NORTH AMERICAN MARINE NEMATODES

B. G. CHITWOOD
Catholic University of America* **
Washington, D.C.

INTRODUCTION

The first marine nematodes mentioned from North America were two species described by Joseph Leidy in 1855. Thereafter no publications occurred until N. A. Cobb began his series, the Contributions to a Science of Nematology, in 1914. Later Steiner, Allgen and the writer have recorded forms. Actually the faunas have been very poorly worked up though few new genera are now to be found. Many new species have been known for periods of 10-30 years without their having been described. This is due partly to lack of qualified workers and partly to limited publication facilities. Since marine zoologists seem to desire a key to the North American fauna we have prepared one. However, every collection turns up new species or new records of European species. In this paper 3 new genera and 33 new species are described from the vicinity of Rockport, Texas.

European study of marine nematodes dates from the early part of the nineteenth century but the outstanding early works were by Bastian, Bütschli, de Man, Marion and G. Schneider, with more recent studies by Filipjev, Steiner, Micoletzky, Kreis, Ditlevsen, Allgen, Stekhoven, de Coninck, and W. Schneider. At least twenty times as many species have been described from Europe as from North America. Hence we must always check European literature before describing new species. The two most comprehensive publications on the subject are those by Stekhoven (1935) and W. Schneider (1939). With these two references the worker can locate many forms which may not be included in the present article. Original descriptions in this paper are based on specimens collected by Dr. E. G. Reinhard from the vicinity of Rockport, Texas. Certain types of marine nematodes are notable by their large numbers, others by their scarcity. This is probably due to selective collection. All species previously recorded from North America are included so far as we have been able to determine. Some identifications made around 1941 for Dr. Zinn of Yale Uiversity, Dr. Pennak identifications made around 1941 for Dr. Zinn of Yale University, Dr. Pennak of the University of Colorado and Dr. A. S. Pearse of Duke University are also included for completeness. Unfortunately we do not have the specimens.

DISTRIBUTION AND ECOLOGY

LIFE HABITS.—As a general rule the soil nematodes belong to the Class Phasmidea while the aquatic nematodes belong to the Class Aphasmidea. This is probably correlated with the absence of hypodermal glands in the former group since hypodermal glands make the cuticle much more permeable and nematodes with these structures are usually more susceptible to drying. The caudal glands of the Aphasmidea are highly advantageous as organs of attachment for aquatic nematodes. Of course we find all gradations from relatively dry soil, through moist soil, swamp and marsh to fresh and salt water.

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Phasmideans invade fresh water rather commonly and fresh water nematodes invade soil with considerable ease. Consequently there are many species which are difficult to classify as soil or fresh water.

In the Phasmidea the superfamily Rhabditoidea feeds primarily on bacteria or the products of their action on plants or animals. Many species are semi-parasites of invertebrates. The superfamily is primarily terrestrial but several species may be considered fresh water and a few very rare species are marine. The superfamilies Tylenchoidea and Aphelenchoidea usually feed by puncturing living cells and sucking the contents. They are both primarily terrestrial groups feeding on angiosperms or terrestrial arthropods but a reasonable number feed on algae or are carnivorous. A considerable number live in swamp to aquatic habitats but the only marine genus is *Halenchus*.

Among the Aphasmidea the superfamily Dorylaimoidea is an example of a diversified group. Apparently these forms are primarily fresh water with a very few species living in brackish water or marine. The bulk of present day species, however, are moist soil inhabitants, with a very few species characteristically marine or brackish. The group is usually characterized as carnivorous but evidence is being obtained that more and more species feed on algae, even in soil; a few species may feed on roots of angiosperms. Only a very few species are marine. Kreis (1927) unsuccessfully attempted to adapt the fresh water species *Dorylaimus stagnalis* to a marine life.

The superfamily Tripyloidea is typically fresh water though many species are found in moist soil. A few genera of the subfamily Ironinae are marine. The superfamily includes many carnivorous forms, others that feed on algae. The superfamily Enoploidea is typically marine and the few forms reported from fresh water may be errors. The group includes carnivorous and algae feeding types.

The superfamily Plectoidea is highly diversified as to habitat and probably also in feeding. We would consider it as basically aquatic and saprophagous but many species are found in moist soil. Entire subfamilies or families are characteristically marine. None would be termed brackish.

The superfamily Axonolaimoidea is primarily marine but a few genera are typically fresh water. Little is known of their feeding habits but we would presume most of them feed on algae.

The superfamily Monhysteroidea is on the whole marine but the type genus, *Monhystera* contains many species which live in fresh water. Most monhysteroids are alga feeders but a few have been reported to be carnivorous, (ex. *Siphonolaimus*).

The superfamily Chromadoroidea is likewise aquatic with the bulk of the species marine but species in several genera of the Chromadorinae are fresh water. The Microlaiminae is a marine group while the Ethmolaiminae are fresh water forms. Most of these feed on algae. The Cyatholaimidae and Tripyloididae are marine groups though one or two species have been reported from fresh water; they include carnivorous and phytophagous species.

The superfamilies Desmodoroidea and Desmoscolecoidea are both marine groups but several genera of the former group and one species of the latter group (*Desmoscolex aquaedulcis* Stammer, 1935) has been described from fresh water.

The reader will note we have pointedly omitted discussion of brackish water nematodes. A very few species scattered through the Aphasmidean genera have been termed brackish but no truly brackish fauna has been worked out even in Europe. As a general rule one finds a quick change from fresh water to marine species, genera and superfamilies. The transitional zone is usually rather poor in both numbers of specimens and diversity of genera. De Coninck (1930) and others have done extensive work attempting to establish the fauna of brackish soil and water but no clear cut statements are available. The species and genera listed include soil, fresh water and marine species which might well mean diverse habitats in a general collection. Spot collection and salinity readings coupled with experimental adaptation studies of individual species will be needed.

GEOGRAPHIC DISTRIBUTION.—Most aquatic nematode genera which have been described for 20 or more years have been found to be of world wide distribution. Species are more apt to be specialized as to habitat, i.e., beach, shallows, breakers, algae, or animals on which they feed than to coast of a given country. Many species are found on the Atlantic Coasts of Europe and America while species are seldom identified from both the Atlantic and Pacific Coasts of America. However, the multitude of marine species and recent refinements in taxonomy cause us to be extremely hesitant to discuss such matters as ocean currents and world fauna. Identifications of species to date could easily be due to pure chance, i.e., the more

species that have been described from a given area and the more students of marine nematodes the greater the probability that someone will find a species first described on another coast or in another ocean. There is also a tendency for workers to find genera and species described by themselves rather than those described by other workers. This being the situation we feel at least 50 years will be required before our information is sufficiently stabilized to permit general discussions.

