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NUMBER 7

BENTHIC POLYCHAETOUS ANNELIDS
FROM DEEP WATER OFF WESTERN MEXICO
AND ADJACENT AREAS IN
THE EASTERN PACIFIC OCEAN

BY

KRISTIAN FAUCHALD



LOS ANGELES, CALIFORNIA
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NO. 7 BENTHIC POLYCHAETOUS ANNELIDS FROM DEEP WATER
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INTRODUCTION

Polychaetous annelids from deep water off western Mexico were first collected by the ALBATROSS expeditions of 1886-91 and 1911. The material from these expeditions was treated by Chamberlin (1919) and Treadwell (1923). Chamberlin named a large number of new species, most of which have not been recovered from other areas and indicate the presence of a deep-water fauna characteristic of the eastern Pacific Ocean.

The Allan Hancock Foundation collected benthic organisms off western Mexico from 1932 to 1942 and during a series of cruises since 1948. These collections have been treated by Hartman and Fauchald in a number of papers. The Scripps Institution of Oceanography has had a series of cruises, especially in the Gulf of California, where benthic samples were taken. Parts of this material were treated by Parker (1964a, 1964b) in papers dealing with the benthic ecology of the gulf and adjacent areas. Parker's study was based mainly on the mollusks; the polychaetous annelids are treated here for the first time.

Two cruises with the VELERO IV of the Allan Hancock Foundation were undertaken in 1967 and 1970 to investigate further the benthic fauna off western Mexico. The material from these two expeditions forms the basis of this study, but other materials have been included as indicated below.

Forty-nine polychaetes in fourteen families were previously known from deep water off western Mexico. These are listed in Table 1 with reference to the records for

each species. The present collection includes 227 species in forty-three families. Seventy-six new species are named and revisions are made of some taxa, where materials and previous investigations permitted complete surveys.

Table 1

List of polychaetes previously reported from deep water off western Mexico with reference to original description, type area and the authority for deep-water records from western Mexico. The list is arranged in systematic order and alphabetically within each family.

APHRODITIDAE

- Aphrodita defendens Chamberlin, 1919
 Chamberlin, 1919, Peru.
 Treadwell, 1923, p. 6: western Mexico.

POLYNOIDAE

- Admetella dolichopus Chamberlin, 1919
 Chamberlin, 1919, p. 69: western Mexico.
- Admetella hastigerens Chamberlin, 1919
 Chamberlin, 1919, Panama.
 Treadwell, 1923, p. 3: western Mexico.
- Harmothoe mexicana Chamberlin, 1919
 Chamberlin, 1919, p. 58: western Mexico.
- Lagisca multisetosa Moore, 1902
 Moore, 1902, Alaska.
 Treadwell, 1923, p. 2: western Mexico.
- Lepidasthenia curta Chamberlin, 1919
 Chamberlin, 1919, p. 63: western Mexico.
 Treadwell, 1923, p. 4: western Mexico.

AMPHINOMIDAE

- Chloeia viridis Schmarda, 1861
 Schmarda, 1861, Jamaica.
 Hartman, 1940, p. 205: western Mexico.

GLYCERIDAE

- Glycera mexicana (Chamberlin, 1919)
Hemipodus mexicana Chamberlin, 1919, p. 350:
 western Mexico.

Glycera profunda Chamberlin, 1919
Chamberlin, 1919, p. 352: western Mexico.

NEPHTYIDAE

Nephtys squamosa Ehlers, 1887
Ehlers, 1887, Caribbean Sea.
Hartman, 1940, p. 237: western Mexico.

ONUPHIDAE

Hyalinoecia juvenalis Moore, 1911
Moore, 1911, southern California.
Hartman, 1944a, p. 46: western Mexico.
Fauchald, 1968, p. 14: western Mexico.

Hyalinoecia leucacra Chamberlin, 1919
Chamberlin, 1919, p. 319: western Mexico.

Hyalinoecia stricta Moore, 1911
H. tubicola stricta Moore, 1911, southern California.
Treadwell, 1923, p. 8: western Mexico.
Fauchald, 1968, p. 16: western Mexico.

Hyalinoecia tecton Chamberlin, 1919
Chamberlin, 1919: western Mexico.

Nothria abyssalis Fauchald, 1968
Fauchald, 1968, p. 19: western Mexico.

Nothria hiatidentata Moore, 1911
Moore, 1911, southern California.
Treadwell, 1923, p. 8: western Mexico.

Nothria iridescens (Johnson, 1901)
Northia iridescens Johnson, 1901, Washington.
Fauchald, 1968, p. 24: western Mexico.

Nothria mexicana Fauchald, 1968
Fauchald, 1968, p. 25: western Mexico.

Onuphis lepta Chamberlin, 1919
Chamberlin, 1919, Panama.
Treadwell, 1923, p. 7: western Mexico.

Onuphis litabranchia Chamberlin, 1919
Chamberlin, 1919, p. 279: western Mexico.
Treadwell, 1923, p. 7: western Mexico.

Onuphis nannognathus Chamberlin, 1919
Chamberlin, 1919, p. 274: western Mexico.

Onuphis parva Moore, 1911
Moore, 1911, central California.
Fauchald, 1968, p. 37: western Mexico.

Onuphis profunda Fauchald, 1968
Fauchald, 1968, p. 40: western Mexico.

Onuphis vexillaria Moore, 1911
Moore, 1911, southern California.
Treadwell, 1923, p. 8: western Mexico.
Fauchald, 1968, p. 43: western Mexico.

Paronuphis abyssorum (Chamberlin, 1919)

Leptoecia abyssorum Chamberlin, 1919, Peru.
Fauchald, 1968, p. 44: western Mexico.

EUNICIDAE

Eunice antennata (Savigny, 1818)

Savigny, 1818, Suez.
Hartman, 1944a, p. 115: western Mexico.
Fauchald, 1970, p. 20: western Mexico.

Eunice aphroditois (Pallas, 1788)

Pallas, 1788, Indian Ocean.
Hartman, 1944a, p. 109: western Mexico.
Fauchald, 1970, p. 24: western Mexico.

Eunice megabranhia Fauchald, 1970

Fauchald, 1970, p. 33: western Mexico.

Eunice segregata (Chamberlin, 1919)

Chamberlin, 1919, p. 240: western Mexico,
also Panama.
Treadwell, 1923, p. 7: western Mexico.
Fauchald, 1970, p. 44: western Mexico.

Eunice semisegregata Fauchald, 1969

Fauchald, 1969, p. 16: western Mexico.

Eunice vittata (delle Chiaje, 1828)

delle Chiaje, 1828, Mediterranean Sea.
Fauchald, 1970, p. 48: western Mexico.

LUMBRINERIDAE

Lumbrineris bicirrata Treadwell, 1929

Treadwell, 1929, Washington.
L. bifilaris Chamberlin, 1919, p. 328: western
Mexico.
Fauchald, 1970, p. 77: western Mexico.

Lumbrineris californiensis Hartman, 1944

Hartman, 1944a, southern and central California.
Fauchald, 1970, p. 78: western Mexico.

Lumbrineris cedroensis Fauchald, 1970

Fauchald, 1970, p. 80: western Mexico.

Lumbrineris eugeniae Fauchald, 1970

Fauchald, 1970, p. 87: western Mexico.

Lumbrineris longensis Hartman, 1960

Hartman, 1960, southern California.
Fauchald, 1970, p. 98: western Mexico.

Lumbrineris moorei Hartman, 1942

Hartman, 1942, southern California.
Fauchald, 1970, p. 102: western Mexico.

Ninoe fusca Moore, 1911

Moore, 1911, southern California.
Fauchald, 1970, p. 116: western Mexico.

CIRRATULIDAE

- Cirratulus sinincolens Chamberlin, 1919
Chamberlin, 1919, p. 379: western Mexico.

FLABELLIGERIDAE

- Brada verrucosa Chamberlin, 1919
Chamberlin, 1919, p. 400: western Mexico.
- Ilyphagus bythincola Chamberlin, 1919
Chamberlin, 1919, p. 403: western Mexico.

STERNASPIDAE

- Sternaspis major Chamberlin, 1919
Chamberlin, 1919, p. 408: western Mexico.

MALDANIDAE

- Maldane similis Moore, 1906
Moore, 1906, Alaska.
Treadwell, 1923, p. 9: western Mexico.

AMPHARETIDAE

- Ampharete homa Chamberlin, 1919
Chamberlin, 1919, p. 447: western Mexico.
- Amphicteis obscurior Chamberlin, 1919
Chamberlin, 1919, p. 448: western Mexico.
- Amphicteis orphnius Chamberlin, 1919
Chamberlin, 1919, p. 451: western Mexico.
- Amphicteis uncopalea Chamberlin, 1919
Chamberlin, 1919, p. 450: western Mexico.
- Sabellides delus Chamberlin, 1919
Chamberlin, 1919, p. 456: western Mexico.

TEREBELLIDAE

- Nicolea latens Chamberlin, 1919
Chamberlin, 1919, p. 432: western Mexico.

TOPOGRAPHY AND HYDROGRAPHY

The topography off the southern part of western Mexico is dominated by the Eastern Pacific Rise (Fig. 1) which runs nearly straight northwards across the area, entering the Gulf of California at the mouth. The crest of the rise runs along the length of this gulf. Rapid and recent sea-floor spreading has been demonstrated in the southern part of the gulf (Larson, Menard and Smith, 1968, pp. 781-784; Moore and Buffington, 1968, pp. 1238-1241).

East of the rise, paralleling the coast of Mexico, is the Central American Trench, which has depths down to 6000 m off southern Mexico and Guatemala. The trench terminates off the Tres Marias Islands, in what is called the Tres Marias Basin.

The Gulf of California has a series of deep basins separated by more or less well-defined sills. The innermost basin, Sal si Puedes Basin in the straits between Angel de la Guarda Island and Baja California, is separated from the rest of the gulf by a sill at 400 m; the basin is 1400 m deep.

The area south and west of Baja California is referred to as the Baja California Seamount Province (Menard, 1964, p. 16) and has a regional depth of 3500-4500 m. The continental slopes are relatively gentle off the southern part, but north of Cedros Island is found the block-faulted California Continental Borderland, part of which has very steep slopes. The part of the Borderland within Mexican waters consists of a series of seawards deeping blocks partially smothered in sediments; this appears superficially as a very gently sloping, undulating continental slope.

The outstanding hydrographic feature of the waters off western Mexico is the presence of an oxygen-minimum layer in intermediate depths (Roden, 1964). This layer extends along the west coast of Baja California at least as far north as Cedros Island and runs into the Gulf of California to the sill between Angel de la Guarda and Tiburon Islands. The upper limits vary from approximately 60 m to 250 m, but appear to coincide more or less with the shelf-break or the upper part of the continental slope in large areas. The oxygen values in this layer may sink below measurable levels and this layer supposedly impinges on the bottom in the northernmost basins of the gulf. The lower limit of the layer is considered to be at 2000 m depth, so the deeper basins of the gulf and the Central American Trench have oxygenated waters near the bottom.

MATERIAL AND METHODS

1. The materials treated include the ALBATROSS material reported by Chamberlin (1919) and Treadwell (1923) and other, previously unidentified samples. This material is presently deposited in the American Museum of Natural History, New York (AMNH), the Museum of Comparative Zoology, Harvard University (MCZ) or the United States National Museum, Washington, D.C. (USNM).

The largest part of the collection comes from two cruises with the VELERO IV in 1967 and 1970, but material from previous cruises of the Allan Hancock Foundation has also been included.

The Scripps Institution of Oceanography has taken a series of samples in deep water; part of this material was treated by Parker (1964), especially as concerns the mollusks. Smaller collections from a variety of sources have also been included.

2. The stations are referred to in the following manner: Stations taken by the Allan Hancock Foundation are referred to by station number only (e.g., 13776). Material from the ALBATROSS cruises is cited with the vessel's name. Material from the Scripps collections is either fully cited in place or prefixed with P (e.g., P 287-61).

3. The station list includes complete data for all material used in this paper. Detailed data are not cited in the systematic part for any species.

4. The materials were examined with a stereo-microscope and a compound microscope. Illustrations were made with a NIKON Profile projector, a Bausch and Lomb Tri-Simplex drawing apparatus or a Zeiss Camera Lucida mounted on a compound microscope. All illustrations are by the author.

5. The material from the Allan Hancock Foundation cruises is deposited in this foundation. The ALBATROSS material is deposited in the American Museum of Natural History, New York, the Museum of Comparative Zoology, Harvard University or in the United States National Museum;

specific deposition is indicated for the type materials only.

ACKNOWLEDGEMENTS

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The Director and Staff of the Allan Hancock Foundation, University of Southern California gave material help and support during the study. Miss Mary Ellen Pippin critically read the manuscript and corrected the language. Miss Catherine Link assisted with sorting, labelling and other kinds of curatorial work associated with a large collection.

This study would have been impossible without the constant encouragement and help of Dr. Olga Hartman, who was always available for discussion of difficult taxonomic problems.

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Table 2. Numbers of species of polychaetous annelids from deep water off western Mexico in the present collection, compared to what was known previously.

Present collection			
Family	Newly described	Total	Previous surveys
Aphroditidae	-	3	1
Polynoidae	1	6	5
Polyodontidae	-	2	-
Sigalionidae	2	6	-
Amphinomidae	1	1	1
Euphrosinidae	-	1	1
Phyllodocidae	5	6	-
Lacydoniidae	-	1	-
Hesionidae	not identifiable	-	-
Syllidae	not identifiable	-	-
Pilargiidae	4	4	-
Nereidae	5	8	-
Nephtyidae	4	8	1
Sphaerodoridae	3	4	-
Glyceridae	-	6	2
Goniadidae	2	5	-
Onuphidae	2	18	15
Eunicidae	-	7	6
Lumbrineridae	3	14	7
Arabellidae	-	1	-
Dorvilleidae	-	1	-
Orbiniidae	3	6	-
Paraonidae	6	12	-
Spionidae	3	10	-
Magelonidae	-	1	-
Poecilochaetidae	-	1	-
Chaetopteridae	-	1	-
Cirratulidae	-	4	1
Cossuridae	3	4	-
Flabelligeridae	7	12	2
Scalibregmidae	-	1	-
Opheliidae	-	5	-
Sternaspidae	-	1	1
Capitellidae	4	11	-
Maldanidae	3	15	1
Oweniidae	-	3	-
Sabellariidae	1	1	-
Pectinariidae	not identifiable	-	-
Ampharetidae	11	23	5
Terebellidae	1	7	1
Trichobranchidae	-	1	-
Sabellidae	2	6	-
Total	76	227	50

THE CHARACTER OF THE POLYCHAETE FAUNA

Table 2 gives a survey of the numbers of species represented in each family. The AMPHARETIDAE have the highest number of species, 23 in all; other families represented by more than ten species include the ONUPHIDAE, LUMBRINERIDAE, PARAOINIDAE, SPIONIDAE, FLABELLIGERIDAE, CAPITELLIDAE and MALDANIDAE. This is similar to what Hartman (1965b, p. 235) reported from deep-water areas in the Atlantic Ocean, except that the SYLLIDAE were not reported in the present collection and appear to be poorly represented in the area.

The collections were made with a variety of gears, which may in part explain the large numbers of species encountered. The ALBATROSS materials were dredged with Agassiz-trawls or biological dredges, as were the Scripps collections and some of the early material from the Allan Hancock Foundation. During the 1967 and 1970 cruises with the VELERO IV, the large Campbell grab was used exclusively and screening was done on a 0.5 mm screen which retained a large number of small polychaetes. Characteristically the dredge material contains a large number of specimens of a few large species, whereas the grab material contains small numbers of a great variety of species.

Most species reported are small, 5 mm or less in total length, but some very large maldanids and ampharetids were encountered in the dredge materials. Most of the species appear to lack eyes, but otherwise have little in common. Several lumbrinerids tend to have longer setae than relatives living in shallower waters, but a similar tendency could not be observed in other families.

Most, if not all of the onuphids and one eunicid, are tubicolous, as are the maldanids, oweniids and sabellids, but most members of other families appear to live free in the substrate. It is possible that some specimens have left their tubes upon being collected; numbers of empty tubes were found in most stations, but these tubes appear

to belong to species which are usually collected in their tubes.

Some species previously reported have not been recovered in the collections; in other cases species have been split or lumped in the taxonomic treatment, so the numbers of species summed from Tables 1 and 2 and treated systematically do not agree.

