Nephtys ferruginea Hartman, 1940

Nephtys caecoides ferruqinea Hartman, 1940, p. 241, pl. 42, figs. 110-114, pl. 43, fig. 115.

Nephtys ferruginea Hartman, 1950, pp. 102-103.

Record: P 219-60 (1).

Remarks: The present specimen is mutilated anteriorly so that the start of the interramal cirri cannot be determined. The color pattern and the shape of the parapodial lobes agree with this species.

<u>Distribution</u>: <u>N. ferruginea</u> is known from western Canada to Peru (Hartman, 1968, p. 583); it is well known from shelf depths off western Mexico; the present record is the first from deeper water in this area.

Nephtys paradoxa Malm, 1874

Nephthys paradoxa Malm, 1874, pp. 78-79, pl. 1, figs. 1-2.

Nephtys paradoxa Fauchald, 1963, pp. 13-15, figs. 1A, 2B

and 3C.

Records: P 127-58 (1); 13767 (1).

Remarks: The present specimens do not differ in any features from the specimens from Norwegian waters reviewed by Fauchald (1963).

<u>Distribution</u>: <u>N. paradoxa</u> is common in deep water off northern Europe and has been recorded from deep-water areas in various parts of the world. The identity of certain of the records is doubtful. The present specimen comes from the Central American Trench off northern Guatemala and off the Tres Marias Islands.

Nephtys squamosa Ehlers, 1887

(Plate 16, Fig. g)

<u>Mephthys</u> <u>squamosa</u> Ehlers, 1887, pp. 128-131, pl. 37, figs. 7-10.

Nephtys squamosa Hartman, 1940, pp. 237-238, pl. 41, figs. 98-99.

Earlier Record: Hartman (1940, p. 237): 735-37 (1).

New Record: 11831 (1).

Remarks: The present specimens have interramal cirri from setiger 3. The first trace of imbrication is present from setiger 10; it was present from setiger 15 in the original material (Ehlers, 1887). The jaws (Fig. g) have the triangular outline common in the genus; the anterior spur is double in the present specimens. An inner supportive ridge is absent.

Distribution: N. squamosa is known from waters off Florida, from west Africa and from the eastern Pacific Ocean from southern California to Ecuador (Hartman, 1968, p. 597). It is common in shelf depths off western Mexico. The present records from slope and basin depths come from the Gulf of California.

Nephtyidae, indeterminable

Record: 11825 (1).

Remark: The specimen can be recognized as a nephtyid by the remnants of the setae only.

Family SPHAERODORIDAE Malmgren, 1867

Sphaerodorids are characterized by having two or more series of epithelial protuberances on the dorsum and frequently on the ventrum or associated with the parapodia. These protuberances may be separated into three different categories. The large macrotubercles may be spherical or ovate. They may have distally a terminal papilla or be evenly rounded and may be stalked or sessile. The smaller microtubercles have a short collar and a large terminal papilla. The third category includes all other kinds of smaller protuberances which are generally referred to as papillae.

The prostomium may have from one to three pairs of lateral antennae in addition to an unpaired median antenna. The peristomium has a pair of peristomial cirri. The proboscis may be long and cylindrical or short and stout.

The parapodia are always uniramous and have clavate ventral cirri. Pre- and postsetal lobes may be present; when present each is digitiform. The parapodia are often covered with papillae which may make the identification of parapodial lobes difficult.

Setae are usually all of one kind in each species except in the first setiger, which may have a pair of stout recurved hooks. Some genera have simple setae; others have composite setae with short, slightly falcate appendages in the remaining setigers.

The sphaerodorids from the deeper portions of the Atlantic Ocean were reviewed by Hartman and Fauchald (1971); a complete revision of the family is being prepared (Fauchald, in press).

Four species in three genera are present in deep water off western Mexico; three species and one genus are newly described.

Key to Species from Deep Water off Western Mexico

Genus Clavodorum Hartman and Fauchald, 1971

The genus contains short-bodied sphaerodorids with stalked macrotubercles in several rows on the dorsum. The prostomium has a long, slender median antenna. Setae are composite.

Genotype is \underline{C} . $\underline{atlanticum}$ Hartman and Fauchald, 1971.

Clavodorum clavatum, new species

(Plate 18, Figs. a-c)

Records: 2035 (1); 2114 (1); 3394 (1); 5736 (1); 5737 (1); 5746 (2); 7229 (3, TYPE); Off El Segundo, California, between the Hyperion and El Segundo Piers, 18-45 m, sand, Nov. 23, 1941, coll. Burch (2).

Description: The type is a complete specimen which has 24 setigers; it is 2.5 mm long and 1 mm wide with setae. It is white and lacks color patterns. The body is short and tumid.

The prostomium (Fig. a) is not clearly separated

from the rest of the body. Five antennae are present; the median one is very long and slender; both pairs of lateral antennae are furcate. Each of the superior lateral antennae is nearly as long as the median one; the main branch is ciliated; the shorter, outer branch is smooth. The smooth inferior lateral antennae are somewhat shorter than the superior ones. The peristomial cirri are shorter than the median antenna. The proboscis is short and muscular.

Each parapodium in the first three setigers has a well developed, digitate presetal lobe, and a large ventral cirrus which reaches beyond the tip of the acicular lobe. All other setigers lack presetal lobes, but are otherwise similar to the first ones.

Six rows of macrotubercles are present on the dorsum. Each macrotubercle (Fig. c) has a nearly transparent stalk and a large, club-shaped head. Four rows of tubercles are present on the ventrum. Each ventral tubercle (Fig. b) is smaller than the dorsal ones and the stalk is not as clearly separated from the head as in the dorsal ones. Papillae are scattered sparsely along the body, except on the anterior end where a large number of slender papillae are present.

Setae are all of one kind. Each is composite and has a short, slightly falcate appendage.

C. clavatum is the only species known in the genus which has present lobes present in the anterior, but absent in the median and posterior parts of the body.

<u>Distribution</u>: <u>C. clavatum</u> is known from southern California south to Cedros Island, Baja California in shelf and slope depths.

Genus Ephesiella Chamberlin, 1919

The genus is here accepted as emended by Hartman and Fauchald (1971).

Ephesiella brevicapitis (Moore, 1909)

(Plate 19, Figs. a-f)

<u>Sphaerodorum</u> <u>brevicapitis</u> Moore, 1909, pp. 335-336, pl. 15, figs. 13-14; Hartman, 1968, p. 607.

Records: 2114 (1); 4938 (2); 6823 (1); 6832 (3); 6841 (1); 6851 (1); 7229 (2); 7231 (6); 7233 (1); 7234 (1); 13767 (1).

Remarks: E. brevicapitis is long and slender with approximately 100 setigers when fully grown. It has two large recurved hooks (Fig. d) in each of the first parapodia. Each parapodium (Fig. a) has a conical acicular lobe, a short digitate presetal lobe and a similar, somewhat longer postsetal lobe. The anterior face of each parapodium has three papillae in a row and a small papilla near the base in anterodorsal positions. The long ventral cirrus has a clearly marked digitate tip. All setae are composite; two different kinds can be recognized. One kind (Fig. f) is thick and the distal ends of the shafts are inflated; the appendage is short and strongly falcate. The other kind (Fig. c) is slender and lacks a distinct inflation; the slender appendage is gently curved.

The macrotubercles were illustrated by Moore (1909) as having the terminal papillae on the ventral side near the bases of the tubercles. This condition has not been found in any of the specimens examined here (Fig. e); it may have been an artifact. The long microtubercles (Fig. b) have short basal collars and long, digitate terminal papillae.

<u>Distribution</u>: <u>E</u>. <u>brevicapitis</u> is known from the deep basins off southern California and from canyon and slope depths off southern California and western Mexico.

Sphaerephesia, new genus

The genus includes sphaerodorids with four rows of macrotubercles with terminal papillae, composite setae and two pairs of lateral antennae. The body is usually comparatively short, but both species are slenderer than is normal in short-bodied sphaerodorids, even if they are thicker than the long-bodied ones.

Sphaerephesia differs from all other genera of short-bodied sphaerodorids in that it has terminal papillae on the macrotubercles. Four genera with terminal papillae on the macrotubercles are known; three of these, Ephesiella Chamberlin (1919), Ephesiopsis Hartman and Fauchald (1971) and Sphaerodorum Rathke (1843, sensu Hartman and Fauchald, 1971) have only two rows of macrotubercles and the terminal papillae are long. Sphaerephesia has four rows of macrotubercles and the terminal papillae are short and button-shaped.

Two species, both newly described, are assigned to the genus. Genotype is S. similisetis, new species.

Sphaerephesia longisetis, new species

(Plate 20, Figs. a-e)

Records: 3394 (3); 7229 (9, TYPE).

<u>Description</u>: The type is a complete specimen which has 20 setigers; it is 3.5 mm long and less than 1 mm wide without setae. It is white and lacks color patterns.

The anterior end (Fig. a) is evenly rounded; two pairs of lateral antennae and a thick median antenna are present. Each of the superior lateral antennae has a marked constriction near the middle. The long inferior lateral antennae are slender. The peristomial cirri are long.

Each of the first three pairs of parapodia has a conical acicular lobe; the ventral cirrus is digitate and

a dorsal papilla resembling the ventral cirrus in length and shape is present. The long presetal lobe is slender. Posterior parapodia (Fig. e) are similar to the anterior ones, but the dorsal papilla is absent. Each parapodial face has seven or eight slender papillae.

Four rows of macrotubercles are present; each macrotubercle (Fig. c) is nearly spherical and has a distinct, button-shaped terminal papilla. Papillae are in approximately six irregular rows on the dorsum and cover the ventrum completely. Microtubercles (Fig. b) are found between the parapodia; each is slender with a constriction near the base; the basal collar is long and the terminal papilla is button-shaped.

All setae are similar in shape, but differ in length (Fig. e). The first three parapodia have setae that barely project beyond the presetal lobes. All other setigers have similar short setae, and also setae with enormously prolonged shafts and short appendages. Each seta (Fig. d), both of the short and long kind, has a slender shaft and a narrow, slightly falcate appendage. Shafts and appendages are smooth.

<u>S. longisetis</u> has very long setae in median and posterior setigers and microtubercles between the parapodia. The position of these microtubercles appears to be unique to this species; other species with microtubercles have these arranged in rows on the dorsum.

<u>Distribution</u>: <u>S. longisetis</u> has been found off southern California and western Mexico in slope depths.

Sphaerephesia similisetis, new species

(Plate 21, Figs. a-c)

Records: 2646 (1); 3394 (1); 3489 (1); 5743 (1);
7234 (3, TYPE).

<u>Description</u>: The type is a complete specimen which has 28 setigers; it is 5 mm long and 1.5 mm wide with setae. It is white and lacks color patterns. The body is short and rather plump.

The anterior end (Fig. a) is bluntly rounded and has five antennae. Both pairs of lateral antennae are digitate. The short median antenna is somewhat clavate. The long peristomial cirri are slender. The peristomium is covered with scattered papillae. The cylindrical proboscis is strongly muscular.

All parapodia (Fig. c) are similar; each has a truncate acicular lobe, a digitate presetal lobe and a digitate ventral cirrus which does not project beyond the tip of the presetal lobe in any setiger. Each parapodial face has at least twelve small papillae.

Four rows of macrotubercles are present; each macrotubercle is large and spherical with a small, button-shaped terminal papilla. The papillae are few and scattered rather evenly on the body except on the parapodia and the peristomium; each is short and truncate.

Setae are all of one kind (Fig. b); each is composite and has a slender shaft and a rather wide, slightly falcate appendage.

Prolonged setae and microtubercles are present in \underline{S} . longisetis; \underline{S} . similisetis has short setae and microtubercles are absent.

<u>Distribution</u>: <u>S. similisetis</u> has been found off southern California and western Mexico in shelf and slope depths.

Family GLYCERIDAE Grube, 1850

Six species, all belonging to the genus <u>Glycera</u>, have been found in deep water off western Mexico. Four of these, <u>G. americana</u> Leidy (1855), <u>G. capitata</u> Örsted (1843), <u>G. oxycephala</u> Ehlers (1887) and <u>G. tesselata</u> Grube (1863),

are also found in shallow water off western Mexico. The other two species are known only from deep water.

Key to Species of <u>Glycera</u> from Deep Water off Western Mexico

1.	Two postsetal lobes present	2.
1.	One postsetal lobe present	3.
2.	Dendritic branchiae present on posterior face of	
	parapodia americana	
2.	Branchiae absent tesselata	
З.	Proboscideal organs with ridges	
	oxycephala	
3.	Proboscideal organs smooth	4.
4.	Posterior parapodia prolonged; parapodial lobes as	
	long as the parapodial bases in posterior setigers	
		5.
4.	Posterior parapodia short; parapodial lobes	
	distinctly shorter than the parapodial bases in	
	posterior setigers capitata	
5.	Three kinds of proboscideal organs present; foliose	
	organs nearly as common as the slender tall kind	
	branchiopoda	
5.	Two kinds of proboscideal organs present; foliose	
	organs rare profundi	

Glycera americana Leidy (1855)

<u>Glycera</u> <u>americana</u> Hartman, 1950, pp. 73-75; Hartman, 1968, p. 613.

Record: 1746-49 (1).

Remarks: Glycera americana has branched, retractile branchiae on the posterior faces of the parapodia. The proboscideal organs are smooth.

The species is common in shallow water off western Mexico (Hartman, 1950, p. 74); the present record is from the Gulf of California in 174-210 m depth and should probably be considered as coming from shelf-depths.

<u>Distribution</u>: <u>G. americana</u> is widely distributed on both the Atlantic and Pacific sides of the Americas; it has also been recorded from areas in the western Pacific Ocean.

Glycera branchiopoda Moore, 1911

Glycera branchiopoda Moore, 1911, pp. 302-304, pl. 20, figs. 155-156, pl. 21, figs. 157-159: Hartman, 1968, p. 615.

Glycera capitata branchiopoda Hartman, 1960, p. 97.

Record: 7234-61 (4).

Remarks: G. branchiopoda closely resembles G. capitata Örsted (1843) and G. profundi Chamberlin (1919).

Proboscideal organs include large, foliose ones with subterminal pores, smaller similar ones and finally long, slender conical ones with terminal pores in <u>G. branchiopoda</u>. The other two species have only two kinds of organs: large, foliose ones and long slender ones.

The parapodia are prolonged in posterior setigers in G. branchiopoda and G. profundi and short in all setigers in G. capitata. Anterior parapodia are comparatively shorter in G. branchiopoda than in G. profundi (cf. Moore, 1911, pl. 21, fig. 157 and Chamberlin, 1919, pl. 64, fig. 4). The postsetal lobes in anterior setigers are wide and evenly rounded in G. branchiopoda and narrow and somewhat pointed in G. profundi.

<u>Distribution</u>: <u>G. branchiopoda</u> is known from basins off southern California. The present record comes from

deep water off Cedros Island, Baja California.

Glycera capitata Örsted, 1843

Glycera capitata Hartman, 1950, pp. 76-77, pl. 11, figs. 1-4; Hartman, 1968, p. 617.

Records: 6213 (1); 11837 (1).

Remarks: G. capitata belongs to a group of species that has one usually rounded postsetal lobe and no apparent structures on the proboscideal organs. These species are very difficult to distinguish and a complete revision is needed.

Proboscideal organs include large, foliose ones and tall conical ones.

Parapodia are usually short in all setigers, but the posterior parapodia may be prolonged in preserved material. The parapodial lobes in such prolonged parapodia are always distinctly shorter than the length of the parapodial bases.

The aileron of the jaws is moderately large and narrows evenly toward the attachment to the jaw in <u>G. capitata;</u> it is very large and has a large, flattened area with a rounded outline near the attachment in <u>G. profundi</u> (Pl. 22, Fig. e).

Other differences from the closely related <u>G</u>. <u>bran-chiopoda</u> and <u>G</u>. <u>profundi</u> have been discussed above.

<u>Distribution</u>: <u>G. Capitata</u> is known from cold and temperate waters in the northern hemisphere. It is known from several localities in shallow water off western Mexico. The present records are the first deep-water records from this area.

Glycera oxycephala Ehlers, 1887

Glycera oxycephala Ehlers, 1887, pp. 121-123, pl. 41, figs. 7-11; Hartman, 1950, pp. 70-71, pl. 10, figs. 3-4, textfig. 3; Hartman, 1968, p. 625.

Record: 1921-49 (1).

Remarks: G. oxycephala is here accepted as defined by Hartman (1950, 1968). The transverse ridges on the proboscideal organs appear to vary somewhat in number and arrangement. They are strongly oblique and may appear nearly longitudinal in optical section in some organs, but most organs are as illustrated by Hartman (1950, pl. 10, figs. 3-4).

Distribution: G. oxycephala is found on both sides of tropical America and has been reported as far north as Oregon in the eastern Pacific Ocean. The present record is from 202-225 m off Guadalupe Island, Baja California.

Glycera profundi Chamberlin, 1919

(Plate 22, Figs. a-g)

<u>Glycera profundi</u> Chamberlin, 1919, pp. 350-352, pl. 64, figs. 2-6.

Hemipodus mexicanus Chamberlin, 1919, pp. 349-350, pl. 63, figs. 2-3.

Glycera mexicana Hartman, 1942a, p. 126, fig. 9e.

<u>Earlier Records</u>: Chamberlin (1919, pp. 349-352): ALBATROSS sta. 3435 (1); sta. 3437 (1).

New Records: 11805 (1); 11809 (1); 11810 (1); 11815 (45); 11826 (1); 11829 (1); 13756 (1).

Remarks: Hemipodus mexicanus was originally described with uniramous parapodia and Glycera profundi with biramous parapodia (Chamberlin, 1919). H. mexicanus has biramous parapodia as remarked by Hartman (1942) and thus belongs to Glycera.

