnaeus 1767; 28 species.
Three rows of paleae; opercular peduncles short and fused; hooks absent, accessory setae sometimes present. Three parathoracic setigers. Middle opercular paleae pointed distad, operculum open and generally rather bristly in appearance.

**Taxonomic Notes**

The "accessory setae" referred to in the above definitions, include setae associated with the operculum; they usually are acicular in appearance and may be present between the rows of paleae (*Monorchos*) or proximal to the paleae proper (*Sabellaria*). The family is under current revision by Dr. David Kirtley and the numbers of species assigned to each genus may be changed drastically. The generic sub-division appears reasonably stable.

**Invalid Genera**

*Centrocorone* Grube 1850, see *Sabellaria*

*Chrysodon* Oken in Quatrefages 1865, see *Sabellaria*

*Cryptopomatus* Gravier 1908, see *Idanthyrsus*

*Eupallasia* Augener 1927a, see *Lygdamis*

*Hermella* Savigny 1818, see *Sabellaria*

*Pallasia* Quatrefages 1848, see *Idanthyrsus*

*Pallasina* Annenkova 1925, see *Idanthyrsus*

*Tetereus* Caullery 1913, see *Lygdamis*

**FAMILYPECTINARIIDAE QUATREFAGES 1865**

Body separated into three regions, including thorax, abdomen and a posterior scaphe. Prostomium reduced. First setiger with expanded, strong setae (paleae) forming a comb used in digging. Other setae include short capillaries, pectiniform uncini and scaphal spines. Tubes short, more or less tusk-shaped, built of relatively large particles.

The pectinariids are among the most characteristic polychaetes with their strongly golden, coppery or brassy paleal setae and the gently curved, tapering, tusk-shaped, but usually very fragile tubes. The family often is recognized for only two genera, *Petta* and *Pectinaria*, in which case the other listed genera are considered subgenera of *Pectinaria*.

**Key to Genera**

1a. Cephalic veil marginally smooth, scaphe not distinctly separated from abdomen

1b. Cephalic veil marginally cirrate; scaphe distinctly set off from abdomen

2a (1b). Twelve uncinigers, cephelic vein at least partly fused to the operculum

2b (1b). Thirteen uncinigers, cephalic veil completely free from the operculum

3a (2b). Opercular rim cirrate

3b (2b). Opercular rim smooth

4a (3b). Uncini with major teeth in a single row

4b (3b). Uncini with major teeth in two rows

**Invalid Genera**

*Ariapithes* Kinberg 1867b, indeterminable

*Cistena* Leach 1816, see *Pectinaria*

**Generic Definitions**

*Amphictene* Savigny 1818, *Amphitrite auricoma* O.F. Müller 1776; 8 species.

Cephalic veil free from operculum, marginally cirrate; opercular rim marginally cirrate. Scaphe distinctly set off from abdomen. Uncini with major teeth in double rows; 13 uncinigers.

*Cistenides* Malmgren 1866, *Sabella granulata* Linnaeus 1767; 8 species.

Cephalic veil free from operculum, marginally cirrate; opercular rim marginally smooth. Scaphe distinctly set off from abdomen. Uncini with major teeth in a single row. 13 uncinigers present.

*Lagis* Malmgren 1866, *L. koreni* Malmgren 1866; 8 species.

Cephalic veil at least partly fused to operculum, marginally curate; opercular rim marginally smooth. Scaphe distinctly set off from abdomen. Uncini with major teeth in two or more rows; 12 uncinigers present.

*Pectinaria* Savigny 1818, *Nereis cylindricara* Belgica Pallas 1766; 18 species.

Cephalic veil free from operculum, marginally cirrate. Opercular rim marginally smooth. Scaphe distinctly set off from the abdomen. Uncini with major teeth in double rows; 13 uncinigers present.

*Petta* Malmgren 1866, *P. pusilla* Malmgren 1866; 4 species.

Cephalic veil free from operculum; marginally smooth. Opercular rim marginally cirrate. Scaphe not distinctly set off from abdomen. Uncini with major teeth in a single row; 14 uncinigers.

*Ariapithes* Kinberg 1867b, indeterminable

*Cistena* Leach 1816, see *Pectinaria*
The ampharetids resemble the terebellids; the main feature used to separate the two families is behavioral in that the former will withdraw the buccal tentacles completely within their mouth; the latter do not. Additionally, the ampharetids usually have a few pairs of simple branchiae, never the masses of arborescent branchiae or the numerous sessile filaments present in the terebellids. The uncini often are flattened plates in the ampharetids and nearly always distinctly crested in the terebellids.

The ampharetids have turned out to be very common in deep water and a whole mass of previously unrecognized genera have been reported from deep water over the last ten years. The major classification was reviewed by Day (1964) who reduced greatly the number of monotypic genera. The present review retains most of the genera Day fused; it is not clear that the characters Day used to identify his genera are any more precise than those he disregarded. Since a large number of additional taxa are now being described, it appears best to await further fusions of genera, until the current deep-water material has been worked up in detail. The genus *Oeorpata* is not clearly separable from *Isolda* according to Day (1964) and is incompletely known. It has been included in the definitions, but not in the key.

Key to Genera

1a. First several neuropodia with fine acicular setae; other neuropodia with uncini

1b. First several neuropodia without acicular setae; all neurosetae uncini

2a (1a). Nuchal hooks present

2b (1a). Nuchal hooks absent

3a (2a). Branchiae smooth

3b (2a). Branchiae in part papillose or pennate

4a (3a). Two pairs of nuchal hooks; 12 thoracic uncinigers

4b (3a). A single pair of nuchal hooks, 14 thoracic uncinigers

5a (3b). Four pairs of branchiae, two smooth and two papillose; capillary notosetae on setigers

5b (3b). Three pairs of branchiae, one smooth, two papillose; notosetae absent on setigers

6a (2b). Ten thoracic uncinigers present

6b (2b). At least 12 thoracic uncinigers present

7a (6a). Three pairs of branchiae

7b (6a). Four pairs of branchiae

8a (6b). Sixteen thoracic uncinigers present; all buccal tentacles similar

8b (6b). Maximally 14 thoracic uncinigers present; one or two buccal tentacles very large

9a (8b). Segment 6 with a distinct dorsal crest between the notopodia

9b (8b). A dorsal crest absent

10a (1b). At least three pairs of branchiae

10b (1b). Two pairs of branchiae

11a (10a). Three pairs of branchiae present

11b (10a). Four pairs of branchiae

12a (10b). Fourteen thoracic uncinigers; paleae present

12b (10b). Maximally 12 thoracic uncinigers; paleae absent

13a (12b). Nine uncinigers, first uncini in a short row similar to all others

13b (12b). Twelve uncinigers, first uncini in a long row

14a (13b). Prostomium anteriorly pointed
FIGURE 36. (A), Family BOGUEIDAE, *Boguella ornata*, redrawn after Hartman and Fauchald, 1971, about 23x; (B), Family AMPHARETIDAE, *Amphicteis scaphobranchiata*, modified after Fauchald, 1972, 12.5x; (C), Family TRICHOBRANCHIDAE, *Terebellides stroemi*, combined from several sources, about 5x; (D), Family TERECELLIDAE, *Neoamphitrite near johnstoni*, modified from live sketch, 3x.
14b (13b). Prostomium anteriorly truncate
15a (11a). All branchial pairs arranged in a distinctly segmental fashion
15b (11a). Only last pair of branchiae clearly associated with a specific segment
16a (15a). Eleven thoracic unciniigers; tentacular membrane large
16b (15a). At least 14 thoracic unciniigers; tentacular membrane small
17a (16b). First setae on segment 2; 14 thoracic unciniigers
17b (16b). First setae in segment 3; 15 thoracic unciniigers
18a (15b). Paleae present
18b (15b). Paleae absent
19a (18a). Nine thoracic unciniigers; last thoracic notopodia elevated
19b (18a). Ten or more thoracic unciniigers
20a (19b). Flange present between last thoracic notopodia; ten thoracic unciniigers
20b (19b). Flange or crest, if present, anterior in position; at least 11 thoracic unciniigers
21a (20b). Few stout buccal tentacles present; 11 thoracic unciniigers
21b (20b). Buccal tentacles, if present, numerous, 12 thoracic unciniigers
22a (21b). Dorsal crest present on one anterior setiger
22b (21b). Dorsal crest absent
23a (22a). Oral membrane broadly folded, 15 thoracic setigers
23b (22a). Oral membrane short; 14 thoracic setigers
24a (23b). Dorsal crest on segment 4
24b (23b). Dorsal crest on either segment 6 or 7
25a (18b). Ten thoracic unciniigers
25b (18b). At least 11 thoracic unciniigers
26a (25b). Eleven thoracic unciniigers
26b (25b). At least 12 thoracic unciniigers
27a (26b). Twelve thoracic unciniigers
27b (26b). At least 13 thoracic unciniigers
28a (27a). At least one pair of branchiae basally flanged
28b (27a). All branchiae cylindrical
29a (28b). Buccal tentacles papillose
29b (28b). Buccal tentacles smooth
30a (29b). Oral membrane greatly prolonged
30b (29b). Oral membrane short
31a (27b). Thirteen thoracic unciniigers
31b (27b). Fourteen thoracic unciniigers
32a (31a). Notopodia of setiger 13 elevated with hirsute notosetae
32b (31a). Notopodia of setiger 13 at the same level as all others; hirsute setae absent
33a (31b). Oral membrane smooth and folded
33b (31b). Oral membrane tentaculate
34a (33b). Glandular ridges on prostomium
34b (33b). Glandular ridges absent
35a (34b). Paleae present (i.e. setae present on segment 3, as the first notosetae in the body)
35b (34b). Paleae absent (i.e. setae absent on segment 3 or setae already present from segment 2)
36a (35a). Flanged branchiae present on four successive segments
36b (35a). Branchiae flanged, lamellate, pennate or cylindrical; only one pair clearly associated with a segment
37a (36b). Eleven thoracic unciniigers
37b (36b). At least 12 thoracic unciniigers
38a (37a). Branchiae pennate, buccal tentacles papillose
38b (37a). Both branchiae and buccal tentacles smooth
39a (37b). Twelve thoracic unciniigers present
39b (37b). At least 13 thoracic unciniigers present
40a (39a). Buccal tentacles papillose
40b (39a). Buccal tentacles smooth
41a (40a). Setiger 11 with notopodia elevated and notosetae distally hirsute
41b (40a). Setiger 11 with notopodia at the same level as all other setigers; notosetae limbate or capillary
42a (40b). Setiger 14 with elevated notopodia and hirsute notosetae  
42b (40b). Setiger 10 or 11 with elevated notopodia and tapering or hirsute notosetae  
43a (42b). Notopodial rudiments present in abdomen  
43b (42b). Notopodial rudiments absent from abdomen  
44a (39b). Thirteen thoracic uncinigers  
44b (39b). Fourteen thoracic uncinigers  
45a (44a). One pair of branchiae pennate, others smooth  
45b (44a). All branchiae smooth  
46a (45b). Glandular ridge on prostomium  
46b (45b). Glandular ridge absent  
47a (44b). Two of the four pairs of branchiae lamellate  
47b (44b). All four pairs of branchiae cylindrical  
48a (47a). Paleae large, abdominal notopodial rudiments absent  
48b (47a). Paleae small, abdominal notopodial rudiments present  
49a (47b). Glandular ridges on prostomium  
49b (47b). Glandular ridges absent  
50a (49a). Abdominal notopodial rudiments present  
50b (49a). Abdominal notopodial rudiments absent  
51a (49b). Abdominal notopodial rudiments present  
51b (49b). Abdominal notopodial rudiments absent  
52a (35b). Branchiae arranged in oblique series directly associated with distinct segments  
52b (35b). Only the last pair of branchiae clearly associated with a segment  
53a (52b). At least three pairs of branchiae lamellate  
53b (52b). All branchiae cylindrical  
54a (53a). All four pairs of branchiae lamellate; anus surrounded by a circle of papillae  
54b (53a). Three pairs of lamellate and one pair of cylindrical branchiae; anus with two pairs of anal cirri ....  
55a (53b). Eleven thoracic uncinigers  
55b (53b). At least 12 thoracic uncinigers  
56a (55a). First two notopodia (segments 4 and 5) asetigerous  
56b (55a). All anterior notopodia with setae  
57a (56b). One pair of anal cirri  
57b (56b). Two pairs of anal cirri  
58a (55b). Twelve thoracic uncinigers  
58b (55b). Fourteen thoracic uncinigers  
59a (58a). Buccal tentacles papillose; all notosetae capillary  
59b (58a). Buccal tentacles smooth; last thoracic notosetae modified  
60a (58b). Buccal tentacles papillose; notopodial cirri present  
60b (58b). Buccal tentacles smooth; notopodial cirri absent  

Generic Definitions

Alkmaria Horst 1919b, A. rominji Horst 1919b; only species.

AMPHARETINAE. Three pairs of smooth branchiae; no paleae. Glandular ridges absent; 13 thoracic uncinigers; no notopodial rudiments in abdomen.

Amage Malmgren 1866, A. auricula Malmgren 1866; 14 species.

AMPHARETINAE. Four pairs of smooth branchiae; no paleae. Glandular ridges present; 11 thoracic uncinigers; abdominal notopodial rudiments present. Two pairs of anal cirri.


MELINNINAE. Four pairs of smooth branchiae; notosetae absent in segments 3 and 4. Nuchal hooks absent; one or two large oral tentacles present in addition to numerous smaller ones. Twelve or 13 thoracic uncinigers.


AMPHARETINAE. Three pairs of smooth branchiae on three successive segments. Oral membrane large and folded with buccal tentacles in two lateral groups. Eleven thoracic uncinigers. Paleae absent, but small capillary setal present in segment 3.

Ampharete Malmgren 1866, Amphicteis ac tiron Grube 1860; 27 species.

Amphicteis Grube 1850, Amphitrite gunneri Sars 1835; 30 species.

AMPHARETINAE. Four pairs of branchiae, usually cylindrical, rarely foliose; paleae present. Glandular ridges present. Fourteen thoracic uncinigers; abdominal notopodial rudiments present.

Amphisamytha Hessle 1917, A. japonica Hessle 1917; 2 species.

AMPHARETINAE. Four pairs of smooth branchiae; paleae absent. Glandular ridges absent. Fourteen thoracic uncinigers. Abdominal notopodial rudiments present.

Amythas Benham 1912, A. membranifera Benham 1921; only species.

AMPHARETINAE. Three pairs of smooth or grooved branchiae; oral membrane folded and smooth. Palate absent; 14 thoracic uncinigers. Abdominal notopodial rudiments absent.

Amythasides Eliason 1955, A. macroglossus Eliason 1955; only species.


Anobothrella Hartman 1967, Anobothrus antarctica Monro 1939a; only species.

AMPHARETINAE. Four pairs of papillose branchiae. Buccal tentacles papillose; paleae present. Twelve thoracic uncinigers. Setiger 11 with notopodia elevated and hirsute notosetae.

Anobothrus Levinsen 1884, Ampharete gracilis Malm­gren 1866; 8 species.

AMPHARETINAE. Four pairs of smooth branchiae, paleae present. Twelve uncinigers. Glandular ridges absent; abdominal notopodial rudiments present. Setiger 10 or 11 with notopodia elevated and modified notosetae.

Asabellides Annenkova 1929, Sabellides sibirica Wien 1883; 3 species.

AMPHARETINAE. Four pairs of smooth branchiae; paleae absent. Twelve thoracic uncinigers; notosetae absent in segment 4. Buccal tentacles papillose; glandular ridges absent. Abdominal notopodial rudiments present.

Auchenoplos Ehlers 1887, A. critina Ehlers 1887; only species.

AMPHARETINAE. Two pairs of smooth branchiae. Prostomium anteriorly sharply pointed. Notosetae absent in segments 3 and 4. Twelve thoracic uncinigers; first row of uncini very long and ventrally located.

Ecamphicteis Fauchald 1972, E. elongata Fauchald 1972; only species.

AMPHARETINAE. Two pairs of smooth branchiae on first two segments. Paleae present; 14 uncinigers. Glandular ridges and abdominal notopodial rudiments absent.

Eclysippe Eliason 1955, Lysippe vanelli Fauvel 1936; only species.

AMPHARETINAE. Three pairs of smooth branchiae; oral membrane folded and smooth. Palate absent; 14 thoracic uncinigers. Glandular ridges absent; abdominal notopodial rudiments present.

Eusam ythella Hartman 1971, Eusam ytha sexdentata Hartman 1967; only species.

AMPHARETINAE. Two pairs of branchiae; paleae present. Buccal tentacles few and large. Eleven thoracic uncinigers. Glandular ridges absent.

Glyphanostomum Levihsen 1884, Samytha pallescens Theel 1879; 2 species.

AMPHARETINAE. Three pairs of smooth branchiae; paleae absent. Glandular ridges and abdominal notopodial rudiments absent. Twelve thoracic uncinigers.

Grubianella McIntosh 1885, G. antarctica McIntosh 1885; only species.

AMPHARETINAE. Four pairs of smooth branchiae; paleae present. Buccal tentacles few and large. Eleven thoracic uncinigers. Glandular ridges absent.

Hypaniola Annenkova 1927, Amphicteis (?Aryandes) kowalewskii Grimm 1877; only species.
AMPHARETINAE. Four pairs of smooth branchiae; small paleae present. Glandular ridges absent; 14 uncini.

Irana Wesenberg-Lund 1949, 1. heterobranchiata
Wesenberg-Lund 1949; only species.

MELINNINAE. Three pairs of branchiae, one smooth, other two pennate. Nuchal hooks on segment 4; dorsal crest on segment 6. Capillary notosetae first present in segment 7; 12 thoracic uncini.

Isolda Muller 1858, 1. pulchella Muller 1858; 4 species.

MELINNINAE. Four pairs of branchiae; two smooth and two pennate. Nuchal hooks present; dorsal crest on segment 6. Capillary notosetae present in segments 5 and 6. Twelve or 13 thoracic uncini.

Lyssippe Malmgren 1866, L. labiata Malmgren 1866; 5 species.

AMPHARETINAE. Four pairs of smooth branchiae; small paleae present. Glandular ridges absent. Abdominal notopodial rudiments present. Thirteen thoracic uncini.

Lyssipides Hessle 1917. Amphicteis fragilis Wollebaek 1912; only species.

AMPHARETINAE. Four pairs of branchiae; two cylindrical, two flanged; small paleae present. Glandular ridges absent. Abdominal notopodial rudiments present. Fourteen thoracic uncini.

Melinantipoda Hartman 1967, M. antarctica Hartman 1967; only species.

MELINNINAE. Four pairs of smooth branchiae; nuchal hooks absent. First notosetae in segment 5. Dorsal crest on segment 6; 16 thoracic uncini. All buccal tentacles similar.

Melinina Malmgren 1866, Sabellites cristata Sars 1851; 26 species.

MELINNINAE. Four pairs of branchiae, nearly always smooth. Nuchal hooks present; dorsal crest on segment 6 present. Fourteen thoracic uncini. All buccal tentacles similar.

Melinnampharete Annenkova 1937, M. enon Annenkova 1937; 2 species.

AMPHARETINAE. Three pairs of smooth branchiae; paleae present. Dorsal ridge either on segment 6 or 7. Glandular ridges absent; abdominal notopodial rudiments absent. Twelve thoracic uncini.

Melinnata Hartman 1965, M. americana Hartman 1965; only species.

AMPHARETINAE. Three pairs of branchiae; palette present. Glandular ridges absent; ridge across dorsum on segment 4. Ten thoracic uncini; flange across dorsum between last thoracic notopodia.

Melinnexis Annenkova 1931, M. arctica Annenkova 1931; 8 species.

MELINNINAE. Four pairs of smooth branchiae. Nuchal hooks absent; first notosetae in segment 5. Dorsal crest on segment 6. Thirteen or 14 thoracic uncini. One very large and numerous small buccal tentacles present.

Melinnoides Benham 1927, M. nelsoni Benham 1927; only species.

AMPHARETINAE. Two pairs of smooth branchiae; paleae absent; first notosetae in segment 5. Prostomium a small quadrangular lobe. Twelve thoracic uncini; first row of uncini long and ventrally displaced.

Melinnopsides Day 1964, Melinnopsis capensis Day 1955; only species.

MELINNINAE. Three pairs of smooth branchiae; nuchal hooks and dorsal crest absent. Ten thoracic uncini. First notosetae in segment 5; segment 6 without neurosetae.

Melinnopsis McIntosh 1885, M. atlantica McIntosh 1885; only species.

MELINNINAE. Four pairs of smooth branchiae; nuchal hooks absent; first notosetae in segment 5. Dorsal crest absent. Ten thoracic uncini. Buccal tentacles all similar.

Mexamage Fauchald 1972, M. corrugata Fauchald 1972; only species.

AMPHARETINAE. Four pairs of branchiae on four successive segments. Paleae absent; notopodia on segments 2 and 3, but not setae. Ten thoracic uncini; no fused anterior segments.

Moyanus Chamberlin 1919c, M. explorans Chamberlin 1919c; only species.

MELINNINAE. Four pairs of smooth branchiae. Nuchal hooks on both segments 4 and 5. Dorsal crest on segment 6. Twelve thoracic uncini. Prostomium prolonged with oral lobe suspended below it.

Mugga Eliason 1955, M. wahrbergi Eliason 1955; only species.

AMPHARETINAE. Three pairs of smooth branchiae; paleae present. Glandular ridges absent; abdominal notopodial rudiments absent. Nine thoracic uncini. Last thoracic notopodia elevated with modified notosetae.

Muggoides Hartman 1965, M. cinctus Hartman 1965; only species.

AMPHARETINAE. Three pairs of smooth branchiae; palette absent. Glandular ridges and abdominal notopodial rudiments absent. Ten thoracic uncini; last thoracic notopodia elevated with modified notosetae.


**AMPHARETINAE.** Three pairs of branchiae on three successive segments starting on segment 2. Capillary notosetae present from segment 2; paleal development absent. Fourteen thoracic unciniigers present. Glandular ridges absent; abdominal notopodial rudiments well developed.