SYSTEMATIC LIST OF POLYCHAETOUS ANNELIDS FROM
WESTERN MEXICO AND ADJACENT AREAS

APHRODITIDAE

- Aphrodita longipalpa Essenberg, 1917
Aphrodita negligens Moore, 1905
Laetmonice producta wyvillei McIntosh, 1885

POLYNOIDAE

- Admetella hastigerens Chamberlin, 1919
Harmothoe mexicana Chamberlin, 1919
Lepidasthenia curta Chamberlin, 1919
Lepidonotus squamatus (Linnaeus, 1767)
Lepidonotus versicolor Ehlers, 1901
Subadyte mexicana, new species

POLYDONTIDAE

- Panthalis pacifica Treadwell, 1914
Peisidice, species indeterminable
Polyodontes panamensis (Chamberlin, 1919)

SIGALIONIDAE

- Leanira calcis Hartman, 1960
Sthenelais tertiaglabra Moore, 1910
Sthenelanella uniformis Moore, 1910
Sthenolepis areolata (McIntosh, 1885)

Sthenolepis racemosa, new species

Sthenolepis spargens, new species

AMPHINOMIDAE

Pseudeurythoe abyssalis, new species

EUPHROSINIDAE

Euphrosine paucibranchiata Hartman, 1960

PHYLLODOCIDAE

Anaitides dubia, new species

Austrophyllum exsilium, new species

Eulalia anoculata, new species

Eulalia mexicana, new species

Paranaitis polynoides (Moore, 1909)

Pirakia brunnea, new species

LACYDONIIDAE

Paralacydonia paradoxa Fauvel, 1913

HESIONIDAE

Indeterminable

SYLLIDAE

Indeterminable

PILARGIIDAE

Ancistargis verrucosa, new species

Pilargis mirasetis, new species

Sigambra rugosa, new species

Sigambra setosa, new species

NEREIDAE

- Ceratocephale loveni pacifica Hartman, 1960
Ceratonereis vermillionensis, new species
Neanthes mexicana, new species
Nereis angelensis, new species
Nereis anoculopsis, new species
Nereis fossae, new species
Nereis zonata Malmgren, 1867
Platynereis bicanaliculata (Baird, 1863)

NEPHTYIDAE

- Aglaophamus eugeniae, new species
Aglaophamus fossae, new species
Aglaophamus paucilamellata, new species
Aglaophamus surrufa, new species
Aglaophamus sp. A.
Nephtys cornuta Berkeley and Berkeley, 1945
Nephtys ferruginea Hartman, 1940
Nephtys paradoxa Malm, 1874
Nephtys squamosa Ehlers, 1887

SPHAERODORIDAE

- Clavodorum clavatum, new species
Ephesiella brevicapitis (Moore, 1909)
Sphaerephesia longisetis, new genus, new species
Sphaerephesia similisetis, new species

GLYCERIDAE

- Glycera americana Leidy, 1855
Glycera branchiopoda Moore, 1911
Glycera capitata Örsted, 1843
Glycera oxycephala Ehlers, 1887
Glycera profundi Chamberlin, 1919
Glycera tessellata Grube, 1863

GONIADIDAE

- Bathyglycinde cedroensis, new genus, new species
Bathyglycinde mexicana, new species
Glycinde armigera Moore, 1911
Goniada annulata Moore, 1905
Goniada brunnea Treadwell, 1906

ONUPHIDAE

- Hyalinoecia juvenalis Moore, 1911
Hyalinoecia leucacra Chamberlin, 1919
Hyalinoecia stricta Moore, 1911
Hyalinoecia tecton Chamberlin, 1919
Nothria abyssalis Fauchald, 1968
Nothria hiatidentata Moore, 1911
Nothria iridescens (Johnson, 1901)
Nothria lepta (Chamberlin, 1919)
Nothria mexicana Fauchald, 1968
Nothria pallida Moore, 1911
Nothria vibex, new species
Onuphis litabranhia Chamberlin, 1919
Onuphis nannognathus Chamberlin, 1919
Onuphis nebulosa Moore, 1911
Onuphis parva Moore, 1911
Onuphis profundi Fauchald, 1968
Onuphis vexillaria Moore, 1911
Paranorthia fissurata, new species
Paronuphis abyssorum (Chamberlin, 1919)

EUNICIDAE

- Eunice americana Hartman, 1944
Eunice antennata (Savigny, 1818)
Eunice aphroditois (Pallas, 1788)
Eunice megabranhia Fauchald, 1970
Eunice segregata (Chamberlin, 1919)
Eunice semisegregata Fauchald, 1969
Eunice vittata (delle Chiaje, 1828)

LUMBRINERIDAE

- Lumbrineris bicirrata Treadwell, 1929
Lumbrineris californiensis Hartman, 1944
Lumbrineris cedroensis Fauchald, 1970
Lumbrineris cruzensis Hartman, 1944
Lumbrineris eugeniae Fauchald, 1970
Lumbrineris index Moore, 1911
Lumbrineris lagunae Fauchald, 1970
Lumbrineris ?latreilli Audouin and Milne Edwards,
1834
Lumbrineris longensis Hartman, 1960
Lumbrineris moorei Hartman, 1942
Ninoe foliosa, new species
Ninoe fusca Moore, 1911
Ninoe fuscoides, new species
Ninoe longibranchia, new species

ARABELLIDAE

- Drilonereis falcata Moore, 1911

DORVILLEIDAE

- Dorvillea annulata (Moore, 1906)

ORBINIIDAE

- Califia calida Hartman, 1957
Califia mexicana, new species
Haploscoloplos elongatus (Johnson, 1901)
Haploscoloplos kerguelensis (McIntosh, 1885)
Haploscoloplos mexicanus, new species
Scoloplos (Leodamas) mazatlanensis, new species

PARAONIDAE

- Aedicira alisetosa, new species
Aedicira antennata (Annenkova, 1934)
Aedicira longicirrata, new species

- Aricidea crassicapitis, new species
Aricidea ?lopezi (Berkeley and Berkeley, 1956)
Aricidea similis, new species
Cirrophorus aciculatus (Hartman, 1957)
Cirrophorus lyra (Southern, 1914)
Paraonides cedroensis, new species
Paraonis gracilis (Tauber, 1879)
Paraonis gracilis oculata (Hartman, 1957)
Paraonis pycnbranchiata, new species

SPIONIDAE

- Laonice ?sacculata (Moore, 1923)
Paraprionospio pinnata (Ehlers, 1901)
Prionospio (Aopoprionospio) vermillionensis,
 new species
Prionospio (Prionospio) anuncata, new species
Prionospio (Prionospio) cirrifer Wirén, 1883
Prionospio (Prionospio) lobulata, new species
Prionospio (Prionospio) malmgreni Claparède, 1870
Spiophanes anoculata Hartman, 1960
Spiophanes fimbriata Moore, 1923
Spiophanes pallidus Hartman, 1960

MAGELONIDAE

- Magelona californica Hartman, 1944

POECILOCHAETIDAE

- Poecilochaetus johnsoni Hartman, 1939

CHAETOPTERIDAE

- Phyllochaetopterus limicolus Hartman, 1960

CIRRATULIDAE

- Chaetozone setosa Malmgren, 1867
Cirratulus sinicolens Chamberlin, 1919

Tharyx monilaris Hartman, 1960

Tharyx multifilis Moore, 1909

COSSURIDAE

Cossura brunnea, new species

Cossura candida Hartman, 1955

Cossura rostrata, new species

Cossura sima, new species

FLABELLIGERIDAE

Brada pluribranchiata (Moore, 1923)

Brada verrucosa Chamberlin, 1919

Diplocirrus micans, new species

Fauveliopsis glabra (Hartman, 1960)

Fauveliopsis rugosa, new species

Flabelliderma macrochaeta, new species

Flabelligella mexicana, new species

Ilyphagus bythincola Chamberlin, 1919

Pherusa abyssalis, new species

Pherusa ?inflata (Treadwell, 1914)

Piromis hospitis, new species

Therochaeta pacifica, new species

SCALIBREGMIDAE

Scalibregma inflatum Rathke, 1843

OPHELIIDAE

Ammotrypane aulogaster Rathke, 1843

Ammotrypane pallida Hartman, 1960

Polyopthalmus translucens Hartman, 1960

Travisia brevis Moore, 1923

Travisia foetida Hartman, 1969

STERNASPIDAE

Sternaspis fossor Stimpson, 1853

CAPITELLIDAE

- Dasybranchus lumbricoides Grube, 1878
Leiochrides hemipodus Hartman, 1960
Neoheteromastus lineus Hartman, 1960
Neomediomastus glabrus (Hartman, 1960)
Neonotomastus glabrus, new genus, new species
Notodasus magnus, new genus, new species
Notomastus (Clistomastus) tenuis Moore, 1909
Notomastus (Notomastus) abyssalis, new species
Notomastus (Notomastus) cinctus, new species
Notomastus (Notomastus) magnus Hartman, 1947
Notomastus (Notomastus) precocis Hartman, 1960

MALDANIDAE

- Asychis ?amphiglypta (Ehlers, 1897)
Asychis disparidentata (Moore, 1904)
Asychis lobata, new species
Asychis ramosus Levenstein, 1961
Clymaldane laevis, new species
Clymenopsis californiensis Hartman, 1969
Euclymene reticulata Moore, 1923
Isocirrus longiceps (Moore, 1923)
Maldane cristata Treadwell, 1923
Maldane monilata, new species
Maldane sarsi Malmgren, 1865
Petaloproctus ornatus Hartman, 1969
Praxillella gracilis (Sars, 1862)
Praxillella trifila Hartman, 1960
Rhodine bitorquata Moore, 1923

OWENIIDAE

- Myriochele gracilis Hartman, 1955
Myriochele heeri Malmgren, 1867
Myriochele pygidialis Hartman, 1960

SABELLARIIDAE

Idanthyrus armatopsis, new species

PECTINARIIDAE

Indeterminable

AMPHARETIDAE

Amage delius (Chamberlin, 1919)

Amage scutata Moore, 1923

Ampharete ?arctica Malmgren, 1866

Amphicteis mucronata Moore, 1923

Amphicteis obscurior Chamberlin, 1919

Amphicteis orphnius Chamberlin, 1919

Amphicteis scaphobranchiata Moore, 1906

Amphicteis uncopalea Chamberlin, 1919

Anobothrus bimaculatus, new species

Anobothrus mancus, new species

Ecamphicteis elongata, new genus, new species

Eqamella quadribranchiata, new genus, new species

Lysippe annectens Moore, 1923

Lysippe mexicana, new species

Melinna exilia, new species

Melinna heterodonta Moore, 1923

Melinna plana, new species

Melinna tentaculata, new species

Melinnampharete gracilis Hartman, 1969

Melinnexis moorei Hartman, 1960

Mexamage corrugata, new genus, new species

Samythella interrupta, new species

Samythella pala, new species

TEREBELLIDAE

Artacama coniferi Moore, 1905

Nicolea latens Chamberlin, 1919

Paraxionice artifex, new genus, new species

Pista brevibranchiata Moore, 1923

Scionella japonica Moore, 1903

Streblosoma crassibranchia Treadwell, 1914

Thelepus hamatus Moore, 1905

TRICHOBRANCHIDAE

Terebellides stroemi Sars, 1835

SABELLIDAE

Chone gracilis Moore, 1906

Euchonella magna, new genus, new species

Fabrisabella similis, new species

Megalomma circumspectum (Moore, 1923)

Megalomma splendida (Moore, 1905)

Pseudopotamilla intermedia Moore, 1905

DESCRIPTION OF SPECIES

Family APHRODITIDAE Malmgren, 1867

A revision of the family is needed and the systematic characters must be redefined. The present material is too small to permit such an undertaking, so the identifications given below must be considered temporary. Three species have been found in the material from western Mexico and other areas in the deep eastern Pacific Ocean.

Key to Species from Deep Water off Western Mexico

1. Body covered with a thick felt; harpoon-setae absent..... 2.
1. Body not covered with a felt; harpoon-setae present..... Laetmonice producta wyvillei

2. Palps 9-11 times longer than the length of the
 prostomium..... Aphrodita longipalpa
2. Palps 4-7 times longer than the length of the
 prostomium..... Aphrodita negligens

Genus Aphrodita Linnaeus, 1758

Aphrodita longipalpa Essenberg, 1917

Aphrodita longipalpa Essenberg, 1917, pp. 403-405, pl. 31,
 figs. 1-14, pl. 37, figs. 77-78; Hartman, 1968, p.
 23.

Aphrodita defendens Treadwell, 1923, p. 6 (not Chamberlin,
 1919, pp. 8-81).

Earlier Record: Treadwell (1923, p. 6): ALBATROSS
 st. D 5676.

New Records: 13774 (1); P 96-59 (1).

Remarks: All specimens referred to above have been
 examined; they agree rather well with the original de-
 scription and with the summary of the description given by
 Hartman (1968). The palps are approximately ten times
 longer than the prostomium. Notosetae are nearly colorless
 and dull.

Distribution: A. longipalpa is known from deep
 water off southern California and western Mexico; the new
 records come from the tip of Baja California in 2500-
 3000 m depth.

Aphrodita negligens Moore, 1905

Aphrodita negligens Moore, 1905a, pp. 526-529, pl. 34,
 figs. 1-2, pl. 35, fig. 31; Hartman, 1968, p. 25.

New Records: ALBATROSS stations 3353 (1); 3392 (2); 3436 (1); D 5675 (4).

Remarks: The specimen from st. 3436 fits the original description very well. The large dorsal spines project from the felt and are definitely roughened along the edges. The identification of the other specimens is somewhat doubtful in that the dorsal spines are not particularly obvious and are somewhat lighter in color than as originally described. They are definitely roughened along the edges. It is possible that these specimens belong to a species presently unknown in the eastern Pacific Ocean.

Distribution: A. negligens is known from Japan along the coast of the eastern Pacific Ocean to Panama in slope and abyssal depths.

Genus Laetmonice Kinberg, 1855

Laetmonice producta wyvillei McIntosh, 1885

Laetmonice producta wyvillei McIntosh, 1885, pp. 44-45, pl. 7, fig. 3, pl. 4A, figs. 9-11; Hartman, 1967, p. 18; Hartman, 1968, p. 35.

New Records: P 3-59 (1); P 287-61 (31); ALBATROSS st. 3358 (1, MCZ).

Remarks: The present specimens fit the original description well. They are all smaller than specimens from the south Pacific Ocean and from the Antarctic. The harpoon-setae are proximally smooth; all specimens have between thirty-nine and forty-four segments.

Distribution: L. producta wyvillei is known from the Pacific Ocean in great depths.

Laetmonice, species indeterminableRecord: 7236 (1).

Remarks: The specimen is a juvenile measuring approximately 5 mm in length; harpoon-setae are present and the dorsal felt is very poorly developed. Other characters could not be determined.

Family POLYNOIDAE Malmgren, 1867

The material of polynoids from western Mexico is sparse; most of the specimens have lost the elytra and are incomplete posteriorly. Six species can be positively identified, but other species, so far unidentifiable, are present in the material. The total number of species is probably more than double the few recorded here.

Key to Species from Deep Water off Western Mexico

- | | |
|--|-------------------------------|
| 1. Lateral antennae terminal..... | 3. |
| 1. Lateral antennae subterminal or ventral..... | 2. |
| 2. Notopodial and neuropodial setae with spinous pockets.
..... | <u>Subadyte mexicana</u> |
| 2. Notopodial and neuropodial setae spinous, but without
spinous pockets..... | <u>Harmothoe mexicana</u> |
| 3. Twelve pairs of elytra..... | 4. |
| 3. More than twenty pairs of elytra..... | 5. |
| 4. Elytra with strong marginal fringe..... | <u>Lepidonotus squamatus</u> |
| 4. Elytra without marginal fringe. | <u>Lepidonotus versicolor</u> |
| 5. Prostomium with antennal scales at the bases of the
lateral antennae..... | <u>Admetella hastigerens</u> |
| 5. Antennal scales absent..... | <u>Lepidasthenia curta</u> |

Admetella hastigerens Chamberlin, 1919

Admetella hastigerens Chamberlin, 1919, pp. 64-67, pl. 9, figs. 6-8; Treadwell, 1923, pp. 3-4.

Admetella dolichopus Chamberlin, 1919, pp. 67-69, pl. 10, fig. 1.

Admetella longipedata Pettibone, 1967, pp. 2-6, figs. 1-2, partim., not McIntosh, 1885, pp. 124-125, pl. 14, fig. 5, pl. 20, fig. 6, pl. 12A, fig. 17.