A direct comparison between the holotypes of both species failed to demonstrate any significant differences between them. The structure and distribution of the proboscideal organs are the same in both; the development of the parapodial lobes is similar, even if the type of <u>G</u>. profundi is considerably larger than that of <u>H</u>. mexicanus. The shape and relative size of the aileron are also the same in both specimens. <u>H</u>. mexicanus is here considered a synonym of <u>Glycera profundi</u>.

The two kinds of proboscideal organs include numerous tall, slender organs (Figs. a, c-d, f) with a terminal ring of very small papillae surrounding the pore. The papillae appear to be ciliated. Arranged in transverse rows are a few, large foliose organs (Fig. g) which are somewhat shorter than the slender kind. These large organs may appear globular in frontal view. The posterior face is somewhat longer than the anterior one so the organs are slightly asymmetrical. The pore (Fig. b) is subterminal on the anterior face; distal to the pore is an area of small papillae similar to those found on the tall organs.

The relationship between \underline{G} . $\underline{profundi}$, \underline{G} . $\underline{branchio-poda}$ and \underline{G} . $\underline{capitata}$ has been discussed above.

The larger specimens are deep brown with the tips of the parapodial lobes bordered in white. Smaller specimens are less highly colored.

Distribution: G. profundi is known from Carmen,
Guaymas and Sal si Puedes Basins in the Gulf of California.

Glycera tesselata Grube, 1863

Hartman, 1968, p. 633.

Record: 11830 (2).

Remarks: G. tesselata has a narrow V-shaped aileron and weakly bilobed postsetal lobes. The proboscideal organs have longitudinal ridges. Branchiae are absent.

<u>Distribution</u>: <u>G. tesselata</u> is widely distributed in warm waters. The present record is from deep water in Sal si Puedes Basin, Gulf of California.

Glyceridae, indeterminable

Records: 11815 (fragment); 13744 (fragment).

Remarks: These two fragments cannot be further identified.

Family GONIADIDAE Kinberg, 1866

Five species in three genera have been found in deep water off western Mexico. Two of these are here described in a new genus; the other three are well known from other areas both in shallow and deep water.

Key to Species from Deep Water off Western Mexico

- 1. Proboscideal organs of two or more kinds..... 2.
- 1. All proboscideal organs similar..... 4.
- 2. Prostomium smooth, notosetae simple capillaries.... 3.
- 2. Prostomium annulated, notosetae acicular and hooded.

 Glycinde armigera

- - Bathyglycinde, new genus

approximately 20...... Goniada annulata

Bathyglycinde includes goniadids with smooth prostomia, two or three kinds of proboscideal organs and two macrognaths. Micrognaths are present in a varying number; chevrons are absent. The notopodia have slender capillary setae with finely dentate edges.

Bathyglycinde resembles Glycinde in that both have similar proboscideal organs. The organs are absent from areas I and VI in Bathyglycinde and present in Glycinde (for a definition of the different areas see Hartman, 1950, pp. 45-47, textfig. 2). Organs on III are very similar to those found in Glycinde, but organs on III-V differ in that they are carried on transverse ridges in at least two of the three species presently assigned to Bathyglycinde.

All three species of <u>Bathyglycinde</u> have bifid presetal lobes in posterior setigers, and one of them, \underline{B} . <u>mexicana</u>, new species, also has bifid anterior presetal lobes.

Bathyglycinde differs from species of Glycinde in that the notosetae are slender capillaries in the former and knobbed, or falcate hooded hooks in the latter. The distal ends of the shafts of the neurosetae are smooth in Bathyglycinde and have a varying number of teeth in Glycinde.

Species presently assigned to Bathyglycinde include

B. cedroensis, new species, B. lindbergi (Ushakov, 1955, p. 176, fig. 49g-1) and the genotype, B. mexicana, new species.

Bathyglycinde cedroensis, new species

(Plate 23, Figs. h-n)

Records: 7231-61 (1, TYPE); 13752 (1).

Description: The type is an incomplete specimen which has 60 setigers; it is 17 mm long and 2.5 mm wide with setae. It is yellow with scattered brown pigment on the prostomium and along the edges of the parapodial lobes.

The prostomium is smooth and has four short, somewhat foliose distal antennae. Eyes are absent.

The proboscis is cylindrical; it has two large ventral macrognaths and an undetermined number of micrognaths (five were found in a dorsal crescent, but more may be present). Proboscideal organs are of three different kinds. Those on II are all tall and slender; each of the dorsal ones (Fig. j) is nearly straight with a simple tip and a prolonged, slender basis; each of the lateral ones (Fig. k) is recurved and has a bifid tip and a short wide basis. A few large, soft papillae are found on III (Fig. h). The organs on the lateroventral side of the proboscis are on transverse ridges; those on V are very short, recurved papillae (Fig. i).

The anterior twenty-five parapodia are uniramous (Fig. 1). The foliose dorsal cirrus is very large. The neuropodial acicular lobe is rounded; the pointed presetal lobe is simple; the postsetal lobe is similar, but somewhat longer. The thick ventral cirrus projects well beyond the other parapodial lobes.

Parapodia are biramous from setiger 26 (Fig. n). Each notopodial acicular lobe is broadly rounded; the digitate presetal lobe is somewhat longer than the acicular lobe. The low postsetal lobe follows the outline of the acicular lobe closely except dorsalmost where it is produced into a small papilla. The foliose dorsal cirrus is nearly twice as long as the notopodial lobes. The neuropodial acicular lobe is rounded; the presetal lobe is bifid and the superior part is a little longer and more pointed than the inferior part. The blunt postsetal lobe is a little longer than the presetal one. The ventral cirrus is nearly as long as the neuropodium; it is very large and foliose.

Setae are of two kinds. All notopodia have simple capillary setae with finely dentate cutting edges. The neuropodial fascicles have composite, spinigerous setae (Fig. m). The cutting edges of the appendages are dentate and the distal ends of the shafts are smooth. The articulation is heterogomph.

<u>B. cedroensis</u> resembles <u>B. lindbergi</u> in that both have simple presetal lobes in anterior setigers and bifid lobes in posterior setigers. The ventral cirri are large and foliose in <u>B. cedroensis</u> and short and conical in <u>B. lindbergi</u>. The postsetal lobes are a little longer than the presetal ones in all setigers in <u>B. cedroensis</u> and of the same length as the presetal lobes in <u>B. lindbergi</u>.

<u>Distribution</u>: <u>B. cedroensis</u> is known off Cedros Island, Baja California and off Cabo Corrientes on the mainland slope of the Central American Trench.

Bathyglycinde mexicana, new species

(Plate 23, Figs. a-g)

(genotype)

Records: 11791 (1, TYPE); 13780 (1).

Description: The type is an incomplete specimen which has 47 setigers; it is 20 mm long and 1.5 mm wide

NO. 7

with setae. It is yellow with brown ridges along the parapodial lobes and has scattered brown pigment bands across the dorsum.

The prostomium (Fig. c) is conical with distinct lateral ridges. It is smooth; the anterior end has been damaged and the size of the four prostomial antennae can be indicated only tentatively. Eyes are absent.

The proboscis reaches the twentieth setiger. It has two large ventrolateral macrognaths; each has three or four sharply pointed teeth of which the lateral are the larger. Six micrognaths are present in a dorsal crescent; each has two sharp teeth. Proboscideal organs are of three different kinds. Organs are lacking on I and VI. The organs on II are tall and slender. Each of the dorsal ones (Fig. f) is recurved and has a broad, heart-shaped basal plate; each of the lateral ones (Fig. e) is falcate with a broad, evenly rounded basis. III-V are covered with transverse ridges; each ridge carries a small, slightly recurved solid papilla in a ventrolateral position (Fig. g).

The anterior twenty-one parapodia are uniramous (Fig. b); each has a large, recurved dorsal cirrus with a distinct knob on the ventral edge. The dorsal cirri are all distinctly basal in position. The neuropodial acicular lobe is rounded; the presetal lobe is bifid even in the first setigers. The superior part of the presetal lobe is pointed; the inferior part is evenly rounded. The digitate postsetal lobe has a slender tip. The thick ventral cirrus is at the middle of the ventral edge of the neuropodium; it has a slender tip.

Biramous parapodia (Fig. a) are present from setiger 22; each has a short, rounded notopodial acicular lobe; the digitate presetal lobe projects well beyond the tip of the aciculum. The short postsetal lobe is rounded. The dorsal cirrus is thick with a distinct ventral knob. The neuropodial acicular lobe is long with parallel ventral and dorsal edges; it is blunt distally. The presetal lobe is bifid; each part is pointed. The postsetal lobe is as long as the presetal ones and distally rounded. The thick

ventral cirrus is blunt.

Setae are of two kinds. The long notosetae are slender with finely dentate cutting edges. Neurosetae are composite with heterogomph articulation; each has a long, slender appendage with a dentate cutting edge. The distal ends of the shafts are smooth.

B. mexicana has bifid presetal lobes in all setigers; the anterior presetal lobes are simple in B. cedroensis and B. lindbergi. The dorsal cirri have a large ventral knob in B. mexicana and are smooth in the other two species.

<u>Distribution</u>: <u>B. mexicana</u> is known from Farallon Basin, Gulf of California and off the tip of Baja California.

Genus Glycinde Müller, 1858

Glycinde armigera Moore, 1911

Glycinde armigera Moore, 1911, pp. 307-311, pl. 21, figs. 160-171; Hartman, 1950, pp. 49-51, pl. 6, figs. 1-12; Hartman, 1968, p. 643.

Records: 11837 (1); P 218-60 (1).

Remarks: G. armigera has simple, strongly obcordate presetal lobes and diverse proboscideal organs as described by Hartman (1950, p. 50). The present specimens do not differ from those described by Moore (1911) and Hartman (1950) except in trivial details.

Distribution: G. armigera is widespread in the eastern Pacific Ocean from British Columbia to the Galapagos Islands. The two present records come from Baja California near the International Boundary between Mexico and the United States and from Sal si Puedes Basin, Gulf of California.

Genus <u>Goniada</u> Audouin and Milne Edwards, 1833

Goniada annulata Moore, 1905

Goniada annulata Moore, 1905a, pp. 549-553; pl. 36, figs. 45-48; Hartman, 1950, pp. 20-23, pl. 2, figs. 1-9; Hartman, 1968, p. 651.

Record: 6213 (1).

Remarks: G. annulata is here accepted as defined by Hartman (1950). It has a pointed prostomium with maximally five articulations; the proboscideal organs are tall and conical and the micrognaths number fifteen ventrally and approximately six dorsally. The present specimen is very large, but is broken into several pieces so that no exact measurement can be given.

<u>Distribution</u>: <u>G. annulata</u> is known from Alaska to Baja California in deep shelf and upper slope depths. The present record is from Bahia de San Cristobal, Baja California, on the upper part of the slope.

Goniada brunnea Treadwell, 1906

Goniada brunnea Treadwell, 1906, p. 1174, figs. 67-70; Hartman, 1950, pp. 17-19, pl. 1, figs. 1-6, pl. 4, fig. 1, textfig. 1; Hartman, 1968, p. 653.

Records: 6212 (1); 7229 (1); 7234 (1); 11769 (1); 11788 (1); 11790 (1); 11791 (1); 11808 (1); 13744 (1); 13752 (1); 13754 (1); 13755 (5); 13767 (2); 13768 (1); 13774 (2); 13775 (1); 13776 (1); P 219-60 (1).

Remarks: G. brunnea is here accepted as re-defined by Hartman (1950). It has a very broad prostomium with a

blunt tip; the proboscideal organs are low and have a broad flange. The present specimens have approximately ten micrognaths in the ventral crescent. The number of micrognaths in the dorsal crescent varies from none to three; this variation is well within the limits established by Hartman (1950). The present deep-water specimens are all rather small.

<u>Distribution</u>: <u>G. brunnea</u> is widely distributed in the eastern Pacific Ocean from Alaska to western Mexico; the present records are from both sides of the Baja California peninsula and along the mainland slope of the Central American Trench.

Goniadidae, species indeterminable

Records: 11815 (fragment); 12134 (fragment).

Remarks: Both fragments resemble <u>Goniada brunnea</u> in parapodial structures, but cannot be determined accurately.

Family ONUPHIDAE Kinberg, 1865

Ten genera are presently recognized in the family; these include <u>Diopatra</u> Audouin and Milne Edwards (1833), <u>Epidiopatra</u> Augener (1918), <u>Heptaceras</u> Ehlers (1887), <u>Hyalinoccia</u> Malmgren (1867), <u>Nothria</u> Malmgren (1867), <u>Onuphis</u> Audouin and Milne Edwards (1833), <u>Paradiopatra</u> Ehlers (1887), <u>Paranorthia</u> Moore (1903), <u>Paronuphis</u> Ehlers (1887) and <u>Rhamphobrachium</u> Ehlers (1887).

The genera may be separated into two groups based on the presence or absence of modified anterior setigers. The first setiger is enlarged in some species of most genera, but a distinct group of species has two or more enlarged setigers.

Two genera clearly belong in the latter category; they include Paranorthia and Rhamphobrachium. Paradiopatra cannot presently be placed in either group since one of the two species originally assigned to it (P. fragosa Ehlers, 1887, pp. 75-76, pl. 20, figs. 7-14, pl. 21, figs. 1-4) does not have any modified setigers, whereas the other (P. glutinatrix Ehlers, 1887, pp. 76-78, pl. 18, figs. 10-15, pl. 19, figs. 1-5) appears to have two modified setigers. The genus is here considered to belong to the first group, the one without modified anterior setigers, based on page-priority. It is very similar to Nothria, from which it differs only in the presence of foliose dorsal cirri in some setigers. Paradiopatra glutinatrix should go to Paranorthia as here defined, in case the genus Paradiopatra is broken up. The problem cannot be definitely solved without a re-examination of the type material or an examination of material from the type locality.

Paramorthia and Rhamphobrachium can be separated by the presence of distinctive kinds of setae in the modified setigers. Paramorthia has strong, uni- or bidentate hooks and capillary setae in these setigers, whereas Rhamphobrachium has recurved, slender setae which resemble grapple-hooks in the modified parapodia.

The key to genera and definitions of genera given below must be considered temporary; a detailed examination of large amounts of material is needed to achieve a better understanding of the relationships in the family.

Key to Genera of ONUPHIDAE

- Anterior parapodia not prolonged, or only first parapodium slightly longer than the following ones...... 3.
- Modified parapodia with uni- or bidentate hooks and capillary setae.....

 Paranorthia

2.	Modified parapodia with strongly recurved setae that	
	resemble grapple-hooks Rhamphobrachium	
3.	Branchiae in part spiraled	4.
	Branchiae pectinate, simple or absent	
4.	Peristomial cirri present	
4.	Peristomial cirri absent Epidiopatra	
	digitate <u>Diopatra</u>	
5.	Frontal antennae long and slender, at least some	
	dorsal cirri foliose Heptaceras	
6.	Peristomial cirri present	8.
6.	Peristomial cirri absent	7.
7.	Branchiae present Hyalinoecia	
7.	Branchiae absent Paronuphis	
8.	Branchiae in part pectinate Onuphis	
8.	Branchiae simple or absent	9.
9.	Branchiae absent, dorsal cirri foliose in some	
	anterior setigers Paradiopatra	
9,	Branchiae usually present, notopodial cirri digitate	
	in all setigers Nothria	

Definition of Genera

Diopatra Audouin and Milne Edwards, 1833

Frontal antennae short and conical; peristomial cirri present; anterior setigers and setae not modified; branchiae spiraled; dorsal cirri digitate.

Type species: <u>D</u>. <u>amboinensis</u> Audouin and Milne Edwards, 1833

Epidiopatra Augener, 1918

Frontal antennae short and conical; peristomial cirri absent; anterior setigers and setae not modified; branchiae spiraled; dorsal cirri digitate.

Type species: E. hupferiana Augener, 1918

Heptaceras Ehlers, 1868

Frontal antennae long and slender; peristomial cirri present; anterior modified setigers and setae absent; branchiae spiraled; dorsal cirri foliose in some setigers.

Type species: H. phyllocirrus (Schmarda, 1861)

Hyalinoecia Malmgren, 1867

Frontal antennae short and conical; peristomial cirri absent; modified anterior setigers and setae absent; branchiae present, simple and straplike in most species; dorsal cirri digitate.

Type species: H. tubicola (O.F. Müller, 1788)

Nothria Malmgren, 1867

Frontal antennae short and conical; peristomial cirri present; modified anterior setigers and setae absent; branchiae simple and straplike or absent; dorsal cirri digitate.

Type species: <u>N</u>. <u>conchylega</u> (Sars, 1835)

Onuphis Audouin and Milne Edwards, 1833

Frontal antennae short and conical; peristomial cirri present; modified anterior setigers and setae absent; branchiae pectinate; dorsal cirri digitate.

Type species: O. eremita Audouin and Milne Edwards, 1833

Paradiopatra Ehlers, 1887

Frontal antennae short and conical; peristomial cirri present; modified anterior setigers and setae absent; branchiae absent; dorsal cirri foliose in some setigers.

Type species: P. fragosa Ehlers, 1887

Paranorthia Moore, 1903

Frontal antennae short and conical; peristomial cirri present; two modified anterior setigers present with uni- and bidentate hooks and capillary setae; branchiae simple and straplike or bifid;

dorsal cirri digitate.

Type species: P. brevicornuta Moore, 1903

Paronuphis Ehlers, 1887

Frontal antennae short and conical; peristomial cirri absent; modified anterior setigers and setae absent; branchiae absent; dorsal cirri digitate.

Type species: P. gracilis Ehlers, 1887

Rhamphobrachium Ehlers, 1887

Frontal antennae short and conical; peristomial cirri present; two or more modified anterior setigers present with strongly recurved setae that resemble grapple-hooks; branchiae pectinate; dorsal cirri digitate.

Type species: R. agassizi Ehlers, 1887

The family is represented by 18 species in waters deeper than 200 m off western Mexico.