TECHNIC

COLLECTION.—There are two major types of marine nematode collection (a) beach screening and (b) selective sampling. In beach screening one obtains a large diversity of forms which may or may not be true inhabitants of the locale. It is rapid and large numbers can be collected in rather high degree of purity. The most simple procedure is to take three buckets, a 200 mesh screen and a bottle to the beach. Skim the top one-half inch of sand into one bucket. Roil well. Let sand sink and pour immediately into second bucket. Let settle (15 min.) while repeating operation with third bucket. Pour off supernatant fluid of buckets 2 and 3. Rinse bottom material through 200 mesh screen, pour into bottle and repeat the procedure. In sampling the idea is to find quantities of individual species. The best procedure is to collect algae, eelgrass, barnacles, rock scrapings, and dredgings. These may be individually screened with a strong stream of sea water or they may be directly examined under the microscope or preserved.

PRESERVATION.—We have found 4% of commercial formalin in sea water an excellent preservative. However, study in the living condition or intra-mortem is more enjoyable.

PICKING AND MOUNTING.—Screenings or samples are put into syracuse dishes and individual nematodes picked up with a bamboo needle. The action is somewhat like eating spaghetti with a knitting needle but very effective once one becomes adjusted to it. Place specimens in a small drop of marine formalin (4%) on a slide, support cover with glass wool, ring with a mixture of one-half vaseline-one-half paraffin. Such material keeps for days. For permanent mounts transfer marine formalin fixed material to 4% formalin-3% glycerin with a trace of osmic acid. Evaporate to glycerin, and mount in glycerin with glass wool supports. Ring with lacto-phenol—gum arabic or permount.

MEASUREMENT AND DESCRIPTION.—All nematodes are measured using camera-lucida sketches before identifications are made to species. Two systems of measurement were developed: the Cobbian and Demanian Systems. The former was based on decimals or percentage of lengths and widths at various places on the body, the second on ratios of body parts. Since the latter has become standard in all present works we shall follow it. Standard measurements according to de Man are:

$$a = \frac{\text{Body length}}{\text{Diameter}}; \quad b = \frac{\text{Length esophagus}}{\text{Body length}}; \quad c = \frac{\text{Body length}}{\text{Tail length}};$$

$$V = \frac{\text{Position of Vulva}}{\text{Body length}}; \quad G_1 \text{ and } G_2 = \% \text{ body length of each gonad.}$$

In addition various structures are commonly situated or measured in terms of many head diameters, body diameters, anal body diameters, or tail lengths. While the general zoologist may find this a bit confusing at times, we cannot change the whole subject to suit him. German works save space by such statements as: "Schw. = 5AB." In English this means "Tail length 5 anal body diameters." Similarly "KBö 1.5 KB" means literally head setae 1.5 head diameters in length. This is quite simple and efficient.

GENERAL SYSTEMATICS

For those familiar only with parasitic worms we would advise some reading on general morphology (See Chitwood and Chitwood, 1950). We divide the Phylum Nematoda in two classes, Phasmidea and Aphasmidea. Most animal and plant parasitic nematodes as well as the majority of soil inhabiting saprozoic forms belong to the former group, while the majority of marine and fresh water nematodes belong to the latter group. There are a few exceptional marine phasmideans and a few animal parasitic aphasmideans (i.e., Mermithoidea, Trichuroidea and Dioctophymatoidea). The present series will combine in key form all previous records from North America and new information will be inserted in the proper places.

CLASS PHASMIDEA

Phasmids present; lateral excretory canals present; amphids pore-like; caudal glands absent; hypodermal glands absent; terminal excretory duct sclerotized.

ORDER *RHABDITIDA*

Esophagus in three parts.

SUBORDER RHABDITINA

Stylet absent, lateral canal on both sides of body.

1. Female with two ovaries, male with separate spicules. Long Island, N.Y. *Rhabditis marina* Bastian, 1865.
2. Female with one ovary, male with fused spicules. Eggs of *Ocypode albicans*. Beaufort, N.C. *Parasitorhabditis ocypodis* (Chitwood, 1935) n. comb. Syn. *Rhabditis ocypodis* Chitwood, 1935.

Rhabditis marina Bastian, 1865

Female 2.4 mm.; a,23; b,6.6; c,14.7; V,52%. Tail conically attenuated with rounded tip; phasmids at 43% of tail length; cuticle with striae 2.2μ apart resolvable into rows of longitudinal ridges interrupted laterally by six longitudinal rugae.

HABITAT.—Seaweed, Long Island Sound. Collector, J. L. Bassen, 1941.

REMARKS.—This description agrees with that given by Steiner (1916) from the "Barentsee" but not at all well with the original description as given by Bastian (1865) from Falmouth, England. The latter author illustrates the tip of the female tail as conically pointed and the *b* value is given as 9. It is possible that they do not represent the same species but additional specimens are needed to substantiate this point.

SUBORDER TYLENCHINA

Stylet present, lateral canal on one side of body.

3. Tail ventrally hooked at tip. Galls of *Fucus* (*Ascophyllum*) *nodosus*. Holland and Woods Hole, Mass. *Halenchus fucicola* (de Man, 1892).
4. Tail not ventrally hooked at tip. Aransas Bay, Texas. *Halenchus mexicanus* n. sp.

Halenchus mexicanus n. sp.

Juvenile female 1.94 mm. long; a,28.5; b,4.8; c,14.5; V,48%. Labial region with faint transverse striae, cheilorhabdions and internal head supports sclerotized; stylet 19μ long, knobs rounded, dorsal gland orifice 3.4μ from base of stylet. Metacorpus 75 μ from head, 16μ long, with distinct valve; esophageal glands in ventral column, containing three equally spaced nuclei. Excretory pore 130μ from head. Tail conoid, not hooked at tip.

HABITAT.—Found free, depth of four feet, Aransas Bay, Texas, 1950.

REMARKS.—This species differs from *H. fucicola* (de Man, 1892) Cobb, 1933, in the form of the tail. In that respect it is more like *Halenchus zostericola* (Allgen, 1934) n. comb., syn. *Tylenchus zostericola*. However, *H. zostericola* measured 1.7-2.2 mm.; a,65-75; b,9.7-10. These are all plant parasites and it would be interesting for someone to find the host. *Halenchus* is the only known genus of marine tylenchs. Peculiarly it combines the internal cephalic sclerotization of the Heteroderidae (including *Pratylenchus*, etc.) with the esophagus of the Tylenchidae (Thorne's subfamily Neotylenchinae or Nothotylenchinae) with the general habit of *Tylenchus* and *Ditylenchus*. *Halenchus mexicanus* is rather upsetting to group characters. However, we feel it belongs to the family Tylenchidae even though it is a bit odd.