**Neosabelides** Hessle 1917, *N. elongata* Hessle 1917; 2 species.

AMPHARETINAE. Three pairs of smooth branchiae; paleae absent; first notosetae present on segment 5. Glandular ridges absent; abdominal notopodial rudiments present. Twelve thoracic unciniigers. Buccal tentacles papillose.


**Oeorpata** Kinberg 1867b, *O. armata* Kinberg 1867; only species.

**MELINNINAE.** Incompletely known, not clearly separable from *Isolda* (cf. Day 1964).

**Pabits** Chamberlin 1919c, *P. deroderus* Chamberlin 1919c; only species.


**Paiva** Chamberlin 1919c, *P. abyssi* Chamberlin 1919c; only species.

AMPHARETINAE. Four pairs of smooth branchiae; small paleae present. Glandular ridges absent; small abdominal notopodial rudiments present. Fourteen thoracic unciniigers.

**Paramage** Caullery 1944, *P. madurensis* Caullery 1944; only species.

AMPHARETINAE. Four pairs of smooth branchiae. Paleae absent, first notosetae on segment 6; notopodial lobes present on segments 4 and 5. Glandular ridges and abdominal notopodial rudiments absent. Eleven thoracic unciniigers.

**Paramphicteis** Caullery 1944, *Sabellides angustifolia* Grube 1878; only species.

AMPHARETINAE. Four pairs of smooth branchiae; paleae absent. Glandular ridges present; small abdominal notopodial rudiments present. Fourteen thoracic unciniigers.

**Parhypania** Anenkova 1928, *Amphicteis brevispinus* Grube 1860; only species.

AMPHARETINAE. Four pairs of smooth branchiae; paleae present. Glandular ridges present; abdominal notopodial rudiments very small. Fourteen thoracic unciniigers.


AMPHARETINAE. Four pairs of flanged branchiae on four successive segments starting on segment 2. Paleae absent; notosetae present from segment 2. Glandular ridges absent; abdominal notopodial rudiments present. Eleven thoracic unciniigers. Prostomium anteriorly incised.

**Phyllamphicteis** Augener 1918, *P. collaribranchis* Augener 1918; 2 species.

AMPHARETINAE. Four pairs of branchiae, two smooth and two lamellate. Paleae present. Glandular ridges and abdominal notopodial rudiments absent. Fourteen thoracic unciniigers.

**Phyllocomus** Grube 1877, *P. crocea* Grube 1877; only species.

AMPHARETINAE. Four pairs of flanged branchiae; paleae absent. Glandular ridges absent; abdominal notopodial rudiments present. Twelve thoracic unciniigers. Anus surrounded by a circle of papillae.

**Pterampharete** Augener 1918, *P. luderitzi* Augener 1918; only species.


**Pterolysippe** Augener 1918, *P. bipennata* Augener 1918; only species.

AMPHARETINAE. Four pairs of branchiae; three smooth and one pennate; small paleae present. Glandular ridges absent. Thirteen thoracic unciniigers.

**Sabellides** Milne Edwards in Malmgren 1966, *Sabella octocirrata* Sars 1835; 8 species.


**Samytha** Malmgren 1866, *Sabellides sexcirrata* Sars 1856; 7 species.

AMPHARETINAE. Three pairs of smooth branchiae; paleae absent. Glandular ridges absent; abdominal notopodial rudiments present. Fourteen thoracic unciniigers.

**Samythella** Verrill 1873a, *S. elongata* Verrill 1873a; 6 species.

_Samythopsis_ McIntosh 1885, _S. grubei_ McIntosh 1885; only species.

AMPHERETINAE. Three pairs of smooth branchiae; paleae absent. Glandular ridges and abdominal notopodial rudiments present. Fourteen thoracic uncini.

_Schistocomus_ Chamberlin 1919a, _S. hiltoni_ Chamberlin 1919a; 3 species.

AMPHERETINAE. Four pairs of branchiae, one smooth and three lamellate; paleae absent. Glandular ridges absent; abdominal notopodial rudiments present. Twelve thoracic uncini. Two pairs of anal cirri.

_Sosana_ Malmgren 1866, _S. sulcata_ Malmgren 1866; 5 species.

AMPHERETINAE. Four pairs of smooth branchiae; paleae present. Glandular ridges absent; abdominal notopodial rudiments present. Twelve thoracic uncini. Third from last thoracic notopodium elevated and with modified setae.

_Sosanella_ Hartman 1965, _S. apalea_ Hartman 1965; only species.


_Sosanides_ Hartmann-Schroder 1965, _S. glandularis_ Hartmann-Schroder 1965; only species.

AMPHERETINAE. Four pairs of smooth branchiae; paleae present. Abdominal notopodial rudiments present. Twelve thoracic uncini. Setiger 11 with modified notosetae.

_Sosanopsis_ Hessle 1917, _S. wireni_ Hessle 1917; 2 species.

AMPHERETINAE. Four pairs of smooth branchiae; paleae absent. Glandular ridges absent; abdominal notopodial rudiments present; 12 thoracic uncini. Notosetae of last thoracic setiger modified.

_Weddellia_ Hartman 1967, _W. profunda_ Hartman 1967; only species.

AMPHERETINAE. Three pairs of smooth branchiae on three successive segments. Segment 3 with capillary setae, but without paleal modifications. Glandular ridges absent; abdominal parapodia with long dorsal cirri. Fifteen thoracic uncini.

Invalid Genera

_Aryandes_ Kinberg 1867b, indeterminable

_Branchiosabella_ Claparede 1863, see Ampharetidae

_Crossostoma_ Gosse 1855, see Amphicteidae

_Eusamytha_ Hartman 1967, see Eusamythellidae

_Heterobranchus_ Wagner 1885, see Sabellidae

_Melinnides_ Wesenberg-Lund 1950, see Melinidae

_Artaclava_ Annenkova, 1931

_Melinopsis_ Day 1955, see Melinopsidae

_Microsamytha_ Augener 1928a, see Alkmaria

_Sabellides_ Berkeley and Berkeley 1943, see Asabellidae

_Rytocephalus_ Quatrefages 1866, indeterminable

**FAMILY TERECELLIDAE MALMGREN 1867**

Body in two regions; anterior region with biramous parapodia and posterior region with neuropodia only. Prostomium a simple fold. Branchiae, when present, include one to three pairs on the first segments, associated distinctly with separate segments. Uncini usually with a large main fang and a crest of smaller teeth.

Terebellids are among the most common shallow-water polychaetes and are found in all environments. The usually numerous buccal tentacles cannot be fully retracted into the mouth. They usually are grooved and used in selective deposit-feeding on the surface. Other forms may stretch the buccal tentacles into the water and capture particles from the water.

**Key to Genera**

| la. | A large scoop-shaped or conical proboscis present | ARTACAMINAE | 4 |
| 1b. | Proboscis absent | \ | 2 |
| 2a (1b). | Thoracic uncini in double or alternating rows in at least some setigers | AMPHITRITINAE | 14 |
| 2b (1b). | Thoracic uncini in single rows in all setigers | THELEPINAE | 5 |
| 3a (2b). | Branchiae present | POLYCIIRINAE | 10 |
| 3b (2b). | Branchiae absent | \ | \ |
| 4a (1a). | Proboscis papillated, 17 thoracic setigers | Artacama | \ |
| 4b (1i). | Proboscis grooved; 15 thoracic setigers | Artacanella | \ |
| 5a (3a). | First notosetae on first postbranchial segment | Pseudampharetidae | \ |
5b (3a). First notosetae on one of the branchial segments
6a (5b). First notosetae on the first branchial segment
6b (5b). First notosetae on the second branchial segment
7a (6b). Lateral lappets present on one or a few anterior segments
7b (6b). Lateral lappets absent
8a (7a). Uncini from the fifth segment
8b (7a). Uncini from the first abdominal segment
9a (7b). Uncini from setiger 9
9b (7b). Uncini from setiger 2
10a (3b). Setae completely absent
10b (3b). At least some setae present
11a (10b). Neurosetae absent
11b (10b). Neurosetae present
12a (11a). Thoracic notopodia vascularized and in part furcate or branched
12b (11a). Thoracic notopodia may be vascularized, but never furcate or branched
13a (11b). Neurosetae short-handled uncini
13b (11b). Neurosetae long-handled spines
14a (2a). Branchiae absent
14b (2a). Branchiae present
15a (14a). Seventeen or fewer thoracic setigers
15b (14a). More than 20 thoracic setigers
16a (15a). All notosetae smooth-tipped
16b (15a). At least some notosetae with denticulated tips
17a (16a). Lateral lappets absent; 17 thoracic setigers
17b (16a). Lateral lappets present on one or a few anterior segments; 16 thoracic setigers
18a (17b). Third segment with transverse ridge across dorsum
18b (17b). Third segment without transverse ridge
19a (16b). Neurosetae from setiger 3; some notosetae smooth
19b (16b). Neurosetae from setiger 2; all notosetae denticulated
20a (19b). Fifteen thoracic setigers; notosetae finely denticulated
20b (19b). Fourteen thoracic setigers; some notosetae distinctly pectinate
21a (15b). All notosetae tapering, distally smooth-tipped
21b (15b). Some notosetae subdistally inflated, distally denticulated
22a (14b). Notosetae with marginally serrated tips
22b (14b). Notosetae with smooth tips
23a (22a). Three anterior segments with large lateral lappets to which the branchiae are attached.
23b (22a). Lateral lappets present or absent, but never directly associated with the branchiae
24a (23b). Uncini from third thoracic setiger
24b (23b). Uncini from second thoracic setiger
25a (24b). Sixteen or 17 thoracic setigers
25b (24b). Eighteen or more thoracic setigers
26a (25a). A single pair of branchiae; 16 thoracic setigers
26b (25a). Two or three pairs of branchiae; 17 thoracic setigers
27a (26b). Lateral lappets present; branchiae stalked and branched
27b (26b). Lateral lappet absent; branchiae sessile filaments
28a (24b). Branchiae attached on segments 2-4
28b (24b). Branchiae attached on another combination of segments
29a (28a). Branchiae arborescent from the base
29b (28a). Branchiae distinctly stalked
30a (28b). Branchiae on segments 1, 2 and 5
30b (28b). Branchiae on segments 3, 7 and 13
31a (22b). Anterior uncini long-handled
31b (22b). All uncini short-handled
32a (31a). Notosetae from segment 5, uncini from segment 6
32b (31a). Notosetae from segment 4, uncini from segment 5
33a (32b). Branchiae smooth, ampharetinlike
33b (32b). Branchiae smooth, ampharetinlike
33b (32b). Branchiae branched
34a (33b). Lateral lappets at least on segments 2 and 4
34b (33b). Lateral lappets limited to segment 3
35a (31b). Ventrum with large anteriorly opening glandular folds on segments 3-5
35b (31b). Ventrum with glandular scutes or smooth
36a (35b). Lateral lappets present on one or a few anterior segments
36b (35b). Lateral lappets inconspicuous or absent
37a (36a). Sixteen thoracic setigers; branchiae very long-shafted
37b (36a). Seventeen or 18 thoracic setigers; branchiae short-shafted or sessile
38a (37b). Eighteen thoracic setigers
38b (37b). Seventeen thoracic setigers
39a (38b). First four segments flattened with large lateral lappets forming an anterior plaque; one pair of branchiae
39b (38b). First four segments not modified into a flattened plaque; lateral lappets varying in size; two or three pairs of branchiae
40a (39b). Branchiae tufts of sessile filaments
40b (39b). Branchiae branching off one or a few stems
41a (40b). Buccal lateral lappets form a crest across the dorsum
41b (40b). No dorsal crest across the buccal segment
42a (41b). Uncini with teeth in a single row
42b (41b). Uncini with teeth in two or more rows
43a (42b). Small lateral lappets on segments 2 and 3; tube opening unadorned
43b (42b). Large lateral lappets on segments 2 and 4; tube opening with fan-shaped frills
44a (43b). Thirteen thoracic setigers
44b (43b). At least 15 thoracic setigers
45a (44b). First notosetae on first branchial segment
45b (44b). First notosetae on last branchial segment or from one of the first postbranchial segments
46a (45b). Uncini present from first setiger
46b (45b). Uncini present from second setiger
47a (46b). Uncini in an open circle in posterior thoracic setigers
47b (46b). Uncini arranged back to back in posterior thoracic setigers
48a (47b). Two pairs of branchiae; thorax with 15 to 40 setigers
48b (47b). Three pairs of branchiae; thorax with 17 setigers

Generic Definitions


*Amphitrite* O.F. Muller 1771, *A. cirrata* O.F. Muller 1771; 17 species.

AMPHITRITINAE. Eyes rarely present. Three pairs of sessile branchiae from segment 2; nephridial papillae on segment 3 and from segment 6. Lateral lappets absent. Notosetae from fourth segment; distally serrated; 13 to 25 thoracic setigers.

*Amphitritides* Augener 1922, *Terebella gracilis* Grube 1860; 3 species.

AMPHITRITINAE. Two pairs of branching, stalked branchiae from segment 2. Lateral lappets absent. Serrated notosetae present from segment 4; uncini face to face in posterior thoracic setigers.

*Artacama* Malmgren 1866, *A. proboscidea* Malmgren 1866; 8 species.


ARTACAMINAE. Three pairs of smooth, ampharetinlike branchiae on segments 2-4. Fifteen thoracic setigers; uncini in all thoracic setigers; each uncinus long-shafted. Grooved, boat-shaped proboscis attached ventrally on the peristomium.

*Axionice* Malmgren 1866, *Terebella texuosa* Grube 1860; 8 species.

AMPHITRITINAE. Two or three pairs of long-shafted, branched branchiae. Sixteen thoracic setigers; lateral lappets present. Notosetae distally smooth; all uncini short-handled.

**AMPHITRITINAE.** Branchiae absent. Noto setae present from third segment to the end of the body (more than 70 segments); uncini present from second setiger; uniserial in first eight uncini; then biserial and finally uniserial in last 30-35 setigers. Capillary setae distally smooth.

**Bathy**a Saint-Joseph 1894, *Leaena abyssorum* McIntosh 1885; 3 species.

**AMPHITRITINAE.** Branchiae absent. Uncini with short handles; crested; capillary distally smooth, resembles *Proclea* in setal structures. Incompletely described.

**Colyummatops** Peters 1854, *C. granulatus* Peters 1854; only species.

**AMPHITRITINAE.** Three first segments with large lateral lappets to which are attached branchiae. Thirteen or 14 thoracic setigers. Noto setae distally serrated. Incompletely described.

**Enoplobranchus** Webster 1879, *Chaetobranchus* sanguinea Verrill 1873b; only species.

**POLYCIRRINAE.** Notopodial lobes prolonged, vascularized and in part furbate or branched. Uncini absent; noto setae spine capillaries, with usually one seta much longer than the others.

**Eupistella** Chamberlin 1919c, *Eupista darwini* McIntosh 1885; 4 species.

**AMPHITRITINAE.** Two pairs of smooth, ampharetinlike branchiae. Seventeen thoracic setigers; some anterior uncini with prolonged shafts, noto setae distally smooth.

**Eupolyminia** Verrill 1900, *Amphitrite nesidensis* delle Chiaje 1828; 12 species.

**AMPHITRITINAE.** Three pairs of branching branchiae; lateral lappets on segments 2-3. Smooth-tipped noto setae from segment 4; 17 thoracic setigers.

**Eutelepus** McIntosh 1885, *E. setubalensis* McIntosh 1885; 6 species.

**THELEPINAE.** Branchiae on segments 2-4, sometimes as single filaments only. Lateral lappets present. Noto setae from second branchial segment; present on 20 segments. Uncini first present from first post branchial segment.

**Hauchiella** Levinsen 1893, *Polycirrus tribulatus* McIntosh 1869; only species.

**POLYCIRRINAE.** Thorax of ten segments; usually about 70 segments in all. All setae absent.

**Lanassa** Malmgren 1866, *L. nobdenskioardi* Malmgren 1866; 7 species.


**Lanie**ce Malmgren 1866, *Nerets conchilega* Pallas 1766; 8 species.

**AMPHITRITINAE.** Three pairs of branched branchiae. Lateral lappets present. Seventeen thoracic setigers. Smooth-tipped noto setae from segment 4; uncini back to back in posterior thoracic setigers. Tube with branched fine meshed fan attached to opening.

**Lacinides** Hessle 1917, *Terebella (Phyzelia) bilobata* Grube 1877; 3 species.

**AMPHITRITINAE.** Two pairs of branched branchiae. Lateral lappets present. Smooth-tipped noto setae present from segment 4; long shafted uncini present from segment 5.

**Laphania** Malmgren 1866, *L. boecki* Malmgren 1866; only species.

**AMPHITRITINAE.** Branchiae absent. Lateral lappets present; third segment with transverse ridge across dorsum. Smooth-tipped noto setae present from segment 4. Sixteen thoracic setigers.

**Loini**a Malmgren 1866, *Terebella medusa* Savigny 1818; 16 species.


**Lysilla** Malmgren 1866, *L. Iovent* Malmgren 1866; 10 species.

**POLYCIRRINAE.** Six to 12 thoracic segments; noto setae from segment 3. Neurosetae completely absent.

**Melinella** McIntosh 1914, M. *macduffi* McIntosh 1914; only species.

**AMPHITRITINAE.** One pair of branched branchiae; 18 thoracic setigers, all with uncini. Lateral lappets present.

**Naneva** Chamberlin 1919a, *N. hespera* Chamberlin 1919a; only species.

**AMPHITRITINAE.** Two pairs of dendritically branched branchiae from segment 2; smooth-tipped noto setae present from first branchial segment. Twenty-seven thoracic setigers. Lateral lappets absent. Uncini present in double rows in most thoracic segments.

**Neoamphitrite** Hessle 1917, *Amphitrite affinis* Malmgren 1866; 11 species.

**AMPHITRITINAE.** Three pairs of branched branchiae; lateral lappets present. Seventeen thoracic setigers with distally serrated noto setae. Nephridial papillae present from segment 3.
Neoleprea Hessle 1917. Leprea streptochaeta Ehlers 1897; 5 species.

AMPHITRITINAE. Two or three pairs of branched branchiae; lateral lappets absent. Notosetae first present from segment 2; some smooth, some distally denticulated. Seventeen-40 thoracic setigers. Uncini arranged back to back in posterior thoracic segments.

Nicolea Malmgren 1866. Terebella zostericola Orsted 1844; 22 species.


Opisthopista Caullery 1944. O. sibogae Caullery 1944; only species.

AMPHITRITINAE. Two pairs of branched branchiae; lateral lappets present on at least segments 2 and 4. First notosetae in segment 5 and first uncini in segment 6. Anterior uncini long shafted.

Paralanice Caullery 1944. P. timorensis Caullery 1944; only species.

AMPHITRITINAE. Three pairs of branched branchiae; large lateral buccal lappets connected across dorsum with a crest; lateral lappets also on segments 2 and 3. Seventeen thoracic setigers; smooth-tipped capillaries from segment 4.

Parathelepus Caullery 1915. Thelepides collaris Southern 1914; only species.

THELEPINAE. Three pairs of branchiae; lateral lappets absent. Notosetae from second branchial segment; uncini from setiger 9.

Pararionice Fauchald 1972. P. artifex Fauchald 1972; only species.

AMPHITRITINAE. One pair of branched branchiae with double bases on segments 3 and 4. Sixteen thoracic setigers; notosetae distally smooth. Ventral part of segments 3-5 covered by a large glandular apparatus that opens anteriorly on segment 3 in two trumpet-shaped openings.


AMPHITRITINAE. Branchiae absent; lateral lappets also on segments 2 and 3. Seventeen thoracic setigers; notosetae distally either dentate or smooth. Uncini from setiger 3.

Pseudampharete Hartmann-Schröder 1960b. P. tentaculata Hartmann Schröder 1960b; only species.

THELEPINAE. Two pairs of sessile branchial filaments on large bosses on first and second segment. Notosetae first present from first postbranchial segment; uncini from setiger 7.

Ranex Hartman 1944b. R. californiensis Hartman 1944b; only species.

AMPHITRITINAE. One pair of branched branchiae on second segment. Notosetae from segment 4; thorax with 13 setigers; notosetae distally smooth.


AMPHITRITINAE. Three pairs of branched branchiae; lateral lappets inconspicuous. Sixteen thoracic setigers; notosetae from segment 4; distally smooth. Uncini present from first setiger.

Scionella Moore 1903. S. japonica Moore 1903; 4 species.

AMPHITRITINAE. One pair of branchiae on segment 4. Seventeen thoracic setigers; notosetae first present on segment 4; notosetae distally smooth. Four first segments flattened dorsoventrally with very large longitudinally oriented lateral lappets, forming a large oblique plaque at the anterior end.

Scionides Chamberlin 1919b. Terebella reticulata Ehlers 1887; 2 species.

AMPHITRITINAE. Three pairs of branched branchiae; seventeen thoracic setigers; notosetae from segment 4; notosetae distally smooth. Uncini arranged back to back in posterior thoracic segments.

Spinosphaera Hessle 1917. S. pacifica Hessle 1917; 2 species.

AMPHITRITINAE. Branchiae absent. Twenty-three or more thoracic setigers; uncini present from setiger 2.
Notoxae denticulate; the longer ones with hispid swellings subdistally. Lateral lappets absent.

*Spiroverma* Uchida 1968, *S. ononokomachii* Uchida 1968; only species.

AMPHITRITINAE. One pair of sessile branchiae, each with maximally eight filaments on segment 2. Sixteen thoracic setigers; notosetae marginally serrate. Body strongly spiralled.

*Streblosoma* Sars 1872, *Grymæa bairdi* Malmgren 1866; 20 species.

THELEPINAEE. Three pairs of sessile branchiae on segments 2-4 (may be absent). Notoxae from first branchial segment (segment 2). Uncini from segment 5.

*Sischapovella* Levenstein 1957, *S. tatjanae* Levenstein 1957; only species.

AMPHITRITINAE. Branchiae absent; lateral lappets present. Smooth-tipped notosetae from segment 4; uncini from segment 5. Sixteen thoracic setigers. Notoxae finely capillary rather than limbate. All nephridia free from one another.