Genera represented in the collections include Hyalinoecia with four species; Nothria and Onuphis are both represented by six species each. Paranorthia and Paronuphis have one each.

Key to Species from Deep Water off Western Mexico

1.	Peristomial cirri present	6
1.	Peristomial cirri absent	2
2,	Branchiae present Hyalingecia	3,
2.	Branchiae absent Paronuphis abyssorum	
3,	Anterior hooded hooks unidentate	
	H. teaton	
3,	Anterior hooded hooks bidentate	4.
1.	Proximal tooth of anterior hooded hooks strongly	
	reduced, first parapodia prolonged beyond the pro-	
	stomium H. leucacra	

..... O. parva

14. Branchiae first present from setiger 5.....

..... 0. litabranchia

Genus Hyalinoecia Malmgren, 1867

Four species have been recorded from deep water off western Mexico; two of these, <u>H. leucacra</u> Chamberlin (1919, for full reference see below) and <u>H. tecton</u> Chamberlin (1919) have not been recovered since they were originally described.

<u>Hyalinoecia juvenalis</u> Moore, 1911

Hyalinoecia juvenalis Moore, 1911, pp. 277-280, pl. 18,
figs. 86-95; Hartman, 1944a, pp. 46-47; Fauchald,
1968, pp. 14-16, pl. 3, figs. a-e.

Earlier Records: Hartman (1944a, p. 46); Fauchald (1968, p. 14): 523-36 (3); 1037-40 (16). Fauchald (1968, p. 14): P 201-60 (5).

Remarks: H. juvenalis is common in shelf depths off southern California and western Mexico. The three records from slope depths are all from the Gulf of California and may reflect local irregularities in the depth of the shelf-

break.

<u>Distribution</u>: <u>H. juvenalis</u> is known from southern California to Panama and from the West Indies.

Hyalinoecia leucacra Chamberlin, 1919

(Plate 24, Fig. a)

Hyalinoecia leucacra Chamberlin, 1919, pp. 317-319, pl. 37, figs. 9-10, pl. 38, figs. 1-3.

Earlier Record: Chamberlin (1919, p. 318):
ALBATROSS sta. 3418 (2).

Remarks: The type material was originally described as being in bad condition (Chamberlin, 1919, p. 317); only one specimen remains (USNM no. 19374), and this has been dried out, so not much can be added to the original description.

The first parapodia project well beyond the tip of the prostomium (Fig. a) and have a number of very strong spines which are prolonged to the posterior edge of the segment. The ventral cirri are on the ventral body wall near the base of the parapodia in the first three setigers and thus appear to belong to a more posterior setiger in these three prolonged segments.

The postsetal lobes are long and clavate; the dorsal cirri are short and slender.

Branchiae are not present before setiger 20, but the start of the branchiae cannot be determined more accurately.

The setal structures are similar to those described by Chamberlin (1919); subacicular hooks are present from approximately setiger 22.

<u>Distribution</u>: <u>H. leucacra</u> is known from one locality off Acapulco, Mexico in approximately 1200 m depth.

Hyalinoecia stricta Moore, 1911

<u>Hyalinoecia</u> <u>tubicola</u> <u>stricta</u> Moore, 1911, pp. 280-282, pl. 18, figs. 96-97; Treadwell, 1923, p. 8.

<u>Hyalinoecia</u> <u>tubicola</u> Chamberlin, 1919, pp. 315-317 (not <u>H. tubicola</u> Müller, 1788, p. 18).

Hyalinoecia stricta Fauchald, 1968, pp. 16-17, pl. 3, figs.
f-k.

Earlier Records: Chamberlin (1919, p. 316);

ALBATROSS sta. 3353 (130); 3356 (15); 3362 (102); 3366
(3 tubes); 3392 (15); 3393 (12). Treadwell (1923, p. 8);

ALBATROSS sta. D 5673 (ca. 50 and 100 tubes); D 5683 (2);
D 5686 (4); D 5687 (specimens missing); D 5690 (ca. 25);
D 5691 (46); D 5692 (23). Fauchald (1968, p. 16): P 137-60 (ca. 90); P 274-61 (17).

New Records: 11840 (3); I2135 (1); 13781 (2); 13782 (tubes); ALBATROSS sta. 3418 (1).

Remarks: The species is here accepted as defined by Moore (1911) and Fauchald (1968). The numbers of specimens in the earlier reports by Chamberlin (1919) and Treadwell (1923) have been determined by a re-examination of the samples in USNM, MCZ and AMNH. The new record from an ALBATROSS station is from off the tip of Baja California. All the earlier records by Chamberlin (1919) are from off Panama and are included here to show the range of the species.

<u>Distribution:</u> <u>H. stricta</u> is found in deep water from southern California to off Panama; it has never been recorded from the Gulf of California.

Hyalinoecia tecton Chamberlin, 1919

(Plate 24, Figs. b-e)

Hyalinoecia tecton Chamberlin, 1919, pp. 310-315, pl. 38,
figs. 4-9, pl. 39, figs. 1-2.

Earlier Records: Chamberlin (1919, p. 314):
ALBATROSS sta. 3424 (6 specimens, 12 tubes); sta. 3425 (1).

Remarks: The type material of <u>H. tecton</u> is presently deposited in USNM (2 specimens from sta. 3425, USNM no. 20418 and one specimen from sta. 3425, USNM no. 19375) and MCZ (3 specimens from sta. 3424). One specimen presently in MCZ is the only known complete specimen of the species; the others have been dissected to show the maxillary apparatus and the whole prostomium has been lost in these specimens.

The complete specimen fits the original description very well. The large prostomium (Fig. b) is rounded; the frontal antennae are ovoid. The occipital tentacles have short, thick ceratophores; each has three or four indistinct articulations and slender, abruptly tapering tentacular styles. The inner lateral styles are the longest and reach the fourth setiger; the median style has been broken and may have been longer.

The thick parapodia of the first setiger (Fig. c) are prolonged; the presetal lobe is double with a clearly marked transverse fold and a truncate, foliose distal lobe. The postsetal lobe is clavate; it originates near the dorsal edge of the parapodium and is directed dorsally. The dorsal cirrus is digitate; it does not project beyond the tip of the parapodium. The ventral cirrus is slender and is located at the junction of the parapodium and the ventral body wall.

The second parapodia (Figs. d-e) are only slightly larger than the normal parapodia along the body. Each has a double presetal lobe with a transverse fold and an

obliquely truncate distal lobe. The postsetal lobe is clavate; it is located near the middle of the posterior face of the parapodium and is directed ventrally. A small fold enclosing a superior fascicle of setae is near the superior edge of the posterior face of the parapodium. The slender dorsal cirrus is very long and surpasses the parapodium in length. The ventral cirrus is similar and is nearly as long as the presetal lobes; it is located near the base of the parapodium on the ventral body wall. Ventral cirri are digitate in the first four setigers and padshaped in all others.

Branchiae are present from setigers 17 - 19 in the specimens where this character could be determined.

The setal structures are similar to those described by Chamberlin (1919); the following notes may be added. The spines in the first two setigers are finely pilose (seen in high magnification). They were originally described as being simple and re-curved, but are all worn at the tip. The dorsal fascicle in setiger 2 contains two or three finely pilose simple setae and numerous pectinate setae. Each pectinate seta has 23 to 27 teeth, but is otherwise as described and illustrated by Chamberlin (1919). Subacicular hooks are present from setiger 26; each is very long and projects from the tip of the parapodium; they are as described and illustrated by Chamberlin.

<u>Distribution</u>: <u>H. tecton</u> is known from two localities near the mouth of the Gulf of California.

Hyalinoecia, species indeterminable

Record: 12134 (empty tubes)

Remarks: These empty tubes are quite large and probably belong to \underline{H} . $\underline{stricta}$. Station 12134 is off Bahia de la Magdalena, Baja California and is thus well within the range of \underline{H} . $\underline{stricta}$.

Genus Nothria Malmgren, 1867

Six species are known from deep water off western Mexico; two of these have been recovered only in material from the ALBATROSS expeditions. These include N. hiatidentata Moore (1911, reported by Treadwell, 1923, p. 8) and N. lepta (Chamberlin, 1919, reported both by the original author and by Treadwell, 1923).

Nothria abyssalis Fauchald, 1968

Nothria abyssalis Fauchald, 1968, pp. 19-20, pl. 4, figs. a-f.

Earlier Record: P 42-59 (1).

Remarks: No further material has been recovered of this species.

Distribution: N. abyssalis is known from one locality off Cabo San Lucas, Baja California.

Nothria hiatidentata Moore, 1911

Nothria hiatidentata Moore, 1911, pp. 259-262, pl. 16, figs. 41-48, pl. 17, figs. 49-50. Onuphis hiatidentata Treadwell, 1923, p. 8.

Earlier Records: Treadwell (1923, p. 8): ALBATROSS sta. D 5673 (20); D 5686 (5); D 5689 (8); D 5690 (6); D 5691 (32); D 5692 (3).

New Records: ALBATROSS sta. D 5687 (2); Lower California (8).

Remarks: N. hiatidentata was originally described

from two localities in the deeper portions of the California Continental Borderland. The present specimens fit the original description very well. Branchiae are present from setigers 11-15. Forty-five of the 84 specimens had the first branchiae on setiger 14; twenty had branchiae from setiger 13; twelve from setiger 15, three from setiger 12 and one from setiger 11; the start of the branchiae could not be determined in three specimens. Ventral cirri are cirriform on the first two setigers in all specimens. N. hiatidentata may build tubes, which have a thick, but pliable inner layer and are often sparsely covered with coarse sand grains or other objects. Treadwell (1923, p. 2) remarked that it often utilizes parts of the tubes of Hyalinoecia stricta and does not build its own tubes. the tubes consist partly of bits of Hyalinoecia tubes and partially of tubes built by the worm itself.

<u>Distribution</u>: <u>N. hiatidentata</u> is known from deep water off southern California and Baja California as far south as Punta Abreojos.

Nothria iridescens (Johnson, 1901)

<u>Northia iridescens</u> Johnson, 1901, p. 408, pl. 8, figs. 86-87.

Nothria iridescens Hartman, 1944a, pp. 87-88, pl. 5, figs. 99-104; Fauchald, 1968, pp. 24-25, pl. 7, fig. a, partim.

Records: 6212 (17); 6213 (13).

Remarks: The specimens reported as \underline{N} . $\underline{iridescens}$ group II by Fauchald (1968) differ specifically from \underline{N} . $\underline{iridescens}$ as defined by Johnson (1901) and Hartman (1944a); they are described below as \underline{N} . \underline{vibex} , new species.

The description and illustration of the first setiger of <u>M. iridescens</u> given by Fauchald (1968) were based on a shallow-water specimen and are valid. The two present records of \underline{N} , <u>iridescens</u> are from the upper part of the slope; this species has not yet been recorded from waters deeper than 264 m off western Mexico.

<u>Distribution</u>: <u>N. iridescens</u> is known from Canada to Baja California in the eastern Pacific Ocean; it is common in shelf depths off western Mexico.

Nothria lepta (Chamberlin, 1919)

Onuphis lepta Chamberlin, 1919, pp. 290-295, pl. 45, figs.
1-7, pl. 46, figs. 3-12; Treadwell, 1923, p. 7.
Onuphis litabranchia Treadwell, 1923, p. 7 (not O. litabranchia Chamberlin, 1919, p. 274).

Earlier Records: Chamberlin (1919, p. 294):
ALBATROSS sta. 3392 (1 sp., 1 fragment and 4 tubes, USNM 19425, holotype, USNM 20416, paratypes). Treadwell (1923, p. 7): D 5673 (several); D 5684 (several); D 5692 (1).

Remarks: The species was well characterized by Chamberlin (1919). The holotype has been re-examined. The occipital tentacles have short, strongly articulated ceratophores. The first parapodia have short, transversely truncate presetal and setal lobes; the postsetal lobes are long and triangular. Both dorsal and ventral cirri are short and clavate. Ventral cirri are digitate in the first three setigers and pad-shaped in all others. Branchiae are present from setigers 6 to 53 in the holotype and from setigers 6 to 10 to setigers 50 to 57 in other specimens. Subaccicular hooks are present from setiger 10 in all specimens. The shape and distribution of the different setae are as described by Chamberlin.

 $\underline{\text{N}}$. <u>lepta</u> resembles <u>Onuphis litabranchia</u> closely. Both have bidentate hooded hooks with prolonged hoods in anterior setigers, and the branchial structures are very

similar. Some branchiae may be bifid in \underline{N} . lepta, but the occurrence of bifid branchiae is irregular; in \underline{O} . litabranchia, on the other hand, all branchiae are regularly bifid over most of the long branchial region. The ceratophores of the occipital tentacles are strongly articulated in \underline{N} . lepta and smooth in \underline{O} . litabranchia.

<u>Distribution</u>: <u>N. lepta</u> is known from the type locality off the Pacific coast of Panama and from three localities off Baja California.

Nothria mexicana Fauchald, 1968

Nothria mexicana Fauchald, 1968, pp. 25-26, pl. 7, figs. b-e.

Earlier Record: P 41-59 (4).

New Records: 11758 (1); 11759 (1); 11760 (2); 11769 (1); 11790 (1); 11791 (2); 13753 (5); 13755 (1); 13756 (7); 13765 (3); 13774 (2); 13775 (4); 13776 (10).

Remarks: The present specimens differ slightly from those originally described by Fauchald (1968). Branchiae are present from setiger 6 in the present specimens; they were originally described as present from setiger 5. Ventral cirri are pad-shaped from setiger 7 in the present specimens; they were pad-shaped from setiger 6 in the type. Subacicular hooks are present from setiger 13 or 14 in the present specimens and from setiger 12 in the type.

N. mexicana appears to be common in the southern half of the Gulf of California. The new records are from Mazatlan Basin (11758-11760), Pescadero Basin (11769) and from Farallon Basin (11790-11791). Most specimens have

lost all occipital tentacles. The inner lateral occipital styles, which were missing in the type specimens, are very long and slender, reaching the tenth or eleventh setiger.

<u>Distribution</u>: <u>N. mexicana</u> is known from deep water in the southern half of the Gulf of California, off Cabo San Lucas, Baja California and along the mainland slope of the Central American Trench.

Nothria pallida Moore, 1911

Nothria pallida Moore, 1911, pp. 256-259, pl. 15, figs.

24-28, pl. 16, figs. 35-37; Hartman, 1968, p. 683.

Onuphis hiatidentata Treadwell, 1923, p. 8, partim (not

N. hiatidentata Moore, 1911, p. 259).

Earlier Record: Treadwell (1923, p. 8): ALBATROSS
sta. D 5697 (5).

Remarks: The five specimens listed above were reported by Treadwell (1923, p. 8) as Onuphis hiatidentata. They differ clearly from that species in that they have branchiae from setiger 4, except for one abnormal specimen with branchiae from setiger 2. Ventral cirri are cirriform in four setigers and the anterior hooded hooks are tridentate.

<u>Distribution</u>: <u>N. pallida</u> is known from deep water off southern California; the present record extends its distribution to include the southern part of central California in slope depths.

Nothria vibex, new species

(Plate 25, Figs. a-f)

Nothria <u>iridescens</u> Fauchald, 1968, pp. 24-25, <u>partim</u>; not Johnson, 1901, p. 408, pl. 8, figs. 86-87.

Records: 7231-61 (3, TYPE); 7235-61 (3); 7358-61 (5).

Description: The type is an incomplete specimen which has 85 setigers; it is approximately 40 mm long and 2 mm wide with setae. It is pale and the strongly iridescent epithelium is pitted and scarred, especially in the anterior end (vibex = scar). The first six setigers are approximately one-third wider than long; segments further back are short and wide.

The prostomium (Fig. e) is nearly circular and more than twice as long as the peristomium. Eyes are absent. The large frontal antennae are somewhat pustulate conical. The lateral occipital tentacles are along the dorsolateral edges of the prostomium and well separated from the median tentacle which is nearly central in position. All occipital tentacles have long and strongly articulated ceratophores. Each outer lateral ceratophore has ten or eleven articles; each of the inner lateral ones has eleven or twelve and the median ceratophore has six or seven. The distal article is approximately one-third the length of the ceratophore in the outer and inner lateral tentacles and nearly half the length of the median ceratophore. The tentacular styles are slender: each of the outer lateral ones reaches the middle of the first setiger. The inner lateral style reaches the fourth setiger and the median style reaches the third setiger.

The peristomium is very narrow dorsally and expanded ventrally to form the lateral lips; the smooth peristomial cirri reach the bases of the outer lateral occipital tentacles.

The first parapodium (Fig. d) has a rounded setal lobe and a short, transverse presetal lobe. The long post-setal lobe is digitate. The slender dorsal cirrus is more than one-third longer than the postsetal lobe. The ventral cirrus is shorter than the postsetal lobe. The first six setigers have similar parapodia except that the dorsal cirri and postsetal lobes are reduced in setigers 4-6. The ventral cirri are pad-shaped from setiger 7. The low parapodial lobes are rounded in posterior setigers and the dorsal cirri are noticeably shorter and more slender than in the anterior setigers.

Branchiae are present from setiger 4 to the end of the fragment. Each is strap-like and as long as half the width of the body where fully developed.

The first three setigers have pseudocomposite hooded hooks and slender, slightly geniculate setae. The hooded hooks have three large and one small tooth each (Fig. a). The small tooth is formed by a bifurcation of the lowermost of the larger teeth; this bifurcation was present in all setae examined. The distal tooth (Fig. b) is spatulate in frontal view. Subacicular hooks (Fig. c) are present in all setigers from setiger 13 to the end of the fragment. Each is slightly curved, hooded and bidentate. Pectinate setae (Fig. f) are present in median and posterior parapodia; each is distally oblique and has thirteen to four-teen teeth. Long, slender capillary setae are present in all parapodia. Each is slightly geniculate and the cutting edge is finely dentate.