Earlier Records: Chamberlin (1919, pp. 66 and 69): ALBATROSS st. 3425 (1, TYPE of A. dolichopus, USNM 19325); 4261 (1, TYPE, USNM 19326). Treadwell (1923, p. 4): ALBATROSS St. D 5676 (1); D 5677 (1 USNM 19149); D 5685 (3, 1 in USNM 19150 the remainder in AMNH); D 5692 (1).

Remarks: A. hastigerens and A. dolichopus resemble each other in all essential features and are considered synonymous, as was done by Pettibone (1967). Pettibone (1967) also considered the two synonymous with A. longipedata McIntosh. The tentacular segments have one or two projecting setae in A. longipedata (McIntosh, 1885, pl. 14, fig. 5); such setae are absent in all examined specimens of A. hastigerens. The two species are here considered valid.

Distribution: A. hastigerens is known from off Panama and southern California in depths ranging from approximately 1000 to 2000 m.

Harmothoe mexicana Chamberlin, 1919

Harmothoe mexicana Chamberlin, 1919, pp. 54-58, pl. 1, figs. 1-9, pl. 2, fig. 1.

Lagisca multisetosa Treadwell, 1923, p. 2, not Moore, 1902, pp. 267-269, pl. 14, figs. 29-36.

Earlier Records: Chamberlin (1919, p. 57): ALBATROSS st. 3425 (several, USNM No. 19370 and 19377, TYPE); 3430 (1, USNM No. 19371). Treadwell (1923, p. 2): ALBATROSS st. D 5682 (1).

New Records: ALBATROSS st. 2992 (4); 3354 (1).

Remarks: The types of H. mexicana (USNM 19370 and 19377) have been re-examined, and more material from the type locality, not previously reported, has been identified. Material from two other ALBATROSS stations and the specimens reported by Treadwell (1923) have also been examined.

The superior neurosetae have a distinct gap between the distal and proximal teeth. The base of this gap is continued basally as a narrow slit in most setae, but may be as illustrated by Chamberlin (1919, pl. 1, fig. 6). The inferior neurosetae are distally sharply pointed as described by Chamberlin (1919).

Distribution: H. mexicana is known from Panama to the southern part of Baja California and the Revillagigedo Islands in depths ranging from approximately 600 to 1200 m.

Genus Lepidasthenia Malmgren, 1867

Lepidasthenia curta Chamberlin, 1919

Lepidasthenia curta Chamberlin, 1919, pp. 61-63, pl. 5, figs. 4-9; Treadwell, 1923, p. 4.

Earlier Records: Chamberlin (1919, p. 63): ALBATROSS st. 3424 (1, USNM No. 19399, TYPE). Treadwell (1923, p. 4): ALBATROSS st. D 5683 (1).

New Record: 13767 (1).

Remarks: The type had already been dried by the time it was described by Chamberlin (1919); the two other

specimens fit the description closely. L. curta resembles L. interrupta (Marenzeller, 1902, p. 570, pl. 1, fig. 2) from Japan. The superior neuropodial setae are finely bifid in the former and entire in the latter. The elytra are smooth in the former and have scattered papillae in the latter.

Distribution: L. curta is known from two localities off Baja California in approximately 1200 m depth and one locality off the Tres Marias Islands in 1450 m depth.

Genus Lepidonotus Leach, 1816

Two species, both well known from shallow-water areas in other parts of the world, have been found in the deep-water material from western Mexico.

Lepidonotus squamatus (Linnaeus, 1767)

Lepidonotus squamatus Hartman, 1968, p. 125

Record: 11830 (1).

Remarks: L. squamatus appears to have a remarkably wide geographical and ecological range. The species is rather variable in the detailed structure of the elytra and in the relative proportions of the neuropodial setae; it is possible that the present concept of the species conceals several closely related species. The present specimen agrees well with the diagnosis given by Hartman (1968).

Distribution: L. squamatus has been reported from the northern hemisphere, mainly in shallow-water rocky bottoms. The present record is from 1409 m depth in Sal si Puedes Basin, Gulf of California.

Lepidonotus versicolor Ehlers, 1901

Lepidonotus versicolor Ehlers, 1901, pp. 50-52, pl. 3, figs. 1-9; Hartman, 1939b, pp. 40-41, pl. 5, figs. 56, 59-61.

Earlier Record: Hartman (1939b, p. 40): 529 (1).

Remarks: L. versicolor resembles L. squamatus closely in the structure of the elytra. Marginal papillae are absent in the former and present in large numbers in the latter.

Distribution: L. versicolor is known from Chile to the Gulf of California; most records come from shelf depths; the present record is from 275 m depth.

Genus Subadyte Pettibone, 1969

Polynoids with spinous pockets on the setae, all of which were formerly considered in the genus Scalissetosus, were separated into six different genera by Pettibone (1969, pp. 1-30, 12 figs.). A species of the genus Subadyte, formerly known only from shallow water, is present in the deep-water material from western Mexico.

Subadyte mexicana, new species

(Plate 1, Figs. a-e)

Records: 7233 (1); 7234 (3, TYPE).

Description: All specimens are incomplete and lack elytra; the type has 14 setigers and is 4.5 mm long and 2.5 mm wide without setae. It is brown and lacks color patterns.

The prostomium is wider than long. The cephalic peaks are distinct and a small facial tubercle is present. The lateral antennae are short and slender; the median antenna is inserted near the middle of the prostomium. The antennal style is slightly longer than the palps (seen in a paratype). The palps reach the third setiger; each is stout and has rows of slender, slightly clavate papillae.

All parapodia (Fig. a) are similar; both the notopodial and neuropodial acicular lobes are long and pointed; the neuropodial lobe is slightly longer than the notopodial one. The dorsal cirri project beyond the tip of the dorsal setae; each has a few, scattered papillae. The short, slender ventral cirri have numerous short papillae. Elytra are on segments 2, 4, 5, 7 and on alternating segments to the ends of the different fragments. The total number of elytra could not be determined.

The notopodial setae (Figs. b-c) are thick and slightly curved; each has a distinctly bifid tip with both teeth directed distally. The proximal part of each seta is smooth; a median portion has nine to ten spinous pockets and the distal portion is finely dentate to the tip. The inferior noto-setae are longer than the superior ones, but are otherwise similar. All neuropodial setae are similar, except that the distal portion beyond the spinous pocket is longer in the median setae than in the inferior and superior ones. Each neuropodial seta (Figs. d-e) is distally bifid and has a long, slender, smooth shaft which is slightly inflated at the level of the single spinous pocket. Distal to the spinous pocket is an area with very fine teeth; the distalmost portion of each seta is smooth. The seta terminates in a large distal tooth and a small, often strongly reduced proximal tooth.

Three species were originally assigned to Subadyte by Pettibone (1969); these three include: S. mjoebergi (Augener, 1922a, see Pettibone, 1969 for complete references), S. papillifera (Horst, 1915) and S. pellucida (Ehlers, 1864).

A facial tubercle is present in S. mexicana and absent in the other three species. The neurosetae have spinous pockets in S. pellucida and are dentate in S. mjoebergi, S. mexicana and S. papillifera. The distal portion of the neurosetae is smooth in S. mexicana and dentate in S. mjoebergi and S. papillifera.

Distribution: S. mexicana is known from two localities in the vicinity of Cedros Island, Baja California in depths ranging from 567-844 m.

Polynoidae, indeterminable

Records: 6212 (1); 6213 (2); 7229 (fragm.); 7234 (6); 11827 (1); P 41-59 (1); P 218-60 (fragm.).

Remarks: These specimens, belonging both to the Harmothoinae and the Lepidonotinae, are incomplete and cannot be identified with any species known from western Mexico. Identification of several of these fragments would be possible if more material were available.

Family POLYDONTIDAE Pflugfelder, 1934

Key to Species from Deep Water off Western Mexico

1. Superior neurosetae are long and have numerous, bilaterally arranged bristles..... Polyodontes panamensis
1. Superior neurosetae are short and have distal brushes of long bristles..... Panthalis pacifica

Genus Panthalis Kinberg, 1855

Panthalis pacifica Treadwell, 1914

Panthalis pacifica Treadwell, 1914, pp. 184-186, pl. 11, figs. 1-7; Hartman, 1968, p. 145.

Records: 1746 (1); P 65-59 (3).

Remarks: The present specimens have strongly curved inferior neurosetae and the bristles are somewhat longer than as illustrated by Treadwell (1914, pl. 11, fig. 5).

Distribution: The two present records are well within the geographical range established for the species (Hartman, 1968, p. 145). The two records are from 174-210 m and from 310 m depth respectively.

Genus Polyodontes Renier in

Audouin and Milne Edwards, 1832

Polyodontes panamensis (Chamberlin, 1919)

Panthalis panamensis Chamberlin, 1919, pp. 86-89, pl. 11, figs. 4-8, pl. 12, figs. 1-6.

Polyodontes panamensis Hartman, 1968, p. 149.

Record: 1105 (1).

Remarks: Each of the first elytra has several dark spots; the specimen is otherwise as described by Chamberlin (1919).

Distribution: P. panamensis is known from southern California to Panama; the present record is from the southern part of the Gulf of California in 207-280 m depth.

Genus Peisidice Johnson, 1897

Peisidice, species indeterminable

Record: 13767 (1).

Remarks: The specimen is less than 2 mm long

and posteriorly incomplete. The antennae are nearly smooth and the elytra lack the concentric rings found in other species of the genus. The elytral fringe consists of a few, well separated long fimbriae. The notopodial setae are short, smooth capillaries. The neuropodial composite setae have smooth, slender appendages. Eyes are absent.

The specimens appear to differ specifically from all species known in the genus but cannot be further characterized without better material.

Distribution: The specimen was found off the Tres Marias Islands in 1450 m depth.

Family SIGALIONIDAE Malmgren, 1867

Key to Species from Deep Water off Western Mexico

1. All neurosetae are spinigers with short appendages....
..... Sthenelabella uniformis
1. Neurosetae usually of several kinds, none of which are spinigers with short appendages..... 2.
2. Some neurosetae are bifid spinigers.....
..... Sthenelais tertiaglabra
2. Bifid falcigers are absent; most neurosetae are long spinigers..... 3.
3. Median antenna with ctenidia..... 4.
3. Antennal ctenidia absent..... Leanira calcis
4. Lateral antennae less than one-fifth the length of the palps..... 5.
4. Lateral antennae one-third the length of the palps ...
..... Sthenolepis spargens
5. Notopodial fimbriae in a group of six near the base on the posterior face..... Sthenolepis racemosa
5. Five fimbriae in a row at the distal end of the notopodium..... Sthenolepis areolata

Genus Leanira Kinberg, 1855

Leanira calcis Hartman, 1960

Leanira calcis Hartman, 1960, pp. 82-83, pl. 4, figs. 1-5;
Hartman, 1968, p. 155.

Records: 7228 (1); 7235 (1).

Remarks: Both specimens have lost all elytra. The branchiae have small spurs near the bases; the spurs are most easily visible in median setigers.

Distribution: L. calcis has been reported from basin depths off southern California. The present records are from off Cedros Island, Baja California in 1250-1297 m and 3762-4396 m depth respectively.

Genus Sthenelais Kinberg, 1855

Sthenelais tertiaglabra Moore, 1910

Sthenelais tertiaglabra Moore, 1910, pp. 395-398, pl. 33,
figs. 113-120; Hartman, 1968, p. 165.

Record: P 219-60 (1).

Remarks: The present specimen differs from the species as originally described in that the elytral papillae are slightly constricted at the bases so that the three ridges project beyond the apparent margin of the papillae when seen from the dorsal side. The elytral papillae were originally shown as being evenly widening towards the bases.

Distribution: S. tertiaglabra is known from central and southern California in shelf and slope depths. The present record is from near the boundary between Mexico and

the United States in upper slope depths.

Genus Sthenelanelia Moore, 1910

Sthenelanelia uniformis Moore, 1910

Sthenelanelia uniformis Moore, 1910, pp. 391-395, pl. 33,
figs. 105-112; Hartman, 1968, p. 169.

Record: P 65-59 (1).

Remarks: The shafts of the neuropodial setae of the present specimen are somewhat longer than those originally described by Moore.

Distribution: The present record is well within the geographical range established for the species (Hartman, 1968, p. 169). Formerly the species was known from no deeper than 72 m; the present record is from 320 m.

Genus Sthenolepis Willey, 1905

Most species appear to have numerous fimbriae distally on the anterior neuropodia; the number and arrangement of the fimbriae on posterior parapodia appear to be constant for each species.

Sthenolepis areolata (McIntosh, 1885)

(Plate 1, Fig. i)

Leanira areolata McIntosh, 1885, pp. 151-152, pl. 21, fig. 3, pl. 25, figs. 8-9, pl. 13A, fig. 1.

Sthenolepis areolata Hartman, 1968, p. 173.

Records: 11815 (2); 13724 (1); 13743 (1); 13744 (1); 13755 (1); 13768 (1); 13775 (1).

Remarks: S. areolata has a few fimbriae scattered along the dorsal and distal edges of the notopodia. The shafts of the neuropodial setae (Fig. i) are distally evenly rounded. Eyes are absent.

The present records are from much greater depths than any former records and the identification may be doubtful.

Distribution: S. areolata is found on both sides of the northern Pacific Ocean down to southern California and central Japan. The present records are from the Guaymas Basin, Gulf of California and along the landward side of the Central American Trench from Baja California to off Acapulco, in depths ranging from 1200 to 2500 m.

Sthenolepis racemosa, new species

(Plate 2, Figs. a-d)

Records: 11809 (1, TYPE); 13780 (1); 13782 (1).

Description: The type is an incomplete specimen which has approximately 50 setigers. It is 22 mm long and 5 mm wide with setae. It is salmon-colored and lacks color patterns. All elytra have been lost.

The rounded prostomium (Fig. b) is slightly wider than long; eyes are absent. The base of the median antenna is near the anterior edge; the style of this antenna has been lost; the base has two small ctenidia. The slender paired lateral antennae are very short. The palps are long.

The first parapodia have short notopodia and bluntly truncate, long neuropodia; each of the first ten parapodia has a dense distal brush of fimbriae on the neuropodium.

The third setiger has a long, slender dorsal cirrus; other dorsal cirri are absent. The ventral cirri project beyond the tip of the neuropodia in the first ten to fifteen setigers.

Posterior parapodia (Fig. c) have long, narrow neuropodia and short, slender notopodia. Each notopodium is distally entire and obliquely rounded; it has six long, slender fimbriae in a group on the middle of the posterior face near the base. Each neuropodium is distally conically pointed; it has eight fimbriae along the subdistal and distal portions of the dorsal edge. A single fimbria is present subdistally on the ventral edge and there is a group of six fimbriae near the middle on the ventral margin. The ventral cirrus is shorter than the neuropodium and is near the middle of the neuropodium.

Branchiae are present from the second setiger; they are absent on the third setiger, but are found in all posterior setigers. Each is recurved and has a large basal swelling.

Notosetae are of two kinds; each of the superior setae (Fig. d) is long and slender and has small teeth in evenly spaced whorls. Inferior notosetae are short and slender; each has a finely dentate cutting edge, but is otherwise smooth. Neurosetae (Fig. a) are all of one kind; each has a long, slender shaft that is distally continued in a finely dentate, oblique membrane; the appendage is slender and spinigerous.

Eyes are absent in seven species of *Sthenolepis*; these include *S. areolata* (McIntosh, for reference, see above), *S. izuensis* (Takahashi, 1938, pp. 199-201, pl. 20, fig. c, textfigs. 4-5), *S. javanica* (Horst, 1917, pp. 117-118, pl. 25, figs. 1-4), *S. magellanica* (McIntosh, 1885, pp. 150-151, pl. 21, fig. 7, pl. 23, fig. 13, pl. 25, figs. 6-7, pl. 13A, figs. 19-20), *S. racemosa*, new species, *S. spargens*, new species and *S. tetragona* (Örsted, 1845, pp. 404-405, pl. 5, figs. 5 and 11).

The shafts of the neurosetae are distally smooth and a dentate membrane is absent in S. areolata and S. izuensis; at least some setae have dentate shafts in the remaining five species.

The number and arrangement of the fimbriae on the parapodia in these five species may be summarized:

S. javanica: Notopodia with two distal; neuropodia with one on each side of the tip.

S. magellanica: Notopodia with three distal; neuropodia with six distal and three on the ventral margin.

S. racemosa: Notopodia without distal fimbriae, six in a group on the posterior face; neuropodia with eight distal on the dorsal side, one subdistally and six in a group on the ventral margin.

S. spargens: Notopodia with one subdistal and three near the base on the posterior face; neuropodia with two on the ventral margin and one just above the base of the ventral cirri.