AMPHITRITITINAE. Two or three pairs of branched branchiae; lateral lappets absent. Thorax with variable, usually large, number of setigers; notosetae from segment 4; distally serrated. Uncini face to face in posterior thoracic segments.

*Terebellance* Hartmann-Schir Dor 1962b, *T. laeviseta* Hartmann-Schir Dor 1962b; only species.

AMPHITRITINAE. Two pairs of branchiae from third segment; lateral lappets absent. Notoxae smooth-tipped. Uncini in an open circle on posterior thoracic segments.


AMPHITRITINAE. Three pairs of branched branchiae on segments 3, 7 and 13. Distally serrated notosetae present from segment 4; more than 19 thoracic setigers present.

*Thelepides* Gravier 1911a, *T. koehleri* Gravier 1911a; 3 species.

AMPHITRITINAE. Three pairs of filiform branchiae; lateral lappets present. Smooth-tipped notosetae from segment 3; 17 thoracic setigers present.


THELEPINAEE. Sessile, filiform branchiae on segments 2-4; smooth-tipped notosetae present from second branchial segment (segment 3). Uncini from segment 5.

**Taxonomic Notes**

Day (1967) altered the definition of the sub-families to include the abranchiate members of AMPHITRITINAE among the POLYCIRRINAE. This change appears unfortunate, in that these genera resemble branchiace members of the AMPHITRITINAE very closely in setal structures as well as in the structure of the anterior end. The treatment here reflects this view.

The genus *Pseudampharete* has been included among the THELEPINAEE since it is branchiate and has the uncini in single rows in all thoracic segments. It further resembles members of this subfamily in that the branchiae are sessile filaments. However, this latter feature may also be present among members of the AMPHITRITINAE. The placement must be considered temporary.

The genus *Bathy* Saint-Joseph 1894, listed above in the definitions has not been included in the key. It belongs in the abranchiate group of AMPHITRITINAE, and is very poorly known.

The genus *Pseudothelepus* Augener 1918 is considered here a synonym of *Streblosoma*, as suggested by Day (1967).

Some of the genera are difficult to separate from related forms; no revision was attempted on this occasion.

**Invalid Genera**

Amaeana Malmgren 1866, see *Amaeana*

Amphiro Montagu 1808, see *Amphiro*

Amphiritoides Costa 1862, see *Eupolymnia*

Amphytrete Renier 1804, indeterminable

Anisocirrus Gravier 1905a, see *Polycirrus*

Aphlebina Claparede 1864, see *Polycirrus*

Aponeuma Quatrefages 1866, see *Polycirrus*

Athelepus Chamberlin 1919c, *NoManNUDUM*

Chaetobranchus Verrili 1873b, see *Enoplostbranchus*

Cyaxares Kinberg 1867b, see *Polycirrw*

Dejoces Kinberg 1867b, see *Polycirrus*

Dendrophora Grube 1870a, see *Pista*

Ehlersiella McIntosh 1885, indeterminable

Ereutho Malmgren 1866, see *Polycirrus*

Eugrymæa Verrili 1900, see *Streblosoma*

Eupista McIntosh 1885, see *Eupistella*

Eusclione Chamberlin 1919c, see *Axionice*

Grymæa Malmgren 1866, see *Streblosoma*

Heterophenacia Quatrefages 1866, see *Thelepus*
Key to Genera

<table>
<thead>
<tr>
<th>Choice 1</th>
<th>Choice 2</th>
<th>Choice 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A single middorsally attached branchia present</td>
<td>At least a pair of branchiae present</td>
<td>Unobranchus</td>
</tr>
<tr>
<td>Branchia a single tapering, digitate projection</td>
<td>Branchia stalked with four lobes; each lobe with numerous flat branchial lamellae</td>
<td>Terebellides</td>
</tr>
<tr>
<td>Two or three pairs of branchiae present</td>
<td>Terebellides</td>
<td>4</td>
</tr>
<tr>
<td>Four pairs of branchiae present</td>
<td>Filibranchus</td>
<td>5</td>
</tr>
<tr>
<td>Two pairs of branchiae, 17 thoracic setigers</td>
<td>Three pairs of branchiae; 15 thoracic setigers</td>
<td>Trichobranchus</td>
</tr>
<tr>
<td>Three pairs of branchiae; 15 thoracic setigers</td>
<td>Each branchia with pectinate branchial lamellae</td>
<td>Amphiareids</td>
</tr>
<tr>
<td>Each branchia simple and digitate or rosette-shaped</td>
<td>Octobranchus</td>
<td>6</td>
</tr>
<tr>
<td>All branchiae simple and tapering</td>
<td>Fourth pair of branchiae sessile rosettes</td>
<td>Novobranchus</td>
</tr>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Generic Definitions

Ampharetides Ehlers 1913; A. vanhoeffeni Ehlers 1913; only species.

Seventeen thoracic setigers; uncini present on nine last thoracic setigers and on abdomen. Four pairs of branchiae on first setiger; each with pectinate branchial lamellae.

Filibranchus Mahn 1874, F. roseus Mahn 1874; only species.

Fifteen thoracic setigers; all with uncini. Two pairs of smooth branchiae on the second and third segment (presetal branchiae).

Novobranchus Berkeley and Berkeley 1954, N. pacificus Berkeley and Berkeley 1954; only species.

Sixteen thoracic setigers; uncini present from setiger 4. Four pairs of branchiae on segments 2-5; first three pairs lanceolate; last pair a frilled rosette.

Octobranchus Marion and Bobretzky 1875, Terebella lingulata Grube 1863; 4 species.

Sixteen thoracic setigers; first setiger is segment 3; first uncini on setiger 4. Four pairs of similar lanceolate branchiae.

Terebellides Sars 1835, T. stroemi Sars 1835; 14 species.
Eighteen thoracic setigers; first setiger is segment 3; uncini present from setiger 6. Single dorsal branchia with four lamellate branchial lobes.


Fifteen thoracic setigers; first setae on segment 6; all thoracic setigers with uncini. Three pairs of simple, lanceolate branchiae.


Twelve thoracic setigers; first setae on segment 3; uncini first present on setiger 4. A single, large lanceolate branchia present mid-dorsally on segment 2.

**Invalid Genera**

*Aponobranchus* Gravier 1905a, see *Terebellides*

*Corephorus* Grube 1846, see *Terebellides*

**FAMILY BOGUEIDAE HARTMAN AND FAUCHALD 1971**

Body slender and cylindrical with few segments; prostomium rounded without appendages. Parapodia biramous with long slender, in part spinose notosetae and short-handled, avicular crested uncini in neuropodia, in part in double rows.

The bogueids, known for two genera, have setae resembling the terebellid uncini, but lack completely anterior appendages. They are known from a few locations in the western Atlantic Ocean only.

**Generic Definitions**

*Boguea* Hartman 1945, *B. enigmatica* Hartman 1948; only species.

Two anterior asetigerous segments; three first setigers without neurosetae.


One anterior asetigerous segment; four first setigers without neurosetae.

**ORDER SABELLIDA**

Prostomium reduced, fused with the peristomium which usually forms a large tentacular crown; setae include thoracic notopodial limbate and geniculate kinds and neuropodial uncini; setal positions reversed in the abdomen.

**FAMILY SABELLIDAE MALMGREN 1867**

Body cylindrical with a thorax of few setigers and abdomen with few to many. Uncini crested or with teeth in several rows; long- or short-handled. Tube present in most species, made of varying material, but never calcareous.

Sabellids characteristically have nearly smooth appearing bodies, cylindrical and tapering posteriorly, with large, often maroon or red-colored tentacular crowns. Most of the forms, especially the larger ones, are strictly sessile and never leave their tubes; the smaller forms, such as species of *Fabricia* and allied genera, are capable of moving around. Most of the larger forms are associated with shallow water; smaller species are common in deep sea collections.

The major characteristics used to identify the sabellids, include the presence or absence of companion setae to the neuropodial uncini in the thorax; these also have been called pennoned setae or pick-ax setae. The neutral term *companion seta* is preferred here. They occur in an anterior row, in front of the uncini they accompany and usually are small and deeply imbedded in the epidermal tissues. They are more easily seen by the reflection they give off under a stereo microscope, than in microscopic preparation under the compound microscope. The structure of the tentacular crown such as the number of radioli, and the presence of small, external appendages called stylodes, are important.

One of the key features in the group lies in the structure of the thoracic uncini. These may be acicular, by which is meant that the crested head, with one large tooth and several smaller ones, is supported by a gently curved, often nearly straight shaft. By avicular uncini are meant uncini that are essentially Z-shaped (sometimes called swan-shaped) with the small crested head at the top of the Z, and the shaft sharply bent. The shafts of these Z-shaped uncini may be short or long. In the key below, attempts have been made to avoid the more confusing part of the terminology, but a complete avoidance of this terminology has not been possible.
FIGURE 37. (A), Family SABELLIDAE, *Chone sp.*, off Santa Catalina Island, 50 m, 18x; (B), Family SABELLONGIDAE, *Sabellonga disjuncta*, anterior end in right ventrolateral view, modified after Hartman, 1969, 33x; (C), posterior end of the above, 33x; (D), Family CAOBANGIIDAE, *Caobangia abbotti*, after Jones, 1974, about 17x; (E), right lateral view of the above, about 17x.

### Key to Genera

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Key</th>
</tr>
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<tbody>
<tr>
<td>1a</td>
<td>Abdominal uncini form nearly complete cinctures around the body</td>
<td><em>Myxicola</em></td>
</tr>
<tr>
<td></td>
<td><em>Myxicola</em></td>
<td><em>Myxicola</em></td>
</tr>
<tr>
<td>1b</td>
<td>Abdominal uncini in short, discrete tori</td>
<td></td>
</tr>
<tr>
<td>2a</td>
<td>Thoracic uncini with long, gently curved shafts (acicular) companion setae always absent</td>
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<tr>
<td></td>
<td><em>Fabricinae</em></td>
<td><em>Fabricinae</em></td>
</tr>
<tr>
<td>2b</td>
<td>Thoracic uncini with short or long, but always strongly bent shafts (avicular); companion setae present in some forms</td>
<td></td>
</tr>
<tr>
<td>3a</td>
<td>Abdomen with two or three setigers</td>
<td></td>
</tr>
<tr>
<td>3b</td>
<td>Abdomen with four or more setigers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SABELLINAe</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>
4a (3a). Radioles partially united by a membrane  
4b (3a). Radioles free to the base  
5a (4b). With an extensive lower lip, curved up under the weakly bilobed prostomium  
5b (4b). Without a distinct lower lip; prostomium anteriorly rounded  
6a (5b). Abdominal uncini short-handled  
6b (5b). Abdominal uncini long-handled  
7a (6b). Without ventral vascularized filaments  
7b (6b). With ventral vascularized filaments in the tentacular crown  
8a (7b). Ventral vascularized filaments branched; three pairs of radioli  
8b (7b). Ventral vascularized filaments smooth; two pairs of radioli  
9a (3b). Posterior end distinctly modified, with fused segments or greatly expanded pygidium  
9b (3b). Posterior end not modified  
10a (9a). Seven last setigers covered dorsally by the large, ring-shaped pygidium  
10b (9a). Last several setigers flanged laterally to form a spoon-shaped dorsal cavity  
11a (9b). Radioles united by a membrane  
11b (9b). Radioles free to the base  
12a (11b). Abdominal uncini with a large main fang and a crest of smaller teeth  
12b (11b). Abdominal uncini with major teeth in two or more rows  
13a (12b). More than ten pairs of radioli in the tentacular crown  
13b (12b). Maximally five pairs of radioli in the tentacular crown  
14a (13b). Radioles externally distinctly ridged  
14b (13b). Radioles externally rounded  
15a (2b). Thoracic neuropodial companion setae absent  
15b (2b). Thoracic neuropodial companion setae present  
16a (15a). Radioli with external stylostyles  
16b (15a). Radioles without external stylostyles  
17a (16a). Four thoracic setigers, external stylostyles very small  
17b (16a). Eight thoracic setigers; external stylostyles well developed  
18a (16b). Thoracic spatulate notosetae present  
18b (16b). Thoracic spatulate notosetae absent  
19a (18a). Thoracic uncini with gently curved, long handles  
19b (18a). Thoracic uncini with sharply bent handles  
20a (19b). Collar reduced, radioli basally united by a web  
20b (19b). Collar well developed; radioles free to the base  
21a (15b). Tentacular crown with radioli arranged in one or two spirals  
21b (15b). Tentacular crown with radioli in two semicircles  
22a (21a). Posterior thoracic notopodia with lancet-shaped, transversely striated setae  
22b (21a). Lancet-shaped notopodial setae absent  
23a (22b). Collar two-lobed  
23b (22b). Collar four-lobed  
24a (23a). Anterior ventrum irregularly rugose  
24b (23a). Anterior ventrum smooth, apart from the glandular fields  
25a (23b). One half of tentacular crown very much larger than the other; spathulate setae absent  
25b (23b). Both parts of the tentacular crown similar in size; spathulate setae present  
26a (21b). Large subdistal compound eyes on a few dorsal radioli  
26b (21b). Eyes, if present, smaller and scattered over most of the radioli  
27a (26b). Collar reduced or absent, a triangular ventral projection at base of tentacular crown present  
27b (26b). Collar well developed; triangular ventral projection absent  
28a (27b). Notoetae of the collar-segment in a long row  
28b (27b). Notoetae of the collar-segment in a tuft  
29a (28b). Radioles dichotomously branching  
29b (28b). Radioles not divided  
30a (29b). Spatulate thoracic notosetae absent  
30b (29b). Spatulate thoracic notosetae present  
31a (30b). Thoracic uncini at least in part nearly straight and long-handled  
31b (30b). Thoracic uncini at least in part straight and short-handled
31b (30b). Thoracic uncini sharply bent, long- or short-handled
32a (31a). Abdominal uncini long-handled and nearly straight
32b (31a). Abdominal uncini short-handled and strongly bent
33a (31b). Thoracic uncini long-handled
33b (31b). Thoracic uncini short-handled

**Generic Definitions**

*Amphiglena* Claparede 1864, *Amphicora mediterranea* Leydig 1851; 3 species.

**SABELLINAE.** Radioles in semi-circles; external stylodes, eyes and webbing absent. Collar absent; triangular ventral projection present at base of tentacular crown. Approximately eight thoracic setigers present; abdominal uncini strongly bent, crested.

*Augeneriella* Banse 1957,*A. hummelincki* Banse 1958; 4 species.

**FABRICINAE.** Three pairs of radioli, branchial hearts present; collar dorsally low, ventrally higher. Forked ventral vascularized filament present. Eight thoracic and three abdominal setigers; abdominal uncini long-handled.


**SABELLINAE.** Radioles in spirals; eyes present, stylodes and webbing absent. Collar two- or four-lobed. Number of thoracic segments variable. Spatulate thoracic notosetae absent; late thoracic neuropodial companion setae present in thorax. Both thoracic and abdominal uncini with long handles, but very sharply and distinctly bent and distally crested.

*Chone* Kroyer 1856, *C. infundibuliformis* Kroyer 1856; 26 species.

**FABRICINAE.** More than five, usually many pairs of radioli present; distinct webbing present between the radioli. Collar well developed. Abdominal uncini with short, quadrangular base and crested tip. Abdomen with several setigers.

*Demonaax* Kinberg 1867b, *D. leucaspis* Kinberg 1867b; 8 species.

**SABELLINAE.** Radioli in spiral; eyes present; webbing and external stylodes absent. Collar bilobed. Spatulate notosetae and neuropodial companion setae present in thorax. Both thoracic and abdominal uncini with long handles, but very sharply and distinctly bent.

*Desdemona* Banse 1957, *D. ornata* Banse 1957; only species.

**FABRICINAE.** Three pairs of radioli, radiolar backs rounded, webbing absent. Collar divided dorsally and united ventrally. Abdominal uncini with short, quadrangular bases and teeth in two rows along one side. Abdomen with four to 12 setigers.

*Dialychone* Claparede 1870a, *D. acusta* Claparede 1870a; only species.

**FABRICINAE.** Twelve or more pairs of radioli; webbing absent. Collar well developed on both sides. Abdominal uncini with short, quadrangular base and teeth in two or more rows along one side. Abdomen with several setigers.


**SABELLINAE.** Radioles spiralled; eyes present, external stylodes and webbing absent. Collar bilobed. Both thoracic and abdominal uncini long-handled, but sharply bent. Anterior ventrum irregularly rugose.


**FABRICINAE.** Numbers of radioles variable; webbing present. Collar usually well developed. Last abdominal setigers flanged laterally to form a deep spoon-shaped cavity. Abdominal uncini avicular. Abdomen with numerous setigers.


**FABRICINAE.** Twelve pairs of radioli; webbing and eyes absent. Collar well developed, highest ventrally. Pygidium expanded to a large dorsal horse-shoe covering the last seven setigers. Abdominal uncini avicular. Abdomen with numerous setigers.

*Eudistylia* Bush 1904a, *Sabella vancouveri* Kinberg 1867b; 3 species.

**SABELLINAE.** Radioles spiralled; eyes present, webbing and external stylodes absent. Collar four-lobed. Spatulate thoracic notosetae present. Abdominal uncini avicular.

*Euratella* Chamberlin 1919c, *Laonome salmacidis* Claparede 1870a; 2 species.

**SABELLINAE.** Radioli in semi-circles; webbing and eyes present; external stylodes absent. Collar reduced.
Spatulate thoracic notosetae and neuropodial thoracic companion setae absent. Both thoracic and abdominal uncini avicular, with short, strongly bent handles.


FABRICINAE. Three pairs of radioli and branchial hearts present. Collar often very low dorsally and united ventrally. Abdomen with long-handled uncini. Three abdominal setigers.


FABRICINAE. Radioli in semi-circles; webbed, eyes and external stylodes absent. Collar high, but deeply and widely separated dorsally. Spatulate thoracic notosetae present; thoracic neuropodial companion setae absent. Thoracic uncini long-handled and gently curved; abdominal ones strongly bent. Numerous pairs of radioli present; abdomen with numerous setigers.

*Hypsicomus* Grube 1870b, *Sabella phaeotaenia* Schmarda 1861; 12 species.

SABELLINAE. Radioli in semi-circles; webbed, eyes and external stylodes absent; eyes present. Collar well developed. Spatulate thoracic notosetae present; first notosetae in a long, straight or gently curved row. Abdominal uncini avicular.


FABRICINAE. Eight or more pairs of radioli; webbing and eyes absent. Collar well developed. Abdominal uncini avicular; several abdominal setigers present.


SABELLINAE. Radioli in semi-circles; external stylodes and webbing absent; eyes usually present. Collar bilobed. Spatulate thoracic notosetae present; thoracic neuropodial companion setae absent. Both thoracic and abdominal uncini with short, flattened base and avicular head.


FABRICINAE. Two pairs of radioli, ventrally in addition a pair of palplike, vascularized smooth filaments. Webbing absent. Collar well developed; abdomen with three setigers; abdominal uncini long-handled.

*Megalomma* Johansson 1926, *Amphitrite vesiculosa* Montagu 1815; only species.

SABELLINAE. Radioli in semi-circles; external stylostyles and webbing absent. Very large, compound eyes present subdistally on a few dorsal radioli, otherwise absent. Collar two- or four-lobed. Spatulate thoracic notosetae present. Abdominal uncini avicular.

*Monroika* Hartman 1951 b, *Manayunkia africana* Monro 1939b; only species.


*Myxicola* Koch in Renier 1847, *Terebella infundibulum* Renier 1804; 5 species.

MYXICOLINAE. Radioli in semi-circles, strongly webbed, external stylostyles and eyes absent. Thoracic uncini minute and long-handled. Abdominal uncini avicular, in nearly complete cinctures around the posterior part of the body. Tube mucoid.

*Oriopsis* Caullery and Mesnil 1896, *Fabricia armandi* Claparede 1864; 22 species.

FABRICINAE. Three to five pairs of radioli; radioli externally flanged, webbing and eyes absent. Collar divided dorsally and fused ventrally. Abdomen with four or more setigers; abdominal uncini with short, quadrangular handles and teeth in several rows along one margin.


*Potamethus* Chamberlin 1919c, *Potamilla malmgreni* Hansen 1878; 10 species.

SABELLINAE. Radioli in semi-circles; eyes, external stylodes and webbing absent. Collar very low, except ventrally where it is produced into a pair of triangular lobes. Thoracic uncini with long, nearly straight handles; abdominal uncini short-stemmed. Companion setae present.

*Potamilla* Malmgren 1866, *Sabella neglecta* Sars 1850; 30 species.

SABELLINAE. Radioli in semi-circles; external stylodes and webbing absent; eyes present. Collar two- or four-lobed. Spatulate thoracic notosetae present. Thoracic uncini short-handled.


SABELLINAE. Radioli in semi-circles; eyes, external stylodes and webbing absent. Collar low dorsally, high and bifid ventrally. Anterior thoracic neuropodia with avicular uncini; last thoracic neuropodia with
thick, acicular spines. Spathulate setae and companion setae present. Abdominal uncini small, acicular.

*Pseudobranchiomma* Jones 1962, *P. emersoni* Jones 1962; only species.

**SABELLINAE.** Radioles in semi-circles; eyes absent, webbing absent; external stylodes present, but small. Thoracic uncini short-handed, companion setae absent. Four thoracic setigers.

*Pseudofabricia* Cantone 1972, *P. aberrans* Cantone 1972; only species.

**FABRICINAE.** Eight radioles on a greatly prolonged, distally bifid anterior end and an extended rounded, lower lip. Abdominal uncini with short base and several rows of teeth. Three abdominal setigers.

*Sabella* Linnaeus 1767, *S. penicillus* Linnaeus 1767; 35 species.

**SABELLINAE.** Radioles in semi-circles; eyes present, external stylodes and webbing absent. Collar four-lobed. Spathulate thoracic notosetae absent.

*Sabellastarte* Savigny 1818, *Eurato sanctijosephi* Gravier 1906; 8 species.

**SABELLINAE.** Radioles spiralled; eyes present, webbing and external stylodes absent. Collar well developed, widely separated dorsally. Spathulate and companion setae present.

*Schizobranchia* Bush 1904a, *S. insignis* Bush 1904a; 2 species.