The maxillary apparatus is poorly chitinized and very soft (examined in a specimen from 7235-61). Maxilla I is falcate: maxilla II has seven teeth left and nine right; left maxilla III has eight teeth; the combined right maxillae III+IV have seven teeth; left maxilla IV has six teeth. Maxilla V is represented by a smooth plate on both sides. The short maxillary carriers are triangular. The mandibles are poorly chitinized and calcified cutting edges are absent. They are fused for a very short distance near the cutting edges; the slender mandibular carriers are strongly

divergent.

Tubes are absent.

 $\underline{\underline{N}}$. $\underline{\underline{vibex}}$ was recorded as $\underline{\underline{N}}$. $\underline{\underline{iridescens}}$ group II by Fauchald (1968, see above). Branchiae are present from the first setiger in $\underline{\underline{N}}$. $\underline{\underline{iridescens}}$ and from setiger 4 in $\underline{\underline{N}}$. $\underline{\underline{vibex}}$ which differs from $\underline{\underline{N}}$. $\underline{\underline{iridescens}}$ also in the proportions of the prostomium and the prostomial appendages.

N. vibex resembles N. mexicana Fauchald (1968, see above). The former has slightly dentate, slender capillary setae and the latter has clearly pilose simple setae. N. vibex has long ceratophores with maximally twelve distinct articles; N. mexicana has long ceratophores with as many as twenty-five very indistinct articles so that the ceratophores appear smooth under low magnification. The distribution of the branchiae and subacicular hooks is similar in the two species. There are differences in the number of maxillary teeth, but the variability of this character is poorly known.

<u>Distribution</u>: <u>N. vibex</u> is known from three localities in the vicinity of Cedros Island, Baja California; complete reference to the type locality is found in the station list.

Genus Onuphis Audouin and Milne Edwards, 1833

Six species of <u>Onuphis</u> are known from deep water off western Mexico; two of these, <u>O. litabranchia</u> Chamberlin, 1919 and <u>O. nannognathus</u> Chamberlin, 1919 are known only through the original records.

Onuphis litabranchia Chamberlin, 1919

Onuphis <u>litabranchia</u> Chamberlin, 1919, pp. 274-279, pl. 50, fig. 7, pl. 51, figs. 1-10, pl. 52, fig. 1.

Earlier Record: Chamberlin (1919, p. 279):
ALBATROSS sta, 3415 (PARATYPE, USNM 20415).

Remarks: The paratype material presently consists of a middle to posterior fragment and a tube fragment, so nothing can be added to the original description. O. litabranchia closely resembles Nothria lepta from which it can be distinguished by the smooth ceratophores of the occipital tentacles and the structure of the branchiae. The branchiae in O. litabranchia are regularly bifid over a long stretch, whereas the branchiae of N. lepta may be irregularly bifid in a few segments; most specimens of the latter species have single branchial filaments throughout the branchial region.

<u>Distribution</u>: <u>O. litabranchia</u> is known from one locality off the southwestern part of Mexico.

Onuphis nannognathus Chamberlin, 1919

Onuphis nannognathus Chamberlin, 1919, pp. 270-274, pl. 43, figs. 8-11, pl. 44, figs. 1-5.

Earlier Record: Chamberlin (1919, p. 274):
ALBATROSS sta. 3431 (HOLOTYPE, USNM 19755).

Remarks: The holotype and only known specimen of the species is well preserved. A few notes may be added to the original description.

Branchiae are present from setiger 5; ventral cirri are cirriform in the first seven setigers and pad-shaped in all others. Subacicular hooks are present from approximately setiger 18.

<u>Distribution</u>; <u>O</u>, <u>nannognathus</u> is known from one locality in the southern part of the Gulf of California.

Onuphis nebulosa Moore, 1911

(Plate 26, Figs. c-h)

Onuphis nebulosa Moore, 1911, pp. 269-273, pl. 17, figs. 58-68; Hartman, 1944a, pp. 75-78, pl. 4, figs. 76-85; Fauchald, 1968, pp. 36-37.

New Record: 11831 (1).

Remarks: 0. nebulosa differs from all other species of Onuphis known from western Mexico by the presence of composite spinigers in setigers 4-11. The pseudocomposite hooded hooks in the anterior setigers have three long, slender teeth each; from setigers 3-5 the hooks are intermediate in shape so that some have lost the articulation, but retained the long slender teeth; others have retained the articulation, but the teeth of the hooks have been transformed into the short, conical teeth characteristic of the simple hooks found further back. This is illustrated in Figs. d-g where all four hooks from setiger 3 are shown. The simple tridentate hooks have characteristically short, blunt, slightly recurved teeth (Fig. h).

The first parapodium has a conical setal lobe (Fig. c) and a low, transverse presetal lobe; the postsetal lobe and the ventral cirrus are digitate and of the same length. The dorsal cirrus is very long and slender.

O. nebulosa is common off western Mexico in shelf depths; the present record from Sal si Puedes Basin is the first one from slope and basin depths.

<u>Distribution</u>: <u>O. nebulosa</u> is known from central and southern California to Panama.

Onuphis parva Moore, 1911

Onuphis parva Moore, 1911, pp. 263-266, pl. 17, figs. 51-57, pl. 18, figs. 98-99; Hartman, 1944a, pp. 70-71;

Fauchald, 1968, p. 37, pl. 9, figs. a-e.

Earlier Records: Fauchald (1968, p. 37): 1746-49
(1); P 65-59 (1); P 201-60 (65).

Remarks: O. parva is common on the lower half of the shelf off western Mexico; the three records from slope depths are all from the Gulf of California.

<u>Distribution</u>: <u>O. parva</u> is known from central California to western Mexico.

Onuphis profundi Fauchald, 1968

(Plate 26, Fig. a)

Onuphis profundi Fauchald, 1968, pp. 40-41, pl. 10.

Earlier Record: P 41-59 (7).

New Records: 12134 (1); 13747 (3); 13752 (1); 13753 (2); 13755 (3); 13756 (5); 13765 (1); 13774 (3); 13775 (1); 13776 (3),

Remarks: The present specimens differ slightly from the seven specimens originally described. The first parapodium (Fig. a) has a long, slender dorsal cirrus and the postsetal lobe is not as markedly clavate as originally described. Branchiae are present from setigers 6-8; the first branchia is sometimes pectinate; branchiae were present from setiger 7 in the type and the first two pairs were single filaments. Subacicular hooks are present from setigers 17-20 in the present specimens and from setiger 20 in the type.

<u>Distribution</u>: <u>O. profundi</u> is known from off Bahia de la Magdalena, Baja California along the mainland slope

of the Central American Trench to off Acapulco.

Onuphis vexillaria Moore, 1911

(Plate 26, Fig. b)

Onuphis vexillaria Moore, 1911, pp. 266-269, pl. 17, figs. 69-76; Treadwell, 1923, p. 8; Fauchald, 1968, p. 43.

<u>Earlier Records</u>: Treadwell (1923, p. 8): ALBATROSS sta. D 5690 (4); Fauchald (1968, p. 43): 7235-61 (1).

New Record: ALBATROSS sta. D 5692 (1).

Remarks: The simple tridentate hooks (Fig. b) have strongly recurved distal teeth in this species.

The three deep-water records from western Mexico remain somewhat doubtful; a complete revision of all known material of the species is needed to clarify the relationship between the shallow-water and deep-water populations of the species.

<u>Distribution</u>: <u>O. vexillaria</u> is known from southern California and western Mexico.

Onuphis, species indeterminable

Onuphis sp. Fauchald, 1968, p. 43.

Earlier Record: 7229-60 (2).

Remark: These two juveniles remain indeterminable.

Genus Paranorthia Moore, 1903

The genus is accepted as defined above.

Paranorthia fissurata, new species

(Plate 27, Figs. a-i; Plate 28, Figs. a-g)

Leodice segregata Treadwell, 1923, p. 7, partim, not Chamberlin, 1919, pp. 237-240, pl. 54, figs. 1-5.

Records: ALBATROSS sta. 3356 (1); 3393 (2);
D 5682 (1, TYPE, USNM no. 19151).

<u>Description</u>: The type is an incomplete specimen which has 69 setigers; it is 48 mm long and 7 mm wide with setae. It is salmon colored and lacks a color pattern. The anterior end is cylindrical, and the median and posterior ends are flattened dorsally.

The prostomium (Pl. 27, Fig. a) is rounded triangular. The anterior end is produced into two laterally directed frontal antennae which are separated by a sharp, deep incision. Septa between the frontal antennae and the prostomium are absent. The occipital tentacles are in a crescent along the lateral and posterior edges of the prostomium. All occipital tentacles have ceratophores with four articles; the distal article is longer than all others in each ceratophore. The outer lateral tentacular styles reach the second setiger; the inner lateral ones the fifth setiger, and the median one reaches the eighth setiger, but appears to have been broken and may have been even longer. All styles are slender.

The peristomium is, dorsally, as long as the prostomium and strongly muscular. The smooth peristomial cirri are slender and only slightly longer than the peristomium. The peristomium is ventrally (Pl. 27, Fig. g) produced into two very large palpi. The palpi are separated from each

other by a deep groove; each is produced laterally into a large free palp. The tip of each palp is ventrally divided in two by a shallow, longitudinal groove. The lateral lips are protuberant muscular folds; the lower lip is distended by the mandibles and appears as a sharp transverse ridge.

The first setiger is longer than the peristomium and strongly muscular; the first parapodia (P1. 28, Figs. a-b) are enlarged and directed ventrolaterally. Each parapodium has a transverse presetal lobe that is continued around the ventral edge of the parapodium; it disappears on the posterior face of the parapodium. The postsetal lobe consists of two parts; the part closest to the setal lobe is truncate and foliose and placed obliquely on the ventroposterior side of the setal lobe. The posterior part of the postsetal lobe, which corresponds to the postsetal lobes in other setigers, is thickset and digitate. The dorsal cirrus is slender and does not surpass the setal lobe. The ventral cirrus, which is placed at the junction of the ventral body wall and the parapodium, is slender and digitate.

The second setiger is shorter than the first, but twice as long as the following setigers; it is strongly muscular and the parapodia are prolonged and directed slightly ventrolaterally. The parapodia (Pl. 28, Figs. c-d) have long, rounded setal lobes; each presetal lobe is present as a low oblique fold on the anterior face of the parapodium. The postsetal lobe is a thick, clavate cirrus a little larger than the corresponding lobe in the first parapodium. The dorsal cirrus is very long and slender and surpasses the setal lobe; the ventral cirrus is large and one-third longer than the one in the first parapodium.

The third setiger is narrow and the parapodia are directed laterally; they are far less muscular than those in the first two setigers. The setal lobe (Pl. 28, Figs. e-f) is obliquely rounded; the present lobe is present as a low oblique fold at the ventral edge of the parapodium. The postsetal lobe consists of two parts; the digitiform lobe corresponding to the postsetal lobes in other setigers is on the middle of the posterior face of the parapodium.

Distal to the postsetal lobe proper is found a smaller, rounded accessory postsetal lobe. There is a low fold enclosing the setae on the dorsal side of the parapodium which may be a part of the presetal lobe. The dorsal cirrus is nearly twice as long as the parapodium and slender. The ventral cirrus is pad-shaped.

The following setigers are similar to the third one except for certain reductions. The accessory postsetal lobe is absent in all other parapodia and the postsetal lobe has a terminal position in all parapodia posterior to setiger 3; it is reduced in the following parapodia and is present only as a low fold from setiger 18 (Pl. 28, Fig. g). The dorsal cirri are reduced in the branchial region and are short and nearly thread-like in the posteriormost setigers. The ventral cirri are pad-shaped from setiger 3. Posterior parapodia are broad fleshy folds; the pre- and postsetal lobes are low and the setal lobe is rounded.

Branchiae are present from setiger 12 to the end of the fragment; each is long and strap-like.

Most of the setae are broken off. All setae in the first setiger have been broken, but are arranged in two fascicles. The ventral one consists of three very coarse setae and the dorsal fascicle has five or six slender setae. The second parapodium has a ventral fascicle of two or three pseudocomposite bidentate hooded hooks: the setae in the dorsal fascicle are all broken, but appear to have been slender setae similar to those in the first fascicle.

The third setiger has a dorsal fascicle of three slender, limbate setae with a slight geniculation and seven curved pectinate setae. Each of the curved pectinate setae (Pl. 27, Fig. c) has the outer edge strongly curved like a funnel with one side cut open and has fifteen to eighteen teeth. A few flat, or slightly curved, strongly oblique pectinate setae (Pl. 27, Fig. b) are also present in the dorsal fascicles; each has eight or nine teeth. The straight acicula (Pl. 27, Fig. d) number three in a parapodium; each has a slender filiform tip. The ventral fascicles in the third setiger consist of three or four pseudocomposite hooded hooks and a single subacicular hook. The subacicular hook (Pl. 27, Fig. h) is bidentate and both teeth are of the same size and directed at right angles to the axis of the hook. The hoods of the subacicular hooks are short and blunt. The pseudocomposite hooks (Pl. 27, Fig. i) are similar to those in the second setiger.

Pseudocomposite hooks are present from setiger 2 (possibly from setiger 1) to setiger 7; they are replaced by geniculate, limbate setae from setiger 8.

Each median and posterior setiger has a dorsal fascicle of five to ten geniculate, limbate setae (Pl. 27, Fig. f) with smooth cutting edges and numerous pectinate setae of both kinds described above. Acicula number three in a parapodium; two or three subacicular hooks are present in all parapodia posterior to setiger 3 in which only one hook is found. All setigers from setiger 8 have thick ventral fascicles of geniculate, limbate setae similar to those found in the dorsal fascicles, but usually somewhat shorter.

The pharyngeal apparatus is thin and very soft. The mandibles are triangular with calcified cutting edges; each edge has two or three blunt teeth, but the calcification has been eroded so that the number of teeth may actually be higher. The mandibular carriers are long and slender and the mandibles are joined for a short distance only. Maxilla I (Pl. 27, Fig. e) is falcate; left maxilla II has nine teeth of which the distalmost is greatly prolonged and falcate; right maxilla II has eleven teeth; left maxilla III has ten teeth; the combined right maxillae III+IV have ten teeth; left maxilla IV has seven teeth and each maxilla V has one tooth. The maxillary carriers are short and blunt.

Tube is absent.

P. fissurata shows a remarkably varied development of the parapodial lobes in the anterior setigers which is believed to be unique to this species. The incised prostomium and the lack of septa between the frontal antennae and the prostomium are characters not reported from any

other onuphid.

Branchiae are present from setiger 12 in <u>P. fissu-rata</u> and from setiger 8 or 9 in <u>P. brevicornuta</u> Moore (1903, for full references see Appendix 2), <u>P. macrobranchiata</u> (McIntosh, 1885) and P. atlantica Hartman (1965b).

Subacicular hooks are present from setiger 3 in \underline{P} . $\underline{fissurata}$ and from setigers 11 and 13 in \underline{P} . $\underline{brevicornuta}$ and \underline{P} . $\underline{atlantica}$ respectively. The start of the subacicular hooks is not known for \underline{P} . $\underline{macrobranchiata}$.

<u>Distribution</u>: <u>P. fissurata</u> is known from one locality off Cabo San Lucas, Baja California.

Paronuphis abyssorum (Chamberlin, 1919)

<u>Leptoecia</u> <u>abyssorum</u> Chamberlin, 1919, pp. 320-323, pl. 36, figs. 1-6, pl. 37, figs. 1-8.

Paronuphis abyssorum Fauchald, 1968, p. 44, pl. 12, fig. a.

Earlier Record: Fauchald (1968, p. 44): 7229-60
(4).

New Records: 13727 (1); 13780 (1).

Remarks: The anterior hooded hooks in \underline{P} . abyssorum are pseudocomposite and bidentate as indicated by Fauchald (1968).

<u>Distribution</u>: <u>P. abyssorum</u>, originally described from the eastern Pacific Ocean off Peru, has been reported from the Antarctic Ocean. The present records are from off Cedros Island, Baja California, off the tip of Baja California and in the Central American Trench off Acapulco.

Onuphidae, indeterminable

Records: 11792 (fragment); P 41-59 (fragment); P 42-59 (fragment); P 65-59 (tubes and fragments); P 201-60 (tubes).

Remarks: These fragments and tubes cannot be further identified.

Family EUNICIDAE Savigny, 1818

The family is represented by seven species of the genus <u>Eunice</u> Savigny, 1818 in waters deeper than 200 m off western Mexico. Four of these, <u>E. americana Hartman</u> (1944a), <u>E. antennata</u> (Savigny, 1818), <u>E. aphroditois</u> (Pallas, 1788) and <u>E. vittata</u> (delle Chiaje, 1828) are well known from shelf depths and their occurrence on the slope is considered accidental.

The remaining three species, <u>E. megabranchia</u> Fauchald (1970), <u>E. segregata</u> (Chamberlin, 1919) and <u>E. semisegregata</u> Fauchald (1969) appear to be confined to slope and basin depths.

Key to Species from Deep Water off Western Mexico

Ι.	Subacicular hooks black or dark brown, bidentate	
	E. aphroditois	
1.	Subacicular hooks yellow, bi- or tridentate	2.
2.	Subacicular hooks bidentate	3.
2.	Subacicular hooks tridentate	5.
3,	Hooded hooks with long, pointed hoods, branchiae	
	with 45 branchial filaments, occipital tentacles	
	smooth E. megabranchia	
3.	Hooded hooks with short, blunt hoods, branchia with	
	less than 40 branchial filaments, occipital tentacles	
	articulated	4.