CLASS APHASMIDEA

Phasmids absent; lateral excretory canals absent; amphids usually not pore-like; caudal glands usually present; hypodermal glands usually present; terminal excretory duct absent or very little sclerotized.

ORDER *ENOPLIDA*

Esophagus cylindrical, two part cylindroid or conoid; amphids pocket-like (rarely pore-like); ovaries always reflexed.

SUBORDER ENOPLINA

Stylet absent in all stages; cephalic sensory organs commonly setose; caudal glands usually present.

SUPERFAMILY *TRIPYLOIDEA* Chitwood, 1937

Cuticle at head not reduplicate. (Mostly fresh water.)

FAMILY *Ironidae* de Man, 1876

Stoma cylindrical.

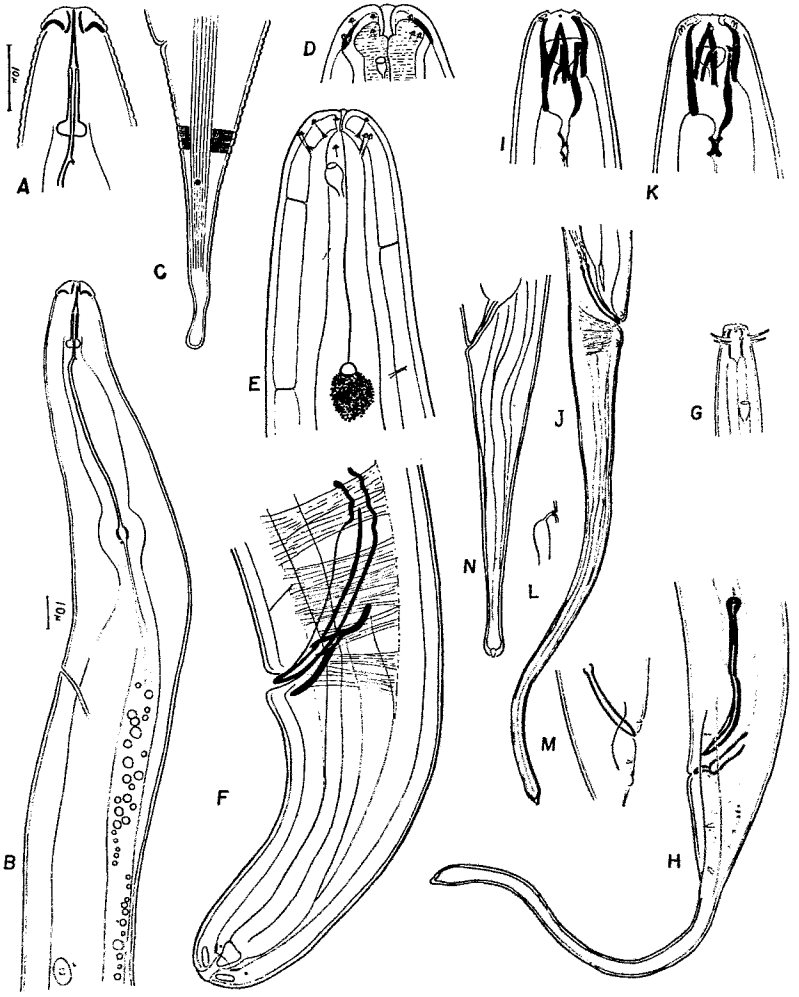

FIGURE 1—A-B—*Halenchus mexicanus*: A—head. B—esophageal region. C—*Rhabditis marina*, female tail. D-F—*Leptosomatum elongatum*: D—head of male. of male. I-J—*Viscosia macramphida*: I—head. J—tail of mail. K-N—*Viscosia papillata*: K—head. L—excretory pore. M—male cloacal region. N—female tail. E—head of female. F—tail of male. G-H—*Anoplostoma copano*: G—head. H—tail

SUBFAMILY *Ironinae* Micoletzky, 1922

Esophageal gland orifices (three) into stomatal region.

5. Cephalic setae present. Mass., N.Y. and N.C.

Ironella prismatolaima Cobb, 1920

Cephalic setae absent.

6. Spinerette opening ventral. Ocean Beach, Seaweed, Miami, Fla.

Trissonchulus oceanus Cobb, 1920

7. Spinerette opening dorsal. Aransas Bay, Texas.

Trissonchulus reversus n. sp.

Trissonchulus reversus n. sp.

Single juvenile, 1.16 mm.; a,29; b,3.2; c,16. Stoma 40μ long. Spinerette opening dorsally on bluntly rounded tail.

HABITAT.—*Chaetopterus* tube and eelgrass, depth of 3 feet. Mud Island, Aransas Bay, Texas, July 27, 1950.

REMARKS.—This form apparently represents a new species since Cobb (1920) plainly states the spinerette opens ventrally in *T. oceanus*.

SUPERFAMILY *ENOPLOIDEA* Stekhoven & de Coninck, 1933

Cuticle of head reduplicate. (Marine).

FAMILY *Enoplidae* Baird, 1853

Stomatorhabdions poorly sclerotized, without distinct stomatal capsule, stoma surrounded by esophageal tissue.

SUBFAMILY *Enoplinae* Micoletzky, 1922

With three bifurcate mandibles; esophagus cylindrical; amphids pocket-like; male with tuboid preanal supplement.

Only ten cephalic setae. *Enoplus* Dujardin, 1845

Pigment spots absent.

8. Cephalic setae 0.3 head diameter; size 8-9 mm. Maine and New Jersey Coasts.

Enoplus marinus (Leidy, 1855).

9. Cephalic setae 0.16 head diameter; size 2-3 mm. Woods Hole, Mass. (Collector, R. W. Pennak, 1940).

Enoplus brachyuris Ditlevsen, 1923.

Pigment spots present.

10. Adults 2-3 mm. Teneriffe & N.C. Coasts.

Enoplus meridionalis (Steiner, 1921).

Adults 5-10 mm.

11. Spicules with straight handle. European & North American Atlantic Coasts (New Foundland & N.Y.).

Enoplus communis Bastian 1865.

12. Spicules arcuate. Woods Hole, Mass. (Collector, R. W. Pennak, 1940).

Enoplus brevis Bastian 1865.