**SABELLINAE.** Radioles in semi-circles; dichotomously divided. Eyes present; external stylodes and webbing absent. Collar four-lobed, Thoracic uncini long-handled, but bent; companion setae present.

*Spirographis* Viviani 1805, *S. spallanzani* Viviani 1805, 4 species.

**SABELLINAE.** Radioles spiralled, with one half very much larger than the other, only one part spiralled. Styloles and webbing absent; eyes present. Collar four-lobed. All uncini avicular.

**Taxonomic Notes**

The sub-families as accepted here are based on the structure of the neuropodial uncini of the thorax, in that members of the **FABRICINAE** have gently curved, long-handled uncini, and members of **SABELLINAE** have strongly bent, avicular uncini. However, all sabellids with thoracic neuropodial companion setae have been included in the **SABELLINAE**, irrespective of the structure of the uncini.

The genus *Pseudopotamilla* Bush is considered here a junior synonym of *Potamilla* and the genus *Trichosobranchella* Dybowski 1929, is referred to Manayunkia.

Jones (1974a) revised the original material of *Monroika* and pointed out that the character used to separate this genus from all other **FABRICINAE** genera is incorrect; it does not have the webbed tentacular crown claimed by Hartman. Members of this genus will key out with Manayunkia above. It differs from the latter in that it has short limbate setae in both the first setigers; Manayunkia has such setae only in the first setiger and they are much longer. Furthermore, *Monroika* has two rather than three abdominal setigers. Jones (1974a) also described a new genus, *Brandtika* (genotype: *B. asiatica*), which will key out in the same complex. It differs from other genera in this complex in that it has pilose setae in the last three thoracic setigers. This genus could not be included in the key, since it was based on dried material, and no information was available about the structure of the tentacular crown.

**Invalid Genera**

*Amphicora* Ehrenberg 1837, see *Fabricia* *Amphicortina* Quatrefages 1866, see *Oriopsis* *Ananobaeae* Kroyer 1856, see *Hypsicomus* *Ariippasa* Johnston 1865, see *Myxicola* *Aspeira* Bush 1904a, see *Potamilla* *Branchiomma* Claparede 1870a, see *Megalomma* *Chaponella* Rullier 1972, see *Euchone* *Dasychone* Sars 1862, see *Branchiomma* *Dasychoneopsis* Bush 1904a, see *Branchiomma* *Distyla* Quatrefages 1866, see *Bispira* *Dybowscella* Nusbaum 1901, see *Manayunkia* *Eriographis* Grube 1850, see *Myxicola* *Eurato* Saint-Joseph 1894, see *Hypsicomus* *Fabriciella* Zenkevitch 1935, see *Fabriciola* *Garjaiovella* Dybowski 1929, see *Manayunkia* *Gorbunovia* Annenkova 1952, see *Potamethus* *Gymnosoma* Quatrefages 1866, see *Myxicola* *Haplobranchus* Bourne 1883, see *Manayunkia* *Hypsicomatides* Augener 1922, see *Hypsicomus* *Hypsicomatopsis* Augener 1922, see *Hypsicomus* *Laonomedes* Chamberlin 1919c, see *Potamilla* *Leiotbranchus* Quatrefages 1850, see *Myxicola* *Leptochone* Claparede 1870a, see *Myxicola* *Megalomma* Johnson 1901, see *Chone* *Metachone* Bush 1904a, see *Chone* *Metaclionone* Bush 1904a, see *Bispira* *Notaulax* Tauber 1879, see *Hypsicomus* *Ori* Quatrefages 1866, see *Oriopsis* *Oriades* Chamberlin 1919c, see *Oriopsis* *Oridia* Rioja 1917, see *Oriopsis* *Othonia* Johnston 1835, questionably *Fabricia* *Parachoneia* Kinberg 1867a, see *Chone* *Parasabella* Bush 1904a, see *Demonax* *Potamis* Ehlers 1887, see *Potamethus* *Protulides* Webster 1884, see *Hypsicomus* *Pseudopotamilla* Bush 1904a, see *Potamilla* *Sabellina* Dujardin 1839a, indeterminable *Sabina* Williams 1851, indeterminable
**FAMILY CAOBANGIIDAE JONES 1974b**

Small, short-bodied sabelliform polychaetes with three pairs of radioli in a tentacular crown. Digestive tract U-shaped with the anus opening dorsally and far anteriorly on the body. First setiger with neurosetal palmate hooks, remainder of the thoracic setigers without hooks; two kinds of avicular hooks present in a posterior region.

This family was recently proposed by Jones (1974b) for a series of small polychaetes that live in close association with molluscs in freshwater in Southeast Asia. Most of the forms burrow in the shell of the host. The family consists of a single genus, *Caobangia* Giard 1893, with type-species *C. billeti* Giard 1893 and a total of seven known species. Up to this time, the genus has been considered among sabellid *enigmatica*, but the demonstration of a series of forms spread over a larger geographical region, made the recognition of a new family necessary.

**FAMILY SABELLONGIDAE HARTMAN 1969**

Body cylindrical with few thoracic and many abdominal segments. Peristomium forms a bevelled collar around the prostomium (tentacular crown absent). Setae include long-handled uncini with companion setae and giant falcate spines.

The family is known for a single genus and species, *Sabellonga disjuncta* Hartman 1969 from northern Baja California. The specimen resembles a sabellid that has lost its tentacular crown. However, there is no trace of the loss of a tentacular crown, or that such has ever been present. The presence of the giant falcate spines in far posterior setigers also is characteristic. Otherwise, the setal equipment is largely what one would expect in a member of the SABELLINAE.

**FAMILY SERPULIDAE JOHNSTON 1865**

Body separated into two regions; a thorax with a thoracic membrane (absent in rare instances) and dorsal capillary or limbate setae and an abdomen with ventral setae and dorsal uncini. One radióle often transformed into an operculum. Tube calcareous.

The serpulids and the closely allied spirorbids represent a sub-specialty of their own within the polychaetes. The family has been reviewed on a couple of occasions; Saint-Joseph (1894) published an extensive review and Southward (1963) gave a key to all known genera. The generic sub-divisions within the family are nevertheless debatable. The older taxonomic groupings placed emphasis on the structure of the operculum and on the overall body construction (development of the thoracic membrane and collar, presence or absence of setae in specified segments, etc.). More recently, some authors (especially Zibrowius) have placed more emphasis on the detailed structure of the uncini and setae. The key below represents a compromise, and may, as such, be difficult to use.

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**Key to Genera**

1a. Operculum absent

1b. Operculum present

2a (1a). Abdominal setae trumpet-shaped

2b (1a). Abdominal setae marginally dentate and geniculate, limbate or capillary

3a (2b). Slender capillary or limbate collar setae present

3b (2b). Collar setae modified

4a (3a). Thoracic membrane absent

4b (3a). Thoracic membrane present

5a (4b). Thoracic membrane reaches setiger 5

5b (4b). Thoracic membrane reaches setiger 7

6a (3b). Abdominal setae geniculate

6b (3b). Abdominal setae slender, nearly straight capillaries

7a (1b). Operculum carried on a branchial radióle

7b (1b). Operculum carried on a modified stalk

8a (7a). Five thoracic setigers present

8b (7a). Six or more thoracic setigers present

9a (8a). Collar setae slender and limbate; long asetose region present between thorax and abdomen

9b (Sa). Collar setae basally dentate; thorax and abdomen not separated by a long asetose region

10a (8b). Collar setae simple and tapered limbate

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*Sorophaga* Gistel 1848, see *Fabricia*  
*Trichosobranchella* Dybowski 1929, see *Manayunkia*
10b (8b). Collar setae with a few coarse teeth basally and a limbate denticulate blade distally

11a (10b). Operculum a shallowly depressed cone on a spherical swelling of the opercular stalk...

11b (10b). Operculum a depressed cone; stalk without the subdistal swelling

12a (7b). Opercular stalk flattened and ribbonlike

13b (7b). Opercular stalk oval or circular in cross-section (sometimes with wings or spines)

13a (12b). Opercular stalk without wings or spines

14a (13a). Opercular stalk with wings

14b (13a). Opercular stalk with wings (sometimes produced into points distally)

15a (14a). Opercular stalk with spines on one side only; six thoracic setigers present

15b (14a). Opercular stalk with four spines in a cross; seven thoracic setigers present

16a (15b). Thoracic neuropodia widely separated anteriorly and approaching posteriorly; collar setae all of one kind, with basal pilose boss and distal spines

16b (15b). Thoracic neuropodia equidistant in all setigers; collar setae of two kinds; either capillary or with a smooth double-boss basally and smooth tapering tips

17a (13a). Collar setae absent

17b (13a). Collar setae present

18a (17a). Operculum with two projections

18b (17a). Operculum without projections

19a (17b). Collar setae limbate or capillary

19b (17b). Collar setae with two separate limitations (bayonet-type), with a basal boss or setose

20a (19a). Anterior abdominal setae stout, acute spines

20b (19a). Anterior abdominal setae trumpet-shaped or geniculate

21a (20b). Opercular cap black and chitinous

21b (20b). Opercular cap calcareous

22a (21b). Opercular cap flat, with or without spines

22b (21b). Opercular distally excavated, bordered by two eccentrically placed thorns connected by a low ridge

23a (19b). At least anterior abdominal setae trumpet-shaped

23b (19b). Anterior abdominal setae geniculate

24a (23a). Operculum conical, collar setae basally pilose

24b (23a). Operculum with slanting distal plate, collar setae bayonet shaped

25a (23b). Uncini with anterior peg pointed

25b (23b). Uncini with anterior peg gouge-shaped (hollowed out from beneath)

26a (13b). Collar setae absent

26b (13b). Collar setae present

27a (26a). Abdominal setae absent; abdominal uncini present

27b (26a). Abdominal setae present; uncini usually present

28a (27b). At least some abdominal setae geniculate

28b (27b). All abdominal setae slender capillaries

29a (28a). Uncini with numerous teeth

29b (28a). Uncini with seven to nine teeth

30a (28b). Abdominal uncini absent

30b (28b). Abdominal uncini present

31a (30b). Tube free, tusk-shaped and smooth

31b (30b). Tube at least partly attached

32a (31b). Opercular stalk calcified; operculum funnel-shaped

32b (31b). Opercular stalk not calcified; operculum spherical

33a (26b). Opercular spines movable

33b (26b). Opercular spines, if present, immovable

34a (33b). Abdominal setae slender capillaries

34b (33b). Abdominal setae trumpet-shaped or geniculate

35a (34b). Abdominal setae trumpet-shaped

35b (34b). Abdominal setae geniculate

36a (35a). Operculum a simple funnel
36b (35a). O operculum with a basal funnel and in addition various spines or hoods forming a distal part ... Paraserpula
37a (36a). Collar setae basally minutely hirsute
37b (36a). Collar setae basally dentate
38a (36b). O operculum with a large, glandular hood-shaped distal part
38b (36b). O operculum with series of distal spines and, sometimes, smaller hoods
39a (35b). S ickle setae (Apomatus-setae) absent
39b (35b). S ickle setae present
40a (39a). Collar setae with few coarse teeth in one or two marginal rows
40b (39a). Collar setae at least in part limbate
41a (40a). O operculum distally ornamented
41b (40a). O operculum distally smooth, rounded or excavate
42a (41a). O operculum with concentric series of teeth, nearly radial in structure
42b (41a). O operculum with a single series of long, strong teeth, making it bilaterally symmetrical
43a (41b). Collar setae with teeth in two rows
43b (41b). Collar setae with teeth in a single row
44a (43b). O operculum distally rounded
44b (43b). O operculum distally excavate
45a (40b). At least some collar setae with a basal dentate or hirsute region
45b (40b). All collar setae limbate
46a (45a). Simple limbate collar setae present, in addition to some with a basal group of spines
46b (45a). All collar setae with basal denticulated or hirsute region
47a (46b). Six thoracic setigers present
47b (46b). Seven thoracic setigers present
48a (45b). O percular stalk calcified; abdominal setae with only a short geniculate tip
48b (45b). O percular stalk not calcified; abdominal setae with about one-half of the exposed setae in the
geniculate tip
49a (39b). O percular stalk annulated
49b (39b). O percular stalk not annulated
50a (49b). Collar setae limbate
50b (49b). Collar setae with a basal boss in addition to the limbate distal portion
51a (50a). Both thoracic and abdominal uncini with all teeth in a single row; anterior peg entire
51b (50a). Thoracic uncini with teeth in a single row, anterior peg furcate; abdominal uncini with teeth in several rows
52a (51a). Both thoracic and abdominal uncini with teeth in several rows
52b (51a). Thoracic uncini with teeth in a single row
53a (52b). O perculum distally rounded
53b (52b). O perculum distally excavate
54a (53b). O perculum stalk with three distal bulbs
54b (53b). O perculum stalk without swellings

Generic Definitions

*Apomatus* Philippi 1844, *A. ampulliferus* Philippi 1844: 8 species.

**Serpulinae.** Seven thoracic setigers; globular operculum on a radiole. Collar setae simple limbates; sicle setae present. Uncini with teeth in several rows in both thorax and abdomen; anterior peg very long.

*Bonhourella* Gravier 1905b, *B. insignis* Gravier 1905b; only species.

**Serpulinae.** Six thoracic setigers; operculum flat or slightly convex, opercular stalk distinct. Collar setae absent; abdominal setae capillary; abdominal uncini absent. Thoracic uncini with anterior peg gouge-shaped.

*Calcareaopomatus* Straughan 1967a, *C. dewae* Straughan 1976a; only species.

**Serpulinae.** Seven thoracic setigers; operculum with a globular base and a flat, calcareous plate; stalk annulated. Collar setae small and limbate; side setae present. Thoracic uncini with anterior peg bifid.


**Serpulinae.** Seven thoracic setigers; operculum conical without wings or spines on the stalk. Collar
setae of fin and blade construction; sicle setae present; abdominal setae geniculate with triangular blade. Thoracic uncini with teeth in a single row; abdominal ones with teeth in several rows.

*Chitinopomoides* Benham 1927, *C. wilsoni* Benham 1927; only species.

**SERPULINAE.** Seven thoracic setigers; operculum rounded, stalk without spines or wings. Collar setae with large boss below a limbate zone; sicle setae present; abdominal setae geniculate with long triangular blade. Thoracic uncini with teeth in a single row; abdominal ones with teeth in several rows.


**SERPULINAE.** Seven thoracic setigers; operculum conical, stalk winged. Collar setae present, pilose at base; side setae present; other thoracic setae limbate; abdominal setae trumpet-shaped.

*Crosslandiella* Moreno 1933, *C. multispinosa* Moreno 1933; 2 species.

**SERPULINAE.** Seven thoracic setigers; operculum with black, chitinous plate, surmounted by a spinose column; stalk winged. Collar setae lancet-shaped and tapering; side setae present. Abdominal setae geniculate.

*Crucegera* Benedict 1887, *C. websteri* Benedict 1887; 5 species.

**SERPULINAE.** Seven thoracic setigers; operculum with simple funnel, distal end of stalk with four large spines forming a cross. Collar setae limbate; side setae absent; abdominal setae geniculate with few teeth; anterior peg very large.

*Dasytroma* Saint-Joseph 1894, *Serpula chrysogyrus* Grube 1878; only species.

**SERPULINAE.** Seven thoracic setigers; operculum spherical, opercular stalk smooth. Collar seta and side setae absent; all thoracic setae limbate, abdominal ones capillaries.

*Dipomatus* Ehlers 1913. *D. serpulides* Ehlers 1913; only species.

**SERPULINAE.** Five thoracic setigers; two operculae with branchial filaments on peduncle; each distally funnel-shaped and marginally dentate. Collar setae basally dentate.

*Ditrupa* Berkeley 1835, *Dentatium arietinum* O.F. Müller 1776; 8 species.

**SERPULINAE.** Tube free, tusk-shaped; operculum an inverted cone with a chitinous plate. Collar setae absent; thoracic setae limbate and capillaries; abdominal setae capillaries. Uncini with numerous teeth in several rows.

*Ficopomatus* Southern 1921, *F. macrodon* Southern 1921; 2 species.

**FICOPOMATINA.** Seven thoracic setigers; operculum pear-shaped, soft or chitinous; stalk smooth. Some collar setae with dentate boss, others serrated limabtes. Sicle setae absent. Abdominal setae geniculate with a dentate, slender tip. Uncini with few teeth in a single row.

*Fitograna* Oken 1815, *F. impexa* Berkeley 1828; only species.

**FILOGRANINAE.** Six to 12 thoracic setigers; rounded operculum on one of the radioles. Collar setae notched with limbate expansion at the base. Sicle setae and limbate setae present in thorax; abdomen with geniculate setae. Uncini with numerous teeth in several rows.

*Filograna* Langerhans 1884, *F. gracilis* Langerhans 1884; 3 species.

**FILOGRANINAE.** Seven thoracic setigers; operculum a small cone on a small, spheroidal base; stalk either frondose or smooth; only four radioles present. Collar setae present; side setae present; uncini with numerous teeth in several rows.

*Galeolaria* Savigny 1818, *G. caespitosa* Savigny 1818; 5 species.

**SERPULINAE.** Seven thoracic setigers; operculum with calcareous plate surmounted by movable spines; opercular stalk winged. Collar setae present and very short and slender.

*Hyalopomatus* Marenzeller 1878, *H. claperedii* Marenzeller 1878; 4 species.

**SERPULINAE.** Six thoracic setigers; operculum bladder-shaped; stalk smooth. Collar setae of fin and blade construction; side setae absent. Abdominal setae with only the distalmost tip geniculate. Uncini with teeth in several rows; anterior peg furcate.


**SERPULINAE.** Seven thoracic setigers; operculum basally with a marginally dentate funnel, distally with a crown of spines or smaller hoods, or a second, distal funnel present; stalk without spines or wings. Collar setae limbate; side setae absent; abdominal setae trumpet-shaped.

*Janita* Saint-Joseph 1894, *Serpula limbriata* delle Chiæge 1828; only species.

**SERPULINAE.** Seven thoracic setigers; operculum infundibular with three large distal bulbs on the stalk; opercular plate chitinous with a single large spine. Collar setae basally dentate; side setae present; abdominal setae geniculate.

*Josephella* Cauully and Mesnil 1896, *J. marenzelleri* Cauully and Mesnil 1896; 2 species.

**SERPULINAE.** Five thoracic setigers; operculum at end of normal radiole, rounded. Collar setae slender
limbate; uncini with double rows of teeth; anterior peg deeply bifid.

*Martifugia* Absalon and Hrabe 1930. *M. cavatica* Absalon and Hrabe 1930; only species.

SERPULINAE. Six thoracic setigers; operculum conical and distally smooth; stalk without spines or wings. Collar setae and side setae absent; thoracic setae slender and straight; abdominal setae geniculate. Uncini with teeth in a single row, maximally nine teeth present in thoracic uncini.


SERPULINAE. Nine thoracic setigers; operculum unknown. Thoracic membrane fused over the back at ninth setiger; collar setae limbate. Uncini similar to those in *Protula*.

*Mercierella* Fauvel 1923b. *M. enigmatica* Fauvel 1923b; only species.

FICOPOMATINA. Seven thoracic setigers; operculum conical and distally smooth; stalk with wings. Collar setae and side setae absent; thoracic setae slit-shaped and straight; abdominal setae geniculate. Uncini with teeth in a single row, maximally nine teeth present in thoracic uncini.

*Neovermilia* Pillai 1960. *N. uschakovi* Pillai 1960; only species.

FICOPOMATINA. Seven thoracic setigers; operculum cup-shaped, sometimes ornate; stalk smooth. Collar setae of two kinds, simple limbates and fin and blade setae. Side setae present. Thoracic uncini with teeth in a single row; abdominal ones with teeth in several rows; anterior peg very large.


SERPULINAE. Six or seven thoracic setigers; operculum conical and distally flattened, margin entire, stalk smooth. Collar setae limbate; side setae absent; abdominal setae geniculate or capillaries. Thoracic uncini with teeth in a single row; abdominal ones with teeth in one or several rows.


SERPULINAE. Six thoracic setigers; operculum with a central tooth and paired lateral horns, stalk winged. Collar setae absent, side setae absent; thoracic setae limbate; uncini with about twenty teeth; anterior peg gouge-shaped.

*Olgaharmania* Rioja 1941b. *Hydroides glandiferum* Rioja 1941a; only species.

SERPULINAE. Seven thoracic setigers; operculum with basal crown of spines surmounted by very large, glandular chitinous hood equipped on one side with four large spines. Collar setae basally with paired bosses; side setae absent. Uncini with numerous teeth; anterior peg very large.


SERPULINAE. Seven thoracic setigers. Operculum distally smooth; opercular stalk with wings. Collar setae of the kind; slender capillaries and limbate with a pilose subdistal boss. Sicle setae present; abdominal setae geniculate with a triangular blade. Thoracic uncini with teeth in a single row; anterior peg entire.


SERPULINAE. Seven thoracic setigers. Operculum funnel-shaped, marginally dentate; stalk smooth. Collar setae bayonet-shaped and finely pilose; side setae absent; abdominal setae trumpet-shaped. Thoracic uncini with teeth in a single row; abdominal ones with teeth in several rows; anterior peg large.

*Paumotella* Chamberlin 1919c. *P. takemoana* Chamberlin 1919c; only species.

SERPULINAE. Seven thoracic setigers present; operculum conical and distally flattened, margin entire, stalk with wings. Collar setae limbate; side setae absent; anterior abdominal setae stout acute spines; posterior ones fine capillaries.

*Placostegus* Philippi 1844. *Serpula tridentata* Fabricius 1780; 18 species.

SERPULINAE. Seven thoracic setigers; operculum funnel-shaped with chitinous distal plate; stalk smooth. Collar setae absent; abdominal setae geniculate with widely triangular dentate distal plates. Uncini with numerous teeth.
**Pomatoceros** Philippi 1844, *Serpula triquetra* Linnaeus 1767; 13 species.

SERPULINAE. Seven thoracic setigers; operculum a flat calcareous plate, with or without spines; stalk with broad wings. Collar setae small and limbate; thoracic setae limbate; abdominal setae trumpet-shaped. Sickle setae absent. Uncini with numerous teeth.