4.	Branchiae with less than 20 branchial filaments, first
	branchiae single filaments. E. segregata
4.	Branchiae with 34 to 38 branchial filaments; first
	branchiae pectinate <u>E. semisegregata</u>
5.	Hooded hooks with short, blunt hoods
	E. antennata
5.	Hooded hooks with long, pointed hoods 6.
6.	Occipital tentacles smooth, distal tooth of hooded
	hooks nearly straight, proximal tooth reduced
	E. americana
6.	Occipital tentacles articulated, distal tooth of
	hooded hooks curved, proximal tooth well developed
	<u>E</u> . <u>vittata</u>

Eunice americana Hartman, 1944

Eunice americana Hartman, 1944a, pp. 118-121, pl. 8, figs. 164-174 and 189; Fauchald, 1970, p. 19, pl. 1, figs. d-e.

Record: 6213 (1).

Remarks: E. americana has smooth occipital tentacles, tridentate, yellow subacicular hooks and long, pointed hoods on the hooded hooks.

<u>Distribution</u>: <u>E. americana</u> is known from southern California and the Pacific coast of Baja California in shelf depths. The present record is from 264 m depth off Cedros Island.

Eunice antennata (Savigny, 1818)

Eunice antennata Hartman, 1944a, pp. 115-117, pl. 7, figs. 154-156; Fauchald, 1970, pp. 20-22, pl. 1, figs. a-c.

Earlier Record: Hartman (1944a, p. 115), Fauchald (1970, p. 20): 1105-40 (1).

Remarks: E. antennata has tridentate, yellow subacicular hooks, strongly moniliform tentacles and short, blunt hoods on the hooded hooks. The identity of the specimens from western Mexico was discussed by Fauchald (1970).

 $\underline{\text{Distribution}}$: $\underline{\text{E}}$. $\underline{\text{antennata}}$, as presently defined, is widespread in tropical and subtropical areas on the shelf.

Eunice aphroditois (Pallas, 1788)

Eunice aphroditois Hartman, 1944a, pp. 109-110; Fauchald, 1970, pp. 24-25, pl. 3, figs. a-b.

Earlier Record: Hartman (1944a, p. 109), Fauchald (1970, p. 24): 1084-40 (3).

Remarks: E. aphroditois differs from all other species of the genus known from deep water off western Mexico in that it has dark brown or black, bidentate subacicular hooks.

Eunice megabranchia Fauchald, 1970

Eunice megabranchia Fauchald, 1970, pp. 33-36, pl. 4, figs. a-e.

Earlier Record: Fauchald (1970, p. 33): L-184 (1).

Remarks: E. megabranchia resembles E. segregata and E. semisegregata in that all three species have yellow, bidentate subacicular hooks and branchiae from setiger 3.

The hooded hooks have pointed hoods in E. megabranchia and blunt, short hoods in both the other species. Branchiae have, where fully developed, approximately 45 branchial filaments in E. megabranchia, 34 to 38 filaments in E. semisegregata and less than 20 in E. segregata. The first branchiae are pectinate in E. megabranchia and E. semisegregata and single filaments in E. segregata. Branchiae are present on setigers 3-54 in E. megabranchia, on setigers 3-69 in E. semisegregata and on setigers 3-40 in E. segregata.

Distribution: E. megabranchia is known from one locality on the western slope of Guaymas Basin, Gulf of California.

Eunice segregata (Chamberlin, 1919)

Leodice segregata Chamberlin, 1919, pp. 237-240, pl. 54, figs. 1-5, partim; Treadwell, 1923, p. 7, partim. Eunice segregata Fauchald, 1969, pp. 11-16, fig. 3; Fauchald 1970, pp. 44-45.

Earlier Records: Fauchald (1970, p. 44): P 135-59 (1); Treadwell (1923, p. 7): ALBATROSS sta. D 5695 (2).

New Records: 11840 (1); 13776 (1); ALBATROSS sta. D 5673 (1).

Remarks: E. segregata was redescribed by Fauchald (1969) from one of the two specimens known from deep water off southern California (ALBATROSS sta. D 5695, Treadwell, 1923, p. 7). The two specimens from ALBATROSS sta. 3417 identified as Leodice segregata by Chamberlin (1919) differ specifically from E. segregata and were described by

Fauchald (1969) as <u>E. semisegregata</u> (see below). One of the two specimens reported from ALBATROSS sta. D 5682 by Treadwell (1923) is an onuphid and is described above as <u>Paranorthia fissurata</u>, new species; the other belongs to <u>E. semisegregata</u>.

Seven of the eight specimens reported are sufficiently complete so that the number of branchial segments and other variable characters can be detailed.

The last branchiae are present on setigers 39 to 41 in the present specimens and on setiger 39 in the specimen reported by Fauchald (1969). The first branchia is a single filament in all specimens. The maximal number of branchial filaments is 16 in the largest specimens in the present collection; it was 12 to 15 as described by Fauchald (1969). The first subacicular hook is found on setigers 30 to 38 in the present specimens and was found on setiger 36 by Fauchald (1969). These variations are well within the limits found by Fauchald (1970) for other species of the genus.

<u>Distribution</u>: <u>E. segregata</u> as defined by Fauchald (1969) is known from southern California to Panama; the new records are within the depth range established for the species.

Eunice semisegregata Fauchald, 1969

Eunice semisegregata Fauchald, 1969, pp. 16-20, fig. 4.

Leodice segregata Treadwell, 1923, p. 7, partim, not

Chamberlin, 1919, pp. 237-240, pl. 54, figs. 1-5.

Earlier Records: Fauchald (1969, p. 16): ALBATROSS sta. 3417 (2). Treadwell (1923, p. 7): ALBATROSS sta. D 5682 (1).

Remarks: E. semisegregata was described from part of the original material of E. segregata as mentioned above. The specimen from sta. D 5682 has the last branchia on

setiger 57 and the first subacicular hook on setiger 42.

<u>Distribution</u>: <u>E</u>, <u>semisegregata</u> is known from one locality off Acapulco and one off Cabo San Lucas, western Mexico.

Eunice vittata (delle Chiaje, 1828)

Eunice vittata Fauchald, 1970, pp. 48-49, pl. 3, figs. 1-m.

<u>Earlier Records</u>: Fauchald (1970, pp. 48-49): 1921-49 (fragment); P 58-59 (1).

Remarks: E. vittata has tridentate, yellow subacicular hooks, branchiae from setiger 3, articulated occipital tentacles with long cylindrical articles, and hooded hooks with long, pointed hoods. Both teeth of the hooded hooks are well developed; the distal one is strongly curved.

<u>Distribution</u>: <u>E</u>. <u>vittata</u> is presently considered circumtropical; it is common in shelf depths off western Mexico.

Family LUMBRINERIDAE Malmgren, 1867

The family is represented by ten species of <u>Lumbrineris</u> Blainville (1828) and four of <u>Ninoe</u> Kinberg (1865). Three species of <u>Ninoe</u> are newly described; another four species of this genus have been reported from shelf depths off western Mexico (Fauchald, 1970, pp. 115-117).

Branchiae in Ninoe differ in structure and position from those in other families of the super-family Eunicea. Branchiae in ONUPHIDAE and EUNICIDAE are associated with the dorsal edge of the parapodia and arise from, or at least close to, the bases of the dorsal cirri. Branchiae in Ninoe are vascularized postsetal lobes. When they are

present only as single filaments, they can be recognized by the large vascular loops. Branchiae are usually limited to a number of setigers either in the anterior or posterior end. Other species of Ninoe have lobed, palmate or even pectinate branchiae which resemble those in other Eunicea, but the orientation is different. Pectinate branchiae in Ninoe are directed ventrally, whereas those in other Eunicea are curved over the dorsum.

Key to Species from Deep Water off Western Mexico

1.	Branchiae present Ninoe 2.
	Branchiae absent Lumbrineris 5.
	Branchiae with a free pectinate portion 3.
	Branchiae present only as single filaments 4.
	Branchiae with twelve to thirteen branchial filaments;
	hooded hooks first present from setigers 25-36
	N. foliosa
3.	Branchiae with five to six branchial filaments;
	hooded hooks present from the first setiger
	<u>N</u> . <u>longibranchia</u>
4.	Hooded hooks present from the first setiger; bran-
	chiae posteroventral N. fuscoides
4.	Hooded hooks first present after setiger 48; bran-
	chiae dorsolateral N. fusca
5.	Composite hooks present in some anterior setigers 6.
	Composite hooks absent
6.	Posterior postsetal lobes prolonged 7.
6.	Prolonged parapodial lobes absent 10.
7.	Both pre- and postsetal lobes prolonged in posterior
	setigers 8.
7.	Posterior presetal lobes short; postsetal lobes
	strongly prolonged, but not erect
	<u>L. index</u>
8.	Nuchal organ with a single, centrally located nuchal
	papilla <u>L</u> . <u>eugeniae</u>

8.	Nuchal organs bilateral pouches without nuchal
	papillae 9.
9.	Acicula black L. <u>californiensis</u>
9.	Acicula yellow <u>L</u> . <u>cruzensis</u>
10.	Simple setae prolonged in anterior setigers; maxilla
	III unidentate <u>L. cedroensis</u>
10.	Simple setae not prolonged in any setigers; maxilla
	III bidentate <u>L</u> . ? <u>latreilli</u>
11.	Simple setae prolonged in some setigers 12.
11.	Prolonged simple setae absent 13.
12.	Posterior parapodial lobes prolonged; hooded hooks
	present from the first setiger
	<u>L</u> . <u>longensis</u>
12.	Posterior parapodial lobes not prolonged; hooded
	hooks first present from setiger 25
	<u>L</u> . <u>moorei</u>
13.	Acicula black L. bicirrata
13.	Acicula yellow <u>L</u> . <u>lagunae</u>

Lumbrineris bicirrata Treadwell, 1929

Lumbrinereis bicirrata Treadwell, 1929a, pp. 1-3, figs. 1-2.
Lumbrineris bicirrata Fauchald, 1970, pp. 77-78, pl. 10,
figs. e-g.

Earlier Record: Fauchald (1970, p. 77): ?7231-61
(1).

Remarks: The single deep-water record of <u>L</u>. <u>bi-cirrata</u> from off Cedros Island remains doubtful. It has a unidentate maxilla III, prolonged posterior parapodial lobes and black acicula.

<u>Distribution</u>: <u>L. bicirrata</u> is primarily a shallow-water species found from Washington to western Mexico; the only deep-water record of the species is the one cited above.

Lumbrineris californiensis Hartman, 1944

<u>Lumbrineris</u> <u>californiensis</u> Hartman, 1944a, pp. 163-165, pl. 12, figs. 257-262; Fauchald, 1970, pp. 78-80, pl. 10, figs. a-d.

<u>Earlier Record</u>: Fauchald (1970, p. 78): Sta. GC 26 (1).

Remarks: L. californiensis has prolonged posterior parapodial lobes, black acicula and composite hooks in the first twenty-five setigers. The relationship to similar species was discussed by Fauchald (1970, pp. 79-80).

<u>Distribution</u>: <u>L. californiensis</u> is known from central California to western Mexico. The record from the Gulf of California is the only deep-water record of the species.

Lumbrineris cedroensis Fauchald, 1970

<u>Lumbrineris</u> cedroensis Fauchald, 1970, pp. 80-81, pl. 11, figs. a-e.

Earlier Records: Fauchald (1970, p. 80): 7231-61
(1); 7358-61 (2); P 137-60 (2).

New Records: 13724 (3); 13752 (2); 13753 (4); 13754 (2); 13768 (1); 13774 (2); 13781 (1).

Remarks: L. cedroensis has composite hooks in the first nine or ten setigers, yellow acicula and prolonged simple setae in some anterior setigers. Maxilla III is unidentate in L. cedroensis and bidentate in L. latreilli.

<u>Distribution</u>: <u>L. cedroensis</u> is known from three localities off Cedros Island, Baja California and along the

mainland slope of the Central American Trench south to Acapulco.

Lumbrineris cruzensis Hartman, 1944

<u>Lumbrineris</u> <u>cruzensis</u> Hartman, 1944a, pp. 165-166, pl. 17, figs. 263-269.

Record: 6212 (2).

Remarks: L. cruzensis has prolonged posterior parapodial lobes, composite hooks in some anterior setigers and yellow acicula. The relationship between this and similar species was discussed by Fauchald (1970, p. 84).

<u>Distribution</u>: <u>L. cruzensis</u> is known from British Columbia to western Mexico and has been reported once from the Gulf of California in shallow water. The present record from 220 m depth is the first record from slope depths off western Mexico.

Lumbrineris eugeniae Fauchald, 1970

(Plate 29, Figs. a-b)

Lumbrineris eugeniae Fauchald, 1970, pp. 87-89, pl. 13, figs. c-f.

Earlier Record: Fauchald (1970, p. 87): 7235-61
(1).

New Records: 11815 (1); ?13742 (1).

Remarks: L. <u>euqeniae</u> was described from off Cedros Island, Baja California from an incomplete specimen. The present specimens permit inclusion of certain characters

not known from the type specimen. The prostomium (Fig. a) is elongated conical with a blunt anterior end. The first setigers (Fig. b) have well developed, rounded postsetal lobes and conical setal lobes. The rounded presetal lobes are slightly shorter than the postsetal lobes.

<u>Distribution</u>: <u>L. eugeniae</u> is known from one locality off Cedros Island, Baja California, from the deepest part of Guaymas Basin, Gulf of California and possibly from the Central American Trench off Punta San Telmo.

Lumbrineris index Moore, 1911

<u>Lumbrineris japonica index</u> Moore, 1911, pp. 288-289, pl. 19, figs. 119-127.

<u>Lumbrineris</u> <u>index</u> Hartman, 1944a, pp. 162-163, pl. 12, figs. 254-256.

Record: 11829 (3).

Remarks: L. index has black acicula, composite hooks in the first twenty-five to thirty setigers and strongly prolonged, slender postsetal lobes in posterior setigers. The prolonged lobes are usually laterally directed in contrast to most other species with prolonged lobes in which the lobes are held erect.

<u>Distribution</u>: <u>L. index</u> is known from shelf and slope depths off central and southern California. The present record, from Sal si Puedes Basin in the Gulf of California, is the first from western Mexico.

Lumbrineris lagunae Fauchald, 1970

Lumbrineris lagunae Fauchald, 1970, pp. 92-94, pl. 15, figs. a-e.

Lumbrinereis bifilaris Chamberlin, 1919, pp. 327-328, pl. 60, figs. 6-9, pl. 61, fig. 1, partim, not Ehlers, 1901, pp. 139-141, pl. 18, figs. 1-10.

New Records: 6212 (1); 6213 (2); 11825 (1); 11832 (1); 11837 (29).

Earlier Record: Chamberlin (1919, p. 328): ALBA-TROSS sta. 3435 (1).

Remarks: L. <u>lagunae</u> has prolonged posterior parapodial lobes, yellow acicula and simple hooded hooks from the first setiger.

<u>Distribution</u>: <u>L. laqunae</u> is known from shelf depths off southern California and western Mexico south to Cedros Island. The records fall into two groups: two stations are on the upper part of the slope near Cedros Island (6212-6213); the four deep water stations are from Sal si Puedes and Guaymas Basins in the Gulf of California.

Lumbrineris ? latreilli Audouin and

Milne Edwards, 1834

Lumbrineris <u>latreilli</u> Audouin and Milne Edwards, 1834, pp. 168-170, pl. 3B, figs. 13-15; Hartman, 1944a, pp. 158-159, pl. 9, figs. 213-216; Fauchald, 1970, pp. 94-97, pl. 15, figs. f-h.

Record: 11792 (3).

Remarks: The present specimens differ from L.

latreilli as defined in the papers cited above, in that

maxilla III is large and has very obscure dentition; typically maxilla III is no larger than maxilla IV and has two sharply pointed teeth. The specimens fit the descriptions

for all other characters.

<u>Distribution</u>: <u>L. latreilli</u> is common in shelf depths off western Mexico; it is presently considered cosmopolitan but the population from western Mexico may differ specifically from those found in western Europe as discussed by Fauchald (1970).

Lumbrineris longensis Hartman, 1960

<u>Lumbrineris</u> <u>longensis</u> Hartman, 1960, pp. 103-104; Fauchald, 1970, pp. 98-99, pl. 14, figs. g-j.

Lumbrinereis bifilaris Chamberlin, 1919, pp. 327-328, pl. 60, figs. 6-9, pl. 61, fig. 1, partim, not Ehlers, 1901, pp. 139-141, pl. 18, figs. 1-10.

New Records: 11744 (1); 11788 (1); 11792 (1).

Earlier Records: Chamberlin (1919, p. 328): ALBA-TROSS sta. 3418 (1); 3424 (1).

Remarks: L. longensis has prolonged posterior parapodial lobes, black acicula, simple hooks from the first setiger, and prolonged simple setae in anterior and median setigers. The material reported as L. bifilaris by Chamberlin (1919) has been re-examined; two of the specimens belong to this species, another to L. lagunae, and the last is a fragment of a cirratulid.

<u>Distribution</u>: <u>L. longensis</u> is known from basins off southern California and off Cabo San Lucas, Baja California. The present records extend the distribution of the species into the Gulf of California in Farallon Basin and to the Central American Trench in Tres Marias Basin and off Acapulco.

Lumbrineris moorei Hartman, 1942

Lumbrineris moorei Hartman, 1942a, pp. 116-118, fig. 12a-b and g; Fauchald, 1970, p. 102.

<u>Earlier Records</u>: Fauchald (1970, p. 102): 7228-60 (1); 7229-60 (1).

Remarks: L. moorei has greatly prolonged simple setae and simple hooks from setiger 25. The posterior parapodial lobes are short.

<u>Distribution</u>: <u>L. moorei</u> is known from basin depths off southern California and near Cedros Island, Baja California.

Lumbrineris, species indeterminable

Records: 13756 (1); 13775 (1 juv.); 13782 (1);
Scripps sta. GC 26 (fragment).

Remarks: The specimens and fragments listed above cannot be further identified.