Cephalic setae 16

13. Lips not longitudinally striated.

Enoplolaimus propinquus de Man, 1922.

Lips longitudinally striated. *Enoploides* Saveljev, 1912.

14. Longest setae 0.6 head width. Coast of Europe & N.C. (Collector, A. S. Pearse, 1942).

Enoploides amphioxi Filipjev, 1918.

15. Longest setae 1 head width. Coast of Europe & Conn. (Collector, D. J. Zinn, 1940).

Enoploides labiatus (Butschli, 1874).

16. Longest setae 1.2 head widths. Coast of Denmark and Woods Hole, Mass., (Collector, R. W. Pennak, 1940).

Subfamily Leptosomatinae Micoletzky, 1922

Without mandibles, posterior part of esophagus distinctly muscular, esophagus usually cylindrical, rarely conoid, amphids pocket-like.

Stoma distinct, conoid. *Rhabdodemania* Baylis & Daubney, 1926.

17. Longest setae 0.5 head diameter; adults 3-4 mm. Coast of Ireland & Woods Hole, Mass. (Collector, R. W. Pennak, 1940).

Rhabdodemania major Southern, 1914.

18. Longest setae 1 head diameter; adults 1-2 mm. Beaufort, N.C.
Rhabdodemania minima Chitwood, 1936

Stoma not distinct.
Cuticle longitudinally ridged
19. With dorsal tooth and ocelli. Kingston Harbor, Jamaica.
Cophonchus ocellatus Cobb, 1920.
20. Without dorsal tooth or ocelli. Seagrass off Key West, Fla.
Xennella cephalata Cobb, 1920.

Cuticle not longitudinally ridged
With well developed internal sclerotized helmet.
21. Helmet deeply lobed posteriad, European & New Foundland Coasts (Collector, Allgen, 1935).
Thoracostoma trichodes (Leuckart, 1849).

Helmet not deeply lobed posteriad.
Esophagus cylindroid.
22. Tail blunt. California Coast. *Deontostoma californicum* Steiner & Albin, 1933.
23. Tail attenuated. Woods Hole, Mass.
Tubolaimella setosa Cobb, 1933.

24a. Esophagus conoid. European & N.C. Coasts. (Collector, Chitwood, 1936).
Female. *Leptosomatum elongatum* Bastian, 1865.

Without well developed internal sclerotized helmet.
24b. Without paired rows of cervical setae.
Male. *Leptosomatum elongatum* Bastian, 1865.

With paired rows of cervical setae
Supplementary organ present.
25. *c*,7-12; setae 0.5 head diameter; European & New Foundland Coasts. (Collector, Allgen, 1935).
Anticoma limalis Bastian, 1865.
26. *c*,16-17; setae 0.7 head diameter. Beaufort, N.C.
Anticoma litoris Chitwood, 1936.
27. Supplementary organ absent. *Paranticoma longicaudata* n. sp.
Leptosomatum elongatum Bastian, 1865
(syn. *L. elongatum* v. *acephalatum* Chitwood, 1936).

Ocelli 80-100μ from anterior end; cephalic sensory organs conoid papillae, amphids ½ head diameter from anterior end. Tooth absent. Internal sclerotization of head confined to female. Tail bluntly rounded in both sexes, 1.3-1.8 anal body diameters long. Male 7.0-7.4 mm.; a,48-92; b,7-8; c,67-74; nerve ring 275-300μ from anterior end; testis extending 60-65% length of body; spicules 65-77μ long; about 7/10 length of tail.

Female 6.2-8.0 mm.; a,52-67; b,6.2-7.7; c,52-80; V,52-53%; gonads reflexed, extending 23-30% and 22-38% length of body respectively; eggs 1-4 per uterus, 180-240μ long by 80-100μ wide. Coast of England and North Carolina.

REMARKS.—This form was originally described as a variety of *Leptosomatum elongatum* on the basis of a single male. Further specimens found in a sponge *Hymeniacodon heliophila* at Beaufort, N.C., July 13, 1949, permit us to synonomize the variety. Bastian collected his original specimen, a male, from a reddish sponge at Falmouth, England.

Paranticoma longicaudata n. sp.

Cephalic setae ½ head diameter; cervical setae 3 head diameters back, six pairs, linear or grouped. Excretory pore 100-110μ from head, 1½ body diameters anterior to nerve ring. Nerve ring slightly posterior to base of esophagus. Excretory cell opposite posterior part of esophagus. Tail distally filiform.

Male 1.0-1.66 mm.; a,33-37; b,5.3-5.8; c,5.3-6.2; spicules arcuate 42μ long, with distinct handle and flange. Gubernaculum surrounds spicules. Tail 7-8 anal body diameter in length. Preanal setae six pairs, postanal setae three pairs.

Female 1.6-1.7 mm; a,27-33; b,5.3-5.6; c,5.9-6.2; V,39-42%; G_1,200-220μ; G_2,200-220μ; eggs (maximum 2), 50-60 by 25-30μ; tail 11-12 anal body diameters in length.

HABITAT.—Depth of 4 feet, Mud Island, Aransas Bay, Texas, July 27, 1950.

REMARKS.—This species contained round to capsuliform greenish intestinal cell inclusions, pigmentation quite variable. Some specimens contained rather irregular elongate masses similarly pigmented. We presume it eats algae in rather large pieces. Sparse non-pigmented intestinal cells indicate differential function. The present species may readily be distinguished from other species of the genus by the

position of the excretory pore. This structure is more anteriad in other species (20-30μ from head). The only species with a tail of comparable length is *P. bandaensis.*

SUBFAMILY *Phanodermatinae* Filipjev, 1927

Amphids not elongate; stoma rudimentary; esophagus conoid, musculature weak; cephalic setae 10; mandibles absent.

28. Coast of North Carolina *Phanodermopsis longisetae* Chitwood, 1936.

SUBFAMILY *Oxystomininae* (Micoletzky, 1924)

Amphids usually elongate, often tuboid internally; stoma unarmed; esophagus conoid, musculature weak; cephalic setae usually 6, postcephalic 4; male without preanal supplement.

Amphids tubiform.