**Pomatostegus** Schmarda 1861, *Pomatostegus* macrosona Schmarda 1861; 8 species.

SERPULINAE. Seven thoracic setigers; operculum with chitinous plate surmounted by a column with several discs; stalk winged. Collar setae with subdistal pilose boss; side setae present; abdominal setae geniculate. Uncini with teeth in a single row; anterior peg simple.

**Protis** Ehlers 1887, *Protis simplex* Ehlers 1887; 3 species.

SERPULINAE. Seven thoracic setigers; operculum absent. Collar setae of fin and blade construction with basal dentate fin well separated from the blade. Sickle setae present; abdominal setae nearly capillary. Thoracic uncini with teeth in a single row; abdominal ones with teeth in several rows.

**Protula** Risso 1826, *Protula tubularia* Montagu 1803 in McIntosh 1923; 23 species.

SERPULINAE. Seven thoracic setigers; operculum absent. Collar setae simple limbatcs; side setae present. Uncini with teeth in several rows; anterior peg very long.

**Pseudochitinopoma** Zibrowius 1969, *Hyalomatopopsis occidentalis* Bush 1904a; only species.

SERPULINAE. Seven thoracic setigers; operculum bladder-shaped; stalk without wings. Collar setae with fin and blade construction and little separation between the basal fin and the distal blade. Sickle setae absent; abdominal setae geniculate with narrow blade. Thoracic uncini with teeth in a single row; anterior peg furcate; abdominal uncini with teeth in several rows.

**Pseudopomatoceros** Holly 1936, *Pomatoceros roxasi* Holly 1935; only species.

SERPULINAE. Seven thoracic setigers; operculum distally cup-shaped with two eccentrically placed thorns connected by a low ridge; stalk winged. Collar setae fine capillaries; side setae absent, thoracic setae limbate, abdominal setae with flat crown and a long spike. Uncini with numerous teeth; anterior peg furcate.

**Pseudoserpula** Straughan 1967b, *P. rugosa* Straughan 1967b; 2 species.

SERPULINAE. Seven thoracic setigers; operculum absent. Collar setae limbrate; side setae absent; abdominal setae trumpet-shaped. Uncini with few teeth; anterior peg large, blunt.

**Pseudovermilia** Bush 1907b, *Spirobranchus occidentalis* McIntosh 1885; 5 species.

SERPULINAE. Seven thoracic setigers; operculum distally ornamented; stalk smooth. Collar setae limbrate, side setae present; abdominal setae geniculate with triangular blades. Thoracic uncini with teeth in a single row; anterior peg furcate; abdominal ones with teeth in several rows.

**Rhodopsis** Bush 1904a, *R. pusillus* Bush 1904a; only species.

SERPULINAE. Seven thoracic setigers; operculum covered distally with chitinous plate with spines arranged in a rosette; shaft smooth. Collar setae absent; abdominal setae absent. Uncini with teeth in a single row.

**Salmacina** Claparede 1870a, *S. incrustans* Claparede 1870a; 8 species.

FILOGRANINAE. Five to nine thoracic setigers; operculum absent. Collar setae notched with limbate subdistal and distal parts; side setae present. Abdominal setae geniculate. Uncini with teeth in several rows.

**Salmacinopsis** Bush 1910, *S. setosa* Bush 1910; only species.

FILOGRANINAE. Nine thoracic setigers; operculum absent. Collar setae capillary; other thoracic setae capillary and limbate with a few serrate setae in posterior thoracic setigers; abdominal setae geniculate and serrated. Uncini with numerous very fine teeth; anterior peg large and blunt. Thoracic membrane absent.

**Schizocraspedon** Bush 1904a, *Serpula furcifera* Grube 1878; only species.

SERPULINAE. Seven thoracic setigers; operculum on a modified radiole; distally with a chitinous cover consisting of two concentric funnels, one inside the other; both marginally split with long, slender processes. Collar setae present. Abdominal setae capillary; superior thoracic setae geniculate with conspicuous spines at the base.

**Sclerosryla** Mörch 1863, *S. ctenactis* Morch 1863; 2 species.

SERPULINAE. Seven thoracic setigers; operculum funnel-shaped; opercular stalk smooth, calcified, collar setae present or absent, if present finely limbate; side setae absent; abdominal setae nearly capillary, with very short geniculate tips. Thoracic uncini with teeth
in a single row; abdominal ones with teeth in several rows.

*Serpula* Linnaeus 1767, *S. vermicularis* Linnaeus 1767; 17 species.

SERPULINAE. Seven thoracic setigers; operculum funnel-shaped with crenulated margin; opercular stalk smooth. Collar setae either limbate or with a dentate boss; side setae absent. Abdominal setae trumpet-shaped. Uncini with few teeth; anterior peg large.

*Sphaeropomatus* Treadwell 1934, *S. miamiensis* Treadwell 1934; only species.

FICOPOMATINA. Seven thoracic setigers; operculum soft and vesicular; stalk smooth. Collar setae spinose with teeth in two rows; side setae absent; other setae slender capillaries.

*Spirobranchus* Blainville 1818. *Serpula gigantea* Pallas 1766; 30 species.

SERPULINAE. Seven thoracic setigers; operculum with calcareous distal plate, usually ornamented; opercular stalk winged. Collar setae bayonet-shaped and pilose; some forms have limbate collar setae; side setae absent. Abdominal setae trumpet-shaped. Thoracic uncini with teeth in a single row; anterior peg furcate. Thoracic neuropodia are separated widely anteriorly and approaching in late thoracic setigers.

*Spirodiscus* Fauvel 1909, *S. grimaldii* Fauvel 1909; only species.

FILOGRANINAE. Six thoracic setigers; operculum funnel-shaped on a small ampulla; stalk with dorsal spines. Collar setae flattened and lancet shaped. Uncini with numerous teeth.


SERPULINAE. Seven thoracic setigers; operculum absent. Collar setae capillaries. Uncini with about 15 teeth; anterior peg very large. Thoracic membrane to fifth setiger only; collar tri-lobed.

*Temporaria* Straughan 19676. *Vermilia polytrema* Philippi 1844; 2 species.

SERPULINAE. Seven thoracic setigers; operculum with slanting calcareous plate; stalk winged. Collar setae bayonet-shaped with both regions limbate, separated by a notch. Abdominal setae trumpet-shaped. Thoracic uncini with at least ten teeth.


SERPULINAE. Seven thoracic setigers; operculum rounded or flattened, stalk without wings. Collar and side setae present. Thoracic uncini with teeth in a single row; anterior peg entire; abdominal uncini with teeth in a single row.

**Taxonomic Notes**

The genus *Membranopsis* Bush 1910, included in the generic definitions, has been omitted from the key, since the structure of the operculum remains unknown. The genus *Hydroides* has been defined here to include *Eupomatus* Philippi 1844, as is customarily done by most specialists today. It may be of some value to recognize the difference between *Hydroides* *SeNsu* and *Eupomatus* at the sub-generic level.

**Invalid Genera**

*Apomatopsis* Saint-Joseph 1894, see *Apomatus*
*Cystomatus* Gravier 191 a, see *Hydroidopomatus*
*Eucarphus* Morch 1863, see *Hydroides*
*Eupomatus* Philippi 1844, see *Hydroides*
*Filigrana* Morch 1863, see *Filigrana*
*Filopora* Fleming 1825. see *Filigrana*
*Glossopsis* Bush 1904a, see *Hydroldess*
*Helena* Castelnau 1842, see *Serpula*
*Hyalopomatopsis* Saint-Joseph 1894, see *Hyalopomatus*
*Microserpula* Dons 1931, see *Chitinoptoma*
*Paravermillia* Bush 1907b, see *Vermilopomatus*
*Piratesa* Templeton 1835, indeterminable
*Placostegus* Saint-Joseph 1894, see *Placostegus*
*Podioceros* Quatrefages 1866, see *Poinatoeceros*
*Polyphragma* Quatrefages 1866, see *Hydroides*
*Pomatocerops* Gravier 1905b, see *Spiramella*
*Pomatoceros* *Holly* 1935, see *Pseudopomatoceros*
*Prolacio* Bush 1904a, see *Placostegus*
*Psymobranchus* Philippi 1844, see *Protula*
*Silquaria* Savigny 1818, indeterminable
*Spiromella* Blainville in Quatrefages 1866, see *Protula*
*Vermilia* Savigny 1818, see *Spiramella*
*Zopyrus* Kinberg 1867b, see *Serpula*

**FAMILY SPIRORBIDAE PILLAI 1976**

Body separated into two regions; a thorax with a thoracic membrane, dorsal setae and ventral uncini and an abdomen with ventral setae and dorsal uncini. One radiole transformed into an operculum; tube calcareous. Body asymmetrical and tube coiled in a spiral; thorax with setigerous rudiments of three, four or five segments.

The spirorbids are rather difficult to work with since identification requires precise and accurate work with compound microscopes; prior to that of course, the specimens must be dissected out from their tubes as completely as possible. Recent reviews by Bailey-Brock, Knight-Jones and Vine has clarified the generic sub-division of the group considerably and is largely followed here (references to articles can be found be-
The family is most frequently considered a subfamily under the serpulids.

**Key to Genera**

1a. With three or more pairs of thoracic tori

1b. With two pairs of thoracic tori

2a (1 a). With four or more pairs of thoracic tori or at least rudiments of a fourth pair present on the concave side

2b (1a). With three pairs of thoracic tori present

3a (2a). With at least four complete thoracic tori present

3b (2a). With remnants of a fourth thoracic torus present

4a (3a). Four pairs of thoracic tori present

4b (3a). Approximately seven pairs of thoracic tori present

5a (1b). Sickle setae absent

5b (1b). Sickle setae present

6a (5a). Margins of collar fused to form dorsal tunnel

6b (5a). Margins of collar not fused

7a (6b). Dextrally coiled

7b (6b). Sinistrally coiled

8a (7b). Collar setae limbate

8b (7b). Collar setae of fin and blade construction

9a (8b). Thoracic uncini with simple, blunt anterior peg

9b (8b). Thoracic uncini with broadly indented anterior peg

10a (5b). Dextrally coiled

10b (5b). Sinistrally coiled

11a (10a). Collar setae of fin and blade construction

Anomalorbis

Neomicroorbis

Dextiospira

Pillatospira

Leodora

Simplicaria

Eulaeospira

Spirorbella

1 b (10a). Collar setae simply limbate
12 a (10b). Collar setae simply limbate
12 b (10b). Collar setae of fin and blade construction
13 a (12a). Collar fused dorsally to form tunnel
13 b (12a). Collar not fused dorsally
14 a (13b). Incubation of larvae in opercular chamber; abdominal setae with blades as those of the collar setae
14 b (13b). Incubation in the tube; abdominal setae very small with short blades
15 a (12b). Thoracic uncini with several rows of teeth
15 b (12b). Thoracic uncini with a single row of teeth
16 a (15b). Two or more opercular plates on top of each other on the operculum
16 b (15b). A single opercular plate present
17 a (2b). Sicle setae present
17 b (2b). Sicle setae absent
18 a (17a). Collar setae of fin and blade construction
18 b (17a). Collar setae simply limbate
19 a (18b). Incubation of larvae in opercular chamber
19 b (18b). Larvae attached to stalk in faecal groove
20 a (17b). Tube tightly coiled along its whole length
20 b (17b). Tube coiled only basally, most of the tube uncoiled
21 a (3b). Three thoracic tori and four fascicles of setae on the convex side; four thoracic tori and five fascicles of setae on the concave side
21 b (3b). Fourth setiger represented by a rudiment of the torus on the concave side
22 a (21b). Sinistrally coiled
22 b (21b). Dextrally coiled
23 a (22a). Sicle setae present
23 b (22a). Sicle setae absent
24 a (22b). Collar setae simply limbate
24 b (22b). Collar setae of fin and blade construction
25 a (24b). Thoracic uncini with furcate anterior peg
25 b (24b). Thoracic uncini with bluntly rounded anterior peg

The key given above suggests that all named taxa are at the same level. Vine (1972) and Knight-Jones (1973) used several of the contained taxa at the sub-generic level, as indicated in Table 3. I believe that this difference in approach is relatively unimportant for the time being.

### Table 3

Alphabetic list of genera and sub-genera of Spirorbidae as suggested by Vine (1972) and Knight-Jones (1973).

<table>
<thead>
<tr>
<th>Genus</th>
<th>Paralaeospira</th>
<th>Pileolaria</th>
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<tr>
<td>Anomalorbis</td>
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<td>subgenus</td>
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<td>Capeospira</td>
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<td>Circeis</td>
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<td>Eulaeospira</td>
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<td>Helicosiphon</td>
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<td>Janua</td>
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<td>Metalaeospira</td>
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<td>Neomicrorbis</td>
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<td>Prodexiospira</td>
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<td>Spiorbella</td>
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The key given above suggests that all named taxa are at the same level. Vine (1972) and Knight-Jones (1973) used several of the contained taxa at the sub-generic level, as indicated in Table 3. I believe that this difference in approach is relatively unimportant for the time being.
Generic Definitions


Anomalorbis has four thoracic tori and four fascicles of setae on the concave side; three thoracic tori and five fascicles of setae on the convex side. Fin and blade collar setae without cross-striations; side setae in third and fourth thoracic fascicle. Thoracic uncini with blunt anterior peg; abdominal setae geniculate, less than one fourth the size of the sicle setae. Abdomen somewhat asymmetrical; incubation in the operculum.


Anomalorbis probably dextrally coiling; four complete thoracic setigers and remnants of a fifth. Collar setae limbate; side setae absent. Pronounced abdominal asymmetry; incubation probably in tube.


Anomalorbis sinistrally coiling; two pairs of thoracic tori present; collar setae limbate, numerous. Sicle setae present in third fascicle. Thoracic uncini with blunt anterior peg. Margin of collar unfused; abdomen not strongly asymmetrical. Incubation in faecal groove with attachment stalk for the embryos.


Anomalorbis sinistrally coiling; thorax with three complete and a fourth rudimentary setiger; collar setae of fin and blade construction; side setae absent. Incubation in the tube.


Anomalorbis dextrally coiled; three thoracic setigers present; collar setae limbate. Sicle setae absent. Incubation in the tube.

Dextiospira Caullery and Mesnil 1897, *Serpula corrugata* Montagu 1803; 23 species.

Anomalorbis usually dextrally coiled; two pairs of thoracic tori present. Collar setae limbate; abdominal setae with blades as long as those in the collar seta; side setae absent. Margins of collar fused to form dorsal tunnel; incubation in operculum.

Dextralia Knight-Jones 1973, *Spirorbis (Paradexiospira) falklandica* Pixell 1913a; only species.

Anomalorbis dextrally coiled; three rows of tori on the concave side and traces of a fourth on the convex side. Collar setae of fin and blade construction; side setae in third and fourth fascicle. Thoracic uncini with bilobed anterior peg. Abdominal setae with vestigial brush-top. Incubation in faecal groove on attachment stalk.

Duplicaria Vine 1972, *Spirorbis (Laeospira) koehleri* Caullery and Mesnil 1897; 3 species.

Anomalorbis sinistrally coiled; two pairs of thoracic tori present. Collar setae of fin and blade construction, not cross-striated. Sicle setae present; thoracic uncini with several rows of teeth. Anterior abdominal tori divided into two parts. Operculum with two or more plates stacked on top of each other; incubation in the operculum.


Anomalorbis sinistrally coiled; two pairs of thoracic tori. Collar setae of fin and blade construction, without cross-striations. Sicle setae absent. Uncini with teeth in several rows; anterior peg bifid or multifid. Incubation in groove along posterior abdomen.

Fauveldora Knight-Jones 1972, *Janua (Fauveldora) kayi* Knight-Jones 1972; only species.

Anomalorbis sinistrally coiled; two pairs of thoracic tori present; collar setae limbate; abdominal setae with blades as big as those in the collar setae; side setae in third fascicle present. Uncini with teeth in several rows. Incubation in the operculum.

Helicosiphon Gravier 1907, *H. biscoeensis* Gravier 1907; only species.

Anomalorbis sinistrally coiled, or almost uncoiled; three thoracic setigers on concave side. Collar setae limbate; side setae absent. Thoracic uncini with blunt anterior peg. Abdominal tori distinctly larger on concave side. Incubation in faecal groove attached by stalk.


Anomalorbis dextrally coiled; two pairs of thoracic tori present; collar setae limbate; side setae in third fascicle present. Abdominal setae with blades as big as those in the collar seate. Uncini with teeth in several rows. Incubation in the operculum.

Leodora Saint-Joseph 1894, *Spirorbis laevis* Quatrefages 1865; 8 species.

Anomalorbis sinistrally coiled; two pairs of thoracic tori present; collar setae limbate, not dentate; side setae absent. Abdominal setae with blades as big as those in the collar setae. Uncini with teeth in several rows. Incubation in the operculum.


Anomalorbis sinistrally coiled; three thoracic tori on the concave side. Collar setae with limbate blades; side setae present. Both thoracic and abdominal uncini more numerous on concave side. Thoracic uncini with blunt
THE POLYCHAETE WORMS

151

antior peg. Incubation in faecal groove; attachment stalk absent.

*Neodexiospira* Roverto 1904, *Serpula crenatosstriatus* Goldfuss 1833; 3 species.

Sinistrally or dextrally coiled; approximately seven thoracic setigers. Collar setae of fin and blade construction; side setae present in posterior thoracic setigers from the third.

*Paradexiospira* Caullery and Mesnil 1897, *Serpula vitrea* Fabricius 1780; 3 species.

Dextrally coiled; three complete and one fourth incomplete thoracic setiger. Collar setae of fin and blade construction; side setae present in the third fascicle. Incubation in the tube.

*Paralaeospira* Caullery and Mesnil 1897, *Spirorbis (Paralaeospira) aggregata* Caullery and Mesnil 1897; 8 species.

Sinistrally coiled; three thoracic tori on the concave side; collar setae of fin and blade construction without cross-striations; side setae present in the third fascicle. Thoracic and abdominal uncini more numerous on the concave side; thoracic uncini with blunt anterior pegs. Incubation in faecal groove; attachment stalk absent.

*Pileolaria* Claparede 1870a, *P. militaris* Claparede 1870a; 20 species.

Sinistrally coiled; two pairs of thoracic tori present; collar setae of fin and blade construction; blades usually coarsely dentate, cross-striated. Side setae present. Incubation in operculum.


Dextrally coiled; two pairs of thoracic tori; collar setae limbate, abdominal setae with blades as long as those in the collar setae; side setae absent. Incubation in the operculum.


Dextrally coiled; three complete and a fourth incomplete setiger present. Collar setae limbate; side setae present in the third fascicle. Incubation in the tube.

*Protolaeospira* Pixell 1912, *P. ambilateralis* Pixell 1912; 7 species.

Sinistrally coiled; three pairs of terti and in addition a fourth incomplete present. Collar setae of fin and blade construction; side setae in third and fourth fascicle. Thoracic uncini with bilobed anterior pegs. Incubation in faecal groove; attachment stalk present.

*Protolaeodora* Pillai 1970, *Spirorbis asperatus* Bush 1904b; only species.

Sinistrally coiled; three (two?) setigers in the thorax; collar setae limbate; side setae present. Incubation in operculum.

*Romanchella* Caullery and Mesnil 1897, *R. perrieri* Caullery and Mesnil 1897; 4 species.

Sinistrally coiled; two pairs of thoracic tori present; collar setae limbate, few in number. Side setae in third fascicle. Thoracic uncini with blunt, gouge-shaped pegs. Margin of collar fused dorsally. Incubation in faecal groove, attachment stalk present.


Sinistrally coiled; two pairs of thoracic tori present; collar setae of fin and blade construction; blades usually coarsely dentate, cross-striated. Side setae absent. Incubation in operculum.

*Spiorbella* Chamberlin 1919, *Spirorbis (Dexiospira) marioni* Caullery and Mesnil 1897; 3 species.

Dextrally coiled; two pairs of thoracic tori; collar setae of fin and blade construction; side setae in third fascicle. Thoracic uncini with broad anterior pegs. Incubation in tube, attachment stalk absent.

*Spiorbis* Daudin 1800, *Spirorbis borealis* Daudin 1800; 48 species.

Sinistrally coiled; thorax with two pairs of tori; collar setae of fin and blade construction; side setae present in the third fascicle. Thoracic uncini with broad anterior pegs. Incubation in the tube, attachment stalk absent.

**Taxonomic Notes**

Vine (1972) pointed out that the coiling of the spirorbids may not be a character of particularly high value and that even within one species, the coiling may vary from sinistral to dextral. It is thus of the utmost importance that great care be taken in using the key and definitions given above and that all the important features be checked carefully. It is quite possible that the coiling will turn out to be of great value in most of the genera, even if the character should turn out to be useless in certain instances.

**Invalid Genera**

*Charys* Montfort in March 1863, questionably *Spirorbis*

*Coretus* Baster 1762. see *Circeis*

*Dexiorbis* Chamberlin 1919c, see *Dexiospira*

*Heterodisca* Fleming 1825, indeterminable

*Laeospira* Caullery and Mesnil 1897, see *Spirorbis*

*Marsipospira* Bailey 1969, see *Protolaeospira*

*Mera* Saint-Joseph 1894, see Janua

*Neodexiospira* Pillai 1970, see *Dexiospira*
FIVE "ARCHIANNELIDAN" FAMILIES

The following five families usually are considered as belonging to a separate order, Archiannelida. They are characterized, as pointed out by Hermans (1969), by features adaptive to life in the mesopsammon, and the features in which they resemble each other are exactly those that have been considered to be of selective advantage for the mesopsammon (Swedmark 1964; Hermans 1969). In agreement with Jouin (1971) and Westheide (1971), I find it difficult to retain the concept of the Archiannelida (Fauchald 1974a) and presently consider them free-standing families of the Polychaeta. Like Jouin and Westheide, I find it difficult to associate the five families, separately or as a unit, to any known polychaete family, and have for that reason listed them below, in alphabetical order. I do not think the five families are particularly closely related to each other.