S. tetragona: Notopodia with seven distal; neuropodia with six distal and a group of several on the ventral margin (see Örsted, 1845, pl. 5, fig. 11 for illustration of the type of this species).

The median antenna is short in S. izuensis and long in S. areolata, S. javanica, S. magellanica, S. spargens and S. tetragona. The length of the median antenna is not known for S. racemosa.

Distribution: S. racemosa is known from Guaymas Basin, Gulf of California and off Cabo Falso, Baja California in 1775 to 2223 m depth.

Sthenolepis spargens, new species

(Plate 1, Figs. e-h)

Records: 7229 (1); 7231 (6); 7358 (9); 11744 (1); 11753 (1, TYPE).

Description: The type is an incomplete specimen which has 73 setigers; it is 18 mm long and 2.5 mm wide with setae. It is yellow and lacks color patterns except for a light brown crescent on each side of the prostomium.

The prostomium (Fig. h) is broadly rounded and wider than long; eyes are absent. The median antenna (in the specimen from st. 7229) is long and slender; the lateral antennae are more than one-third as long as the palps and are about as long as the median antenna. The palps are long.

The first parapodia are distally smooth and fimbriae are lacking; the third setiger has a dorsal cirrus which is somewhat shorter than the lateral antennae (present in the specimen from 7229).

The notopodium is slightly shorter than the neuropodium in each of the posterior setigers (Fig. e). Each is distally evenly rounded; a single fimbria is on the dorsal margin and three evenly spaced, long and slender fimbriae are on the posterior face of the notopodium near the base. The neuropodial acicular lobe is sharply pointed; a low, rounded postsetal lobe is on the superior side of the aciculum. Two fimbriae are on the ventral edge and one is on the posterior face near the base of the ventral cirrus.

Branchiae are present from the second setiger; they are absent on the third setiger. Each is short and distally clavate.

Elytra (present in the specimen from st. 7229) are rounded rectangular. The dorsal surface is practically smooth; marginal papillae are absent, but the margins are lobed.

Notosetae are of two kinds; the superior ones (Fig. g) are long and slender and have numerous, closely appressed teeth in dense whorls. The inferior notosetae are short and have finely dentate cutting edges. Neurosetae are all of one kind; each has a long, slender shaft and a comparatively short, spinigerous appendage. The distal end of each shaft is continued in a thin, oblique, finely dentate membrane.

The relationship between S. spargens and similar species has been discussed above.

Distribution: S. spargens has been found on five stations near Cedros Island and in the southern part of the Gulf of California.

Sigalionidae, indeterminable

Records: 7358 (1); 11739 (1); 13731 (1).

Remarks: All three specimens are in bad condition and cannot be identified further.

Family AMPHINOMIDAE Savigny, 1818

Genus Pseudeurythoe Fauvel, 1932

The genus was defined on the missing or at least reduced caruncle, and on branchiae limited to an anterior region. Eyes are supposed to be present; they are known to be reduced in several species and are completely absent in two (see below).

Twelve species are currently referred to Pseudeurythoe (Hartman, 1959, p. 138; 1965a, p. 16 and later addenda). One species which is usually referred to this genus, though not by Hartman (1959, 1965a) is P. dubia (Horst, 1912, pp. 37-38, pl. 7, fig. 1, pl. 10, figs. 6-10). It differs from all other species in that it has a comparatively large, flexuose caruncle similar to that found in Eurythoe spp. The species was originally described in this genus and is here considered as belonging to it.

The other species include: P. abyssalis, new species; P. acarunculata Monro (1937, pp. 249-250, fig. 2a-d); P. ambigua (Monro, 1933a, pp. 6-7, fig. 2); P. annulata Hartmann-Schroeder (1965, pp. 95-99, figs. 48-51);

P. canariensis (Langerhans, 1881, pp. 109-110, pl. 4, fig. 14a-g); P. hirsuta Wesenberg-Lund (1949, pp. 268-270, fig. 9); P. microcephala Fauvel (1932, pp. 49-51, pl. 1, figs. 5-8, textfig. 9a-e); P. minuta Knox (1960, p. 80, figs. 1-6); P. oculata (Treadwell, 1941b, p. 18, figs. 1-3); P. oculifera (Augener, 1913, pp. 89-91, pl. 2, fig. 19, textfig. 2a-c); P. paucibranchiata Fauvel (1932, pp. 47-49, pl. 1, figs. 3-4, textfig. 8a-e, genotype) and P. spiralis Wesenberg-Lund (1949, pp. 266-268, figs. 7-8).

A caruncle is present in P. abyssalis, P. ambigua, P. annulata, P. microcephala, P. minuta, P. oculata and P. paucibranchiata; it is reported absent in the other five species. Preserved specimens are often strongly contracted and the presence or absence of a caruncle may be difficult to determine.

Branchiae are usually present from setiger 3; they are present from setiger 4 in P. abyssalis, P. acarunculata and P. minuta. All branchiae are well developed, so this character is usually very easy to determine.

The development of the anterior dorsal and ventral cirri appear to vary systematically. P. microcephala and the genotype, P. paucibranchiata have short cirri in the first setiger and long ones in the second. P. abyssalis, P. annulata and P. minuta have long cirri in the first setiger and short ones in the second. Dorsal and ventral cirri are long in all pre-branchial setigers in P. acarunculata, P. ambigua, P. hirsuta and P. spiralis. The length of the anterior cirri is not known for P. canariensis, P. oculata and P. oculifera.

Four eyes are present in all species except P. abyssalis and P. minuta. Some species (e.g., P. oculata) have large and well developed eyes, but in most species, (e.g., P. annulata) they are very indistinct.

The distribution of the different kinds of setae is probably important, but has been rather poorly described. Some species have neuropodial spurred setae with subdistal inflated portions; these setae have been reported from

P. abyssalis, P. annulata and at least for the Viet-Nameese population of P. hirsuta (Gallardo, 1968, p. 57, pl. 10, fig. 15).

Key to Species of Pseudeurythoe

1. Branchiae present from setiger 3..... 4.
1. Branchiae present from setiger 4..... 2.
2. More than forty pairs of branchiae present, eyes distinct..... P. acarunculata
2. Less than ten pairs of branchiae present, eyes absent..... 3.
3. Seven pairs of branchiae present, maximal number of branchial filaments twelve, subdistally inflated setae absent..... P. minuta
3. Five pairs of branchiae present, maximal number of branchial filaments seventeen to eighteen, subdistally inflated setae present..... P. abyssalis
4. More than twenty pairs of branchiae present..... 5.
4. Maximally fifteen pairs of branchiae present..... 9.
5. Dorsal and ventral cirri short in the first setiger 6.
5. Dorsal and ventral cirri long in the first setiger. 7.
6. Eyes well developed, long setae without basal spur....
..... P. microcephala
6. Eyes indistinct, long setae spurred.....
..... P. paucibranchiata
7. Eyes large, branchiae present in all but the last few segments..... P. oculata
7. Eyes indistinct, branchiae limited to an anterior region..... 8.
8. Caruncle present, antennae smooth.....
..... P. ambigua
8. Caruncle absent, antennae articulated.....
..... P. spiralis
9. Thirteen to fifteen pairs of branchiae present..... 11.
9. Maximally nine pairs of branchiae present..... 10.
10. Antennae and cirri of first setiger articulated, seven

- pairs of branchiae present... *P. canariensis*
10. Antennae and cirri of first setiger smooth, nine pairs
of branchiae present..... *P. oculifera*
11. Caruncle present, cirri of second setiger short.....
..... *P. annulata*
11. Caruncle absent, cirri of second setiger long.....
..... *P. hirsuta*

Pseudeurythoe abyssalis, new species

(Plate 3, Figs. a-f)

Records: 7231-61 (6, TYPE); 7249-61 (3); 11788
(1); 13767 (1); 13774 (1).

Description: The type, which is one of the largest specimens, is a complete specimen which has 28 setigers; it is 7 mm long and 2.2 mm wide with setae. It is white and lacks color patterns.

The prostomium (Fig. a) is elongated quadrangular with a deep transverse incision near the anterior one-third. Two pairs of antennae are on the anterior part near the incision. One pair is dorsal; the other is lateroventral. Both pairs are slender and have two or three indistinct articulations; the lateroventral antennae (palpostyles auctores) are nearly twice as long as the dorsal ones. A slender, smooth antenna, which is slightly longer than the lateroventral ones, is present near the posterior edge of the prostomium. Eyes are absent. The caruncle is in a deep pocket at the posterior edge of the prostomium; it is small and rounded.

All parapodia are biramous; the parapodia of the first setiger have transverse setal lobes and long, slender dorsal and ventral cirri. Other anterior parapodia (Fig. f) have broadly transverse notopodial setal lobes and conical neuropodial setal lobes. Setal lobes are bluntly conical in postbranchial parapodia.

Branchiae are present from setiger 4 to setiger 8 or 9. All branchiae are similar; each has seventeen to twenty terminal branchial filaments on four or five branchial stems. The stems show clearly dichotomous divisions. The dorsalmost branchial stem (Fig. f) is always larger than the others and carries nearly half the number of branchial filaments.

Dorsal and ventral cirri are similar in all parapodia except in the first pair. Each is digitate and shorter than the parapodia. Dorsal cirri are absent in the branchial setigers.

Most setae in the notopodia are broken; they are of two kinds. A number of slender, smooth setae and four or five harpoon-like setae (Fig. c) are present in all notopodia. The two notopodial acicula are thick and appear to have a rough surface.

Neuropodial setae include three different kinds of dentate setae. Superiormost in all neuropodia are found ten to twelve slender setae with long marginal teeth, but without basal spurs. A number of slender, dentate setae with basal spurs (Fig. e) are in the middle of the fascicles. Three or four setae with short teeth, a large basal spur and a distinct subdistal inflation (Fig d) are present ventralmost in all fascicles. The neuropodial acicula are subdistally inflated. (Fig. b).

P. abyssalis has branchiae from setiger 4 as do two other species assigned to this genus. They include P. acarunculata and P. minuta.

P. acarunculata can be separated from the other two species on several characters. It has more than forty pairs of branchiae; eyes are distinct and a caruncle is absent.

The other two species have five or seven pairs of branchiae; eyes are absent and a caruncle is present.

P. minuta has seven pairs of branchiae; the maximal number of branchial filaments is twelve; dorsal cirri are present in the branchial setigers and subdistally inflated

setae are absent.

P. abyssalis has maximally five pairs of branchiae, the maximal number of branchial filaments is seventeen to twenty; dorsal cirri are absent in the branchial setigers and subdistally inflated setae are present in all neuropodia.

Distribution: P. abyssalis has been found off Cedros Island, Baja California, in the southern part of the Gulf of California, off the Tres Marias Islands, and south of Cabo Falso, Baja California in depths ranging from 1458 to 3751 m.

Family EUPHROSINIDAE Williams, 1852

Genus Euphrosine Savigny, 1818

Euphrosine paucibranchiata Hartman, 1960

Euphrosine paucibranchiata Hartman, 1960, pp. 84-85, pl. 5, figs. 1-2; Hartman, 1968, pp. 221-222.

Record: 7234-61 (6).

Remarks: Two of the present specimens are juveniles; one is an ovigerous female. The juveniles agree with the adults in most characters; they differ in that the spurs on the notosetae are only slightly larger than the other serrations, which appear as separate teeth rather than as serrations.

Distribution: E. paucibranchiata is previously known from Santa Cruz Basin in southern California. The present record is from slope depths off Cedros Island, Baja California.

Family PHYLLODOCIDAE Williams, 1852

Phyllodocids appear to be poorly represented in deeper water and most deep-water species are known only through the original description. Six species were found in the material from western Mexico.

Key to Species from Deep Water off Western Mexico

1. Both notopodial and neuropodial acicula present.....
..... Austrophyllum exsilium
1. Notopodial acicula absent..... 2.
2. Tentacular segments fused with each other, often more
or less reduced..... 3.
2. Tentacular segments free from one another, may be
dorsally reduced..... 4.
3. Dorsal cirri distally broadly rounded.....
..... Paranaitis polynoides
3. Dorsal cirri distally pointed. Anaitides dubia
4. First tentacular segment dorsally reduced; a digitate
presetal lobe present..... Pirakia brunnea
4. Both tentacular segments well developed dorsally; pre-
setal lobes absent..... 5.
5. Eyes present; ventral cirri do not project beyond the
tip of the acicular lobe..... Eulalia mexicana
5. Eyes absent; ventral cirri project beyond the tip of
the acicular lobe..... Eulalia anoculata

Genus Anaitides Czerniavsky, 1882

Anaitides dubia, new species

(Plate 4, Figs. a-b)

Record: 13768 (1, TYPE).

Description: The type is a complete specimen which has 131 segments; it is 58 mm long and 2 mm wide without setae. It is light yellow and has a few scattered pigment spots on the posterior edge of the first setiger. There is a single transverse line across each of the posterior setigers. All pigment markings are dark brown. Anteriorly the parapodia are approximately half as long as the body is wide; they increase in length posteriorly.

The prostomium (Fig. b) is rounded hexagonal with a distinct incision posteriorly. A pair of indistinct eyes is present at the widest part. Each of the paired antennae is thick and obliquely truncate distally. The proboscis (seen in dissection) has flattened triangular papillae in distinct rows. The number of rows could not be counted.

The first and second segments are fused and appear dorsally as a narrow ridge between the posterior corners of the prostomium. All four pairs of tentacular cirri are digitiform. The two dorsal pairs are equally long; each reaches the seventh setiger when stretched over the dorsum. The first tentacular cirrus is somewhat longer than the ventral one, but both reach approximately setiger 3 when stretched.

Parapodia (Fig. a) are long and narrow; each acicular lobe is distally truncate or slightly dimpled; pre- and postsetal lobes are low folds following the outline of the acicular lobe closely. The long ventral cirrus reaches beyond the tip of the acicular lobe in all setigers; it is distally pointed. The dorsal cirrus is longer than wide in all setigers; anteriorly it is blunt-tipped; it becomes increasingly pointed in median and posterior setigers.

All setae are composite spinigers; each has a slightly inflated shaft with a series of short, even teeth. The appendage has a finely dentate cutting edge.

A. dubia closely resembles A. medipapillata (Moore, 1909, pp. 237-239, pl. 7, figs. 3-4) in the proportions of the body and the structure of parapodia and setae.

The second dorsal tentacular cirrus is distinctly

longer than the first in A. medipapillata; both dorsal tentacular cirri are of the same length in A. dubia.

The body is colored evenly purplish brown in A. medipapillata and is yellow with narrow transverse lines in the posterior setigers in A. dubia.

Distribution: A. dubia is known from one locality off the Tres Marias Islands in 1512 m depth.

Genus Austrophyllum Bergström, 1914

The genus includes phyllodocids with biramous parapodia where all anterior segments are free from each other and more or less complete dorsally. Setae are present from the second segment; each neuropodium has composite spinigers; each notopodium has one or a few simple setae. The large ventral cirri are usually curved up behind the neuropodial acicular lobes. Prostomial appendages include two pairs of anterior lateral antennae and a median antenna near the posterior margin of the prostomium.

Two named and one un-named species have been assigned to the genus; these include the genotype A. charcoti (Gravier, 1911, p. 57, pl. 1, figs. 14-16), A. monroi Hartman (1964, pp. 52-53, pl. 15, fig. 5) and an un-named species described by Hartman (1967, pp. 48-49). Eulalia sphaerocephala Levenstein (1961, pp. 150-151, fig. 2a-b) from deep water in the Bering Sea has prostomial appendages similar to those found in Austrophyllum and the first three segments appear to be separate from each other. Notopodial acicula were not described for E. sphaerocephala, but the close resemblance in other features indicates that it may belong to Austrophyllum.

The three species recognized in the genus are known only from Antarctic waters; the presence of a distinct species in western Mexico and the possible presence in the Bering Sea of yet another species indicates that the genus may be widespread in cold waters.

Austrophyllum exsilium, new species

(Plate 5, Figs. a-d)

Records: 11738 (1, TYPE); P 41-59 (1).

Description: The type is a complete specimen which has 154 segments; it is 60 mm long and 5 mm wide with setae. It is yellow and has a brown color pattern. The prostomium and the tentacular cirri are light; each segment has three or four narrow dark brown transverse bands. The dorsal and ventral cirri are dark brown and the pennate venation pattern is marked with dark brown lines. The body is cylindrical. The pygidium is a simple cone; anal cirri are absent.