29. Only four setae. Woods Hole, Mass. *Halalaimoides acuminata* Cobb, 1933
Cephalic setae 6 plus 4.

30. Setal circles not distinct. Woods Hole, Mass. *Tycnodora pachydermata* Cobb, 1920
Setal circles distinct.

31. Setae 1 head diameter back. Coast of North Carolina. *Halalaimus caroliniensis* Chitwood, 1936

32. Setae 2 head diameters back. Coast of North Carolina. *Halalaimus parvus* Chitwood, 1936

Amphids not tubiform.
Setae absent

33. Two ovaries. Woods Hole, Mass. *Angustinema nudum* Cobb, 1933
One ovary

34. Amphids 1.5 head diameters back. Port Royal, Jamaica. *Nemanema simplex* Cobb, 1920

35. Amphids over 2 head diameters back. Port Royal, Jamaica. *Schistodera exilis* Cobb, 1920
Setae present

36. Two ovaries, Biscayne Bay, Fla. *Porocoma striata* Cobb, 1920
One ovary. *Oxystomina* Baylis & Daubney, 1926.

37. Setae over 1 head diameter long. Beaufort, North Carolina. *Oxystomina alpha* Chitwood, 1937

38. Setae 0.3 head diameters long. Coasts of Holland and N.Y. *Oxystomina cylindricauda* (de Man, 1922)

FAMILY *Oncholaimidae* Baylis & Daubney, 1926

Stomatorhabdions heavily sclerotized; stoma somewhat capsuliform, only the posterior part surrounded by esophageal tissue.

SUBFAMILY *Oncholaiminae* Micoletzky, 1922

Esophagus cylindrical, not crenate or conoid, vesiculate or multibulbar. Supplementary organs absent or pedunculate (not sclerotized).

Teeth absent or very weak.

39. Lips 6. Seaweed, Woods Hole, Mass. *Anoncholaimus mobilis* Cobb, 1920
Lips 3.
Male without caudal alae.

40. Small tooth at anterior end of stoma. Bathing beach, Woods Hole, Mass. *Trilepta guttata* Cobb, 1920

41. Teeth absent (eye spots at base of stoma). Woods Hole, Mass. *Asymmetrella glabra* Cobb, 1920
Male with caudal alae. *Anoplostoma* Butschli, 1874.

42. Spicules flanged throughout length, not jointed. Brackish pond, Ocala, Fla. *Anoplostoma heterurum* (Cobb, 1914) n. comb., syn. *Oncholaimellus heterurus* Cobb, 1914

43. Spicules with distal half flanged. Eel grass, Copano Bay, Texas.
Anoplostoma copano n. sp.

Three well developed teeth.
Cuticle transversely striated. *Oncholaimoides* Chitwood, 1937
44. Longitudinal ridges pronounced. Beaufort, North Carolina.
Oncholaimoides rugosum Chitwood, 1937
45. Longitudinal ridges faint. Beaufort, North Carolina.
Oncholaimoides striatum Chitwood, 1937

Cuticle not transversely striated.

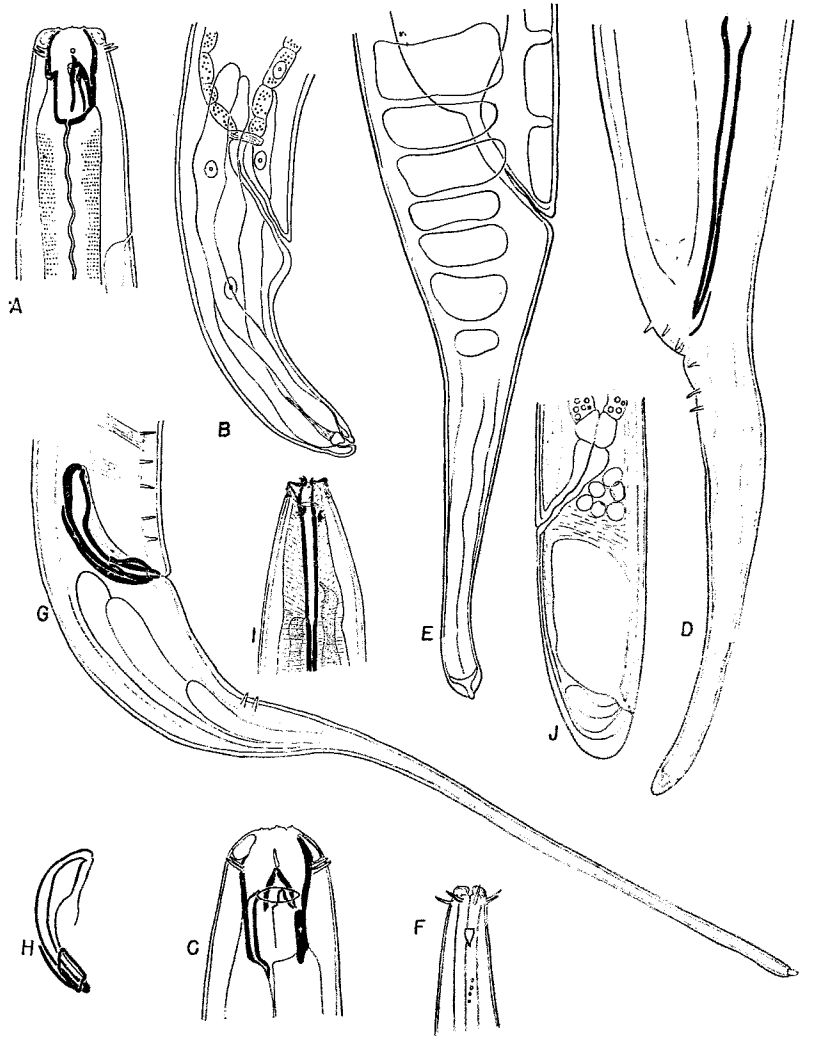

FIGURE 2—A-B—*Pontonema valviferum*: A—head. B—tail of female.C-E—*Prooncholaimus aransas*: C—head. D—tail of male. E—tail of female. F-H—*Paranticoma longicaudata*: F—head. G—male tail. H—spicules and gubernaculum after clearing. I-J—*Trissonchulus reversus*: I—head region. J—tail.

46. Hypodermis with trabeculae. Mud Island, Aransas Bay, Texas.
Prooncholaimus aransas n. sp.

Females with two ovaries.

Spicules short and straight, demanian system absent.
Viscosia de Man, 1890

With ten cephalic setae (short)

47. Tail 3 anal body diameters long. Beaufort, N.C.
Viscosia brachylaimoides Chitwood, 1937

48. Tail 8 anal body diameters long. Beaufort, N.C.
Viscosia paralinstowi Chitwood, 1937

With no setae, 6 plus 10 papillae.

49. Tail attenuated (c,11-12). Mud Island, Aransas Bay, Texas.
Viscosia macramphida n. sp.

50. Tail filiform (c,7-9). Copano Bay, Texas.
Viscosia papillata n. sp.

Spicules elongate to setaceous.