FAMILY DINOPHILIDAE REMANE 1932

Very small, usually distinctly segmented polychaetes, without appendages, setae and parapodia; some forms with adhesive glands posteriorly. Ciliary bands on ventral side present, and, usually segmentally arranged, ciliary tracts present.

The family recently was reviewed by Jouin (1971) and by Westheide (1971).

Key to Genera

1a. Muscular pharynx absent
1b. Muscular pharynx present
2a (1b). Body slender and elongated; prostomium trilobed
2b (1b). Body short, more or less inflated; prostomium rounded
3a (2b). Pygidium with two adhesive glands; eyes absent
3b (2b). Pygidium conical, without adhesive glands; eyes usually present

Generic Definitions

Slender, distinctly segmented bodies; pharyngeal apparatus absent; in addition to the regularly arranged ciliary bands, very fine cuticular hairs covering the body.

Dinophilus Schmidt 1848, *D. vorticoides* Schmidt 1848; 8 species.
Short-bodied, indistinctly segment dinophilids; pygidium rounded or conical. Pharyngeal apparatus present and well developed. Some forms distinctly sexually dimorphic.

Diurodrilus Remane 1925, *D. minimus* Remane 1925; 5 species.
Body short, inflated and indistinctly segmented. Pygidium with paired adhesive glands ending distally on conical projections of various shapes. Pharyngeal apparatus well developed.

Body long and slender; prostomium trilobed; eyes absent; pygidium rounded or conical, without adhesive glands. Pharyngeal apparatus well developed.

FAMILY NERILLIDAE LEVINSEN 1883

Interstitial small forms with few segments. Prostomium with paired palps, nuchal organs and up to three antennae. Ventral eversible pharynx with four jaws or unarmed. Uniramous parapodia with capillary setae or composite setae in a single fascicle. Parapodial cirri usually present.

The key to genera and definitions given below have been modified after Jouin (1971). The main changes involve terminology to fit the terms used in this paper.

Key to Genera

1a. Body with nine segments including the post-peristomial pharyngeal segment
1b. Body with less than nine segments
2a (1a). Composite setae present
2b (1a). Simple capillary setae present
3a (2b). Three antennae present
3b (2b). Maximally one antenna present

Key to Genera
FIGURE 39. (A), Family DINOPHILIDAE, Diodridus ankeli, from Jouin, 1971, about 50x; (B), Family POLYGORDIIDAE, Polygordius neapolitanus, after Jouin, 1971, about 15x; (C), posterior end of the above, about 15x; (D), Family SACCOCIRRIDAE, Saccocirrus polycercus, after Jouin, 1971, about 25x; (E), posterior end of the above, about 25x; (F), Family PROTODRILIDAE, Protodrilus hatscheki, after Jouin, 1971, about 15x; (G), posterior end of the above, about 15x; (H), Family NERILLIDAE, Mesonerilla sp., after Jouin, 1971, about 25x.
154  NATURAL HISTORY MUSEUM OF LOS ANGELES COUNTY  Science Series 28

4a (1b). Eight segments, including the post-peristomial pharyngeal segment
4b (1b). Seven segments present
5a (4a). Both simple and composite setae present
5b (4a). All setae either composite or simple
6a (5a). All setae composite
6b (5a). All setae simple and capillary
7a (6b). Pharyngeal segment asetigerous, antennae absent; freshwater
7b (6b). Pharyngeal segment with setae, two antennae present; marine
8a (4b). Composite setae; parapodial cirri absent, palps reduced
8b (4b). Setae simple and capillary; parapodial cirri present except on last segment

Generic Definitions

Body with nine segments including the pharyngeal segment. Two large palps and maximally one antenna present. All setae simple capillaries.

Mesonerilla Remane 1949, M. luederitzi Remane 1949; 6 species.
Body with nine segments including the pharyngeal segment. Two palps and three antennae present. All setae simple capillaries.

Nerilla Schmidt 1848, N. antennata Schmidt 1848; 7 species.
Body with nine segments including the pharyngeal segment. Three antennae and two palps present. All setae simple capillaries.

Nerillidium Remane 1925, N. gracile Remane 1925; 5 species.
Body with eight segments including the pharyngeal segment. Pharyngeal segment with setae; maximally two antennae present, may be absent. All setae simple capillaries.

Nerillidopsis Jouin 1967, N. hyalina Jouin 1967; only species.
Body with eight segments including the pharyngeal segment. Anterior and posterior setae simple capillaries; intermediate segments with composite setae.

Paranerilla Jouin and Swedmark 1965, P. ilimicola Jouin and Swedmark 1965; only species.
Body with seven segments including the pharyngeal segment. Antennae and parapodial cirri absent; palps reduced to triangular lateral corners on the prostomium. Mud dwelling forms. Setae composite.

Psamnoriedlia Kirsteuer 1966, P. rupertii Kirsteuer 1966; only species.
Body with seven segments including the pharyngeal segment. Antennae absent; two palps present; parapodial cirri present, except on last segments. Setae simple capillaries.

Thalassochaetus Ax 1954, T. palpifoliaceus Ax 1954; only species.
Body with eight segments including the pharyngeal segment. Antennae and parapodial cirri absent; palps present. All setae composite spinigers.

Troglochaetus Delachaux 1921, T. beranecki Delachaux 1921; only species.
Body with eight segments, including the pharyngeal segment. Antennae absent; palps present; pharyngeal segment asetigerous. All setae simple capillaries. Freshwater and caves.

Family Polygordiidae Czerniavsky 1881a

Slender, mainly interstitial forms. Prostomium with two solid antennae and nuchal slits. Eversible or non-eversible muscular pharynx ventral. Eyes and parapodia absent; setae absent in most forms; segmentation and ciliation poorly developed.

Key to Genera

1a. Setae present in posterior segments
1b. Setae absent

Generic Definitions

Chaetogordius Moore 1904a, C. canaliculatus Moore 1904a; only species.
Prostomium conical with paired, slightly articulated antennae and large nuchal organs. Segmentation indistinct anteriorly, more distinct posteriorly. Single slender capillary setae in each of the last 10-12 seg-
ments; only one segment with paired setae on either side; all others with a single seta on either side.

*Polygordius* Schneider 1868, *P. lacteus* Schneider 1868; 15 species.

Prostomium rounded or conical with paired, usually smooth antennae and large nuchal organs. Segmentation usually indistinct along the whole body. Posterior end of body usually slightly wider than the rest of the body. Setae absent.

**FAMILY PROTODRILIDAE CZERNIAVSKY 1881a**

Interstitial slender forms. Prostomium with paired, hollow or solid antennae; eyes present. Pharynx muscular, but not eversible. Segmentation and parapodia poorly developed, setae absent in most known species; parapodia always absent.

The family has been reviewed recently by Jouin (1966).

**Key to Genera**

1a. Setae or segmentally arranged adhesive organs present

1b. Setae and segmentally arranged adhesive organs absent

**Generic Definitions**


Salivary glands and lateral organs absent; antennae solid. Setae or segmentally arranged adhesive glands present.

*Protodrilus* Czerniavsky 1881a, *P. mirabilis* Czerniavsky 1881a; 20 species.

Salivary glands and lateral organs present; antennae hollow. Setae and segmentally arranged adhesive glands absent.

**FAMILY SACCOCIRRIDAЕ CZERNIAVSKY 1881a**

Interstitial slender forms. Prostomium with paired hollow antennae; eyes present. Proboscis a ventral muscular pad, present in most forms, but may be absent. Parapodia uniramous, with simple, chisel-shaped setae.

The family is known for a single genus, *Saccocirrus* Bobretzky 1872, with genotype, *S. papillocercus* Bobretzky 1872 and about 12 species. Jouin (1971) gave a key to species.
GLOSSARY

The glossary does not contain terms in general use in zoology or in biology in general, such as distal and proximal, anterior and posterior, etc. Generally, these terms can be found in a good dictionary. The glossary contains the terms characteristically used in systematic polychaete literature and explanation of idiosyncratic usage where terms are used in a different sense from the usual lexicographic one. Number in parenthesis refer to the specific example of this feature illustrated in the appended illustrations.

abdomen-posterior part of the body, behind the thorax, sometimes followed by a tail (2).

aciculum (a)-stout supportive setae found internally in each parapodial ramus where these project from the body. Acicular setae are thick, projecting setae (5).

aileron-accessory jaw plate in the glycerids (9).

anal cirrus (i)-one or more elongated projections from the pygidium (11).

antenna (e)-sensory projection arising from the dorsal, lateral or frontal surface of the prostomium; innervated from the first part of the brain (12,61).

apodous-without parapodia (66).

aristate-about setae: simple setae with smooth shaft and a tuft of hairs or a single spine distally (17).

arborescent-branching (like a tree) (18).

asetigerous-without setae (66).

auricular-ear-shaped (19).

avicular-beaked (shaped like a bird’s head) (20).

biarticulate-with two joints; used about antennae, tentacles and palps (13).

bidentate-with two teeth (21).

bifid-split in two (22).

bifurcate-with two prongs (23).

bilimbate-simple setae with two wings or flattened margins (24).

bipinnate-formed like a feather with a main stem and two rows of side branches (26).

biramous-with two branches; usually used about parapodia having both noto- and neuropodia present (6).

branchia (e)-any extension of the body wall with a loop of the vascular system or which is well-equipped with capillary blood vessels; a gill (27).

buccal-pertaining to the mouth.

capillary (ies)-in polychaete literature used either as an adjective in the combination capillary seta or as a noun characterizing long, slender tapering setae.

caruncle-posterior sensory organ projecting from the prostomium sometimes over the first several segments (28).

cephal-on-head.

cephalic cage-long protective setae enclosing and protecting the head.

ccephalic rim-flange encircling the head (25).

ccephalic veil-hoodlike membrane between the paleae and the buccal tentacles in pectinariids.

ceratophore-basal joint of an antenna (30).

ceratostyle-distal joint of an antenna (29).

chevrotain-V-shaped chitinized jaw piece at the base of the eversible pharynx in some goniatids (31).

cirriform-slender and cylindrical (41).

cirrophore-basal joint of a cirrus (35).

cirrostyle-distal joint of a cirrus (34).

cirrus (i)-sensory projection, usually slender and cylindrical, from the superior part of the notopodium (dorsal cirrus) or from the inferior part of the neuropodium (ventral cirrus) (36,38,78,80).

clavate-club-shaped (32).

companion setae-small, simple setae in rows, accompanying, or alternating with larger setae, usually hooks of some kind.

compound (or composite) setae-jointed setae (37).

deciduous-liable to fall off (like leaves).

dentate-with teeth (39).

denticate-with small teeth (40).

digitiform-finger-shaped (42).

eytron (a)-dorsal scales found in the aphroditoids; homologous with the dorsal cirrostyles (43).
elytrophore-aphroditoid cirrophore carrying an elytron (44).

epitoke-modified reproductive stage or specimen, often swarming.

facial tubercle—projecting ridge or lobe on the upper lip of certain polychaetes (especially scaleworms).

falcate-distally curved, usually blunt (used about setae) (45).

falciger-distally blunt and curved setae (45).

filiform—slender and threadlike (46).

foliaceous—leaflike (47).

fusiform—cigar- or spindle-shaped (48).

geniculated—bent (like a knee) (49).

harpoon seta—stout pointed seta with recurved barbs near the tip (50).

hemigomph articulation—with asymmetrical articulation nearly at right angles to the long axis of the shaft (52).

heterogomph articulation—with articulation clearly oblique to the long axis of the shaft (53).

homogomph articulation—with articulation distinctly and symmetrically at right angles to the long axis of the shaft (54).

hooded setae—setae distally covered by a delicate chitinous envelope or guard (51).

hook—general term used about stout-shafted, blunt, often distally curved and dentate setae; smaller hooks arranged in single or double rows are often referred to as uncini.

imbricated—overlapping (like tiles).

inferior—the more ventral (of two or more structures).

ligule—finger-shaped major process on a parapodium (55).

limbate—simple seta with a flattened margin or wing (56).

lobe—major parapodial process, used mainly about flattened kinds, but also more generally about all kinds of major parapodial processes (8).
Figuan 41. Diagram of selected tens defined in the Glossary
#19-60.
long-handled—used about uncini, with a long basal rod supporting the uncinus

metastomium—rarely used term covering the segmented body between the prostomium and pygidium, but including neither.

moniliform—beaded or beadlike (57).

muco—with a sharp point or tip; abruptly tapered (58).

multiarticulated—with several joints (60).

natatory—swimming.

neuropodium (a)—ventral branch (ramus) of a parapodium (7).

neurosetae—setae of the neuropodium.

notopodium (a)—dorsal branch (ramus) of a parapodium (3).

notosetae—setae of a notopodium.

nuchal—pertaining to the neck; used about sensory organs found on the posterodorsal side of the head and variously developed as paired or single processes, pits or grooves, sometimes as paired epaulettes stretching posterolaterally from the prostomium.

occipital—pertaining to the posterodorsal part of the prostomium (64).

ocular—pertaining to the eyes.

ocular peduncle—projecting structure supporting the eyes, especially in the polyodontids.

ommatophore—see ocular peduncle.

operculum (a)—literally a lid; used about a structure some tubicolous worms use as stoppers for their tubes when the occupant is retracted; see Sabellariidae and Serpulidae.

palea (e)—strong or broad, usually flattened setae.

palmate—resembling the fronds of a palm (67).

palp (s)—sensory or feeding structures innervated from the posterior part of the brain or from the circumesophagal nerve ring; anteroventral and sensory in the Phyllodocida; posterodorsal and used in feeding in the spioniform worms (13).

paragnath—chitinous denticle in the pharyngeal cavity of nereids (63).
parapodium (a) - segmentally arranged projections carrying setae; foot (16).

pectinate-comb-like; with series of projections arranged like the teeth of a comb (68).

penicillate-brush-like (70).

peristomium (a) - first distinct post-prostomial region; strictly including only the region around the mouth, in practice including also segments fused to this structure, forming the posterior part of the recognizable head (16,66).

pharynx (ges) - anterior part of the digestive tract; often eversible, always modified for feeding purposes, sometimes also for burrowing (62).

pinnate-feather-like, with a main stem and lateral branches, see also bipinnate (71).

plumose - resembling down; hairy (69).

postsetal - posterior to the setae; used about parapodial lobes or ligules (8).

presetal - anterior to the setae; used about parapodial lobes or ligules (4).

prostomium (a) - anteriormost, a pre-segmental part of the body anterior to the mouth, enclosing at least the anterior part of the brain, often with antennae and eyes (14,64).

proventricle - muscularized region of the anterior digestive tract in syllids, found posterior to the pharynx.

pygidium (a) - post-segmental terminal part of the body carrying the anus (10).

radiolar - one of the main tentacles in the tentacular crown of sabellids and serpulids.

ramose-branched.

reniform - kidney-shaped (76).

rugose - roughened, lumpy (72).

scaphe - flattened caudal appendage of pectinariids.

secondary tooth - the second of two teeth, the first being the apical, terminal or primary one.

segment - any part of the body, apart from the prostomium and pygidium set off internally or externally by septa or otherwise from the preceding and following parts.

seta-secretion from the parapodia forming the armature of these structures.

setiger - segment carrying setae.

short-handled - used about uncini, without a long rod-shaped support, fine threads may be present.

simple seta - unjointed seta.

spatulate - blade-shaped, usually blunt-tipped, sometimes with a mucro (59).

spiniger-seta that tapers to a fine point; most frequently used about composite setae (33).

spinous pocket - enlarged, pocket-like serration along the margin of the setae of some scale-worms (74).

stylode - small, finger-like projection associated with a parapodium, usually small and distinctly longer than wide (73).

sub-biramous - pertaining to parapodia in which the neuropodia are well developed and the notopodia reduced (77).

subulate - awl-shaped; tapering to a fine point (75).

superior - the more dorsal (of two or more structures).

tentacular cirrus - sensory projections arising either from the peristomium or from cephalized segments, in the latter case considered homologous with the dorsal and ventral cirri of normal prosthecal parapodia (15,65).

thorax - anterior region of the body, Posterior to the head (1).

trepan - chitinized, anteriorly toothed part of the eversible pharynx of some worms, especially syllids (81).

tridentate - with three teeth (82).

nations (i) - general term covering sharply dentate, deeply imbedded setae, often with a platelike base; or small, S-shaped setae with a distinct beak. Uncini usually are arranged in rows transverse to the long axis of the animal (83).

unciniger-segment carrying uncini.

unidentate - distally entire (45).

uniramous - with one branch only; used about parapodia in which one ramus, most frequently the notopodium, is absent (79).
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1976


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THE POLYCHAETE WORMS

179


Accepted for publication June 30, 1975.
## INDEX

Page numbers set in bold face type represent citations of illustrations.

<table>
<thead>
<tr>
<th>A</th>
<th>Abarenicola, 37</th>
<th>Amphitrite, 129, 130</th>
<th>Arenicola, 8, 13, 31, 37</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aberranta, 25</td>
<td>Amphitritoides, 133</td>
<td>Areniella, 35</td>
</tr>
<tr>
<td></td>
<td>Abyssoclymene, 39</td>
<td>Amphlyrite, 133</td>
<td>Arete, 91</td>
</tr>
<tr>
<td></td>
<td>Acanthoclymene, 58, 59</td>
<td>Amythas, 149, 150</td>
<td>Ariapithes, 120</td>
</tr>
<tr>
<td></td>
<td>Aceronerreis, 91</td>
<td>Amythasides, 123, 125</td>
<td>Aricia, 17, 22</td>
</tr>
<tr>
<td></td>
<td>Acesta, 18</td>
<td>Amytis, 85</td>
<td>Aridea, 17, 18</td>
</tr>
<tr>
<td></td>
<td>Acholoe, 59</td>
<td>Anaitides, 48</td>
<td>Aricideopsis, 25</td>
</tr>
<tr>
<td></td>
<td>Acicularia, 100</td>
<td>Anamobaea, 140</td>
<td>Aripposa, 140</td>
</tr>
<tr>
<td></td>
<td>Acoetes, 66</td>
<td>Anaspio, 23</td>
<td>Aristenia, 117</td>
</tr>
<tr>
<td></td>
<td>Acrocirridae, 8, 13, 14, 29, 30-31</td>
<td>Ancistargis, 78</td>
<td>Armandia, 42</td>
</tr>
<tr>
<td></td>
<td>Acrocirrus, 30</td>
<td>Ancistrocrinus, 73</td>
<td>Arucama, 128, 130</td>
</tr>
<tr>
<td></td>
<td>Admetella, 59</td>
<td>Anoplopteron, 77</td>
<td>Arucamella, 128, 130</td>
</tr>
<tr>
<td></td>
<td>Adyte, 57, 60</td>
<td>Anotomastus, 85</td>
<td>Arwidssonia, 41</td>
</tr>
<tr>
<td></td>
<td>Aedicira, 17, 18</td>
<td>Anomalous, 117</td>
<td>Aryandes, 128</td>
</tr>
<tr>
<td></td>
<td>Aenone, III</td>
<td>Anoplodesmus, 124, 125</td>
<td>Asaccherolepis, 44</td>
</tr>
<tr>
<td></td>
<td>Aglaophamus, 97</td>
<td>Anoplodiscus, 133</td>
<td>Asloegia, 103</td>
</tr>
<tr>
<td></td>
<td>Aglaophone, 97</td>
<td>Anoplodontes, 124, 125</td>
<td>Aspeira, 140</td>
</tr>
<tr>
<td></td>
<td>Aglaura, 111</td>
<td>Anoplomastus, 91</td>
<td>Asterope, 52</td>
</tr>
<tr>
<td></td>
<td>Allanmaella, 58, 60</td>
<td>Anoplones, 148, 149, 150</td>
<td>Asychis, 39</td>
</tr>
<tr>
<td></td>
<td>Alhaudella, 79, 81</td>
<td>Anoplonesyllis, 79</td>
<td>Atelospio, 80, 81</td>
</tr>
<tr>
<td></td>
<td>Aloysina, 43</td>
<td>Anophthalmus, 152</td>
<td>Athelepus, 133</td>
</tr>
<tr>
<td></td>
<td>Arnica, 133</td>
<td>Aphelothrix, 107</td>
<td>Auchenoploca, 121, 125</td>
</tr>
<tr>
<td></td>
<td>Amaeana, 129, 130</td>
<td>Aphilebina, 133</td>
<td>Audouinia, 30</td>
</tr>
<tr>
<td></td>
<td>Ameana, 19, 124</td>
<td>Aphroditida, 8, 10, 53-55, 54</td>
<td>Augeneria, 109</td>
</tr>
<tr>
<td></td>
<td>Ameana, 129, 130</td>
<td>Aphroditidae, 8, 14, 21, 22</td>
<td>Augeneriella, 137, 138</td>
</tr>
<tr>
<td></td>
<td>Ameana, 129, 130</td>
<td>Apistobranchidae, 8, 10, 108, 110-111</td>
<td>Australaugeneria, 56, 60</td>
</tr>
<tr>
<td></td>
<td>Aneira, 109</td>
<td>Apistobranchus, 135</td>
<td>Austronereis, 87, 88</td>
</tr>
<tr>
<td></td>
<td>Anocidotes, 135</td>
<td>Apolognathus, 135</td>
<td>Australonemila, 57, 60</td>
</tr>
<tr>
<td></td>
<td>Anoplospio, 85</td>
<td>Apolognathus, 135</td>
<td>Aurolaminum, 47, 48</td>
</tr>
<tr>
<td></td>
<td>Anoplosterus, 23</td>
<td>Apolognathus, 135</td>
<td>Aurolaminum, 47, 48</td>
</tr>
<tr>
<td></td>
<td>Anoplosyllis, 80, 81</td>
<td>Apolognathus, 135</td>
<td>Aurolaminum, 47, 48</td>
</tr>
<tr>
<td></td>
<td>Anoplosyllis, 80, 81</td>
<td>Apolognathus, 135</td>
<td>Aurolaminum, 47, 48</td>
</tr>
<tr>
<td></td>
<td>Anoplosyllis, 80, 81</td>
<td>Apolognathus, 135</td>
<td>Aurolaminum, 47, 48</td>
</tr>
<tr>
<td></td>
<td>Anoplosyllis, 80, 81</td>
<td>Apolognathus, 135</td>
<td>Aurolaminum, 47, 48</td>
</tr>
</tbody>
</table>