Genus Ninoe Kinberg, 1865

The genus is here accepted as emended by Fauchald (1970, pp. 114-115).

Ninoe foliosa, new species

(Plate 29, Figs. c-g, Plate 30, Figs. a-d)

Records: 6212 (2); 6213 (3); 11827 (1, TYPE);
11829 (2); 11834 (2).

Description: The type is an incomplete specimen which has 84 setigers; it is 24 mm long and 3 mm wide with setae. It is yellow and has dark punctate marks near the bases of the parapodia. A specimen from sta. 11834 is dark brown. All specimens are incomplete.

The prostomium (Pl. 30, Fig. a) is flattened conical with two distinct longitudinal ridges on both sides. Eyes are absent. The nuchal organ is a central pit; nuchal tentacles are absent.

The first peristomial segment is more than twice as long as the second one and somewhat wider than the prostomium. Both peristomial segments participate in the formation of the lips so that the posterior edge of the lips is at the junction of the second peristomial segment and the first setiger.

The first parapodia (Pl. 29, Figs. e and g) are short and truncate; setal and presetal lobes are truncate; the postsetal lobe is triangular and nearly one-half longer than the other lobes. Parapodia in the branchial region (Pl. 30, Figs. c-d) have rounded presetal and transverse setal lobes of the same length. The postsetal lobes form the large branchiae. Postbranchial setigers (Pl. 29, Fig. d) have thick, obliquely rounded presetal lobes; the setal lobes are short and the short postsetal lobes are erect. Notopodial rudiments are present in all except the first five or six setigers.

Branchiae (P1. 30, Figs. c-d) are present from setigers 2-36 in the type and in the other four specimens from the Gulf of California. The five specimens from Bahia de San Cristobal (sta. 6212-6213) have branchiae from setigers 2-25. The first and the last two or three pairs of branchiae are single filaments; it is the dorsalmost of the branchial filaments that is present in these setigers. All other branchiae are multifid. The dorsalmost branchial filament is slightly longer than the others and foliose except where it is present alone. Twelve or thirteen branchial filaments are present where the branchiae are fully developed; the ventral five or six filaments are arranged

in a unipectinate series along a main stem. Nine of the filaments are in one plane; the remaining three or four are placed slightly anterior to the others so that filaments appear arranged in two incomplete rows.

The anterior thirty setigers have only limbate, slightly geniculate setae in two fascicles. Two or three acicula are present in a parapodium; each (Pl. 29, Fig. f) is black and has a fine filamentous tip. Hooded hooks are present from setiger 30 in the type; the first occurrence of the hooks varies from setigers 30-32 in the specimens from the Gulf of California and from setigers 25-26 in the specimens from Bahia de San Cristobal. Each hook (Pl. 29, Fig. c) has a large main fang and thirteen to fourteen teeth in a crest. The hoods are short and blunt. setae are amber-colored near the bases and have pale tips.

The pharyngeal apparatus is well developed and black. The maxillary carriers (Pl. 30, Fig. b) are longer than wide and fused for a distance in the median and anterior portions. The anterior one-third of the carriers is weakly chitinized and separated from the posterior two-thirds by a lateral incision. A weak interior excavation is present near the posterior end. Maxilla I is falcate; maxilla II has six teeth; maxilla III has one large tooth and a lateral rounded knob; maxilla IV has one tooth and five small denticles.

Tubes are absent.

N. foliosa resembles N. palmata Moore (1903, pp. 456-457, pl. 26, figs. 68-71), N. pulchra Wesenberg-Lund (1949, pp. 319-321, figs. 32-33) and N. longibranchia, new species (see below). All four species have branchiae with a free, pectinate ventral portion. The relationships between N. foliosa and N. longibranchia are discussed below.

Branchiae are present from setigers 2-36 in N. foliosa, from setigers 4-32 in N. pulchra, and from setiger 3 to at least setiger 30 in $\underline{\text{M}}$. $\underline{\text{palmata}}$. The maximal number of branchial filaments is twelve to thirteen in N. foliosa, six in N. pulchra and four or five in N. palmata. The

dorsalmost branchial filament is foliose in \underline{N} . $\underline{foliosa}$ and cirriform in the other two species.

Hooded hooks are present from setigers 30-32 in \underline{N} . foliosa, from setiger 35 in \underline{N} . pulchra and from the first setiger in \underline{N} . palmata.

<u>Distribution</u>: <u>N. foliosa</u> is known from Sal si Puedes Basin in the Gulf of California and from Bahia de San Cristobal on the Pacific side of Baja California.

Ninoe fusca Moore, 1911

<u>Ninoe</u> <u>fusca</u> Moore, 1911, pp. 285-288, pl. 19, figs. 110-118; Fauchald, 1970, pp. 116-117.

Earlier Record: 7231-61 (2).

Remarks: N. fusca has branchiae from the first setiger to approximately setiger 40; each is a single, dorsally directed filament on the posterior face of the parapodia. Hooded hooks are present from setiger 48 (Hartman, 1960, p. 105) or not before setiger 70 (Moore, 1911). The second maxilla has only two teeth.

<u>Distribution: N. fusca</u> is known from slope and basin depths off southern California and near Cedros Island, Baja California.

Ninoe fuscoides, new species

(Plate 31, Figs. a-f)

Records: 11758 (1, TYPE); 11761 (1); 13747 (2); 13753 (1); 13754 (4); 13756 (2); 13774 (1); 13775 (1); 13776 (1); 13780 (4).

Description: The type is an incomplete specimen which has 47 setigers; it is 20 mm long and 3.5 mm wide with setae. It is yellow and lacks color patterns.

The prostomium (Figs. b and e) is triangular with two indistinct longitudinal ridges on both sides. Eyes are absent. The nuchal organ is a very shallow, central pit; nuchal tentacles are absent. The palpi are ovate.

Both peristomial segments are of the same length and slightly wider than the prostomium. Ventrally they form the lips so that the posterior edge of the lips is at the junction of the second peristomial segment and the first setiger.

The first parapodia (Fig. d) have conical setal lobes; the presetal lobes resemble the setal ones but are slightly narrower and higher. Postsetal lobes are rudimentary, except for the papilliform branchiae present from setiger 2. Postbranchial parapodia have truncate setal lobes; the presetal lobes are rudimentary and the postsetal lobes are digitate; in far posterior setigers the postsetal lobes are reduced to short knobs.

Branchiae (Figs. d and f) are present from the second setiger to approximately setiger 30. All branchiae are single and papilliform; they are placed on the middle of the posterior face of the parapodia. Posterior to setiger 30 the branchiae shift to a more nearly dorsal position and the vascularization is gradually lost. They become shorter and less well separated from the setal lobes and are, posterior to setiger 35, postsetal lobes. All branchiae are directed ventrally.

Anterior setigers have two setal fascicles; the superior ones have a number of limbate, slightly geniculate simple setae. The inferior fascicles have five or six long, slender hooded hooks and one or two limbate setae. Each anterior hook (Fig. c) has a short, blunt hood and a very narrow head with nine or ten very short teeth. Posterior hooded hooks (Fig. a) are somewhat larger; each has eight or nine long, slender teeth. Limbate setae are present in all setigers, but are less numerous in posterior than in

anterior setigers. They are prolonged in anterior setigers. Acicula number two or three in a parapodium; each is black and has a fine filamentous tip.

The pharyngeal apparatus is black. The triangular maxillary carriers are shorter than wide and have distinct lateral incisions. Maxilla I is falcate; maxilla II has four teeth; maxillae III and IV have one short tooth each.

Tubes are absent; part of the specimens were covered with a loose, mucoid mass to which sand grains adhered.

 $\underline{\text{N. fuscoides}}$ resembles $\underline{\text{N. fusca}}$ Moore (1911, for reference see above) in that both species have simple branchiae limited to anterior setigers.

Hooded hooks are present from the first setiger in \underline{N} . fuscoides and at least not before setiger 48 in \underline{N} . fusca. Maxilla II has four teeth in \underline{N} . fuscoides and two in \underline{N} . fusca. Branchiae are posteroventral in \underline{N} . fuscoides and dorsolateral in \underline{N} . fusca.

<u>Distribution</u>: <u>N. fuscoides</u> is known from Mazatlan Basin and off Baja California; it appears common along the mainland slope of the Central American Trench.

Ninoe longibranchia, new species

(Plate 32, Figs. a-g)

Records: 11758 (1); 11761 (1); 11806 (1); 11807 (1); 11809 (1); 11810 (1); 11813 (1, TYPE); 13752 (13); 13753 (16); 13754 (6).

Description: The type is an incomplete specimen which has 21 setigers; it is 5.5 mm long and 1.5 mm wide with setae. It is yellow and lacks color patterns. A posterior fragment from the same station has 64 setigers and is 12 mm long and 1.5 mm wide.

The prostomium (Figs. b and e) is flattened conical and has two poorly marked longitudinal ridges on both sides.

Eyes are absent. The nuchal organ is a deep central pit; nuchal tentacles are absent. The bulbous palpi are very large.

The first peristomial segment is slightly longer than the second and clearly wider than the prostomium. Both peristomial segments participate in the formation of the lips; the lateral and posterior lips are continuous as one heavily creased area.

The anterior parapodia have rounded parapodial lobes of the same length. The setal lobes (Fig. g) are rounded and pustulate in the branchial region; the presetal lobes follow the outline of the setal lobes closely. Postbranchial parapodia have conical presetal and setal lobes and a cirriform, short postsetal lobe.

Branchiae (Fig. g) are present from setigers 2-17 in the type; the last branchiae are present on setigers 15-18 in the present specimens. The first and the last two branchiae consist of the dorsalmost filament only. Other branchiae are multifid. The maximal number of branchial filaments is six and the filaments are arranged in a unipectinate series along a main stem. The cirriform dorsalmost filament is nearly twice as long as the other filaments.

Hooded hooks are present from the first setiger. Each anterior hook (Fig. c) is narrow and has a poorly marked head with four or five short teeth. Each posterior hook (Fig. a) is of the same size, but the lowermost tooth is more than twice the size of the other teeth. The number of teeth in the posterior hooks varies from five to seven. Acicula (Fig. d) number two to a parapodium; each is black and has a filamentous tip. Long, slender geniculate setae are present in anterior parapodia. They are absent in part of the posterior fragment in the type material.

The pharyngeal apparatus is black; the maxillary carriers (Fig. g) are longer than wide: lateral incisions are absent, but the carriers have distinct internal excavations near the posterior end. Maxilla I is falcate; maxilla II has six teeth and maxillae III and IV have one tooth each. The mandibles are fused for a short anterior

distance and have long, slightly divergent carriers.

Tubes are absent.

N. longibranchia resembles N. palmata (Moore, 1903, for full references see above), N. pulchra Wesenberg-Lund (1949) and N. foliosa, new species. It differs from N. foliosa in that it has only half the number of branchial filaments. The dorsalmost filament is twice as long as the others and cirriform in N. longibranchia and only slightly longer than the others and foliose in N. foliosa.

Hooded hooks are present from the first setiger in \underline{N} . <u>longibranchia</u> and from setiger 35 in \underline{N} . <u>pulchra</u>. Branchiae are present on setigers 2-17 in \underline{N} . <u>longibranchia</u> and on setiger 3 to at least setiger 30 in \underline{N} . <u>palmata</u>.

<u>Distribution</u>: <u>N. longibranchia</u> has been found in Mazatlan and Guaymas Basins, Gulf of California and off Cabo Corrientes on the mainland slope of the Central American Trench.

Ninoe, species indeterminable

Ninoe sp. Fauchald, 1970, p. 117.

Earlier Record: Fauchald (1970, p. 117): 523
(fragment).

New Record: 13755 (1).

Remarks: Both fragments have strongly branched branchiae, but cannot be further identified.

Lumbrineridae, indeterminable

Record: 6212 (1).

Remarks: This specimen is so badly preserved that it

cannot be identified any further.

Family ARABELLIDAE Hartman, 1944

Genus <u>Drilonereis</u> Claparède, 1870

Drilonereis falcata Moore, 1911

<u>Drilonereis</u> <u>falcata</u> Moore, 1911, pp. 298-299, pl. 20, figs. 150-154; Fauchald, 1970, pp. 135-136, pl. 21, fig. g.

<u>Records</u>: 11837 (1); 13724 (1); 13765 (1); 13774 (1).

Remarks: D. falcata is well known from shelf depths off western Mexico (Fauchald, 1970, p. 135). The present specimens are well within the limits of morphological variation established in that paper. The present records are the first deep-water records of any species of this family from western Mexico.

<u>Distribution</u>: <u>D. falcata</u> is known from central California to western Mexico. The present records are from Sal si Puedes Basin, Gulf of California and from the Central American Trench.

Arabellidae, indeterminable

Records: 13755 (fragment); 13774 (fragment).

<u>Remarks</u>: These two fragments cannot be further identified.

Family DORVILLEIDAE Chamberlin, 1919

Dorvillea annulata (Moore, 1906)

<u>Stauronereis annulatus Moore</u>, 1906, pp. 225-227, pl. 10, figs. 12-13, pl. 11, figs. 18-22.

<u>Dorvillea annulata</u> Fauchald, 1970, pp. 152-154, pl. 25, figs. a-j.

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

Remarks: <u>D. annulata</u> is here accepted as redefined by Fauchald (1970). The present specimens have elongated appendages on some of the composite hooks and two pairs of maxillae as described in that paper.

<u>Distribution</u>: <u>D. annulata</u> is known from the type area in Washington, from an area near Cedros Island, Baja California, and from one locality near the upper end of the Gulf of California in shelf depths. The present records are from Bahia de San Cristobal, Baja California in 220 and 264 m depths. They are the first records of dorvilleids from deep water off western Mexico.

Family ORBINIIDAE Hartman, 1942

Six species of the family have been found in the material from western Mexico; three of these are newly described. Genera represented include <u>Califia</u>, <u>Haploscoloplos</u> and <u>Scoloplos</u> (Leodamas).

Key to Species from Deep Water off Western Mexico

1. Thoracic neuropodia with at least some thick uncini

2.

1.	Thoracic neuropodia with simple, pointed setae only
	4.
2.	Thoracic uncini with pencillate tips; present in
	the first three neuropodia only 3.
2.	Thoracic uncini without pencillate tips; present
	in all thoracic neuropodia,
	<u>Scoloplos</u> (<u>Leodamas</u>)
	mazatlanensis
3.	Branchiae from setiger 8 or 9 present in all re-
	maining setigers <u>Califia</u> <u>calida</u>
3.	Branchiae from setiger 8 or 9 limited to ten to twelve
	pairs <u>Califia</u> <u>mexicana</u>
4.	Thorax with fifteen to twenty-one segments; branchiae
	present from setigers 13-18
	<u>Haploscoloplos</u> elongatus
4.	Thorax with less than fifteen segments; branchiae
	present on setiger 13 or before 5.
5.	Thorax with thirteen to fourteen segments; branchiae
	present on one or two of the last thoracal
	segments Haploscoloplos mexicanus
5.	Thorax with nine or ten segments; branchiae first
	present on the second or third abdominal segment
	<u>Haploscoloplos</u> <u>kerguelensis</u>

Genus <u>Califia</u> Hartman, 1957

Califia calida Hartman, 1957

<u>Califia</u> <u>calida</u> Hartman, 1957, pp. 306-308, pl. 42, figs. 1-3.

Records: 7233 (1); 7358 (2).

Remarks: <u>C. calida</u> has simple, strap-like branchiae present on all setigers posterior to setigers 8-10. The number of thoracal segments is thirteen or fourteen. A small number of slender, dentate setae are present in the

first three neuropodia in addition to the large, curved bristled uncini.

<u>Distribution</u>: <u>C. calida</u> is known from deep water off southern California; the present records come from slope and abyssal depths near Cedros Island, Baja California.

Califia mexicana, new species

(Plate 33, Figs. a-e)

Records: 11759 (3, TYPE); 11791 (1); 11793 (2); 12135 (1); 13774 (1).

Description: All specimens are incomplete posteriorly; the type has fifty setigers and is 20 mm long and 3 mm wide. It is light yellow and each of the posterior thoracal segments has a dark brown bar near the intersegmental line; similar, less distinct bars are present on the anterior abdominal segments. The thoracal region is somewhat flattened; the widest part of the body is at setigers 7-10; the abdomen is cylindrical. Thoracal parapodia are lateral; abdominal ones are dorsolateral in position.

The prostomium is bluntly triangular; one wide peristomial segment is present.

Thirteen thoracal segments are present. Each of the first three parapodia (Fig. b) has bluntly rounded notopodial and neuropodial acicular lobes; the presetal lobe is a low fold. The notopodial postsetal region has a low fold with a triangular, basally constricted lobe near the middle. The neuropodial postsetal region consists of a low fold and a small, spherical postsetal lobe. Other thoracal segments (Fig. a) have digitate postsetal lobes in both noto- and neuropodia. The postsetal lobes increase in length and are nearly as long as the setae in the last two or three thoracal segments.

Each of the abdominal parapodia (Fig. e) has a long, slender neuropodial acicular lobe and a short, cirriform presetal lobe. The short notopodia are truncate and have long, slender postsetal lobes.

Branchiae are present from setiger 8 or 9 and are present only through setigers 18-20. Each is triangular and flattened.

Long, slender setae with strongly dentate cutting edges are present in all parapodia except in the first three neuropodia. Setae in these three neuropodia are of two kinds. Preacicular uncini (Fig. c) are thick, slightly curved, and have cutting edges with numerous coarse transverse ridges. Postacicular uncini (Fig. d) are more than one-third longer than the preacicular ones; each is distally pointed, slightly curved and has five or six very poorly defined transverse ridges on the cutting edge. Both kinds of uncini are distally bristled. Acicula number three to five in thoracal parapodia and two to four in abdominal parapodia.