Demanian system present. *Adoncholaimus* Filipjev, 1918

51. Only male known; spicules 2.5 anal body diameters long. Cape Breton Isle, Canada.
Adoncholaimus punctatus (Cobb, 1914)

Female known.

52. Demanian system with one pair of exit pores; spicules 1.8 anal body diameters long. Atlantic Coast of Europe and Mass. *Adoncholaimus fuscus* (Bastian, 1865)

53. Demanian system with seven pairs of exit pores; male unknown. Woods Hole, Mass.
Adoncholaimus panicus Cobb, 1930

Demanian system absent.

54. Adults 3-4 mm. long. Rockport, Texas.
Pontonema valviferum n. sp.

Adults 14-20 mm. long.

55. Spicules not distinctly cephalated, Coast of Maine.
Pontonema vacillatum Leidy, 1856.

56. Spicules distinctly cephalated. Atlantic Coast of Europe and New Foundland. (Collector, Allgen, 1935).
Pontonema vulgare Bastian, 1865

Females with one ovary.

57. Spicules setaceous. Coasts of Europe & Mass. (Cobb, 1932).
Metoncholaimus pristiurus (zur Strassen, 1894)

Spicules short or moderate in length.

58. Stoma with two large subventral teeth, small dorsal tooth. Long Island Sound.
Metaparoncholaimus heterocytous Chitwood & Chitwood, 1938

Stoma with one large subventral and one small subventral and small dorsal tooth.

Male with versatile median papilla. *Oncholaimium* Cobb, 1930

59. c,20-30. Woods Hole, Mass.
Oncholaimium appendiculatum Cobb, 1930

60. c,50-70. Long Island, N.Y.
Oncholaimium oxyuris var. *domesticus* Chitwood & Chitwood, 1938

Male without versatile median papilla.
Oncholaimus Dujardin, 1845

61. Head pigmented. Woods Hole, Mass.
Oncholaimus nigrocephalus Cobb, 1930

62. Head not pigmented. Woods Hole, Mass.
Oncholaimus serpens Cobb, 1930

Anoplostoma copano n. sp.

Cephalic setae ten in number, 1 head diameter long; amphids 24μ from anterior end; stoma 10μ long by 5μ wide. Esophagus cylindrical.

Male 1.12 mm.; a,28; b,5; c,6.2; spicules 48μ long, cephalated, with distal half saber-like. Gubernaculum double, with terminal projections; three pairs of genital papillae.

Female 1.2-1.35 mm.; a,27-33; b,4.6-5; c, -6.6; V,48%; gonads 11-17 and 13-14% of body length; one egg per uterus, 80 by 28-30μ.

HABITAT.—Among eelgrass, depth of 3 feet, Copano Bay, Texas, July 26, 1950.

REMARKS.—Other species in the genus include *Anoplostoma blanchardi* de Man, 1888 and *A. elegans* Kreis, 1929, described as having only six cephalic setae, and *A. campbelli* Allgen, 1932 and *A. viviparum* (Bastian, 1865) de Man, 1907, with ten cephalic setae. *A. campbelli* has spicules nearly as long as tail. In *A. viviparum* the spicules are not transversely divided, hence similar to *A. heterurum* but the length—body diameter ratio, a, is 32-36, hence similar to *A. copano.*

Prooncholaimus aransas n. sp.

Cephalic setae short, about 1/5 head diameter in length. Stoma 40μ deep by 20μ wide containing three blunt teeth, left subventral the largest.

Male 2.5 mm.; a,6.3; b,6.3; c,21. Spicules 84-80μ long; gubernaculum simple, parallel to spicules, 14μ long. Cloacal region with three pairs of short preanal setae and three pairs of postanal setae.

Female 2.8 mm.; a,24; b,5.8; c,18; V,70%; gonad 22%; eggs (1-3 mature) 120 by 72μ.

HABITAT.—Depth of four feet, Mud Island, Aransas Bay, July 27, 1950.

This species is most closely related to *P. megastoma* but differs from that species in having a relatively smaller gubernaculum.

Viscosia macramphida n. sp.

Oral opening surrounded by six inconspicuous lips bearing an internal circle of six papillae and an external circle of at least six distinct papillae. Amphids nearly as wide as stoma, situated at ⅓ of stomatal length from anterior end. Stoma with large right subventral tooth and small digitiform right subventral and dorsal teeth. Stoma about 15μ long by 7-8μ wide. Nerve ring at about ⅔ length of esophagus. Excretory pore ½ body diameter posterior to nerve ring, terminal tube about 2μ long, excretory cell ½ length of esophagus posterior to its base.

Male 1.4 mm. long; a,39; b,5.6; c,7.9; tail filiform. Spicules 20μ long, cephalated, nearly straight, with forked tip.

Female 1.5-1.6 mm. long; a,33-35; b,.-7; c,7.7-9.7; V,48-52%; gonads each 10-14% length of body, reflexed; eggs 52-56μ (maximum 2) by 36-40μ.

HABITAT.—Depth of four feet, Mud Island, Aransas Bay, July 27, 1950. Also on piling Rockport Harbor, July 22, 1950.

REMARKS.—This species belongs to a group of the genus *Viscosia* in which the tails are filiform and cephalic setae are absent. Other species in this group are *V. linstowi* de Man, 1904, *V. pellucida* (Cobb, 1898), *V. glabra* (Bastian, 1865), *V. meridionalis* Kreis, 1932 and *V. pseudoglabra* Kreis, 1932. (See Kreis, 1934.) The amphids in all of these species are considerably smaller than in the present species. In addition the peculiar spicule tips differentiate this species from all those previously described with the exception of *V. glabra* from Suez as illustrated by Micoletzky (1924). The latter form should be considered as a distinct species for which the name *V. micoletzkyi* is proposed. No illustration is given of the amphids nor are they mentioned. The egg size of *V. micoletzkyi* is given as 73 by 37 μ, the egg number as one to four.

Viscosia papillata n. sp.

Sensory organs of both internal and external circles papilloid. Amphids ⅓ head diameter in width, situated about ⅓ length of stoma from anterior end. Stoma 18μ by 7μ with large right subventral tooth, small left subventral and dorsal teeth. Nerve ring about ⅔ length of esophagus from anterior end; excretory pore immediately behind nerve ring and excretory cell; esophageal length posterior to base of esophagus; terminal tube distinct, 1.5μ long.