## B

<table>
<thead>
<tr>
<th>B</th>
<th>Baffinia, 129, 131</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Balanochaeta, 117</td>
</tr>
<tr>
<td></td>
<td>Barantolla, 32, 33, 36</td>
</tr>
<tr>
<td></td>
<td>Barbouria, 55</td>
</tr>
<tr>
<td></td>
<td>Barrukia, 57, 60</td>
</tr>
<tr>
<td></td>
<td>Bathyla, 131, 133</td>
</tr>
<tr>
<td></td>
<td>Bathymedetella, 59, 60</td>
</tr>
<tr>
<td></td>
<td>Bathycyclea, 100, 102</td>
</tr>
<tr>
<td></td>
<td>Bathyglycinde, 92, 93, 94</td>
</tr>
<tr>
<td></td>
<td>Bathynooorea, 58, 60</td>
</tr>
<tr>
<td></td>
<td>Bathynoce, 65</td>
</tr>
<tr>
<td></td>
<td>Bebryce, 98</td>
</tr>
<tr>
<td></td>
<td>Benhamipolynoe, 59, 61</td>
</tr>
<tr>
<td></td>
<td>Benthoscolex, 100, 102</td>
</tr>
<tr>
<td></td>
<td>Bergstroemia, 48, 49</td>
</tr>
<tr>
<td></td>
<td>Berkeleya, 15, 16</td>
</tr>
<tr>
<td></td>
<td>Bhawanoria, 72</td>
</tr>
<tr>
<td></td>
<td>Biborin, 110</td>
</tr>
<tr>
<td></td>
<td>Bilobaria, 25</td>
</tr>
<tr>
<td></td>
<td>Bispria, 137, 138</td>
</tr>
<tr>
<td></td>
<td>Blainvillea, 107</td>
</tr>
<tr>
<td></td>
<td>Blends, 103</td>
</tr>
<tr>
<td></td>
<td>Boccardia, 22, 24, 25</td>
</tr>
<tr>
<td></td>
<td>Bogua, 135</td>
</tr>
</tbody>
</table>
THE POLYCHAETE WORMS

1976

Bogueidae, 8, 14, 122, 135
Bogueilla, 135
Bonhoureilla, 142, 143
Bonouania, 74, 75
Bookhoutia, 93
Bouchiria, 58, 61
Brachysyllis, 85
Brada, 116
Bradybassa, 116
Branchamphinome, 100, 102
Branchetus, 17
Branchioasychis, 39
Branchiomaldane, 37
Branchiomma, 137, 138, 140
Branchiosabella, 128
Branchiosyllis, 81
Branchoscolex, 35
Brandtika, 140
Brania, 80, 82
Braniella, 80, 82
Briaraea, 99
Bruunilla, 118
Bucherta, 35
Bushiella, 149, 150
Buskiella, 116
Bylgia, 65
Bylgides, 56, 61

C
Cabira, 78
Caesicirrus, 41
Calamyzas, 85
Calamyzidae, 8, 14, 74, 85
Calcareopomatus, 143
Califia, 16
Callizona, 52
Callizonella, 52
Campesyllis, 80, 82
Caobangia, 141
Caobangiidae, 8, 11, 136, 141
Capeospira, 149, 150
Capitella, 31, 32, 33, 36
Capitellithus, 32, 33, 36
Capitellidae, 8, 13, 31-36
Capitellides, 32, 33, 36
Capitita, 35
Capitobranchus, 33, 36
Capitomastus, 31, 32, 33, 36
Carazzia, 25
Cambria, SI
Cassandane, 43
Castalia, 77
Caulleriella, 29
Cenogenus, 109
Cenothrix, II
Centrocorone, 120
Ceratocephale, 87, 88
Ceratoneireis, 87, 88
Cervilia, 56, 61
Chaetacanthus, 58, 61
Chaetobranchus, 133
Chaetogordius, 154
Chaetoparia, 48, 49
Chaetopteridae, 8, 11, 28, 28-29
Chaetopterus, 28
Chaetosphaera, 25, 65
Chaetosyllis, 85
Chaetozone, 29
Chapolonella, 41, 140
Charys, 151
Chauornychus, 91
Cheiloneires, 86, 88
Cheironotus, 26
Chelusca, 27
Chinoneires, 91
Chitinopoma, 143
Chitinopomoides, 143, 144
Chloia, 100, 102
Chloea, 102, 103
Chloenopsis, 100, 102
Chloochaeta, 103
Chloroara, 117
Chone, 137, 138
Chorizobranchus, 37
Chrysodamon, 120
Chrysopetalidae, 8, 10, 71, 71-72
Chrysopetalum, 72
Chrysothemis, 41
Circeis, 149, 150
Cirraria, 51
Cirratulidae, 8, 13, 28, 29-30
Cirratulispio, 30
Cimatulus, 29
Cirrhineris, 30
Cirrophorus, 17, 18
Cirrosyllis, 77, 85
Cistena, 120
Cistenides, 120
Claparedia, 85
Clavadoce, 48, 49
Clavisyllis, 58, 61
Clavodomm, 98
Cleta, 52
Clymaldane, 39, 40
Clymenidae, 87, 88
Clymenides, 37
Clymenopsis, 38, 40
Clymenura, 39, 40
Clytie, 17
Coelobranchus, 110
Colobranchus, 26
Colobrarctus, 103
Colympatatus, 129, 131
Commensodium, 98
Conconia, 71
Conopomatus, 142, 144
Cooperinaria, 116, 117
Corephoms, 135
Coreus, 151
Corynecerophagus, 52
Cossura, 21
Cossuridae, 8, 13, 20, 21
Crithida, 85
Crosslandiella, 142, 144
Crossoste, 128
Cmigera, 142, 144
Cryptonota, 104
Cryptopomatus, 120
Ctenodrilidae, 8, 13, 19, 19-20
Ctenodrilus, 19, 20
Ctenospiro, 26
Cyanippa, 55
Cyxen, 133
Cystonereis, 85
Cystopomatus, 147

D
Dalhousia, 77
Dalhousiella, 75, 76
Danyrene, III
Dasybranchetes, 33, 33, 36
Dasybranchus, 33, 33, 36
Dasychone, 140
Dasychonopsis, 140
Dasylepis, 65
Dasymalus, 36
Dasyne, 142, 144
Dawbinia, 87, 88
Decamastus, 32, 34, 36
Dejoce, 133
Demonax, 137, 138
Dendrobranchus, 133
Dendrobranches, 87, 88
Dendroneires, 86, 88
Dendrophora, 133
Desdemona, 137, 138
Desmosyllis, 85
Dextorbis, 151
Dextoslep, 148, 149, 150
Dextralia, 140, 150
Dialyche, 137, 138
Didymobranchus, 103
Dilepidonotus, 58, 61
Dindymene, 43
Dindymenides, 42
Dinophilidae, 8, 9, 152, 153
Dinophilus, 152
Diopatra, 104, 105
Dioplologys, 80, 82
Diplobranchus, 97
Diploceraca, 85
Diplocirrus, 116, 117
Diploites, 26
Dipolydora, 26
Dipomatus, 141, 144
Disoma, 27
Disomes, 27
Dispicio, 23, 24
Distyla, 140
Distyladium, 137, 138
Ditrocho, 36
Diturpa, 142, 144
Diarodrillus, 152
Dodecaceria, 29, 30
Dorvillea, 112
Dorvilleidiae, 8, 11, 12, 13, 111-113, 112
Doyetia, 85
Drieschella, 59, 61
Driesch, 58, 61
Drilognathus, 110
Driloneires, 110, 111
Duplicaria, 149, 150
<table>
<thead>
<tr>
<th>Species</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dybowscella</td>
<td>140</td>
</tr>
<tr>
<td>Dysponentus</td>
<td>72</td>
</tr>
<tr>
<td>E</td>
<td></td>
</tr>
<tr>
<td>Ecamphicteis</td>
<td>121, 125</td>
</tr>
<tr>
<td>Echinorhynchus</td>
<td>114</td>
</tr>
<tr>
<td>Echipsiepe</td>
<td>123, 125</td>
</tr>
<tr>
<td>Egamella</td>
<td>121, 125</td>
</tr>
<tr>
<td>Ehlersia</td>
<td>81, 82</td>
</tr>
<tr>
<td>Ehlersiella</td>
<td>133</td>
</tr>
<tr>
<td>Ehlersiteanira</td>
<td>70</td>
</tr>
<tr>
<td>Enapteris</td>
<td>99</td>
</tr>
<tr>
<td>Enigma</td>
<td>117</td>
</tr>
<tr>
<td>Enipo</td>
<td>57, 61</td>
</tr>
<tr>
<td>Enonella</td>
<td>110</td>
</tr>
<tr>
<td>Enoplaborchus</td>
<td>129, 131</td>
</tr>
<tr>
<td>Eone</td>
<td>94</td>
</tr>
<tr>
<td>Ephesia</td>
<td>98</td>
</tr>
<tr>
<td>Ephesiella</td>
<td>98</td>
</tr>
<tr>
<td>Ephesiosis</td>
<td>98</td>
</tr>
<tr>
<td>Epicaste</td>
<td>94</td>
</tr>
<tr>
<td>Epidiopatra</td>
<td>104, 105</td>
</tr>
<tr>
<td>Epimka</td>
<td>53</td>
</tr>
<tr>
<td>Eracia</td>
<td>51</td>
</tr>
<tr>
<td>Eranno</td>
<td>109</td>
</tr>
<tr>
<td>Ereutho</td>
<td>133</td>
</tr>
<tr>
<td>Erigraphus</td>
<td>140</td>
</tr>
<tr>
<td>Eripyle</td>
<td>107</td>
</tr>
<tr>
<td>Escholzia</td>
<td>99</td>
</tr>
<tr>
<td>Etone</td>
<td>47, 49</td>
</tr>
<tr>
<td>Etonella</td>
<td>51</td>
</tr>
<tr>
<td>Etonides</td>
<td>51</td>
</tr>
<tr>
<td>Etonopsis</td>
<td>113</td>
</tr>
<tr>
<td>Ethoces</td>
<td>22</td>
</tr>
<tr>
<td>Euarche</td>
<td>66</td>
</tr>
<tr>
<td>Eucarplus</td>
<td>147</td>
</tr>
<tr>
<td>Eucarunculatus</td>
<td>103</td>
</tr>
<tr>
<td>Euceraestes</td>
<td>85</td>
</tr>
<tr>
<td>Euchone</td>
<td>41, 137, 138</td>
</tr>
<tr>
<td>Euchonella</td>
<td>137, 138</td>
</tr>
<tr>
<td>Euclymene</td>
<td>39, 40</td>
</tr>
<tr>
<td>Eucanta</td>
<td>57, 61</td>
</tr>
<tr>
<td>Eutistyla</td>
<td>137, 138</td>
</tr>
<tr>
<td>Eudontosyllis</td>
<td>80, 82</td>
</tr>
<tr>
<td>Euglyceria</td>
<td>92</td>
</tr>
<tr>
<td>Eugrymacea</td>
<td>133</td>
</tr>
<tr>
<td>Eulaceaepa</td>
<td>148, 149, 150</td>
</tr>
<tr>
<td>Eulagisca</td>
<td>58, 61</td>
</tr>
<tr>
<td>Eutalia</td>
<td>48, 49</td>
</tr>
<tr>
<td>Eutalides</td>
<td>51</td>
</tr>
<tr>
<td>Eulaenhe</td>
<td>71</td>
</tr>
<tr>
<td>Eulepethidae</td>
<td>8, 10, 67, 68</td>
</tr>
<tr>
<td>Eulepethus</td>
<td>68</td>
</tr>
<tr>
<td>Eulepis</td>
<td>68</td>
</tr>
<tr>
<td>Eumenia</td>
<td>45, 51</td>
</tr>
<tr>
<td>Eumeniapois</td>
<td>45</td>
</tr>
<tr>
<td>Eumida</td>
<td>48, 49</td>
</tr>
<tr>
<td>Eumidiala</td>
<td>51</td>
</tr>
<tr>
<td>Eumolpe</td>
<td>65</td>
</tr>
<tr>
<td>Eunereis</td>
<td>87, 88</td>
</tr>
<tr>
<td>Euniciea</td>
<td>106, 107</td>
</tr>
<tr>
<td>Eunicidetis</td>
<td>8, 12, 105-107, 106</td>
</tr>
<tr>
<td>Eunphysa</td>
<td>106</td>
</tr>
<tr>
<td>Eunoe</td>
<td>57, 61</td>
</tr>
<tr>
<td>Eunomia</td>
<td>51</td>
</tr>
<tr>
<td>Eunotomaustus</td>
<td>33, 34, 36</td>
</tr>
<tr>
<td>Eunotophyllum</td>
<td>51</td>
</tr>
<tr>
<td>Eupallasia</td>
<td>120</td>
</tr>
<tr>
<td>Eupanthis</td>
<td>66</td>
</tr>
<tr>
<td>Euphone</td>
<td>58, 61</td>
</tr>
<tr>
<td>Euphonionella</td>
<td>58, 61</td>
</tr>
<tr>
<td>Eupholoe</td>
<td>69, 70</td>
</tr>
<tr>
<td>Euphosine</td>
<td>103</td>
</tr>
<tr>
<td>Euphorosinamides</td>
<td>8, 11, 101, 103</td>
</tr>
<tr>
<td>Eupista</td>
<td>133</td>
</tr>
<tr>
<td>Eupistella</td>
<td>129, 131</td>
</tr>
<tr>
<td>Eupolyinmorphia</td>
<td>130, 131</td>
</tr>
<tr>
<td>Eupolyne</td>
<td>65</td>
</tr>
<tr>
<td>Eupolydorantes</td>
<td>66</td>
</tr>
<tr>
<td>Eupomatus</td>
<td>147</td>
</tr>
<tr>
<td>Eupompe</td>
<td>66</td>
</tr>
<tr>
<td>Eutarrella</td>
<td>137, 138</td>
</tr>
<tr>
<td>Eurymedusa</td>
<td>85</td>
</tr>
<tr>
<td>Euryssilis</td>
<td>80, 82</td>
</tr>
<tr>
<td>Eurythoe</td>
<td>102</td>
</tr>
<tr>
<td>Eusarysthac</td>
<td>123, 125, 128</td>
</tr>
<tr>
<td>Eusamythella</td>
<td>123, 125</td>
</tr>
<tr>
<td>Euscione</td>
<td>133</td>
</tr>
<tr>
<td>Euscerocheilia</td>
<td>45</td>
</tr>
<tr>
<td>Eusigalion</td>
<td>71</td>
</tr>
<tr>
<td>Euspio</td>
<td>26</td>
</tr>
<tr>
<td>Eusthenelais</td>
<td>71</td>
</tr>
<tr>
<td>Eusylfis</td>
<td>80, 82</td>
</tr>
<tr>
<td>Euthalenessa</td>
<td>69, 70</td>
</tr>
<tr>
<td>Euthalepus</td>
<td>129, 131</td>
</tr>
<tr>
<td>Euzonam</td>
<td>42, 43</td>
</tr>
<tr>
<td>Evame</td>
<td>65</td>
</tr>
<tr>
<td>Evarnella</td>
<td>65</td>
</tr>
<tr>
<td>Exallopus</td>
<td>112</td>
</tr>
<tr>
<td>Exogone</td>
<td>80, 82</td>
</tr>
<tr>
<td>Exogonella</td>
<td>79, 82</td>
</tr>
<tr>
<td>Exogonita</td>
<td>80, 82</td>
</tr>
<tr>
<td>Exogonoides</td>
<td>80, 82</td>
</tr>
<tr>
<td>Exotokas</td>
<td>85</td>
</tr>
<tr>
<td>Fabricia</td>
<td>137, 139</td>
</tr>
<tr>
<td>Fabriciella</td>
<td>140</td>
</tr>
<tr>
<td>Fabriciola</td>
<td>137, 139</td>
</tr>
<tr>
<td>Fabrisabella</td>
<td>137, 139</td>
</tr>
<tr>
<td>Falklaudhiella</td>
<td>17</td>
</tr>
<tr>
<td>Fauveldora</td>
<td>149, 150</td>
</tr>
<tr>
<td>Fauvelia</td>
<td>80, 82</td>
</tr>
<tr>
<td>Fauveliella</td>
<td>73</td>
</tr>
<tr>
<td>Fauveliopsis</td>
<td>8, 13, 115, 117-118</td>
</tr>
<tr>
<td>Fauveliopsis</td>
<td>118</td>
</tr>
<tr>
<td>Ficopomatus</td>
<td>143, 144</td>
</tr>
<tr>
<td>Filibranchus</td>
<td>134</td>
</tr>
<tr>
<td>Filigrana</td>
<td>147</td>
</tr>
<tr>
<td>Filograna</td>
<td>142, 143, 144</td>
</tr>
<tr>
<td>Filopora</td>
<td>147</td>
</tr>
<tr>
<td>Fimbriosthenelais</td>
<td>69, 70</td>
</tr>
<tr>
<td>Flabelliderma</td>
<td>19, 116, 117</td>
</tr>
<tr>
<td>Flabelligera</td>
<td>30, 118</td>
</tr>
<tr>
<td>Flabelligera</td>
<td>116, 117</td>
</tr>
<tr>
<td>Flabelligeridae</td>
<td>8, 10, 13, 115, 115-117</td>
</tr>
<tr>
<td>Flamingia</td>
<td>117</td>
</tr>
<tr>
<td>Flora</td>
<td>118</td>
</tr>
<tr>
<td>Frennia</td>
<td>58, 61</td>
</tr>
<tr>
<td>Friedericiella</td>
<td>73, 75</td>
</tr>
<tr>
<td>Galathownenia</td>
<td>114, 115</td>
</tr>
<tr>
<td>Galeolaria</td>
<td>142, 144</td>
</tr>
<tr>
<td>Garjavowella</td>
<td>140</td>
</tr>
<tr>
<td>Gastroceratella</td>
<td>65</td>
</tr>
<tr>
<td>Gastrolepida</td>
<td>59, 61</td>
</tr>
<tr>
<td>Gattiola</td>
<td>85</td>
</tr>
<tr>
<td>Gattyania</td>
<td>57, 62</td>
</tr>
<tr>
<td>Genetysyllis</td>
<td>48, 49</td>
</tr>
<tr>
<td>Gisela</td>
<td>17</td>
</tr>
<tr>
<td>Globiodoce</td>
<td>51</td>
</tr>
<tr>
<td>Glossopis</td>
<td>147</td>
</tr>
<tr>
<td>Glycera</td>
<td>91, 91</td>
</tr>
<tr>
<td>Glycerella</td>
<td>91, 92</td>
</tr>
<tr>
<td>Glyceridae</td>
<td>8, 11, 14, 91-92, 92 (113)</td>
</tr>
<tr>
<td>Glycinde</td>
<td>92, 93, 94</td>
</tr>
<tr>
<td>Glyphonostomum</td>
<td>123, 125</td>
</tr>
<tr>
<td>Glyphohesione</td>
<td>79</td>
</tr>
<tr>
<td>Gnatholycastis</td>
<td>91</td>
</tr>
<tr>
<td>Gnathosyllis</td>
<td>85</td>
</tr>
<tr>
<td>Gonadiads</td>
<td>93</td>
</tr>
<tr>
<td>Gonadiella</td>
<td>93</td>
</tr>
<tr>
<td>Gonadiidae</td>
<td>8, 11, 14, 92-94, 93 (T13)</td>
</tr>
<tr>
<td>Goniadids</td>
<td>93</td>
</tr>
<tr>
<td>Goniadopsis</td>
<td>93</td>
</tr>
<tr>
<td>Gorbunovia</td>
<td>140</td>
</tr>
<tr>
<td>Gorekia</td>
<td>57, 62</td>
</tr>
<tr>
<td>Gossia</td>
<td>85</td>
</tr>
<tr>
<td>Graviera</td>
<td>39, 40</td>
</tr>
<tr>
<td>Grefflia</td>
<td>52</td>
</tr>
<tr>
<td>Grubea</td>
<td>85</td>
</tr>
<tr>
<td>Gmbeopolynoe</td>
<td>58, 62</td>
</tr>
<tr>
<td>Gmbeosyllis</td>
<td>85</td>
</tr>
<tr>
<td>Grubelepas</td>
<td>68</td>
</tr>
<tr>
<td>Gmbianella</td>
<td>124, 125</td>
</tr>
<tr>
<td>Grymacea</td>
<td>133</td>
</tr>
<tr>
<td>Gunnarea</td>
<td>118</td>
</tr>
<tr>
<td>Gwastioa</td>
<td>45</td>
</tr>
<tr>
<td>Gymnomereis</td>
<td>87, 89</td>
</tr>
<tr>
<td>Gymnorhynchus</td>
<td>91</td>
</tr>
<tr>
<td>Gymnosoma</td>
<td>140</td>
</tr>
<tr>
<td>Gyptis</td>
<td>75, 76</td>
</tr>
<tr>
<td>Haematoleptes</td>
<td>110</td>
</tr>
<tr>
<td>Halmede</td>
<td>77</td>
</tr>
<tr>
<td>Haliplanella</td>
<td>53</td>
</tr>
<tr>
<td>Haliplanes</td>
<td>53</td>
</tr>
<tr>
<td>Halithaea</td>
<td>55</td>
</tr>
<tr>
<td>Halla</td>
<td>111</td>
</tr>
<tr>
<td>Halodora</td>
<td>52</td>
</tr>
<tr>
<td>Halogenia</td>
<td>55</td>
</tr>
<tr>
<td>Halosydnia</td>
<td>56, 59, 62</td>
</tr>
<tr>
<td>Halosydnella</td>
<td>59, 62</td>
</tr>
<tr>
<td>Halosydnoides</td>
<td>65</td>
</tr>
<tr>
<td>Halosydnopsis</td>
<td>59, 62</td>
</tr>
<tr>
<td>Halyplanes</td>
<td>53</td>
</tr>
<tr>
<td>Hamiglycem</td>
<td>92</td>
</tr>
<tr>
<td>Haplobranchus</td>
<td>140</td>
</tr>
<tr>
<td>Haploscoloplos</td>
<td>16</td>
</tr>
<tr>
<td>Haptopseudoplos</td>
<td>81, 82</td>
</tr>
</tbody>
</table>
THE POLYCHAETE WORMS