The prostomium (Fig. a) is rounded triangular with the widest part near the anterior end. Five antennae are present; the slender superior lateral antennae are as long as the prostomium; the inferior lateral antennae are strongly clavate and somewhat shorter than the superior ones. The slender median antenna is at the posterior margin of the prostomium and is slightly longer than the prostomium.

The proboscis (seen in dissection) has the proximal portion covered with small papillae. The median portion is smooth and the distal end has large, foliose papillae in several rows.

The first segment is clearly separated from the prostomium and from the second segment; it is somewhat reduced dorsally. The first tentacular cirrus is lost in both specimens. The second segment has a long slender ventral tentacular cirrus; the first dorsal tentacular cirri are lost in both specimens. The third segment has a normal neuropodium; the slender second dorsal tentacular cirrus reaches setiger 17 in the type and setiger 15 in the other specimen.

All parapodia (Fig. b) are similar; each has a short, truncate notopodial acicular lobe. The foliose dor-

sal cirrus is longer than wide and has a blunt tip. The neuropodial acicular lobe has a bluntly conical tip; a glandular pad is present on the ventral edge. The foliose ventral cirrus is broadly sickle-shaped and curved up behind the neuropodial acicular lobe.

A single notopodial seta is present in most parapodia; it is simple and has a finely dentate cutting edge. Neuropodial setae are in dense fascicles; each seta (Figs. c-d) has an inflated shaft with two large and several smaller teeth at the distal end. The appendage is internally striated and the cutting edge has a few long, slender teeth.

A. exsilium resembles A. charcoti in that both have long median antennae, simple, foliose dorsal cirri and large, foliose ventral cirri. The neuropodial acicular lobe is distally notched in A. charcoti and bluntly conical in A. exsilium. The ventral cirri are obliquely ovate and directed laterally in A. charcoti and broadly sickle-shaped and directed dorsally in A. exsilium.

A. monroi differs from all other species in the genus in that it has auricular dorsal cirri, a short median antenna and a distal papilla on the neuropodial acicular lobe.

Distribution: A. exsilium is known from two localities in Tres Marias Basin and off the southern tip of Baja California in 2782-3514 m depth.

Genus Eulalia Savigny, 1817 in Bergström, 1914

Approximately forty species are known in the genus; most species are brilliantly colored in highly characteristic patterns and species identification has been based mostly on these patterns. Such color patterns are difficult to use taxonomically since most colors fade rapidly in alcohol.

Specific characters used here include the length and shape of the dorsal cirri; the relative length of the ventral cirri; the position and length of the median antenna; the presence or absence of eyes and the detailed structures of the distal end of the setal shafts.

Two species have been found in the material from western Mexico.

Eulalia anoculata, new species

(Plate 6, Figs. a-c)

Records: 7358 (1, TYPE); 13782 (1).

Description: The type is an incomplete specimen which has 33 segments; it is 3 mm long and 0.75 mm wide with setae. It is yellow and has brown pigment scattered more or less evenly over the anterior end of the dorsum and along the bases of the parapodia.

The prostomium (Fig. b) is rounded; the paired lateral antennae are digitate. The median antenna is shorter than the lateral ones; it is near the posterior margin of the prostomium. Eyes are absent.

The proboscis was not examined in the two specimens available.

The first segment is complete dorsally; the digitate first tentacular cirri are as long as the prostomium. The second segment has long, slender dorsal tentacular cirri and short, very thick ventral tentacular cirri. The third segment has a normal neuropodium; the second dorsal tentacular cirri resemble the first ones, but are shorter.

All parapodia (Fig. c) are similar; each notopodium is blunt; notacacula are absent. The dorsal cirrus is club-shaped rather than foliose and has a blunt tip. The neuropodial acicular lobe is pointed; the elongate ventral cirrus has a blunt tip; it projects well beyond the tip of the neuropodial acicular lobe in all setigers. A glandular pad is on the ventral edge of the neuropodium.

All setae (Fig. a) are similar; each has a slightly inflated shaft. The distal end of the shaft has numerous short, slender teeth; none of the teeth are markedly larger than the others. The appendage is slender and has a finely dentate cutting edge.

E. an oculata resembles E. longicirrata Støp-Bowitz (1948a, pp. 16-17, fig. 10a-d) and E. sigeformis Annenkova (1937, pp. 157-158, p. 210, fig. 7 e-f) in that all three species lack eyes. The median antenna is as long as or longer than the lateral ones in E. longicirrata and E. sigeformis; it is distinctly shorter than the lateral antennae in E. an oculata. The dorsal cirri are cylindrical and have sharply pointed tips in E. longicirrata; they are foliose with pointed tips in E. sigeformis and clavate with blunt tips in E. an oculata.

Distribution: E. an oculata is known from off Cedros Island, Baja California and off the tip of Baja California in 1098-2160 m.

Eulalia mexicana, new species

(Plate 6, Figs. d-f)

Record: 11838 (1, TYPE).

Description: The type is an incomplete specimen which has 165 segments; it is 28 mm long and 2 mm wide with setae. It is yellow and has a brown pigment pattern. The prostomium has evenly scattered, small dark spots. Each of the anterior segments has a wide transverse brown band; median segments have a few scattered brown spots and posterior segments have pairs of anterolateral brown bars and single elongated bars in posterodorsal positions. Parapodia are yellow; ventral cirri are dark brown and dorsal cirri are yellow, edged with brown. A single dark spot is at the base of each dorsal cirrus.

The prostomium (Fig. e) is rectangular; its long sides are slightly inflated. There is a reddish brown eye near each posterior corner. The two pairs of lateral antennae are similar; each is short and slender. The median antenna is between the eyes; it is short and basally inflated.

The proboscis (seen in dissection) has numerous evenly distributed small papillae.

The first segment is dorsally complete; the clavate first tentacular cirri are shorter than the prostomium. The second segment has short, inflated ventral tentacular cirri and long, slender dorsal tentacular cirri. Setae are present from the second segment. The third segment has normal neuropodia and digitate, rather short, second dorsal tentacular cirri.

All parapodia (Fig. f) are similar; each notopodium is short and wide and notacacula are absent. The blunt dorsal cirrus is longer than wide; the base of each cirrus is somewhat prolonged on both sides so that the cirrus may appear somewhat cordate. The neuropodial acicular lobe is pointed; a low fold covers the bases of the setae on the posterior side. The ventral cirrus is obliquely ovate.

All setae are similar; each has a slightly inflated shaft which has distally one large and several smaller teeth. The appendage is short and has numerous very fine teeth along the cutting edge.

Other species of Eulalia that have the dorsal cirri longer than wide with blunt tips and short median antennae between the eyes include E. bilineata (Johnston, 1840, p. 227), E. lobocephala Schmarda (1861, p. 86, pl. 30, fig. 236, 3 textfigs.) and E. novaezelandiae Grube (1880, p. 210).

The ventral tentacular cirri are longer than the first dorsal ones in E. bilineata and shorter in E. mexicana.

The color patterns of the four species also differ markedly. E. mexicana is yellow with dark brown bars across the dorsum. E. bilineata is greenish-yellow with a

dark line on either side. E. lobocephala is dark green with light green dorsal cirri and E. novaezealandiae is light brown with white dorsal cirri.

Distribution: E. mexicana has been found in one locality in Sal si Puedes Basin, Gulf of California in 732-787 m depth.

Eulalia, species indeterminable

Record: 7229 (1).

Remarks: The posterior part of the prostomium and the first few segments have been damaged and the present specimen cannot be further described.

Genus Paranaitis Southern, 1914

Paranaitis polynoides (Moore, 1909)

Anaitis polynoides Moore, 1909, pp. 339-342, pl. 16, figs. 19-21.

Paranaitis polynoides Hartman, 1968, p. 291.

Record: 7231 (1).

Remarks: The fused first and second segments of the present specimen are somewhat less expanded dorsally than those drawn by Moore (1909, pl. 16, fig. 19); otherwise the specimen fits the description well.

Distribution: P. polynoides is known from western Canada to southern California in moderate depths. The present record is from the vicinity of Cedros Island, Baja California in 2401-2480 m depth. Complete data can be found in the station list.

Genus Pirakia Bergström, 1914

Pirakia brunnea, new species

(Plate 4, Figs. c-d)

Record: 13775 (1, TYPE).

Description: The type is an incomplete specimen which has 52 setigers; it is 10 mm long and 3 mm wide without setae. The body is dorsoventrally flattened. The anterior part of the body is pigmented dark brown and this pigment is retained in all dorsal and ventral cirri throughout the body. Posteriorly the ventrum and dorsum are light brown and the ventrum especially has a yellow tinge. The antennae are white; the tentacular cirri are brown.

The prostomium is nearly quadrangular; the median antenna is centrally located; eyes are absent. All five antennae are as long as the prostomium and evenly tapering. The proboscis (seen in dissection) has a few, scattered small papillae.

The first three segments are distinct both dorsally and ventrally. The first segment is somewhat reduced dorsally and appears as a small, narrow ridge behind the prostomium; the other two tentacular segments are well developed both dorsally and ventrally. Most tentacular cirri have been lost; the ventral cirri are digitiform as are the second dorsal cirri. All tentacular cirri appear to be short.

The parapodia are tapering and distally rounded. Each has a distinct presetal lobe or a terminal papilla in a presetal position (Fig. d); this papilla is long and slender. The long ventral cirri (Fig. c) are narrow and reach clearly beyond the tip of the acicular lobes in all setigers. Dorsal cirri are long and narrow with distinct, digitate tips in all setigers.

All setae are composite spinigers with long, narrow shafts that are distally slightly inflated and have a

series of short teeth. The appendages are narrow.

The genus Pirakia is known for one species, P. punctifera (Grube, 1860, pp. 83-84, pl. 3, figs. 5-5a; see also Bergström, 1914, pp. 134-136, fig. 39) in addition to P. brunnea. P. punctifera has broad, nearly triangular dorsal cirri; the ventral cirri are shorter than the acicular lobes. The tip of the acicular lobe appears bifid in Bergström's illustration, but entire in the original illustration. P. brunnea has rounded acicular lobes with distinct, digitiform presetal lobes; the dorsal cirri are long and narrow and the ventral cirri are longer than the acicular lobes.

Distribution: P. brunnea is known from one locality off the tip of Baja California in 2610 m depth.

Phyllodocidae, indeterminable

Record: 13768 (1).

Remarks: The specimen resembles members of the genus Eulalia, but cannot be further identified.

Family LACYDONIIDAE Bergström, 1914

Genus Paralacydonia Fauvel, 1913

Paralacydonia paradoxa Fauvel, 1913

Paralacydonia paradoxa Fauvel, 1913, pp. 54-55, fig. 10a-f; Hartman, 1968, pp. 329-330, 3 figs.

Records: 13744 (1); 13747 (1); 13752 (1); 13756 (1); 13767 (2); 13768 (1); 13774 (1); 13775 (2); 13780 (1); 13781 (3); 13782 (2).

Remarks: The present specimens are mostly less than 5 mm in length, but are otherwise similar to the specimens from the Mediterranean Sea described by Fauvel (1913). The reason for the absence of any material of this species in other collections from western Mexico is probably that the screening procedures squeezed these small and delicate animals through the screens.

Distribution: *P. paradoxa* is known from widely scattered areas in deep slope depths. The present records are from similar depths along the mainland slope of the Central American Trench from Acapulco to the tip of Baja California.

Family HESIONIDAE Malmgren, 1867

Hesionidae, indeterminable

Records: 7234 (2); 13756 (1).

Remarks: The three specimens are anterior fragments that have lost all tentacular cirri; they do not appear to fit any known genus.

Family PILARGIIDAE Saint-Joseph, 1899

Pilargids are rare in collections and have been rather poorly understood; a recent revision by Pettibone (1966) has clarified the generic subdivision, but several species are still confused.

The generic subdivision is based on the presence or absence of recurved hooks in the notopodia, the number and length of the anterior appendages and the presence or absence of epithelial papillae.

The presence of recurved hooks may be somewhat difficult to detect; in some species, such as *Sigambra robusta* (Ehlers, 1908) and *S. rugosa*, new species, they are

present only in posterior setigers and may not be present in all setigers posterior to their first occurrence. This situation is not unique to the pilargids; the subacicular hooks characteristic of the eunicids may also be absent over long stretches and may sometimes be completely absent (Marphysa sanguinea, see Fauchald, 1970, p. 66). This makes these distributional characters somewhat difficult to use.

Four species, all newly described, have been found in deep water off western Mexico.

Key to Species from Deep Water off Western Mexico

- | | |
|---|------------------------------|
| 1. Recurved hooks present in at least some notopodia... | 2. |
| 1. Recurved hooks absent..... | <u>Pilargis mirasetis</u> |
| 2. Two short antennae present. | <u>Ancistargis verrucosa</u> |
| 2. Three long antennae present..... | 3. |
| 3. Recurved hooks present in notopodia from setiger 3 or 4..... | <u>Sigambra setosa</u> |
| 3. Recurved hooks first present posterior to setiger 40... | |
| | <u>Sigambra rugosa</u> |

Genus Ancistargis Jones, 1961

Two antennae are present in Ancistargis and three in Ancistrostylis. The two genera are otherwise very similar; both have short anterior appendages, large recurved hooks in the notopodia and large palpophores with short, inconspicuous palpostyles.

Ancistargis was considered as a section of Ancistrostylis by Pettibone (1966, p. 164) who listed four species as potential members of Ancistargis. As the reason for submerging Ancistargis, Pettibone (1966) stated that the median antenna in Ancistrostylis is often very small and difficult to detect. A fifth species of Ancistargis has

been found in deep water off western Mexico. The five species assigned to the genus appear to be more closely related to each other than to any species of Ancistrosyllis; this makes the separation of the two genera useful.

Ancistargis verrucosa, new species

(Plate 7, Figs. d-e)

Records: 11738 (1, TYPE); 13743 (2); 13755 (1); 13756 (1); 13774 (1); 13775 (2).

Description: The type is an incomplete specimen which has 32 setigers; it is 13.5 mm long and 2.5 mm wide with setae. The anterior end is cylindrical; the median and posterior portions are dorsoventrally flattened. The parapodia are long. The specimen is light brown; the palpophores are somewhat darker than the rest of the body, but there are no distinct color patterns.

The prostomium (Fig. d) is a low transverse ridge divided into three fields by two pairs of indistinct furrows. Each of the two lateral fields has a digitate antenna which is covered with rather large papillae. The median field is smooth; at the junction between the prostomium and the palpophores are two shallow pockets. The large palpophores are directed ventrally; each carries a very short, indistinct palpostyle. The surface of the palpophores is covered with minute papillae. The cylindrical peristomium has two pairs of peristomial cirri; each of the dorsal cirri is somewhat longer than the ventral one; both pairs of cirri are completely covered with long, truncate papillae.

All parapodia (Fig. e) are similar; each has a long, pointed neuropodial acicular lobe; the ventral cirrus is slender and completely smooth; ventral cirri are present from the first setiger. Each notopodium has a short, rounded acicular lobe and a large, digitate dorsal cirrus.

The cirrus is preacicular and is completely covered with rather large papillae.

Minute papillae cover the palpophores and the dorsal side of all segments; they are arranged in seven or eight indistinct rows on most setigers, but appear densely crowded in the first five or six setigers. The ventrum is sparsely covered with similar papillae.

Three kinds of setae are present; the neuropodial fascicles include long, slender smooth setae and shorter, limbate setae with slightly falcate distal ends; the cutting edge of the short setae is dentate with long, slender teeth. Each of the notopodia from setiger 3 has a single, large recurved hook. The hook does not emerge from the epithelium in all setigers and may be difficult to detect. Other notopodial setae are absent.

A. papillosus Jones (1961, pp. 3-9, figs. 1-14) resembles A. verrucosa closely in parapodial structures. Ventral cirri are present from setiger 3 in A. papillosus and from the first setiger in A. verrucosa. Transverse ridges are present on the dorsum of each setiger in A. papillosus and absent in A. verrucosa. The palpostyles are nearly as long as the antennae in A. papillosus and very much shorter in A. verrucosa. Eyes are present in A. papillosus and absent in A. verrucosa.

A. matsunagaensis (Kitamori, 1960, pp. 1088-1090, fig. 2a-h) has antennae that reach nearly to the tip of the palpophores; the antennae in A. verrucosa are clearly shorter. The peristomial segment is dorsally cleft in A. matsunagaensis; the anterior edge of the peristomium is straight in A. verrucosa. The notopodial acicular lobe is elongate and the dorsal cirrus is terminal in A. matsunagaensis; the notopodial acicular lobe is short and the dorsal cirrus is preacicular in A. verrucosa.