Male 1.5 mm.; a,31; b,5; c,11; tail distally filiform, six anal body diameters in length. Spicules 23-24μ long. With four pairs of small preanal papillae and one pair of large postanal papillae.

Female 1.68 mm.; a,35; b,5.1; c,12; V,48%; gonads 10 and 12% respectively. Mature eggs not present.

HABITAT.—Weeds at three feet depth, Port Bay (Copano Bay), Texas, July 26, 1950.

REMARKS.—The present species belongs in general to the same group of *Viscosia* as *V. macramphida* and like the latter species it differs from the others in amphidial size. *V. papillata* differs from *V. macramphida* in length of tail, spicules, and postanal genital papillae.

Pontonema valviferum n. sp.

Male unknown. Female 3.6 mm. long; a,48; b,8.6; c,41; V,83%. Head very square, ten cephalic setae 1/4.5 head diameters long. Stoma 28 μ long by 13 μ

wide. Dorsal tooth reaching nearly exactly to middle of stoma. Subventral teeth clearly reaching anterior to middle of stoma, left subventral tooth slightly larger than right. Anterior part of esophagus containing brownish pigment granules in transverse rows between musculature in outer part of tissue. Excretory pore 60μ from anterior end, gland continues posteriad on right side of body to excretory cell, approximately 1 esophageal length posterior to base of esophagus. Nerve ring very slightly posterior to middle of esophagus. Esophago-intestinal valve standard, followed by a peculiar differentiated portion of intestine forming a second valve-like structure; this intestinal valve is about 1½ body diameters in length. Posterior part of intestine containing formed casts. Tail approximately two body diameters long, bluntly conoid. Spinneret valve shows to particular advantage. One may readily see that the conoid valve is controlled by a retractor muscle permitting outflow of adhesive materials. The glands twist around the valve and open into a central cavity distal to the valve. Gonad extending anteriad 35% length of body to reflexure. Uterus containing six eggs 60 by 60 μ to 80 by 40 μ, shape depending on pressure, isolated eggs of the latter dimensions. The gonad presented some interesting points, namely that oocytes are separated by groups of smaller cells followed by an area packed with these smaller cells after which a shell is present. These cells do not appear to be sperm, but lacking the male this point cannot be verified. The smaller cells contain finer cell inclusions than the oocytes, otherwise they might be considered possible nurse cells.

HABITAT.—Saragassum from Cedar Bayou fish trap, near Rockport, Texas, July 9, 1950.

REMARKS.—This species keys out to *Paroncholaimus macrolaimus* (Southern, 1914) in the oncholaim monograph by Kreis (1934), but differs from that species in that both excretory pore and excretory cell are situated more posteriad in the present material than in Southern's. In addition Southern's species is 8-12 mm. long. The genus *Paroncholaimus* Filipjev, 1918 was correctly synonomyzed with *Pontonema* by Cobb and Steiner (1934).

SUBFAMILY *Eurystomininae* (Filipjev, 1934)

Esophagus conoid to multibulbar. Male with two (rarely 0 or 1) cup like sclerotized preanal supplements, without marked sexual dimorphism. Large tooth not remarkably fine. Ocelli if present with lens and pigment closely associated. Fore part of esophageal lumen not notably tuboid. Large subventral tooth not remarkably fine.

63. Esophagus multibulbar. Mass. and North Carolina Coasts.
Bolbella tenuidens Cobb, 1920

Esophagus conoid but not multibulbar.

64. Spinerette absent, tail finely attenuated, Coast of North Carolina.
Paraeurystomina typicum Micoletzky, 1930

Spinerette present, tail not fine.

65. Male without distinct supplementary organs. Coast of Southern California.
Thoonchus ferox Cobb, 1920

Male with two cup like supplements. *Eurystomina* Filipjev, 1918

66. Ocelli absent, Coasts of North Carolina and Texas.
Eurystomina americana Chitwood, 1936

67. Ocelli present. Aransas Bay, Texas.
Eurystomina minutisculae n. sp.

Eurystomina americana Chitwood, 1936

Ocelli absent. Stoma 14-18 μ long by 7 μ wide, with one transverse row of denticles, containing a large right subventral tooth, a small left subventral and small dorsal tooth. Excretory pore opposite mid-region of stoma, ampulla posterior to base of stoma, excretory cell about ⅔ length of esophagus posterior to its base; esophagus with large right subventral gland nucleus and small dorsal and left subventral gland nuclei, these glands open into stoma through the teeth.

Male 2.7-3.2 mm.; a,56-57; b,5.0-6.2; c,27-32; spicules arcuate, 44 μ long; gubernaculum vertical, dentate, 24 μ long; tail about 1.7 anal body diameters; first preanal supplement 1½ tail lengths anterior to anus, second about 1 tail length anterior to first; supplements with massive attachment points; length of supplements 44-50μ each. Five large uninucleate glands in tandem anterior to anus; they probably include three caudal glands and two supplement glands but the two types were not distinguishable.

Female 3.4 mm.; a,42-51; b,6.0-7.2; c,34-35; V,62%; gonads each 15-19% body length; eggs maximum two per uterus, 100-120 μ by 52-64 μ.

HABITAT.—This species was originally described from the beach, Shackleford's Bank's, N.C. The present material was from Rockport Harbor, Texas, from piling with barnacles and from the rudder of a boat with bryozoa. Collections were made July 2 and July 22, 1950.

Eurystomina minutisculae n. sp.

Ocelli present, approximately 60 μ from head. Stoma 12-14 μ deep, rather wide, with complicated walls, large subventral tooth and two transverse bands, the posterior bearing three very minute rows of denticles. Excretory pore at base of head, excretory cell 1.5 esophageal lengths posterior to base of esophagus. Nerve ring at ⅓ length of esophagus.

Male 3.4-3.5 mm.; a,77-85; b,4.5-5.0; c,25-27; spicules arcuate, 60 μ long, proximally twisted medially; gubernaculum directed posteriad; supplementary organs spaced one and two spicule lengths anterior to anus, each with its attachment pieces 25 μ long.

Female 3.2-3.8 mm.; a,70-80; b,4.3-4.6; c,27-28; V,53-55%; gonads each 10-14% body length; eggs 120-160 μ by 40-55 μ, one to two per uterus.

HABITAT.—Depth of four feet, Mud Island, Aransas Bay, Texas, July 27, 1950 and *Chaetopterus* tube, depth of three feet.

REMARKS.—This species appears to be most closely related to *E. filiforme* (de Man, 1888) but differs from that species in the more posteriorly situated ocelli and in various body proportions.