Nerillidae, 8, 12, 152-154, 153
Nerillium, 154
Nerillidopsis, 154
Nerine, 26
Nerinides, 26
Nerinosis, 26
Nevaya, 27
Nicola, 130, 132
Nicomache, 38, 40
Nicomachea, 41
Nicomedes, 91
Nicon, 87, 90
Nicotia, 85
Ninoe, 107, 109
Nipponophyllum, 47, 50
Nititis, 43
Nurepa, 65
Northia, 105
Nossis, 91
Notalia, 48, 50
Notaulax, 140
Nothis, 51
Notaria, 105
Notocirrus, 110, 111
Notodasus, 32, 34, 36
Notomastus, 32, 34, 36
Notophyllum, 47, 50
Notoproctus, 100, 102
Novaoesta, 19
Novobranchus, 134
Nuchibranchia, 100
Nudisyllis, 80, 83
Nychia, 65

O

Octobranchus, 134
Odontosyllis, 81, 83
Odyseus, 134
Oeneone, 111
Oeopara, 127
Olga, 142, 145
Oligoharmania, 143, 145
Oligobranchus, 45
Oligognathus, 110
Oligolepis, 65
Omaria, 83
Omphalopoma, 143, 145
Omphalopomopsis, 142, 145
Oncoconcha, 45
Oniscoconcha, 104
Onuphiidae, 8, 10, 12, 104, 104-105
Onuphis, 105
Oophylax, 85
Ophelia, 42, 43
Ophielidae, 8, 14, 41-43, 42
Ophelina, 42, 43
Ophiocladus, 75, 76, 77
Ophioglycera, 93, 94
Ophiuricola, 107, 109
Ophyvotrecha, 112
Ophistohonta, 80, 83
Ophistopista, 129, 132
Ophistoysyllis, 81, 83
Ops, 115
Orbinia, 16
Orbinia, 15, 16
Orbinidae, 8, 13, 14-17, 15
Oria, 140
Oriades, 140
Orida, 140
Oriops, 137, 139
Osereis, 73, 76
Orthedorus, 77
Oteses, 134
Othonia, 140
Otopsis, 78
Owemb, 114, 115
Oweniidae, 8, 11, 14, 114-115, 115
Oxydromus, 77
Paradoneis, 18
Paradoneis, 18
Palaeophylax, 85
Pagemethecera, 85
Paiva, 124, 127
Palaeonotus, 72
Pallasia, 120
Pallasin, 120
Pallossa, 134
Palmyra, 72
Palmyrephrosyne, 103
Palmyridae, 8, 10, 71, 71, 72
Palola, 106, 107
Palpglossus, 107
Panatallis, 66
Panousea, 138, 139
Panotitluss, 116, 117
Papparia, 26
Parachtonia, 100, 102
Parachtonia, 140
Paradexospiira, 149, 151
Paradiopatra, 105
Paradonies, 18
Paradyte, 57, 64
Paraeulalia, 51
Parahalosdyria, 58, 64
Parahesion, 75, 77
Paraholepeliella, 58, 64
Paraisopontus, 95, 96
Paralaxia, 94
Paralaesospira, 149, 151
Paratastachys, 130, 132
Paraleteocapitella, 32, 35, 36
Paralepidonotus, 59, 64
Paralycestis, 91
Paramegae, 124, 127
Paranomys, 106, 107
Parantheteis, 124, 127
Paraphinome, 100, 102
Paranaitis, 48, 50
Parandalia, 78, 79
Perineris, 91
Paranerilla, 154
Pararanea, 26
Parariothia, 104, 105
Pararynychia, 85
Parasonella, 18
Pararoidia, 8, 13, 14, 15, 17-18
Pararoidies, 18
Pararonis, 18
Parapallax, 68
Parapinocystis, 80, 83
Parapolyne, 65
Paraprotiospi, 23, 24
Parapterosylis, 81, 83
Pamisabella, 140
Parascleclothidus, 44
Paraserpula, 143, 145
Parasphaeryoisyllis, 81, 83
Parasitosyllis, 85
Parasyllidea, 75, 77
Parathelepus, 129, 132
Paratyposyllis, 81, 83
Parautolytus, 80, 83
Paravermilia, 147
Paraxionice, 130, 132
Paraxiothea, 41
Paragonodrilidae, 8, 13, 19, 20
Paragonodrilus, 20
Paraleiptes, 68
Parapouphoe, 69, 70
Pararyochyoe, 100, 102
Paraxogen, 85
Parheteromasides, 32, 35, 36
Parheteromastus, 32, 35, 36
Parhynpia, 124, 127
Parmensis, 65
Paronuphis, 105
Parorphytophota, 112
Parthenope, 20
Paumotella, 142, 145
Pectinaria, 120
Pectinariidae, 8, 10, 119, 120-121
Pedinopoma, 53
Peisicide, 68
Peisicidea, 66
Pelogoria, 52, 53
Peltacidaria, 97
Pelogenia, 71
Pentacirma, 30
Peresiella, 31, 35, 36
Perafa, 26
Periboea, 73, 77, 85
Perineris, 88, 90
Perouepis, 59, 64
Petalocheum, 41
Petalopectus, 39, 41
Petitia, 80, 83
Petta, 120, 121
Phaeusa, 91
Phalacrophonos, 95, 96
Phalacrostemma, 118, 119
Pharyngoevalvata, 80, 83
Phenacia, 134
Pherea, 134
Pherecardia, 102, 103
Pherecardites, 102, 103
Phemusa, 116, 117
Phisidia, 129, 132
Phlooe, 69, 70
Phlooides, 66
Phlooididae, 8, 10, 66, 67
Phochocharis, 85
Phagmatopoma, 118, 119
Ph cumshotia, 79
Phyllapharete, 123, 127
Phyllaphitteis, 124, 127
Phyllochaetopterus, 28
Phyllocomus, 124, 127
Phyllococe, 48, 50, 51
Phyllodocidae, 8, 12, 45-51, 46
Phyllodocida, 57, 64
Phyllodocidae, 57, 64
Phyllodocida, 79, 83
Phylo, 16
Physalodonotus, 65
Phyzelia, 134
Pilaridae, 8, 12, 74, 77-79
Pilaris, 78
Pilearia, 27
Pileolaria, 149, 151
Pilaotaspis, 148, 149, 151
Pionyssillus, 80, 83
Pirakia, 48, 50
Piratessa, 147
Pironis, 116, 117
Pisone, 91
Pisone, 73
Pisone, 73
Pisoneidae, 8, 10, 12, 72, 73-73
Pisoneids, 73
Pisoneura, 72
Pista, 130, 132, (T10)
Pixellia, 152
Placostegus, 142, 145
Placostegopsis, 147
Plakesyssil, 80, 83
Platyneres, 86, 88, 90
Platyssyllis, 85
Pleione, 103
Plioceras, 111
Plotobia, 100
Pleombelma, 51, 52
Poleotipa, 65
Podarke, 75, 77
Podarkeopsis, 75, 77
Podarmus, 58, 64
Podioceros, 147
Podonereis, 85, 91
Poecliochaetaeidae, 8, 14, 27, 27
Poecliochaetae, 27
Poeobiidae, 8, 9, 115, 117
Poeobius, 117
Pollicita, 98
Polybstrichus, 85
Polybranchia, 22, 24
Polycirrus, 129, 132
Polydora, 22, 24, 25
Polydorrella, 22, 24
Polyeunna, 58, 64
Polygordiidae, 8, 153, 154, 155
Polygordius, 154, 155
Polylepis, 71
Polymastus, 85
Polynia, 134
Polyniaidae, 129, 132
Polynice, 85
Polyne, 57, 64
Polynoe, 56, 64
Polynoidae, 8, 10, 55, 55-65
Polyonomida, 66
Polypedontidae, 8, 10, 55, 55-66
Polyophthalmus, 42, 43
Polyphragma, 147
Polyphysia, 43, 44
Pomatoceros, 142, 146
Pomatolepenos, 142, 146
Pomatostegus, 142, 146
Pontodor, 53
Pontodoridae, 8, 12, 46, 53
Pontogenia, 54
Porroa, 51
Portelita, 97
Potamathus, 138, 139
Potamilla, 138, 139, 140
Potamis, 140
Potaspina, 138, 139
Potissicalsetus, 58, 64
Prageieria, 73
Praxilla, 41
Praxilla, 39, 41
Praxillura, 38, 41
Prasuthea, 91
Prionogamatus, 113
Prionospio, 22, 23, 24
Prionsidea, 92
Proroceraea, 79, 83
Proroceraseth, 79, 84
Prorogaetapia, 48, 50
Proclea, 129, 132
Proclymene, 39, 41
Procome, 85
Prodexiospora, 149, 151
Proctogiona, 92, 94
Proctogalea, 41
Pronemis, 30
Prophyollochoce, 48, 50
Proplacostegus, 147
Proscalibregma, 43, 44
Proscalibregma, 15, 16
Prospio, 26
Protsis, 141, 146
Protoparccia, 15, 16
Protoparrciaellia, 15, 17
Protoparcciaella, 37
Protocarobia, 51
Protodormylvellae, 112
Protodromilidae, 8, 9, 12, 153, 155
Protodriloides, 155
Protodrilus, 155
Protogrunbea, 85
Protolaeospin, 149, 151
Protolaeodora, 149, 151
Protolycoris, 91
Protomasmbranchus, 33, 35, 36
Protomystides, 48, 50
Protopolydomy, 26
Protothelepus, 134
Protula, 146
Protulides, 140
Psamocollus, 115
Psammodrilidae, 8, 13, 20, 20-21
Psammodriloides, 21
Psammodrilus, 21
Psammodyce, 69, 70
Psammomediaria, 154
Psectra, 72
Pseudapamharete, 128, 132, 133
Pseudoaula, 48, 50
Pseudoestulus, 66, 71
Pseudoerythoe, 103
Pseudexogone, 80, 84
Pseudobranchiommata, 137, 140
Pseudocatapilia, 33, 35, 36
Pseudochinopoma, 143, 146
Pseudocirratulus, 29, 30
Pseudoclymene, 39, 41
Pseudofabricia, 137, 140
Pseudohalosydna, 59, 64
Pseudolaceyon, 94
Pseudoleciapapillia, 32, 35, 36
Pseudopalecodare, 26
Pseudomalacoceros, 23, 24
Pseudonemis, 88, 90
Pseudonereia, 26
Pseudomonotothyilum, 51
Pseudopapalo, 107
Pseudopolydora, 22, 25
Pseudopolyne, 58, 65
Pseudopomatoceros, 142, 146
Pseudopomaminia, 140, 141
Pseudoscharfellides, 129
Pseudocalibregma, 41
Pseudodercula, 141, 146
Pseudosyllides, 81, 84, 85
Pseudosyllida, 77
Pseudothagopulse, 133
Pseudovetmilia, 143, 146
Psynnbranchus, 147
Pteramharete, 123, 127
Pteromuloty, 85
Pteriptyches, 26
Pterocirrus, 48, 50
Pterosyllis, 22, 127
Pteroscole, 37
Pterosyllis, 85
Pterolcythrix, 111
Putiliella, 32, 35, 36
Puparia, 37
Pygocampa, 117
Pygophila, 43
Pygophyllum, 26
Pygospio, 23, 25
Q
Questa, 19
Questaidae, 8, 13, 15, 18-19
Queteria, 65
R
Ramex, 130, 132
Ranzania, 29
Ranzanides, 29
Raphidrilus, 20
Raricirrus, 29, 30
Rashgua, 32, 35, 36
Rebiscola, 53
Restio, 66
Retetekebella, 130, 132
Rhamphobrachium, 104, 105
Rhodine, 38, 41
Rhodopora, 142, 146
Rhopalosyllis, 80, 84
Rhyhobolus, 92
Rhyhonerella, 51, 52
Rhyhospo, 23, 25
Rhyhophylla, 26
Robertianaella, 56, 65
Romanchella, 149, 151
Rostraria, 103
THE POLYCHAETE WORMS

S

Sabaco, 41
Sabella, 137, 140
Sabellaria, 118, 119, 120
Sabellariidae, 8, 10, 118-120, 119
Sabellastarte, 137, 140
Sabellidae, 8, 11, 113-141, 136
Sabellides, 123, 127
Sabellina, 140
Sabellonga, 141
Sabellongidae, 8, 13, 136, 141
Sabidus, 18
Sabina, 140
Saccociridae, 8, 153, 155
Saccocirrus, 155
Saccomeres, 85
Sagittella, 99
Salmaclina, 141, 146
Salmacinopsis, 141, 146
Salvatoria, 85
Sammtha, 123, 127
Samthyella, 123, 127
Samthyopsis, 123, 128
Sandanis, 36
Sangiria, 100, 103
Schlibranchia, 117
Scalibregma, 44
Scalibregnella, 44, 45
Scalibregnidae, 8, 14, 42, 43-45
Scalibregmides, 44, 45
Scalis, 121
Scalisetosus, 57, 65
Scalisperinera, 43, 44, 45
Schistoconus, 124, 128
Schistometangos, 112, 113
Schizobranchia, 137, 140
Schiaocraspedon, 142, 146
Schmardanella, 134
Schmardia, 85
Schmardiella, 77
Schreiberius, 114
Schroederella, 15, 17
Scione, 134
Scionella, 130, 132
Scionides, 130, 132
Scionospis, 134
Sclerobregma, 44, 45
Sclerocorallius, 44, 45
Sclerostyla, 142, 143, 146
Scolecolepides, 23, 25
Scolecolepis, 26
Scolelepis, 23, 25
Scoletoma, 109
Scolopella, 15, 17
Scoloplos (Leodamas) 16, 17
Scoloplos (Scoloplos) 16, 17
Scyphoprocessus, 32, 35, 36
Semenesid, 117
Serpula, 143, 147
Serpulidae, 8, 10, 11, 141-147, 148
Sheila, 58, 65
Sigalion, 69, 70
Sigallonidae, 8, 10, 68-71, 69
Sigamhra, 78

Sige, 48, 50
Siliquaria, 147
Simplicaria, 148, 149, 151
Sinistrella, 152
Siphonostoma, 117
Siphonostoma, 117
Sipho, 141
Skardaria, 22
Solomononeris, 87, 90
Solowetia, 134
Sonatia, 39, 41
Some, 124, 128
Sosanella, 123, 128
Sosanides, 124, 128
Sosanopsis, 124, 128
Sphaeroderus, 97, 98
Sphaeroderus, 8, 12, 95, 96, 97-98
Sphaeroderus, 98
Sphaeroderus, 98
Sphaeroderus, 98
Sphaeropus, 143, 147
Sphaeropodis, 80, 84
Sphaerophyes, 97, 98
Sphaerodroideus, 48, 50
Sphaerodrotudum, 98
Sphaerodrotus, 98
Sphaerodromus, 98
Sphaeropoma, 129, 132
Spinhaer, 100, 104
Spinheridae, 8, 9, 100, 101, 104
Spin, 23, 25
Spirochaetopterus, 28
Spione, 26
Spione, 26
Spione, 26
Spionidae, 8, 14, 21, 22-26
Spinidae, 26
Spiophanes, 22, 25
Spiramella, 147
Spirobranchus, 142, 147
Spirodiscus, 142, 147
Spirographis, 137, 140
Spirorbella, 148, 149, 151
Spirorbidae, 8, 11, 147-152, 148
Spirorbides, 152
Spirorbus, 149, 151
Spirovenia, 129, 133
Staurocephalus, 113
Stauroceps, 113
Stauroneres, 113
Steggoa, 48, 50
Steninoneris, 87, 90
Stephania, 77
Stephanosyllis, 85
Stemassidae, 8, 10, 113, 114
Stemaspis, 114
Steneleis, 70
Steneleis, 69, 70
Stenolepis, 70
Stoa, 152
Strategis, 103
Stratiodrilus, 114
Stratone, 91
Streblosoma, 129, 133
Streblospion, 23, 25
Streptosyllis, 80, 84
Struwella, 74, 77
Stachapovella, 129, 133
Stygocapitella, 20
Stylariaeides, 117
Subadye, 57, 65
Subprotula, 141, 147
Sylla, 85
Syllidae, 8, 12, 74, 79-85
Syllides, 80, 84
Syllidia, 75, 77
Sylline, 85
Syllis, 81, 84
Synelmis, 78
Synsyllis, 80, 84

T

Tachytrypane, 42, 43
Tainokia, III
Talehsapia, 78
Taphus, 72
Tauberia, 18
Tectarella, 117
Telake, 92
Telamone, 77
Telepsavus, 29
Telethusaes, 37
Telolepidasthenia, 59, 65
Telonereis, 113
Telothelepus, 129, 133
Temporaria, 142, 147
Tenonia, 57, 65
Terebellia, 129, 133
Terebellanica, 130, 133
Terebellidae, 8, 11, 122, 128-134
Terebellidies, 134
Terebellobranchia, 129, 133
Terpsichore, 43
Tetraglene, 85
Tetralrocha, 91
Tetneres, 120
Thalassesa, 114
Thalassosaethus, 154
Thalenesa, 69, 70
Tharyx, 29, 30
Thaumastoma, 27
Thelepella, 134
Thelephusa, 134
Thelepides, 130, 133, 134
Thelepodopsis, 134
Thelepus, 129, 133
Theodisca, 17
Theostoma, 17
Therocchaeta, 116, 117
Therocchaetella, 116, 117
Thesmira, 103
Theisetella, 103
Thoe, 85
Thoosa, 91
Thormora, 58, 65
Thylaciphorous, 85
Thysanoplea, 98
Tibiana, 107
Timarete, 29, 30
Tomopteridae, 8, 11, 95, 96, 98-99
Tomopteris, 99
Torquda, 134
Torrea, 51, 52
Trachelophyllum, 51
Tropolida, 105
Travisia, 42, 43
Travisiosis, 99
Tricertia, 53, 54
<table>
<thead>
<tr>
<th>Trichobranchidae, 8, II, 122, 134-135</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichobranchus, 134, 135</td>
</tr>
<tr>
<td>Trichosobranchella, 140, 141</td>
</tr>
<tr>
<td>Trichosyllis, 85</td>
</tr>
<tr>
<td>Tricoelia, 29</td>
</tr>
<tr>
<td>Tricosmochaeta, 65</td>
</tr>
<tr>
<td>Trilobodrilus, 152</td>
</tr>
<tr>
<td>Tripolydora, 22, 25</td>
</tr>
<tr>
<td>Trochochaeta, 26</td>
</tr>
<tr>
<td>Trochochaetidae, 8, 14, 21, 26-27</td>
</tr>
<tr>
<td>Trogochaetus, 154</td>
</tr>
<tr>
<td>Trophonia, 117</td>
</tr>
<tr>
<td>Trophoniella, 116, 117</td>
</tr>
<tr>
<td>Trypanosyllis, 79, 81, 84</td>
</tr>
<tr>
<td>Tylonereis, 87, 90</td>
</tr>
<tr>
<td>Tylorrhynchus, 87, 90</td>
</tr>
<tr>
<td>Typhlonereis, 91</td>
</tr>
<tr>
<td>Typhloscolecidae, 8, 14, 95, 99,</td>
</tr>
<tr>
<td>99-100</td>
</tr>
<tr>
<td>Typhloscolex, 99</td>
</tr>
<tr>
<td>Typosyllis, 81, 84</td>
</tr>
<tr>
<td>Tyrrhena, 77</td>
</tr>
<tr>
<td>U</td>
</tr>
<tr>
<td>Umbellisyllis, 79, 84</td>
</tr>
<tr>
<td>Unanereis, 87, 90</td>
</tr>
<tr>
<td>Uncinereis, 91</td>
</tr>
<tr>
<td>Uncinia, 26</td>
</tr>
<tr>
<td>Unciniseta, 109</td>
</tr>
<tr>
<td>Uncinochaeta, 134</td>
</tr>
<tr>
<td>Uncopolynoe, 56, 65</td>
</tr>
<tr>
<td>Unobranchus, 134, 135</td>
</tr>
<tr>
<td>Urosiphon, 43</td>
</tr>
<tr>
<td>V</td>
</tr>
<tr>
<td>Valla, 36</td>
</tr>
<tr>
<td>Vanadis, 51, 52</td>
</tr>
<tr>
<td>Veleda, 103</td>
</tr>
<tr>
<td>Venadis, 17</td>
</tr>
<tr>
<td>Veniceia, 134</td>
</tr>
<tr>
<td>Venmilia, 147</td>
</tr>
<tr>
<td>Vetmiliopsis, 143, 147</td>
</tr>
<tr>
<td>Virchowia, 85</td>
</tr>
<tr>
<td>Vitiazia, 48, 50</td>
</tr>
<tr>
<td>Vitiaziphyllum, 48, 51</td>
</tr>
<tr>
<td>w</td>
</tr>
<tr>
<td>Wartelia, 134</td>
</tr>
<tr>
<td>Watelio, 51, 52</td>
</tr>
<tr>
<td>Weberia, 59, 65</td>
</tr>
<tr>
<td>Websterinereis, 87, 90</td>
</tr>
<tr>
<td>Weddelia, 123, 128</td>
</tr>
<tr>
<td>Wesenbergia, 75, 77</td>
</tr>
<tr>
<td>Willeysthenealis, 69, 70</td>
</tr>
<tr>
<td>X</td>
</tr>
<tr>
<td>Xenosyllides, 85</td>
</tr>
<tr>
<td>Xenosyllis, 81, 84</td>
</tr>
<tr>
<td>z</td>
</tr>
<tr>
<td>Zeppelinia, 20</td>
</tr>
<tr>
<td>Zopyrus, 147</td>
</tr>
<tr>
<td>Zoms, 117</td>
</tr>
<tr>
<td>Zothea, 103</td>
</tr>
<tr>
<td>Zygolobus, 109</td>
</tr>
<tr>
<td>Zygophyllus, 109</td>
</tr>
<tr>
<td>Zygophyllus, 109</td>
</tr>
</tbody>
</table>