A. hamata (Hartman, 1960, pp. 88-89, pl. 7, figs. 4-6, see also Pettibone, 1966, pp. 168-169, fig. 5a-d) has ventral cirri from setiger 3; such cirri are present from the first setiger in A. verrucosa. The parapodia are very short and both dorsal and ventral cirri are on the body

wall in A. hamata; the parapodia are long and both dorsal and ventral cirri are on the parapodia in A. verrucosa.

A. falcata (Day, 1957, pp. 70-71, fig. 2e-h) has recurved hooks from setiger 7; hooks are present from setiger 3 in A. verrucosa. The neuropodial setae are bidentate in A. falcata and unidentate, but slightly falcate in A. verrucosa.

Distribution: A. verrucosa is known from several localities along the mainland slope of the Central American Trench in depths ranging from 2232 to 3514 m.

Genus Pilargis Saint-Joseph, 1899

Pilargis mirasetis, new species

(Plate 8, Figs. a-c)

Record: 13744 (1, TYPE).

Description: The type is a complete specimen which has 121 setigers; it is 27 mm long and 2.5 mm wide without setae. The body is strongly dorsoventrally flattened; the crowded segments are separated by deep intersegmental lines. The specimen is white and lacks color patterns.

The prostomium (Fig. c) is transversely rounded with a poorly defined longitudinal furrow running down the middle. The palpostyles are very short, rounded projections on the ventral side. A pair of antennae is present, but only the antennal bases are left. A small nuchal papilla is medially near the posterior margin of the prostomium. The peristomial segment has two pairs of short, digitate peristomial cirri.

All parapodia are similar; each consists of a large, inflated notopodial rudiment that has a digitate dorsal cirrus and a broad, truncate neuropodium. Pre- and postsetal lobes could not be distinguished. The ventral cirri resemble the dorsal ones, but are smaller.

All setae are similar. Each (Figs. a-b) is simple, tapers abruptly distally, and has a large boss on one side. In a few setae this boss may appear medially incised or slightly dimpled, but in most setae it is smoothly rounded in frontal view. Notopodial setae are absent.

P. mirasetis belongs to the genus Pilargis as defined by Pettibone (1966, pp. 160-161) in that it has a strongly flattened body with large palpophores and short palpostyles. The antennae are short, as far as is known. It lacks notosetae. P. mirasetis differs from all species described in the genus (See Pettibone, 1966, p. 161 and Hartman, 1959, 1965a for a review) in that each seta has a large sub-distal boss.

Distribution: P. mirasetis is known from one locality in 2340 m depth off Punta San Telmo, Mexico.

Genus Sigambra Müller, 1858

The genus is here accepted as re-defined by Pettibone (1966).

Sigambra rugosa, new species

(Plate 9, Figs. a-e)

Records: 11773 (1, TYPE); 11774 (11).

Description: The type is a complete specimen which has approximately 80 setigers; it is 14 mm long and 2.5 mm wide with setae. It is flesh-colored and has a brown patch on each side at the junction of the pro- and peristomium. The pygidium is a quadrangular plate with two long, slender anal cirri. The anterior part of the body is cylindrical; median and posterior portions are dorsoventrally flattened. Anterior parapodia are lateral, but parapodia are directed

dorsolaterally in median and posterior setigers. (Figs. c and e). A low, transverse ridge is present on each segment posterior to setiger 3 and low, longitudinal folds are present on the parapodial bases in median setigers. (Fig. a).

The prostomium (Fig. d) is a low transverse ridge; the three antennae are subequal; all three are slender and do not reach the tips of the palpophores. The large palpophores are clearly separated from each other and from the prostomium; each has a short, slender palpostyle. The peristomium is as long as the prostomium and the palps together; two pairs of peristomial cirri are present; the dorsal cirri are slightly longer than the ventral.

The first setiger has short parapodia; each has a long, slender dorsal cirrus and a short ventral cirrus. The second parapodia are shorter than all other parapodia; each has a short, slender dorsal cirrus; ventral cirri are absent.

Each of the anterior parapodia (Fig. b) has a poorly marked notopodial acicular lobe; the digitate dorsal cirrus is postacicular in position. The obliquely pointed neuropodial acicular lobe is clearly longer than the notopodial acicular lobe. A low, oblique fold covers the bases of the setae on the anterior face of the parapodia. The ventral cirrus is nearly as long as the dorsal one; it has a basal constriction.

The parapodia change along the length of the body (Figs. a-c and e); the neuropodial acicular lobe becomes symmetrically pointed and in far posterior setigers is a little shorter than the notopodial acicular lobe. The pre- and postsetal neuropodial lobes develop into a low collar surrounding the acicular lobe. The ventral cirrus is shorter in posterior than in anterior setigers; the dorsal cirrus remains the same in all setigers.

Three kinds of setae are present. All neuropodia have long, slender smooth setae which are distally pointed, and shorter, coarsely dentate setae with wide subdistal portions. Recurved hooks are present in notopodia from

setiger 66 in the type. The first occurrence of the hooks varies greatly and hooks may be absent in some setigers in the posterior end. Hooks were present from setigers 43-66 in the specimens in which this character could be determined; an incomplete specimen of 70 setigers had no hooks.

S. rugosa resembles S. robusta (Ehlers, 1908, pp. 59-61, pl. 6, figs. 4-7) in that both species have recurved hooks first occurring in a median or posterior setiger. The median antenna is shorter than the lateral ones in S. rugosa and longer in S. robusta. The dorsal cirri of the first setiger are only slightly longer than the peristomial cirri in S. rugosa and twice as long as the peristomial cirri in S. robusta. The dorsal cirri of the median and posterior parapodia are slightly longer than the ventral ones in S. rugosa and nearly twice as long as the ventral ones in S. robusta.

Distribution: S. rugosa is known from two localities in slope depths in the middle part of the Gulf of California.

Sigambra setosa, new species

(Plate 7, Figs. a-c)

Records: 11792 (2); 11793 (1); 11805 (4, TYPE); 11806 (1); 11808 (1).

Description: The type is a complete specimen which has 60 setigers; it is 14 mm long and 3 mm wide with setae. It is flesh-colored and has a pair of dark pigment spots on the lateral sides of the prostomium. The anterior part of the body is cylindrical; median and posterior parts are dorsoventrally flattened. The parapodia are directed laterally in the anterior end and dorsally in median and posterior setigers (Fig. c). Two or three transverse ridges are present on each of the median and posterior setigers; the parapodial bases are smooth or irregularly

wrinkled. The pygidium is a small quadrangular plaque and has two very long, slender anal cirri. The edge of the pygidial plaque has two or three short, slender papillae on each side.

The prostomium (Fig. a) is a transverse ridge; each of the three antennae is inflated basally and projects beyond the tips of the palpophores; the median antenna is slightly longer than the lateral ones. The peristomium is longer than the prostomium and palps together; it has two pairs of peristomial cirri; the dorsal ones are clearly longer than the ventral ones. The palpophores are large and clearly set off from the prostomium; each has a rather long, slender palpostyle.

The dorsal cirri of the first setiger are more than twice as long as the peristomial cirri; the short ventral cirri are slender. Ventral cirri are absent in the second setiger. Both acicular lobes in the anterior parapodia (Fig. b) are the same length; the notopodial acicular lobe is blunt and has a short papilla on the dorsal side. The neuropodial acicular lobe is obliquely pointed. The neuropodial presetal lobes are oblique.

The notopodial acicular lobes are clearly longer than the neuropodial ones in posterior setigers (Fig. c); each is short and blunt. The neuropodial acicular lobes resemble those in anterior setigers. The neuropodial presetal lobes are transverse in posterior setigers.

Anterior dorsal cirri are basally slightly inflated; those in posterior setigers are digitate. Ventral cirri are similar in all parapodia; each is digitate and somewhat shorter than the dorsal ones.

Setae are of four kinds. Notopodia have two or three short, smooth simple setae in most parapodia; these setae do not emerge from the body wall in all parapodia, but may be seen internally. Recurved hooks are present from setiger 3 or 4 in all posterior parapodia. Neuropodial fascicles include long, slender slightly falcate setae and short, coarsely dentate, falcate ones.

Four species of Sigambra are known to have recurved hooks from anterior setigers; these include S. hanaokai (Kitamori, 1960, pp. 1086-1088, fig. 1a-h), S. parva (Day, 1963a, pp. 395-396, fig. 3g-k), S. tentaculata (Treadwell, 1941a, p. 1, figs. 1-3, see also Pettibone, 1966, pp. 182-186, figs. 14-15) and S. setosa.

S. tentaculata differs from the other three in that the median antenna is clearly longer than the lateral ones; it may be as much as twice as long as the lateral ones. All three antennae are of similar length in the other three species mentioned.

S. setosa has notosetae in all parapodia; notosetae are absent in the other three species.

S. hanaokai and S. parva were distinguished by Pettibone (1966, p. 181) by the different kinds of setae present; they also differ in the proportions of the parapodia and the anterior appendages.

Distribution: S. setosa is known from five localities in the center and upper end of the Gulf of California in 1784-2449 m depth.

Pilargiidae, indeterminable

Records: 6212 (fragment); L-190 (fragment).

Remarks: Both fragments have recurved hooks, but cannot be further identified.

Family NEREIDAE Johnston, 1865

Eight species have been found in material from deep water off western Mexico; two of these, Nereis zonata Malmgren (1867) and Platynereis bicanaliculata (Baird, 1863) are common in shallow water; the other six are limited to deep water off western Mexico and elsewhere.

The genera are here retained as defined by Hartman (1954), but some of them may have to be redefined when more material becomes available.

Key to Species from Deep Water off Western Mexico

1. Paragnaths absent..... Ceratocephale loveni pacifica
1. Paragnaths present..... 2.
2. Some paragnaths pectiniform.....
..... Platynereis bicanaliculata
2. All paragnaths conical..... 3.
3. Paragnaths present only on fields I and II.....
..... Ceratonereis vermillionensis
3. Paragnaths present also on other fields..... 4.
4. Homogomph falcigers present in posterior notopodia. 5.
4. Homogomph falcigers absent.....
..... Neanthes mexicana
5. Superior notopodial lobes short and triangular in all setigers..... Nereis zonata
5. Superior notopodial lobes prolonged in posterior setigers..... 6.
6. Eyes absent..... Nereis anoculopsis
6. Eyes present..... 7.
7. Fields VII-VIII with 35-40 paragnaths in an irregular patch, dorsal cirrus inserted basally in posterior setigers..... Nereis angelensis
7. Fields VII-VIII with maximally 10 paragnaths in a single row, dorsal cirrus inserted medially in the superior notopodial lobe in posterior setigers.....
..... Nereis fossae

Genus Ceratocephale Malmgren, 1867

Ceratocephale loveni pacifica Hartman, 1960

Ceratocephale loveni pacifica Hartman, 1960, pp. 94-96,

pl. 8, figs. 1-2; Hartman, 1968, p. 501.

Records: 11792 (3); 11815 (1); 12135 (1); 13724 (1); 13755 (1).

Remarks: C. loveni pacifica differs from C. loveni in that the ventral cirri are bifurcated from the first setiger in the former and from setiger 3 in the latter.

Distribution: C. loveni pacifica is known from basin depths off southern California. The new records are from off Bahia de la Magdalena, from Farallon and Guaymas Basins in the Gulf of California and from the Central American Trench off Acapulco and Cabo Corrientes.

Genus Ceratonereis Kinberg, 1866

The genus is poorly understood at present and has been used as a catch-all for nereids with poorly developed paragnaths. As accepted here the genus contains species with paragnaths limited to I-IV; most species also lack paragnaths on I and sometimes also on III and IV, so that paragnaths may be present only on field II.

Ceratonereis vermillionensis, new species

(Plate 10, Figs. a-e)

Records: 11745 (1); 11791 (2, TYPE); 13755 (1); 13756 (1).

Description: All five specimens are incomplete and lack peristomial cirri. The type has approximately 30 setigers and is 15 mm long and 2.5 mm wide with setae; a para-type (from 11745) has approximately 50 setigers and is 19 mm long. All specimens are yellow and lack color patterns.

The large prostomium (Fig. c) is rounded hexagonal with a strongly convex dorsum. The frontal antennae are digitate. Eyes are absent. There are two small nuchal pockets in the posterior margin.

The peristomium is somewhat shorter than the prostomium but twice as wide. The heavy palps project well beyond the tips of the frontal antennae. The bases of the peristomial cirri are clearly arranged in pairs, two on each side. The cirrostyles are missing in all specimens.

The jaws are horn-colored; each has fifteen to sixteen sharply pointed teeth in addition to the main fang. The paragnathal distribution is: I: 1; II: 2 in a row; paragnaths are absent from all other areas.

The first two setigers have uniacicular parapodia (Fig. a); all others have biacicular ones. A large, clavate lobe represents each notopodium in the first two setigers. The neuropodial acicular lobe is pointed with incisions for the bases of the setae at the superior and inferior edges. The inferior neuropodial lobe is clavate and is somewhat longer than the notopodial lobe. The short ventral cirrus is slender; dorsal cirri were not seen in any of the specimens.

Each of the median parapodia (at setiger 14, Fig. d) has a short, button-shaped notopodial acicular lobe. The clavate superior lobe is twice as long as the acicular lobe. The triangular inferior lobe is thick and directed ventrolaterally. The short, slender dorsal cirrus is nearly basal in position. The neuropodial acicular lobe is pointed with poorly marked folds covering the bases of the setae. The digitate inferior lobe is only half as long as the acicular lobe; the slender ventral cirrus is more than twice as long as the dorsal one.

Each of the posterior parapodia (at setiger 45, Fig. e) has a short, rudimentary notopodial lobe. The superior notopodial lobe is visible mainly as a bulge along the dorsal edge of the notopodium, but has a short, digitate tip. The short dorsal cirrus is slender. The very large inferior notopodial lobe is triangular and directed ventro-

laterally. The neuropodial acicular lobe is pointed; the digitate inferior lobe is half as long as the acicular lobe. The large ventral cirrus is clavate.

Three kinds of setae are present. Notopodia have only homogomph spinigers with long appendages. Homogomph spinigers and heterogomph falcigers are present in superior fascicles in all neuropodia. The inferior neuropodial fascicles have only heterogomph spinigers. Each heterogomph falciger (Fig. b) has a long appendage with fine teeth along the cutting edge. The distal end is only slightly curved. All setae have internally camerated shafts.

Species that resemble C. vermillionensis in that they have only one or a few large paragnaths on I include C. anchylochaeta (Horst, 1924, pp. 155-157, pl. 30, figs. 8-9); C. fakaravae Chamberlin (1919, pp. 213-215, pl. 35, figs. 6-8); C. flagellipes Fauvel (1932, pp. 100-101, pl. 3, figs. 1-8); C. gorbunovi Ushakov (1950, pp. 183-184, fig. 18); C. incisa Gravier and Dantan (1934, pp. 97-99, figs. 80-83); C. karadagica Vinogradov (1933, pp. 471-473, figs. a-c); C. marmorata Horst (1924, pp. 177-178, pl. 34, figs. 13-16); C. mirabilis Kinberg (1866, p. 170); C. pachychaeta Fauvel (1918, pp. 506-508, fig. 3a-h); C. pectinifera Grube (1878, pp. 66-67, pl. 4, fig. 5, pl. 5, fig. 5); C. ramosa Horst (1919, pp. 63-64) and C. scotiae Berkeley and Berkeley (1956b, p. 267, figs. 1-2). All twelve of these species further agree with C. vermillionensis in that they have only homogomph spinigers in all notopodia.

Paragnaths are present only on I and II in C. vermillionensis; they are present also on III and IV in the other twelve species. The notopodial superior lobes are fused to the acicular lobes in posterior setigers in C. vermillionensis; the superior lobes are free from the acicular lobes in all other species mentioned above.

Distribution: C. vermillionensis is known from Farallon Basin, Gulf of California and from the Central

American Trench near the Tres Marias Islands and Cabo Corrientes.

Genus Neanthes Kinberg, 1866

Species of this genus resemble Nereis spp. closely. Homogomph falcigers are present in posterior notopodia in Nereis and absent in Neanthes. Conical paragnaths are present usually on most areas in Neanthes, but any area may lack paragnaths.

Specific characters include the exact distribution of paragnaths on the proboscis, the presence or absence of falcigers in the neuropodia and the development of the parapodial lobes, especially the superior notopodial lobes in posterior setigers.

The species presently recognized in the genus number approximately 45. They have here been placed in species-groups to facilitate identification of the different taxa. The grouping is based on the presence or absence of neuropodial falcigers and the development of the parapodial lobes. These two characters have the advantage of being observable from the exterior, but a subdivision of the genus could have been done on the distribution of the paragnaths as well.