The genus <u>Califia</u> is known for four species from widely separated areas. These include, in addition to <u>C</u>. <u>mexicana</u>, <u>C</u>. <u>calida</u> Hartman (1957, for reference see above) from California, <u>C</u>. <u>chilensis</u> Hartman (1967, pp. 102-103, pl. 32) from deep water off Chile, and <u>C</u>. <u>schmitti</u> (Pettibone, 1957, p. 164, fig. 3a-h) from the Atlantic Ocean.

Branchiae are present in all abdominal segments in <u>C</u>. <u>calida</u> and <u>C</u>. <u>chilensis</u> and presumably in <u>C</u>. <u>schmitti</u>. They are present only on a few anterior abdominal segments in <u>C</u>. <u>mexicana</u>.

The first three parapodia in <u>C</u>. <u>schmitti</u> lack neuropodial postsetal lobes. A distinct spherical postsetal lobe is present in <u>C</u>. <u>mexicana</u> and the postsetal neuropodial lobes are digitate in <u>C</u>. <u>calida</u> and <u>C</u>. <u>chilensis</u>.

Simple dentate setae are present in small bundles in the first three neuropodia in \underline{C} , calida, \underline{C} , chilensis and \underline{C} , schmitti and absent in \underline{C} , mexicans.

<u>Distribution</u>: <u>C. mexicana</u> is known from localities off Baja California, Cabo Corrientes and in the southern part of the Gulf of California in slope and abyssal depths.

Genus <u>Haploscoloplos</u> Monro, 1933

<u>Haploscoloplos</u> elongatus (Johnson, 1901)

Scoloplos elongata Johnson, 1901, pp. 412-413, pl. 10, figs. 105-110.

Haploscoloplos elongatus Hartman, 1957, pp. 273-274, pl. 26, figs. 1-11.

Record: 6212 (3).

Remarks: H. elongatus has fifteen to twenty-one thoracal segments and branchiae present from setigers 13-18; branchiae are always present on the last few thoracal segments. The present specimens have seventeen or eighteen thoracal segments and branchiae from setiger 13 or 14. This distribution also appears to be common in material from southern California and may represent, at least in the southern part of the distribution of the species, the commonly occurring pattern.

<u>Distribution</u>: <u>H. elongatus</u> has been reported from Alaska to southern California; the present record is from Bahia de San Cristobal, Baja California. The species is most common in shallow water; the present record is from 220 m depth.

Haploscoloplos kerguelensis (McIntosh, 1885)

(Plate 34, Figs. a-b)

<u>Scoloplos</u> <u>kerquelensis</u> McIntosh, 1885, pp. 355-356, pl. 43, figs. 6-8, pl. 22A, fig. 19.

Haploscoloplos kerguelensis Monro, 1936, p. 160; Hartman, 1957, pp. 275-276, pl. 27, figs. 1-3; Hartman, 1966, pp. 9-10, pl. 2, figs. 1-2; Hartman, 1967, pp. 104-105.

Records: 7231 (1); 7234 (3); 7235 (1); 12135 (2); 13767 (1).

Remarks: H. kerquelensis was redescribed by Monro (1936) from the type specimens. The thorax (Fig. b) has from nine to eleven setigers, and branchiae are present from setiger 12 or 13; the first branchia is on the second abdominal segment (Fig. a) in all specimens. The species is difficult to define; it is here limited to include only specimens with a similar number of thoracic segments and branchiae from one of the first two or three abdominal segments.

Distribution: H. kerguelensis has been reported from antarctic and sub-antarctic seas (Hartman, 1966) and also from India and Japan. The latter records and probably some of the records from the Antarctic Ocean may be of other species (Hartman, 1957, p. 276). The present specimens come from deep water off Cedros Island, Baja California to off the Tres Marias Islands.

Haploscoloplos mexicanus, new species (Plate 34, Figs. c-d)

Records: 11832 (3); 11833 (3); 11834 (4, TYPE).

Description: All specimens are incomplete posteriorly; the type has twenty-nine setigers; it is 5.5 mm long and 1.75 mm wide with setae. It is white and lacks color patterns; some specimens are evenly dark brown. The thorax is slightly dorsoventrally flattened; the abdomen

is cylindrical.

The prostomium is acutely pointed; one peristomial segment is present.

Thirteen or fourteen thoracal segments are present. Anterior parapodia are directed laterally; each acicular lobe is broadly rounded in the notopodia and pointed triangular in the neuropodia. Preacicular lobes are low folds. The notopodial postsetal lobe is cirriform and is behind the acicular lobe. The neuropodial postsetal lobe is similar, but is ventral to the acicular lobe so that the latter is visible in posterior view. Later thoracal segments (Fig. c) are somewhat more symmetrical, but the neuropodial postsetal lobe is somewhat ventral to the acicular lobe even in the last thoracal segments.

Abdominal parapodia (Fig. d) resemble those of H. kerguelensis. The long notopodial acicular lobe is cylindrical; the flattened postacicular lobe is lanceolate. The neuropodial acicular lobe is cylindrical: the short pre- and postsetal lobes are digitate.

Branchiae are present from setiger 11 in the type and from setigers 11-13 in all specimens. They are always present on at least one thoracal segment.

All setae are similar; each is long and slender and has a coarsely dentate cutting edge.

The genus Haploscoloplos can be separated into four groups based on the distribution of the branchize in relation to the number of thoracal segments.

- a. One species, H. abranchiata Hartman (1967, pp. 103-104) lacks branchiae completely.
- b. One group of species has branchize on at least one or two thoracal segments. This group includes H. bifurcatus Hartman (1957, pp. 277-279), H. elongatus (Johnson, 1901, for complete reference, see above). H. fragilis intermedius Hartman (1965b, p. 128, pl. 28, fig. a), H. mexicanus described above and H. panamensis (Monro, 1933b, pp. 1045-1046, fig. la-b).
- c. A third group has branchiae from the transitional segments between the thorax and the abdomen. These species

include the genotype <u>H. cylindrifer</u> (Ehlers, 1905, pp. 45-46, pl. 6, figs. 16-19), <u>H. foliosus</u> Hartman (1951, pp. 78-79), <u>H. fraqilis</u> (Verrill, 1873, pp. 598-599) and <u>H. robustus</u> (Verrill, 1873, pp. 597-598).

- d. Finally <u>H. kerquelensis</u> (McIntosh, 1885, for complete reference see above) and <u>H. kerquelensis</u> <u>minutus</u> Hartman (1953, p. 37, fig. 11a-c) have branchiae from one of the first abdominal segments.
- H. mexicanus differs from all other species with branchiae on thoracal segments in that it lacks interramal cirri, ventral cirri, and subpodial lobes, and has very few thoracal segments.
- H. bifurcatus has ventral cirri and the postsetal lobes are bifurcated in abdominal segments. H. panamensis also has ventral cirri. H. fragilis intermedius has interramal cirri and subpodial flanges. H. elongatus resembles H. mexicanus most closely, but is considerably larger and has at least fifteen thoracal segments.

<u>Distribution</u>: <u>H. mexicanus</u> is known from three localities in Sal si Puedes Basin, Gulf of California.

Haploscoloplos, species indeterminable

Record: 13756 (1).

<u>Remarks</u>: The specimen is too badly preserved to be further identified.

Genus Scoloplos (Leodamas) Kinberg, 1866

Scoloplos (Leodamas) mazatlanensis, new species
(Plate 35, Figs. a-c)

Records: 11758 (1, TYPE); 13755 (2).

Description: The type is an incomplete specimen with 42 segments that is 10 mm long and 1.5 mm wide. It is yellow, and dark brown intersegmental bars are present on posterior thoracal and abdominal segments. The thorax is slightly dorsoventrally flattened; the abdomen is cylindrical.

The acutely pointed prostomium is longer than wide; the single peristomial segment is as long as the prostomium.

Fifteen thoracal segments are present. The thoracal parapodia (Fig. a) are all similar; each has a rounded notopodial acicular lobe and a very broad, poorly defined neuropodial acicular lobe. The preacicular lobes are low folds. The long notopodial postacicular lobe is cirriform with a wider base. The neuropodial postacicular region consists of a broad, truncate fold with a cirriform lobe near the middle. The postacicular lobe in the neuropodia is shorter than the corresponding lobe in the notopodia.

Abdominal parapodia (Fig. b) are all similar; each notopodium has a low, truncate acicular lobe and a long, cirriform postacicular lobe. Each neuropodium has a long, cylindrical acicular lobe continued distally in two small, cirriform lobes, of which one is slightly preacicular and the other slightly postacicular in position. The postacicular cirriform lobe may be folded over in certain segments.

Branchiae are present from setiger 12 to the end of the fragment; each is simple, rather thick, and has a blunt tip.

Thoracal segments have numerous simple, coarsely dentate setae; ventrally in each neuropodial fascicle are ten to fifteen large uncini (Fig. c), each with ten to fifteen shallow transverse ridges. Abdominal notopodial setae resemble the slender setae in the thorax. Abdominal neuropodial setae are long, nearly smooth and have an abruptly tapered short tip. Three to five acicula are present in each thoracal parapodium. Posterior acicula are thick, slightly curved and project freely from the neuropodia.

 \underline{S} . (\underline{L} .) <u>mazatlanensis</u> resembles \underline{S} . (\underline{L} .) <u>tribulosus</u> (Ehlers, 1897, pp. 91-94, pl. 6, figs. 141-147) in that

both have simple notopodial abdominal postacicular lobes, branchiae from a thoracal segment, anterior uncini with transverse ridges and sharply pointed prostomia. The number of thoracal segments is approximately twenty-five in S. (L.) tribulosus, but only fifteen in S. (L.) mazatlanensis.

<u>Distribution</u>: <u>S. (L.) mazatlanensis</u> is known from Mazatlan Basin and off Cabo Corrientes.

Orbiniidae, indeterminable

Records: 6212 (fragment); 7233 (fragment); 11743
(fragment); 13755 (fragment).

Remarks: These abdominal fragments cannot be further identified.

Family PARAONIDAE Cerruti, 1909

Important revisions of the paraonids were made by Hartman (1957 and 1965b) and Strelzov (1968). The generic definitions given by these authors are here retained.

The main genera of the family may be defined as follows:

<u>Aedicira</u> Hartman, 1957: Median antenna present; modified setae absent; genotype: <u>A. pacifica</u> (Hartman, 1944).

Aricidea Webster, 1879: Median antenna present; modified setae in the neuropodia; genotype: A. fragilis Webster, 1879.

<u>Cirrophorus</u> Ehlers, 1908: Median antenna present; modified setae in the notopodia; genotype: <u>C. branchiata</u> Ehlers, 1908.

 $\frac{\text{Paradoneis}}{\text{modified setae in the notopodia;}} \ \ \text{Median antenna absent;}$

(Southern, 1914).

<u>Paraonides</u> Cerruti, 1909: Median antenna absent; modified setae absent; genotype: <u>P</u>. neapolitana Cerruti, 1909.

<u>Paraonis</u> Grube, 1878: Median antenna absent; modified setae in the neuropodia; genotype: <u>P. gracilis</u> (Tauber, 1879).

In addition, Hartman (1965b, p. 135) described the genus <u>Aparaonis</u> with a single species, <u>A. abyssalis</u> Hartman (1965b, pp. 135-136, pl. 25). The genus is characterized by having setae in the first segment and only three pairs of branchiae on segments 2-4; all setae are simple. This genus clearly falls outside the scheme indicated above; some species presently described in genera lacking modified setae may belong to <u>Aparaonis</u>, but this must await further investigation.

Twelve species in six genera are known from western Mexico; six are newly described.

Key to Species from Deep Water off Western Mexico

T. 0	Prostomium with a median antenna	2.
1.	Prostomium without a median antenna	8.
	Modified setae absent in the abdomen	
	Modified setae present	
	Median antenna as long as the first seven to ten	_ ,
	branchial setigers Aedicira antennata	
3.	Median antenna barely longer than the length of the	
	prostomium or only slightly longer	4.
4.	Dorsal cirri short in all setigers; branchiae	
	flattened Aedicira alisetosa	
4.	Dorsal cirri greatly prolonged in postbranchial	
	setigers; branchiae cylindrical	
	Aedicira longicirrata	
5.	Modified setae notopodial. Cirrophorus aciculatus	
	Modified setae neuropodial	6.

б,	Modified setae distally pilose; branchiae flattened
	without distinct filiform tips
	Aricidea similis
6.	Modified setae smooth or distally hooded; branchiae
	cylindrical with a distinct filiform tip 7.
7.	Modified setae distally recurved; hoods absent
	Aricidea crassicapitis
7.	Modified setae distally knobbed; hoods present
	Aricidea ?lopezi
8.	Modified setae absent; branchiae present on setigers
	4-8 only Paraonides cedroensis
8.	Modified setae present; branchiae present on more
	numerous setigers 9.
9.	Lyrate modified setae present in notopodia
	Paradoneis lyra
9.	Gently curved modified setae present in the neuro-
	podia 10.
10.	Modified setae finely pilose; branchiae present on
	setigers 6-25 Paraonis pycnobranchiata
10.	Modified setae distally smooth; branchiae present on
	setigers 6-16
11.	Eyes absent Paraonis gracilis
	Eves present Paraonis gracilis oculata

Genus Aedicira Hartman, 1957

Aedicira alisetosa, new species

(Plate 35, Figs. d-f)

Records: 11753 (1, TYPE); 11790 (1); 11792 (1).

Description: The type is an incomplete specimen which has 55 setigers; it is 17 mm long and 1.5 mm wide without setae. It is yellowish with small light brown pigment spots. The specimen from station 11790 is dark reddish

brown without any pigment pattern. The pre- and postbranchial regions are cylindrical; the branchial region is slightly dorsoventrally flattened.

The rounded triangular prostomium (Fig. d) has two comma-shaped nuchal slits at the widest part near the posterior margin. The clavate median antenna is attached anteriorly and has a distinctly narrowed tip. Prebranchial setal lobes are truncate; presetal lobes are absent. Postsetal lobes are present in the notopodia (Fig. f) only; each has a broad, truncate basal portion and a short, digitate superior lobe. Branchial segments have similar notopodial postsetal lobes. The long, slender postsetal lobes in postbranchial setigers lack the basal truncate portions and are cirriform; each is nearly as long as half the width of the body.

Branchiae are present from setigers 4-27 in the type and from setigers 4-28 in the other specimens. Each branchia is less than half as long as the width of the body and is foliose with a slender tip.

The setae are of two kinds; all notopodial setae and the superiormost seta in the neuropodia are slender capillaries. The other setae in the prebranchial and branchial neuropodia (Fig. e) are limbate with a narrow wing and are slightly geniculate. All neuropodial setae in postbranchial segments are slender capillaries.

The genus Aedicira is known for five species including A. alisetosa described above; other species include A. antennata (Annenkova, 1934, p. 658, figs. 2 and 3b), A. belgica (Fauvel, 1936a, pp. 29-31, fig. 3), A. hartmani Strelzov (1968, pp. 79-81, fig. 3), and the genotype A. pacifica Hartman (1944b, pp. 316-317, pl. 27, figs. 8-9). Two species described by Hartmann-Schroeder (1962) in Aedicira belong to the genus Aricidea since both possess neuropodial modified setae in posterior setigers.

A. antennata has a very broad anterior end and a long, slender antenna; setae in posterior neuropodia are abruptly narrowing and may be characterized as modified.

- A. belgica has nine to twenty-one pairs of branchiae, and the postsetal lobes are long and narrow in the branchial region.
- A. hartmani has 22 pairs of branchiae, which are present from setiger 3; the antenna appears to be dorso-ventrally flattened and has a blunt tip (Strelzov, 1968, fig. 3a-b).

The genotype \underline{A} . pacifica differs sharply from all other species in the genus in that it has as many as sixty pairs of branchiae.

A. alisetosa has twenty-four to twenty-five pairs of branchiae and the antenna is abruptly narrowed distally. The first branchia is on setiger 4.

<u>Distribution</u>: <u>A. alisetosa</u> is known from three localities in the southern part of the Gulf of California in 2334-3111 m depth. Data for all stations can be found in the station list.

Aedicira antennata (Annenkova, 1934)

Aricidea antennata Annenkova, 1934, p. 658, figs. 2 and 3b. Aedicira antennata Hartman, 1969, p. 51.

Records: 7234 (1); 13768 (1).

Remarks: A. antennata has a strongly flattened, broad anterior end; branchiae are present from setiger 4; the median antenna is long and slender and may reach the seventh to tenth branchial segment. Posterior neurosetae are abruptly tapered, but are otherwise similar to the simple capillaries found in other setigers.

<u>Distribution</u>: <u>A. antennata</u> is known from arctic areas of the Pacific Ocean and as far south as southern California in slope depths. The present records are from off Cedros Island, Baja California and off the Tres Marias

Islands in deep slope depths.

Aedicira longicirrata, new species

(Plate 36, Fig. a)

Records: 11761 (1, TYPE); 13724 (2); ?13743 (1); 13754 (2); 13755 (2); 13756 (6); 13765 (1); 13768 (1).

Description: The type is an incomplete specimen which has 50 setigers; it is 8 mm long and 2.5 mm wide with setae. The anterior end is strongly dorsoventrally flattened; the postbranchial region is cylindrical with sharply marked intersegmental furrows.

The rounded prostomium (Fig. a) is slightly shorter than wide. The short antenna is slender. The two nuchal slits are close to each other on the posterior margin of the prostomium; each is straight.

Prebranchial parapodia have truncate setal lobes; the notopodial postsetal lobe is digitate; other lobes are absent. Branchial segments are similar, but the notopodial postsetal lobes become increasingly slender posteriorly. Postbranchial parapodia are low welts; from the first postbranchial segment, the notopodial postsetal lobes become as long as the width of the body or longer.

Branchiae are present from setigers 4 to 17; the first seven pairs are shorter than half the width of the body; the last seven pairs are half the width of the body so that the slender tips of the branchiae overlap at the midline. Each branchia is thick and cylindrical and has a slender tip.