The grouping may be summarized as follows:

- I. Falcigers absent in neuropodia
- II. Falcigers present (or presence or absence not known).
 - a. Parapodial lobes with short papillae.
 - b. Dorsal lobe of notopodia barely longer than the other parapodial lobes, usually triangular.
 - c. Dorsal lobe of notopodia enlarged, triangular or foliose.
 - d. Dorsal lobe of notopodia long and slender in all setigers.

- e. Dorsal lobe of notopodia prolonged,
but not foliose in posterior setigers.

A survey of all species in the genus subdivided as outlined above is given in Appendix 1.

Neanthes mexicana, new species

(Plate 11, Figs. a-d)

Record: 7249 (1, TYPE).

Description: The type is an incomplete specimen which has 20 setigers; it is 5 mm long and 1.5 mm wide with setae. It is white and lacks color patterns, except for the pigment associated with the eyes.

The prostomium (Fig. d) is rounded hexagonal and is approximately half as long as wide. The frontal antennae are short and ovoid. A very large pair of eyes is present; each has a lens and a dense ring of dark red pigment. Posterior to each eye is a rounded triangular area with diffuse pigment spots which may represent the posterior pair of eyes usually present in nereids.

The peristomium is as long as the prostomium, but approximately twice as wide. The palpophores are long and slender; each is bent ventrolaterally. The long palpo-styles are slender. Some of the peristomial cirri have been lost. The anteroventral cirri reach the first setiger; the anterodorsal ones have been lost. The posteroventral cirri are somewhat longer than the anteroventral ones and less clavate; both posterodorsal cirri have been lost.

The jaws are horn-colored; each has five sharp teeth. The paragnathal distribution is: I: 1; II: 2 in a transverse row; III: 6 in a small patch; IV: 3 in a triangle; V: 0; VI: 1; VII-VIII: 4 in a row.

The first two parapodia (Fig. c) are uniramous as is usual in the genus. The notopodium is unusually well

developed. It has a large, clavate dorsal cirrus, a large thick, digitate lobe and a small, rounded lobe corresponding in position to the notopodial acicular lobe, but lacks acicula and setae. The neuropodial acicular lobe is blunt; it has two distinct folds covering the bases of the setae. The inferior neuropodial lobe is short and blunt. The ventral cirrus resembles the dorsal cirrus in length and shape.

Each of the median parapodia (at setiger 10, Fig. a) has a rudimentary notopodial acicular lobe. The superior lobe is very large, club-shaped and heavily glandular. Its distal end is very broad and nearly circular in terminal view. The dorsal cirrus is as long as the superior lobe and slender. The digitate inferior notopodial lobe is directed ventrally. The neuropodial acicular lobe is conical; the short inferior lobe is blunt. The short ventral cirrus is slender.

Two kinds of setae are present. Notopodial fascicles have only homogomph spinigers. Such spinigers are also present in superior fascicles of the neuropodia; inferior fascicles have heterogomph spinigers with short appendages. Falcigers are absent.

N. mexicana belongs to group I as defined above. Other species in this group include N. agnesiae (Augener, 1918; complete references are in Appendix 1), N. chingrihattensis (Fauvel, 1932) and N. virens (Sars, 1835). N. mexicana differs from all three species in the development of the superior notopodial lobe; this lobe is short and triangular in N. chingrihattensis, large and foliose in N. agnesiae and N. virens and club-shaped in N. mexicana. The distribution of paragnaths and the presence of a single pair of eyes also characterize N. mexicana.

Distribution: N. mexicana is known from the type locality off Cedros Island, Baja California.

Genus Nereis Linnaeus, 1758

The genus, even as restricted by Hartman (1954), contains approximately 120 species. Most of the species are known through incomplete original descriptions only; it is not possible at present to review and revise the different species without extensive collections from world-wide areas. Three of the four species described here come from deep water; these three and two other species known from deep water, N. anoculis Hartman (1960) and N. profundis Kirkegaard (1956) have greatly prolonged notopodia in posterior setigers.

Nereis angelensis, new species

(Plate 11, Figs. e-j)

Records: 11825 (1); 11827 (1, TYPE); 11832 (1).

Description: The type is an incomplete specimen which has 58 setigers; it is 20 mm long and 2.5 mm wide with setae. It is salmon-colored and lacks color patterns.

The prostomium (Fig. i) is anteriorly broadly rounded; the widest part is near the posterior margin. The long frontal antennae are slender. Two pairs of pink eyes are present; the anterior eyes are elongated, the posterior ones are rounded.

The peristomium is a little longer than the prostomium and more than twice as wide. The short, thick palps do not project beyond the tip of the prostomium. The anteroventral peristomial cirri reach the first setiger; the anterodorsal ones are slightly longer and barely reach the second setiger. The posteroventral peristomial cirri reach the first setiger, and the posterodorsal ones setigers 10-13.

The jaws are dark horn-colored; they are smooth in the type and have a few irregular crenulations in the other

two specimens. The paragnathal formula is: I: 2 in tandem; II: 11 in two or three rows; III: 11 very large in a triangular patch; IV: 12 in a triangular patch; V: 0; VI: 3 in a transverse row; VII-VIII: 38 in a large irregular patch. The number of paragnaths on fields III and IV varies from 11 to 13 and on VII-VIII from 35 to 40. The three paragnaths on VI are arranged in a triangle in one specimen.

The first two pairs of parapodia (Fig. j) are uniacicular; all others have two acicula. A long, slender lobe represents the notopodia in the first two setigers. The dorsal cirrus resembles the notopodial lobe in length and shape. The blunt neuropodial acicular lobe has a distinct incision on the dorsal edge. The inferior neuropodial lobe is as long as the notopodial lobe, but much thicker. The ventral cirrus resembles the inferior neuropodial lobe.

Each median parapodium (at setiger 20, Fig. h) has a rudimentary acicular lobe; the triangular superior lobe is very large. The slender dorsal cirrus is as long as the superior lobe. The inferior notopodial lobe is a little shorter than the superior lobe, but similar in shape. The neuropodial acicular lobe is bluntly conical with a well marked fold covering the bases of the setae on the dorsal side. The conical inferior neuropodial lobe is as long as the acicular lobe. The short ventral cirrus is slender.

Each posterior parapodium (at setiger 57, Fig. g) has a completely rudimentary notopodial acicular lobe. The foliose superior notopodial lobe is more than twice as long as all other lobes in the parapodium. The slender dorsal cirrus is basal in position. The triangular inferior notopodial lobe is directed laterally. The neuropodial acicular lobe is truncate distally with poorly marked folds covering the bases of the setae. The inferior neuropodial lobe is as long as the acicular lobe and digitate. The short ventral cirrus is slender.

Four kinds of setae are present. Anterior and median notopodial fascicles have homogomph spinigers; these

are replaced posterior to setiger 35 by a single, thick homogomph falciger in each notopodium. Each falciger (Fig. f) has a very short, smooth appendage. Superior neuropodial fascicles have homogomph spinigers and heterogomph falcigers in all setigers. Inferior fascicles have heterogomph spinigers and falcigers. Each heterogomph falciger (Fig. e) has a slender appendage; the distal end is slightly curved and somewhat inflated. The cutting edge is finely dentate in all setae except the homogomph falcigers.

N. angelensis resembles N. anoculis Hartman (1960, pp. 91-92, pl. 7, figs. 1-3), N. fossae, new species (see below) and N. profundum Kirkegaard (1956, pp. 67-68, figs. 4-6). All four species have parapodia that are prolonged in posterior setigers and large, foliose notopodial superior lobes in posterior setigers. N. angelensis and N. fossae differ from N. anoculis and N. profundum in that well developed eyes are present in the former two and absent in the latter two. The paragnathal distribution differs in the four species. N. anoculis has: I: 1-3; II: 4; III: 4; IV: 5-6; V: 0; VI: 2-3 and VII-VIII: 4. N. profundum has: I: 6; II: 14; III: 25; IV: 27; V: 2 and VII-VIII: 4 large plus some smaller ones in a single row. The distribution of paragnaths in N. angelensis has been summarized above and can be found below for N. fossae.

N. angelensis resembles N. fossae, but differs in that the paragnaths on VII-VIII may number as many as 40 in the former and do not exceed 10 in the latter. The dorsal cirrus in posterior setigers is inserted near the base of the notopodial superior lobe in N. angelensis and midway along the edge of that lobe in N. fossae. The jaws are smooth or have only irregular crenulations in N. angelensis and have seven or eight blunt teeth in N. fossae.

Distribution: N. angelensis is known from three deep-water localities in Sal si Puedes Basin, Gulf of California.

Nereis anoculopsis, new species

(Plate 12, Figs. a-g)

Record: 11813 (1, TYPE).

Description: The type is an incomplete specimen which has 54 setigers; it is 13 mm long and 1.2 mm wide with setae. It is nearly white and lacks color patterns.

The prostomium (Fig. b) has a very prominent anterior portion and is rounded hexagonal. The anterior edge is rounded; the posterior edge is nearly straight. The widest part of the prostomium is in the short posterior portion. Eyes are absent. The digitate frontal antennae project well beyond the palps.

The peristomium is as long as the prostomium but more than twice as wide. The short palps are massive; each has a large, lens-shaped palpostyle. The anteroventral peristomial cirri are as long as the length of the peristomium. The anterodorsal ones reach to the first setiger. The posteroventral peristomial cirri reach the second setiger and the posterodorsal ones reach the third setiger. All peristomial cirri are digitate.

The jaws are horn-colored; each has five or six blunt teeth. The paragnathal arrangement is: I: 2 in a transverse line; II: 2 in a transverse line; III: 0; IV: 4 in a transverse line; V: 0; VI: 1 very small; VII-VIII: 2 in a transverse line. All paragnaths are conical; those on the oral ring are larger than the others.

Each of the first two parapodia (Fig. c) has one aciculum; all others have two. The notopodial lobe is represented by a large, digitate lobe in the first two setigers. The dorsal cirrus is somewhat shorter, but similar in shape. The neuropodial acicular lobe is obliquely conical; the long inferior neuropodial lobe is digitate; it is similar in length to the notopodial lobe, but somewhat thicker.

Each of the median parapodia (at setigers 15-20,

Fig. a) has a rudimentary notopodial acicular lobe; both the superior and inferior lobes are triangular. The neuropodial acicular lobe is obliquely conical; the digitate inferior lobe is as long as the acicular lobe. The short ventral cirrus is slender; the dorsal cirrus is more than twice as long as the ventral one and somewhat thicker.

Each posterior parapodium (Fig. g) has a short, button-shaped notopodial acicular lobe; the foliose superior lobe is very long; the slender dorsal cirrus projects beyond the superior lobe. The inferior notopodial lobe is shorter than the superior one; it is somewhat flattened, but not foliose. The neuropodial acicular lobe is obliquely truncate; the short inferior lobe is digitate. The ventral cirrus is short and slender. The bases of the posterior parapodia are strongly prolonged.

All setae are slender except for the heavy homogomph falcigers in posterior notopodia. Acicula are dark. Notopodial fascicles have three or four homogomph spinigers in anterior setigers; each has a comparatively short, finely pilose appendage. The spinigers are replaced by a single homogomph falciger posterior to setiger 20; there are no setigers with both spinigers and falcigers in the notopodia. Each of the appendages of the homogomph falcigers (Fig. f) has five or six slender teeth on the cutting edge. Superior neuropodial fascicles have only homogomph spinigers (Fig. d) with long appendages in anterior parapodia; heterogomph falcigers are present in median and posterior setigers. Heterogomph spinigers are present in anterior and posterior inferior fascicles; heterogomph falcigers (Fig. e) are present in anterior and median setigers, but no falcigers are present in inferior positions in the posterior setigers.

N. anoculopsis closely resembles N. anoculis Hartman (1960, pp. 91-92, pl. 7, figs. 1-3) from deep water off southern California. Both are anoculate and have strongly prolonged notopodia in posterior setigers. The peristomial cirri reach setiger 3 in N. anoculopsis and setiger 6 in N. anoculis. Neuropodial heterogomph falcigers are present only in inferior fascicles in N. anoculis and present in

both neuropodial fascicles in N. anoculopsis. Some notopodia in the middle part of the body have both homogomph spinigers and falcigers in N. anoculis; the two kinds of setae are not found together in any setiger in N. anoculopsis. The paragnathal formulas differ most markedly in that there are 4 paragnaths on III in N. anoculis and none in N. anoculopsis. The paragnaths on IV are larger than all others in N. anoculis; this is not the case in N. anoculopsis.

Distribution: N. anoculopsis has been found in one locality in Guaymas Basin, Gulf of California in 1632 m depth.

Nereis fossae, new species

(Plate 13, Figs. a-i)

Records: 11825 (1); 11827 (13, TYPE); 11832 (3); 11833 (4); 11834 (1).

Description: The type is a complete specimen which has 185 setigers; it is approximately 100 mm long and 6.5 mm wide with setae. It is salmon colored and lacks color patterns. The parapodia are very long and the dorsal notopodia are prolonged in posterior setigers so that the specimens appear ragged. Each of the two long anal cirri has a distinct basal swelling (Fig. i).

The prostomium (Fig. f) is bluntly rounded anteriorly and has its greatest width near the posterior edge. Two pairs of diffuse, rounded eyes are present. The short frontal antennae are conical; the thick palps have short, blunt palpostyles. The peristomium is twice as wide as the prostomium. There are four pairs of peristomial cirri; the anteroventral pair reaches the tip of the palps; the anterodorsal ones reach the second setiger. The posteroventral peristomial cirri reach barely to the first setiger

and the slender posterodorsal ones reach setigers 8-10.

The jaws have seven or eight blunt teeth each. All paragnaths are conical. The arrangement in the holotype is: I: 2 in tandem; II: 11-13 in two irregular rows; III: 22 in an oval patch; IV: 18-20 of which 10 are in a line and the remaining 8-10 arranged in a patch at the anterior end of this line; V: 0; VI: 3 in a transverse line; VII-VIII: 7 scattered near the mid-ventrum.

Each of the first two parapodia (Fig. i) has one aciculum; all other parapodia have two and sometimes three. The notopodial lobe is the longest lobe in the first parapodium; the neuropodial acicular lobe is conical and has a small pocket on the dorsal and ventral edges covering the bases of the setae. The inferior neuropodial lobe is somewhat shorter and thicker than the notopodial lobe. Dorsal and ventral cirri are similar; each is long and slender.

Each parapodium from the middle body region (at setiger 20, Fig. a) has a long, conical superior notopodial lobe; the aciculum terminates in a small, button-shaped acicular lobe; the inferior lobe is somewhat shorter than the superior lobe. The long dorsal cirrus does not reach the tip of the superior notopodial lobe. The neuropodia are bifid; both lobes are bluntly conical but the inferior lobe is somewhat shorter than the acicular lobe. The whole neuropodium is shorter than the notopodium in all median and posterior setigers. The ventral cirrus is short and slender.

The parapodial bases become increasingly prolonged from setiger 50 and the notopodia especially are greatly prolonged in posterior setigers (Fig. g). The superior notopodial lobe is somewhat foliose in far posterior setigers and the dorsal cirrus is at the middle of the dorsal margin. The inferior notopodial lobe is of the same length as in the median setigers, but is somewhat slenderer. The neuropodial acicular lobe is nearly truncate and the short inferior neuropodial lobe is digitate. The ventral cirrus remains short and slender.

Four kinds of setae are present. Anterior notopo-

dial fascicles have only homogomph spinigers (Fig. d); each has a series of coarse teeth along the cutting edge of the appendages. The shafts are smooth and internally camerated as in all other setae. Homogomph falcigers (Fig. b) replace the spinigers in median and posterior setigers. The first occurrences of the falcigers vary with the size of the specimens from setigers 21-35. Superior neuropodial fascicles have homogomph spinigers in all setigers; heterogomph falcigers (Fig. e) are present in supra-acicular positions only in median setigers. Heterogomph spinigers (Fig. c) and falcigers are present in anterior and median inferior fascicles. Homo- and heterogomph spinigers are the only kinds of setae present in far posterior fascicles.

The relationship between N. fossae and N. angelensis and other similar species has been discussed above. Other species with a similar number of paragnaths include N. elitoral Eliason (1962, pp. 250-252, fig. 13a-m); N. fauveli Gravier and Dantan (1934, pp. 62-65, figs. 23-29); N. hainanica Chlebovitsch (1963, p. 53, pl. 3, figs. a-b); N. icosiensis Gravier and Dantan (1928, pp. 154-158, figs. 1-3); N. lithothamnica Annenkova (1938, pp. 159-160, figs. 9-10); N. longior Chlebovitsch and Wu (1962, pp. 269-270, pl. 3, figs. a-h) and N. torta Fauvel (1934, pp. 41-43, figs. 2-3).