All setae are long, slender capillaries; those in postbranchial setigers are very long and soft; in pre-branchial and branchial setigers the setae are in thick, stiff fascicles.

 \underline{A} . Longicirrata resembles \underline{A} , antennata (Annenkova, 1934, for full reference see above) in the general struc-

ture of the anterior end, but differs from the latter and from all other known species of <u>Aedicira</u> in having very long, slender notopodial postsetal lobes in postbranchial setigers.

<u>Distribution</u>: <u>A. longicirrata</u> is known from one locality in the Gulf of California and along the mainland slope of the Central American Trench south to Acapulco.

Aedicira, species indeterminable

Record: 7235 (3).

<u>Remarks</u>: The three specimens have lost nearly all branchiae and are otherwise in rather poor condition.

Genus Aricidea Webster, 1879

Aricidea crassicapitis, new species

(Plate 37, Figs. g-h)

Records: 7231 (7, TYPE); 12134 (4); 13724 (1); 13744 (3); 13752 (2); 13753 (1); 13756 (3); 13774 (2); 13775 (5); 13776 (2); 13780 (1).

<u>Description</u>: The type is an incomplete specimen which has 39 setigers; it is 6.5 mm long and 1.75 mm wide without setae. It is yellow and lacks color patterns. The anterior part of the body is broad and flattened; the postbranchial region is cylindrical and has high ciliated ridges across each segment.

The trilobed prostomium (Fig. h) is wider than long; the furrows separating the three parts are deep. The short, slender antenna is attached posteriorly.

The first three parapodia have short, truncate setal

lobes and short, digitate notopodial postsetal lobes; other lobes are absent. Parapodia in the branchial region have truncate setal lobes; each notopodial postsetal lobe has a broad transverse superior part and a long, digitate inferior part. The truncate portion of the postsetal lobe is reduced in late branchial segments and is absent in postbranchial segments. The postbranchial notopodial postsetal lobes are less than one-quarter as long as the width of the body.

Branchiae are present from setigers 4-17 in the type and from setigers 4-18 in other specimens. Each of the first eight branchiae is as long as half the width of the body and is cylindrical with a slender tip. The last five pairs of branchiae decrease evenly in size and the slender tips become less distinct than in anterior branchial segments.

All notopodial setae are slender capillaries. terior neuropodia also have only slender capillaries, but from setiger 30, one to three thick, slightly recurved hooks (Fig. g) are present in the middle of the neuropodial fascicles. Each hook is smooth; aristae and hoods are absent.

A. crassicapitis belongs to the group of species with plain modified neuropodial setae without hoods and aristae. Other species in this group include A. curviseta Day (1961, p. 442, fig. 9e-k), A. monicae Laubier (1967, pp. 118-124, figs. 6-7), <u>A</u>. <u>neosuecica</u> Hartman (1965b, p. 137) and A. suecica simplex Day (1963b, p. 364, fig. 3a-b).

A. curviseta differs from the other species in this group in that it has thirty-four to forty-four pairs of branchiae; none of the others have more than fourteen.

A. monicae has four to nine pairs of branchiae and the modified setae are heavily pilose distally.

A. neosuecica has six to seven pairs of branchiae and is a very slender species without a distinct flattened anterior end. A. suecica simplex is also a slender species and has twelve pairs of branchiae.

A. crassicapitis has a broad, flattened anterior end, thirteen to fourteen pairs of branchiae, and a short, slender antenna.

<u>Distribution</u>: <u>A. crassicapitis</u> is known from Cedros Island, and from Baja California, along the mainland coast to Acapulco in slope depths. It has not been found in the Gulf of California.

Aricidea ?lopezi (Berkeley and Berkeley, 1956)

Aricidea <u>lopezi</u> Berkeley and Berkeley, 1956a, p. 542, figs. 1-3: Hartman, 1969, pp. 59-60.

Record: 13724 (1).

Remarks: The present specimen resembles A. <u>lopezi</u> in the structure of the modified setae. The median antenna is only half as long as illustrated by Berkeley and Berkeley and the specimen is considerably smaller.

<u>Distribution</u>: <u>A. lopezi</u> is known from western Canada and southern California in all depths. The present record is from the Central American Trench off Acapulco.

Aricidea similis, new species

(Plate 36, Figs. b-e)

Records: 7229 (1); 7233 (1, TYPE); 7234 (4); 6212 (1); 13774 (1).

Description: The type is an incomplete specimen which has 97 setigers; it is 15 mm long and 1 mm wide with setae. It is faintly yellow and has scattered brown pigment spots on the anterior end; the pigment is arranged in

transverse bars on the first ten to fifteen postbranchial segments. The prebranchial and branchial regions are flattened dorsoventrally; the postbranchial region is cylindrical.

The prostomium (Fig. e) is rounded. The antenna is attached anteriorly and is nearly as long as the prostomium. The nuchal slits are near the posterior margin; each is comma-shaped.

Anterior parapodia have transverse setal lobes; each of the long, slender notopodial postsetal lobes has a rather broad base; other lobes are absent. Branchial parapodia (Fig. b) are similar to the anterior parapodia; the postsetal lobes become increasingly slender in late branchial segments. Postbranchial parapodia are similar to the late branchial parapodia. The notopodial postsetal lobe is shorter than half the width of the body in all segments.

Branchiae are present from setigers 4 to 19 in the type and from setigers 4 to 18 in other specimens. Each branchia is about half as long as the width of the body in anterior branchial segments and somewhat longer in median and late branchial segments. Each branchia is flattened and has a slender, cylindrical tip.

All setae in prebranchial and branchial parapodia are slender capillaries. Postbranchial notopodia have a few slender capillaries; postbranchial neuropodia have a number of slender capillaries and a series of thick curved setae with sharply recurved tips. Each of these modified setae (Figs. c-d) has two slender aristae, one on each side of the seta, and the convex side is finely pilose.

A. similis resembles A. annae Laubier (1967, pp. 106-110, figs. 2-3), A. monicae Laubier (1967, pp. 118-124, figs. 6-7) and A. claudiae Laubier (1967, pp. 124-128, figs. 8-9) in having pilose setae in posterior neuropodia. All three species described by Laubier have fewer branchiae than A. similis, and the shape and distribution of the modified setae are different.

 $\underline{\text{Distribution:}} \quad \underline{A}. \quad \underline{\text{similis}} \text{ is known from four local-} \\ \text{ities off Cedros Island, Baja California and from one local-} \\ \text{ity near Cabo Falso.}$

Genus Cirrophorus Ehlers, 1908

Cirrophorus aciculatus (Hartman, 1957)

Aricidea (Cirrophorus) aciculata Hartman, 1957, pp. 323-324, pl. 43, fig. 4.

Cirrophorus aciculatus Hartman, 1969, pp. 67-68, 1 fig.

Records: 13752 (1); 13753 (2); 13754 (3).

Remarks: C. aciculatus has a short, clavate median antenna; the modified setae in the notopodia are thick and acicular.

<u>Distribution</u>: <u>C. aciculatus</u> is known from deep water off southern California; the present records come from similar depths off Cabo Corrientes.

Genus <u>Paraonides</u> Cerruti, 1909, <u>sensu</u> Strelzov, 1968

Paraonides cedroensis, new species

Record: 7229 (1, TYPE).

Description: The type is an incomplete specimen which has 36 setigers; it is 2.5 mm long and 0.25 mm wide without setae. It is faintly yellow and lacks color patterns. The body is cylindrical throughout.

The prostomium is conical; an antenna is absent.

The nuchal slits are near the posterior margin; each is straight.

Prebranchial parapodia are transverse welts; each has a short, digitate notopodial postsetal lobe; other lobes are absent. Branchial and postbranchial parapodia are similar; the notopodial postsetal lobes are more than twice as long in the postbranchial as in the prebranchial segments but remain shorter than half the width of the body.

Branchiae are present on setigers 4-8; each is strap-like; the anteriormost branchiae are longer than the posterior ones, but are shorter than half the width of the body.

All setae are long, slender capillaries in both notoand neuropodia. The setal lobes are reduced in the first neuropodia and only one or two setae are present.

The genus <u>Paraonides</u> as presently accepted includes four species. These are <u>P. cedroensis</u> described above, <u>P. neapolitana</u> Cerruti (1909, pp. 493-495, pl. 18, figs. 7 and 19-21, genotype), <u>P. nordica</u> Strelzov (1968, pp. 75-76, fig. 1) and <u>P. platybranchia</u> (Hartman, 1961, pp. 86-87).

The genotype P. neapolitana differs from the other three species in the genus in that it has broadly limbate setae in posterior neuropodia in addition to the slender capillaries and lacks notopodial postsetal lobes in the first setiger.

- \underline{P} . platybranchia has twenty-one to twenty-five pairs of branchiae; \underline{P} . nordica and \underline{P} . cedroensis have six and five pairs respectively.
- P. nordica has notopodial postsetal lobes of the same size in both pre- and postbranchial segments. The postsetal lobes are more than twice as long in postbranchial as they are in prebranchial segments in P. cedroensis. P. nordica has six pairs of branchiae starting on setiger 5; P. cedroensis has five pairs starting on setiger 4.

<u>Distribution: P. cedroensis</u> is known from one locality in abyssal depths off Cedros Island, Baja California.

Genus Paraonis Grube, 1873

Paraonis gracilis (Tauber, 1879)

<u>Aonides gracilis</u> Tauber, 1879, p. 115.

<u>Paraonis gracilis</u> Hartman, 1957, pp. 330-331, pl. 44, figs.

4-5; Hartman, 1969, p. 75.

Records: 6212 (1); 6213 (3); 7249 (3); 13775 (1).

Remarks: The present specimens have branchiae on setigers 6 to 15 or 16. The neuropodial modified setae are first present on setiger 19 or 20. This is well within the range of variation known for this species.

<u>Distribution</u>: <u>P. gracilis</u> is known from nearly world-wide areas but has apparently not been reported from the Indian Ocean. The present records are from the vicinity of Cedros Island and off Cabo Falso, Baja California in depths ranging from 220-3751 m.

Paraonis gracilis oculata Hartman, 1957

<u>Paraonis gracilis oculata</u> Hartman, 1957, pp. 331-332, pl. 44, figs. 1-3; Hartman, 1969, pp. 77-78, 3 figs.

<u>Records</u>: 13724 (11); 13733 (1); 13743 (1); 13752 (17); 13753 (6); 13754 (1); 13756 (7); 13767 (6); 13768 (9); 13774 (4); 13780 (2); 13782 (2).

Remarks: P. gracilis oculata differs from the main form mainly by the presence of paired eyes on the prostomium. The present specimens are generally smaller than is usual in the main form and are dark yellowish brown with scattered darker spots at the bases of the parapodia.

Distribution: P. gracilis oculata is known from

California in deep water; the present records come from the Central American Trench from Acapulco to the Tres Marias Islands and off the tip of Baja California.

Paraonis pycnobranchiata, new species

(Plate 37, Figs. a-f)

Record: 11793 (1, TYPE).

Description: The type is an incomplete specimen which has 48 setigers; it is 10.5 mm long and 1 mm wide without setae. It is faintly yellow. The prostomium has a pigment pattern consisting of four small dark brown spots in a rectangle near the posterior margin between the nuchal slits. The areas lateral to the nuchal slits are also darkly pigmented. Small pigment spots are found scattered evenly on the body. The pre- and postbranchial regions are cylindrical; far posterior segments are longer than wide. The branchial region is dorsoventrally flattened.

The prostomium (Fig. a) is rounded pentagonal; the nuchal slits are sigmoid. An antenna is absent.

Each of the prebranchial parapodia has a transverse setal lobe; the short notopodial postsetal lobe is slender; other lobes are absent. The branchial parapodia (Fig. c) are similar and the notopodial postsetal lobes are of the same size in all parapodia (Fig. b).

Branchiae are present from setigers 6-25; the first 2 or 3 branchiae are short; all other branchiae are more than half as long as the width of the body. Each branchia is thick and distally blunt.

Prebranchial and branchial parapodia have slender capillary setae only. Postbranchial notopodia have slender capillary setae as well; postbranchial neuropodia have modified setae. Each modified seta (Figs. e-f) is gently curved and is finely pilose on the convex side; aristae are absent. The ventralmost of the modified setae is more

strongly curved than the others and is oriented at right angles to the rest of the modified setae.

- \underline{P} . pycnobranchiata resembles \underline{P} . gracilis (Tauber, 1879, for full reference see above) and \underline{P} . multibranchiata Hartman (1957, pp. 332-333) in having branchiae from setiger 6.
- \underline{P} , $\underline{qracilis}$ has smooth modified setae and usually fewer pairs of branchiae than are found in \underline{P} . $\underline{pycnobranchiata}$ has twenty-eight to thirty-six pairs of branchiae and smooth accoular modified setae.

<u>Distribution</u>: <u>P. pycnobranchiata</u> is known from one locality in 2449 m depth in the southern part of the Gulf of California; complete data can be found in the station list.

Genus Paradoneis Hartman, 1965

Paradoneis lyra (Southern, 1914)

Paraonis (Paraonides) lyra Southern, 1914, pp. 94-95, pls. 9-10, fig. 22a-g.

Paradoneis lyra Hartman, 1965b, p. 140.

Paraonides lyra Hartman, 1969, pp. 71-72; 3 figs.

Records: 13768 (3); 13782 (1).

Remarks: P. lyra is primarily characterized by the presence of furcate or lyrate setae in posterior notopodia; otherwise it closely resembles species of Paraonis.

<u>Distribution</u>: <u>P. lyra</u> was originally described from Ireland and has been reported from South Africa (Day, 1967, p. 568) and from southern California. The present records are from deep water off the Tres Marias Islands and off Cabo Falso, Baja California.

Paraonidae, indeterminable

Records: 13724 (5); 13775 (3); 13782 (1).

Remarks: These specimens are either anteriorly mutilated or posteriorly too incomplete to permit closer identification.

Family SPIONIDAE Grube, 1850

Ten members of the family have been recovered in the deep-water material from western Mexico. Three of these belong to Spiophanes; one is assigned to Laonice and the remaining six species belong to the Prionospio-complex recently revised by Foster (1969). Three species are newly described.

Key to Species from Deep Water off Western Mexico

1.	First parapodium with recurved hooks, branchiae absent
	2.
1.	First parapodium with all setae similar to those in
	the other parapodia, branchiae present 4.
2.	Prostomium with well developed lateral horns; hooded
	hooks bidentate Spiophanes anoculata
2.	Prostomium without lateral horns; hooded hooks at
	least quadridentate 3.
3.	
	notopodial lobes continued as ridges across the
	dorsum Spiophanes pallidus
3.	Prostomium approximately as long as wide; anterior
	notopodial lobes ligulate with narrow bases
	Spiophanes fimbriata
4.	At least forty pairs of branchiae present
	?Laonice sacculata

4.	No more than seven pairs of branchiae present 5.
5.	Three pairs of branchiae from setiger 1; all
	branchiae clearly bipinnate
	Paraprionospio pinnata
5.	At least four pairs of branchiae from setiger 2; at
	least one pair is cirriform
6.	Five or more pairs of branchiae present 7.
6.	Four pairs of branchiae present 8.
7.	All branchiae cirriform Prionospio cirrifera
7.	First four pairs of branchiae with a patch of fine
	pinnae on the posterolateral faces
	Prionospio malmgreni
8.	Branchiae 1-3 cirriform, branchia 4 bipinnate
	<u>Prionospio</u> (<u>Apoprionospio</u>)
	vermillionensis
8.	At least branchia 1 with pinnae 9.
9.	Branchiae 1 and 4 bipinnate; branchiae 2 and 3
	smooth <u>Prionospio</u> anuncata
9.	Branchia 1 with a patch of fine pinnae on the
	posterior face; branchiae 2 and 3 bipinnate and
	branchia 4 smooth <u>Prionospio</u> <u>lobulata</u>

Genus Laonice Malmgren, 1867

Laonice sacculata (Moore, 1923)

Spionides sacculata Moore, 1923, pp. 184-185. Laonice sacculata Hartman, 1969, pp. 111-112.

Records: ?6212 (2); 13742 (1); 13767 (1); 13774 (1); 13775 (1).

Remarks: The present specimens agree with <u>L. sacculata</u> in the shape of the anterior end and parapodía, and in the distribution of interramal pouches. Branchiae have been lost in most specimens, but the scars remain.

<u>Distribution</u>: <u>L. sacculata</u> is known from southern and central California in shelf and slope depths; the present records are from off Cedros Island, Baja California to off Punta San Telmo on the Mexican mainland.

Genus Paraprionospio Caullery, 1914

The genus is here accepted as emended by Foster (1969, pp. 388-389) with the further restriction that all species should have only three pairs of branchiae and that all branchiae should be bipinnate. A somewhat more extended discussion of the genera in the Prionospio-complex is given below.

Paraprionospio pinnata (Ehlers, 1901)

Prionospio pinnata Ehlers, 1901, pp. 163-164.

Paraprionospio pinnata Foster, 1969, pp. 389-392, figs.

12-21, partim.

Record: 6213 (2).

Remarks: The present specimens have three pairs of bipinnate branchiae on setigers 1-3; neuropodial hooded hooks are present from setiger 9; each hook has a large main fang and several small teeth in a crest.

The concept of <u>P</u>. <u>pinnata</u> was extended by Foster (1969, p. 389) to include virtually all species of <u>Prionospio</u> with branchiae first present from the first setiger.

It should be noted that <u>P</u>. <u>alata</u> Moore (1923, pp. 185-186) was described with neuropodial hooks present from setiger 18, and the notopodial lobes in the anterior setigers were described as broad-tipped. <u>P</u>. <u>pinnata</u> has neuropodial hooks present from setigers 9-11 and the anterior notopodial lobes are pointed.

P. treadwelli (Hartman, 1951, pp. 84-85) was de-