N. elitoral differs from all other species in this group in that it lacks paragnaths on I-III. N. fauveli, N. icosiensis, N. lithothamnica and N. longior lack paragnaths on both I and V and sometimes also on other areas. N. hainanica, N. torta and N. fossae have similar numbers of paragnaths on the different areas.

The posterior superior notopodial lobes are short and triangular in N. hainanica and large and foliose in N. fossae. The anterior dorsal cirri are subdistally inflated in N. torta and smoothly digitate in N. fossae.

Distribution: N. fossae is known from five localities in Sal si Puedes Basin, Gulf of California.

Nereis zonata Malmgren, 1867

Nereis zonata Malmgren, 1867, p. 164, pl. 6, fig. 34a-d;
Hartman, 1968, pp. 553-554, 5 figs.

Records: 6212 (1); 6213 (1).

Remarks: N. zonata has short parapodial lobes and usually paragnaths on all fields except I and V, which may have single cones or lack paragnaths.

Distribution: N. zonata is common in shallow water in the northern hemisphere; it is most common intertidally, but has been reported from deep shelf areas. The present records are from Bahia de San Cristobal, Baja California in depths ranging from 220-264 m.

Genus Platynereis Kinberg, 1866

Platynereis bicanaliculata (Baird, 1863)

Nereis bicanaliculata Baird, 1863, p. 109.

Platynereis bicanaliculata Hartman, 1968, pp. 559-560, 4 figs.

Record: P 58-59 (1).

Remarks: P. bicanaliculata has simple strongly falcate hooks in posterior notopodia and large, usually dark brown glands in the bases of the notopodia.

Distribution: P. bicanaliculata is common in shallow-water rocky bottoms in the Pacific Ocean; the present record is from the upper end of the Gulf of California in 458 m depth.

Nereidae, indeterminable

Record: 13765 (1).

Remarks: The specimen has homogomph falcigers in the notopodia and thus probably belongs to the genus Nereis, but is too badly preserved to be further identified.

Family NEPHTYIDAE Grube, 1850

Eight members of the family are present in the material from deep water off western Mexico. Four of these belong to Nephtys; the other four, all newly described, belong to Aglaophamus.

Key to Species from Deep Water off Western Mexico

1. Interramal cirri involute..... Aglaophamus..... 2.
1. Interramal cirri recurved..... Nephtys..... 5.
2. Erect lobes on the superior edge of the neuropodia present..... A. fossae
2. No erect lobes on the superior edge of the neuropodia 3.
3. Interramal cirri present from setiger 12; superior edge of anterior notopodia with large ring-shaped pads..... A. surrufa
3. Interramal cirri present from setigers 8-10; no ring-shaped pads on anterior notopodia..... 4.
4. Prostomium quadrangular; notopodial cirri present in the first setiger..... A. paucilamellata
4. Prostomium circular; notopodial cirri absent in the first setiger..... A. eugeniae
5. Interramal cirri foliose in median and posterior setigers..... N. paradoxa
5. Interramal cirri cirriform in all setigers..... 6.
6. Dorsum partially covered with squamous extensions from the notopodia..... N. squamosa

6. Dorsum without squamous extensions from the notopodia.
 7.
7. Second antennae bifid; acicular lobes conical.....
 N. cornuta
7. Second antennae single; acicular lobes rounded.....
 N. ferruginea

Genus Aglaophamus Kinberg, 1866

All four species described below have short pre- and postacicular lobes; these four and five from other areas with similar parapodial parts are all from deep water.

Aglaophamus eugeniae, new species

(Plate 14, Figs. a-e)

Records: 7231 (1); 7236 (2, TYPE).

Description: The type is an incomplete specimen which has 18 setigers; it is 5.5 mm long and 2 mm wide with setae. It is white and lacks color patterns except for the brown ventral furrow. The other specimen in the type lot is 11 mm long and 3 mm wide for 25 setigers.

The prostomium (Fig. a) is nearly circular with a very short posterior extension over the first setiger. Nuchal organs are present but not prominent. Eyes are absent. The first antennae have clavate bases and slender tips. The second antennae are similar to the first.

The proboscis (seen in dissection) has fourteen rows of subterminal papillae with ten to twelve papillae in a row. The proximal surface of the proboscis is smooth; a middorsal single papilla is absent. A pair of large jaws is present; each has a triangular base with an anterior spur as is usual in the genus.

The first parapodia are directed forward along the

prostomium. The neuropodium has a transverse postsetal lobe and a very large, digitate ventral cirrus. The notopodium has a conical acicular lobe and low, rounded pre- and postacicular lobes; notopodial cirri are absent. All other parapodia are directed laterally. They are similar except that the notopodial postacicular lobes are somewhat more prominent in the first five or six setigers, where they are of the same length as the acicular lobes, than in median and posterior setigers.

Where fully developed, at setiger 20, both acicular lobes (Fig. b) are conical and the pre- and postacicular lobes are rounded; the postacicular lobes are longer than the pre-acicular ones, but both are shorter than the acicular lobes in all setigers. The slender notopodial cirri are very short; the short ventral cirri are digitate. Erect neuropodial lobes are absent.

Interramal cirri are present from setiger 8 or 9 to the end of the fragment. The first one or two cirri are short; where fully developed the interramal cirri are slender and involute; they fill the space between the rami completely.

Two kinds of setae are present; preacicular fascicles have barred setae (Fig. d) in full fascicles. Setae in the postacicular fascicles (Fig. e) are very minutely serrated along one cutting edge; they appear smooth in low power magnification. The slender acicula (Fig. c) are strongly and smoothly recurved. Lyrate setae are absent.

A. eugeniae resembles the eight other species in having the pre- and postacicular lobes shorter than the acicular lobes in all setigers. They include A. elamellata (Eliason, 1951, pp. 133-134, fig. 2a-c), A. erectanoides Hartmann-Schroeder (1965, pp. 136-137, figs. 104-105), A. fossae, new species (see below), A. groenlandiae Hartman (1967, pp. 73-74, pl. 22), A. minuscula Hartman (1965b, pp. 90-91, pl. 13, figs. b-d), A. paucilamellata, new species (see below), A. posterobranchia Hartman (1967, pp. 78-79, pl. 25), and A. surrufa, new species (see below).

A. posterobranchia has twenty-one or twenty-two rows

of subterminal papillae; the other species mentioned have fourteen.

A. erectanoides and A. fossae have erect lobes on the superior edge of the neuropodia; such lobes are absent in all the other species. The relationship between these two species is discussed further below.

A. elamellata, A. groenlandiae and A. surrufa have interramal cirri present from setigers 11 to 13; the remaining species, A. eugeniae, A. minuscula and A. paucilamellata, have interramal cirri from setigers 8 to 10.

A. eugeniae has at least 10 to 15 pairs of interramal cirri, A. minuscula has six pairs and A. paucilamellata has more than 15 pairs.

A. eugeniae has a circular prostomium and the notopodial cirri are absent in the first setiger; A. paucilamellata has a quadrangular prostomium and both ventral and notopodial cirri are well developed in the first setiger.

Distribution: A. eugeniae is known from two localities in the vicinity of Cedros Island, Baja California.

Aglaophamus fossae, new species

(Plate 14, Fig. f, Plate 15, Figs. a-i)

Records: 11829 (1); 11832 (1); 11833 (2); 11834 (3); 11837 (26, TYPE).

Description: The type is an incomplete specimen which has 47 setigers; it is 26 mm long and 5 mm wide with setae. It is white and lacks color patterns except for the brown ventral furrow. Other specimens in the type lot have numerous indistinct, longitudinal brown bars at the bases of the notopodia.

The prostomium (Pl. 14, Fig. f) is rectangular and has a well marked posterior extension over the first setiger. Nuchal organs are small; eyes are absent. The short,

digitate first antennae are at the frontal corners of the prostomium. The second antennae are somewhat longer than the first, but similar in shape.

The proboscis is clavate and has fourteen rows of subterminal papillae with sixteen to nineteen papillae in a row. The proximal surface of the proboscis is smooth and a middorsal papilla is absent.

The first parapodia are directed forward along the sides of the prostomium. The neuropodium has a pointed acicular lobe, a low rounded postsetal lobe and a long, digitiform ventral cirrus. The notopodium is smaller than the neuropodium and has a pointed acicular lobe and a low, rounded postsetal lobe; the notopodial cirrus is absent.

The second and all following parapodia (Pl. 15, Figs. a and d) are directed laterally. Each has pointed acicular lobes in both rami; the low preacicular lobes are rounded. The notopodial postacicular lobes are bilobed; the superior part is higher than the inferior part; both parts are rounded. The simple neuropodial postacicular lobe is rounded and somewhat longer than the preacicular lobes. The notopodial and ventral cirri are digitate. An erect lobe is present on the superior edge of the neuropodium from setigers 17 to 18. Each median and posterior parapodium (Pl. 15, Figs. g and i) has strongly pointed acicular lobes; the preacicular lobes are similar to those in anterior setigers and the notopodial postacicular lobes retain the bilobed condition except in far posterior setigers where they are evenly rounded. The erect lobes are foliose in median setigers. Notopodial and ventral cirri are digitate; the latter are somewhat larger than the former.

Interramal cirri are present from setigers 11-13 to the end of the body; each is involute and fills the space between the rami completely. The posteriormost ten or eleven interramal cirri are reduced.

Acicula (Pl. 15, Fig. e) are strongly and smoothly recurved. Three kinds of setae are present. Five or six finely serrated setae (Pl. 15, Fig. b) are present superiormost and inferiormost in the preacicular fascicles. The

median setae (Pl. 15, Fig. c) in the preacicular fascicles are barred. Postacicular fascicles have numerous slender setae (Pl. 15, Fig. f) with coarse teeth along the cutting edge. Lyrate setae were not seen.

The erect lobes are foliose in median setigers in A. fossae and short, nearly button-shaped in A. erectanoides Hartmann-Schroeder, 1965. The postacicular lobes are bilobed in A. fossae and entire in A. erectanoides.

The relationship between A. fossae and other similar species has been discussed above.

Distribution: A. fossae is known from five stations in Sal si Puedes Basin, Gulf of California.

Aglaophamus paucilamellata, new species

(Plate 16, Figs. a-f)

Records: 7229 (18, TYPE); 7231 (4); 7233 (1); 7235 (9); 7358 (28).

Description: The type is an incomplete specimen which has 32 setigers; it is 14.5 mm long and 4 mm wide with setae. It is white and lacks color patterns. Most specimens in the collection are less than half the size but otherwise similar to the type.

The prostomium (Fig. a) is quadrangular with a short posterior extension. Nuchal organs are small; eyes are absent. The short, digitate first antennae are at the frontal corners of the prostomium. The second antennae are somewhat longer than the first, but are similar in shape.

The proboscis (seen in dissection) has fourteen rows of subterminal papillae with eight to ten papillae in a row. No distinct middorsal papilla could be seen and the proximal surface of the proboscis is smooth or irregularly wrinkled.

The first parapodia are prolonged and directed for-

ward along the sides of the prostomium. Both rami have bluntly conical acicular lobes and well developed, transverse postacicular lobes. Notopodial and ventral cirri are of the same size and shape; both are short and slender. All other parapodia are directed laterally. Where fully developed, at setigers 15-35, both acicular lobes (Figs. e-f) are sharply pointed; pre- and postacicular lobes are rounded in both rami. The postacicular lobes are slightly longer than the preacicular ones, but both are shorter than the acicular lobes. Ventral cirri are digitate; notopodial cirri are conical.

Interramal cirri are present from setigers 8-10 to the end of the fragment. A posterior fragment from station 7358 has branchiae to within three or four setigers from the anal end.

Acicula (Fig. c) are smoothly curved; they are very large compared to the size of the specimens. Preacicular fascicles have barred setae (Fig. b) and postacicular fascicles have finely bristled setae (Fig. c). Lyrate setae were not seen.

The relationship between A. paucilamellata and similar species is discussed above.

Distribution: A. paucilamellata is known from five stations in Bahia de San Cristobal and vicinity, Baja California.

Aglaophamus surrufa, new species

(Plate 16, Figs. h-i, Plate 17, Figs. a-c)

Records: 11743 (1, TYPE); 13781 (1).

Description: The type is a complete specimen which has 66 setigers; it is 63 mm long and 6.5 mm wide with setae. It is reddish-brown in irregular areas in the

anterior end (surrufa = somewhat reddish), but distinct color patterns are absent.

The thick prostomium (Pl. 17, Fig. a) is quadrangular. Nuchal organs are distinct; eyes are absent. Both pairs of antennae are at the frontal corners; the first pair is somewhat above the second. All four antennae have clavate bases and slender tips.

The proboscis (seen in dissection) has fourteen rows of subterminal papillae with fourteen to sixteen papillae in a row. A long, slender middorsal papilla is present and the distal subterminal papillae are very long and slender. The proximal surface of the proboscis is smooth.

The first parapodia are directed forward along the sides of the prostomium. Both rami have very long and slender acicular lobes and low transverse postsetal lobes. The long ventral cirri are slender; the slender notopodial cirri are less than one-third the length of the ventral ones. All other parapodia are directed laterally; the first ten pairs are very short. They have conical acicular lobes and low, rounded preacicular lobes. The postacicular lobes are obliquely rounded in the notopodia and evenly rounded in the neuropodia. The short notopodial cirri are slender; the ventral cirri are digitate. A thick, apparently glandular ring covers the superior bases of the notopodia in the first twelve parapodia (Pl. 17, Fig. b). This ring is absent in posterior parapodia, but the dorsal body wall at the bases of all parapodia including the posterior-most ones, is heavily creased and appears glandular. Where fully developed, at setigers 20-40, the parapodia (Pl. 17, Fig. c) are similar to those in the anterior end, except that the postacicular lobes in the notopodia are reduced to low, evenly rounded folds. The notopodial cirri have clavate bases and short, filamentous tips in median and posterior setigers.

Interramal cirri are present from setiger 12 to the end of the body. Where fully developed they are involute and slender.

Preacicular fascicles have barred setae; postacicu-

lar fascicles have bristled setae (Pl. 16, Fig. h) with comparatively fine bristles along the cutting edge. Lyrate setae were not seen. The acicula (Pl. 16, Fig. i) are strongly recurved; those in the neuropodia are bent in nearly right angles at two points so that the tips of the acicula appear box-shaped. The notopodial acicula are similar, but less distinctly box-shaped.

A thick superior ring is present in anterior notopodia in A. surrufa and absent in A. elamellata and A. groenlandiae.

The notopodial postacicular lobes are visible behind the acicular lobes in all parapodia in A. groenlandiae and reduced to low, rounded folds in A. elamellata and A. surrufa.

The notopodial cirri are short and nearly oviform in A. elamellata and have distinct, filamentous tips in A. surrufa.

Distribution: A. surrufa is known from Tres Marias Basin off Cabo Corrientes and off the tip of Baja California.

Aqlaophamus sp. A

Record: 13724 (1).

Description: The specimen is rather badly preserved and can be only partially described. The prostomium is pentagonal; antennae and cirri of the first setigers could not be identified. Interramal cirri are present from setiger 7; each is long and involute. The parapodial lobes are strongly reduced and an erect lobe on the superior edge of the neuropodium is absent. The whole animal is evenly reddish-brown.

A. sp. A resembles the other deep-water species described above in having strongly reduced parapodial lobes, but appears to differ from the known species in the distri-

bution of interramal cirri and in the relative proportions of the anterior end.

Distribution: A. sp. A is known from one locality off Acapulco.

Aglaophamus, species indeterminable

Records: 6212 (fragment); 7228 (1); 11790 (1).

Remarks: These mutilated specimens and fragments cannot be further identified.

Genus Nephtys Cuvier, 1817

Four species of this genus have been recorded from deep water off western Mexico.

Nephtys cornuta Berkeley and Berkeley, 1945

Nephtys cornuta Berkeley and Berkeley, 1945, pp. 328-330, figs. 2-4.

Record: 7233-61 (1).

Remarks: N. cornuta has bifid second antennae, short, rounded pre- and postacicular lobes, pointed acicular lobes and, in contrast to most species of the genus, recurved acicula.

Distribution: N. cornuta was originally described from the San Juan Archipelago in Washington. The present record is the first from western Mexico.