SUBFAMILY Enchelidiinae (Micoletzky, 1924)

Esophagus conoid to multibulbar. Males without stoma or well developed supplementary organs. Large tooth in female remarkably fine, needle-like. Ocelli if present with lens and pigment not closely associated. Fore part of esophageal lumen notably tuboid. Stomatal walls distinctly jointed.

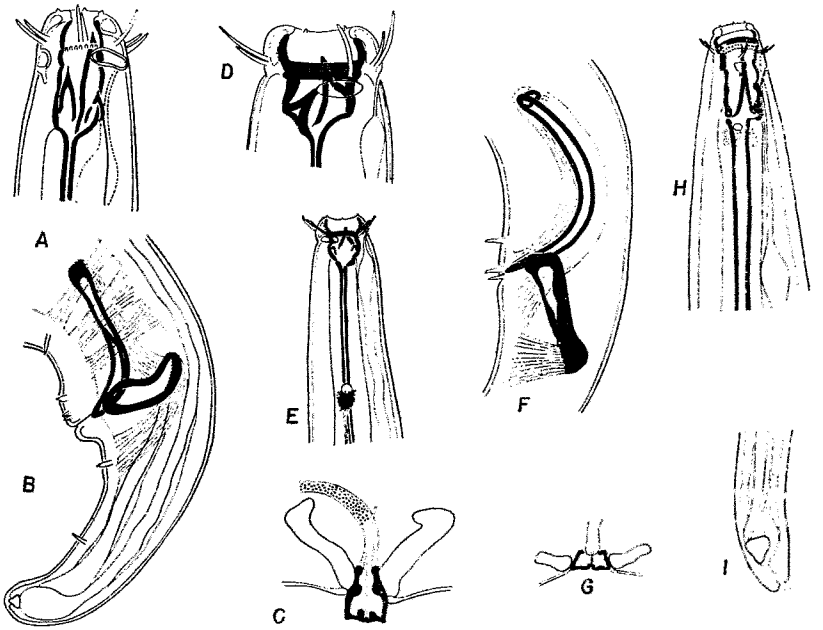

FIGURE 3—A-C—*Eurystomina americana*: A—head. B—tail of male. C—supplementary organ. D-G—*Eurystomina minutisculae*: D—head. E—ocellar region. F—male cloacal region. G—supplementary organ. H-I—*Polygastrophora obscura v. magna*: H—head. I—tail of female.

68. Stoma cylindroid, setae absent. Jamaica. *Illium exile* Cobb, 1920
(May not belong here)

Stoma not cylindroid, setae present.

69. Posterior part of esophagus multibulbar. Beaufort, N.C.
Polygastrophora obscura Micoletzky, 1930 var. *magna* n.v.

Polygastrophora obscura Micoletzky, 1930 var. *magna* n. var. Male unknown. Female 3.5-4.7 mm.; a,44-70; b,5.1-6.2; c,25-26; V,58-60; gonads each 8-12% body length egg (only one seen) 136 by 50 μ. Vulvar lips protuberant; tail 4-5.6 anal body diameters long. Stoma 22-24μ by 9-10μ, with two minute transverse denticulate ridges. Excretory pore near mid-region of stoma, pulvillus 2-3 stomatal lengths posterior to head; excretory cell ⅓ esophageal length posterior to base of esophagus. Esophagus with six rather obscure bulbar divisions.

HABITAT.—*Hymeniacodon heliophila.* Sponge, Beaufort, N.C., 1949

REMARKS.—This species was originally described by Micoletzky from Sunda Islands (Mortenson Expedition). Descriptions coincide, with the following exceptions. In *P. obscura* (a) the stoma was 19.5 by 9 μ, (b) the body size 2.4-3.0 mm.; and (c) the eggs were 105 by 56 μ. All of these size differences are in proportion. In addition Micoletzky makes no mention of transverse denticles in the stoma but these are exceedingly difficult to see.

SUBORDER DORYLAIMINA

Stylet present, at least in adult stage; cephalic sensory organs papilloid; caudal glands absent.

SUPERFAMILY *DORYLAIMOIDEA* Thorne, 1934

Stylet well developed throughout life history; esophagus usually 2 part cylindroid, glands not free; intestine not in form of trophosome. (Fresh water or soil, rarely marine).

FAMILY *Dorylaimidae* de Man, 1876

Posterior third of esophagus enlarged, not surrounded by muscular sheath; pre-rectum present.

71. Female tail attenuated. Marine algae near Lorient, France, and Barnstable, Mass.
Dorylaimus marinus Dujardin, 1845.

72. Female tail bluntly rounded. Below tide mark, Portsmouth, New Hampshire.
Dorylaimus teres Thorne & Swanger, 1936.

ORDER *CHROMADORIDA*

Esophagus three part, bulb commonly present (rarely with pigeon wing valve), sometimes clavate, very rarely cylindroid; amphids spiral, shepherd's crook, circular, vesiculate, transversely ellipitical or very rarely pore-like (*Rhabdolaimus, Syringolaimus*). Ovaries outstretched or reflexed.

SUBORDER CHROMADORINA

Esophago-intestinal valve tri-radiate or vertically flattened, usually very short; stoma if well developed, containing a large dorsal tooth, three jaws, two jaws or six inwardly acting teeth; stoma surrounded by esophageal tissue; twelve stomatal rugae commonly present; ovaries reflexed; serial cup-like or stirrup-like, tuboid or papilloid supplementary organs commonly present. Mostly marine, some in fresh water.

SUPERFAMILY *CHROMADOROIDEA*

Amphids spiral, circular or reniform; cuticle usually punctate, not annulated, stilt setae and glandular paired setae absent; helmet absent. (Marine and fresh water).

FAMILY *Chromodoridae* Filipjev, 1917

Amphids unispiral to transversely ellipsoid or kidney shaped, situated rather far forward on head. Cuticle coarsely punctate. Labial rugae (12) weakly to moderately developed. Cephalic sensory organs consisting of internal circle of six papillae and double external circle usually of six papillae and four setae. Stoma with teeth at anterior end, surrounded by esophageal tissue. Esophagus usually terminated by bulb; esophago-intestinal valve short. Female with two reflexed ovaries. Male with cup-like (i.e., chromadoroid) supplements. Fresh water or marine.

SUBFAMILY Chromadorinae Micoletzky, 1922

With characters of family. This is an extremely large group and sub-families will undoubtedly be made.

External circle of 10 setae (amphids lenticular)

73 Spicules doubly arcuate. (Ocean Beach, Fla.) *Rhips ornata* Cobb, 1920

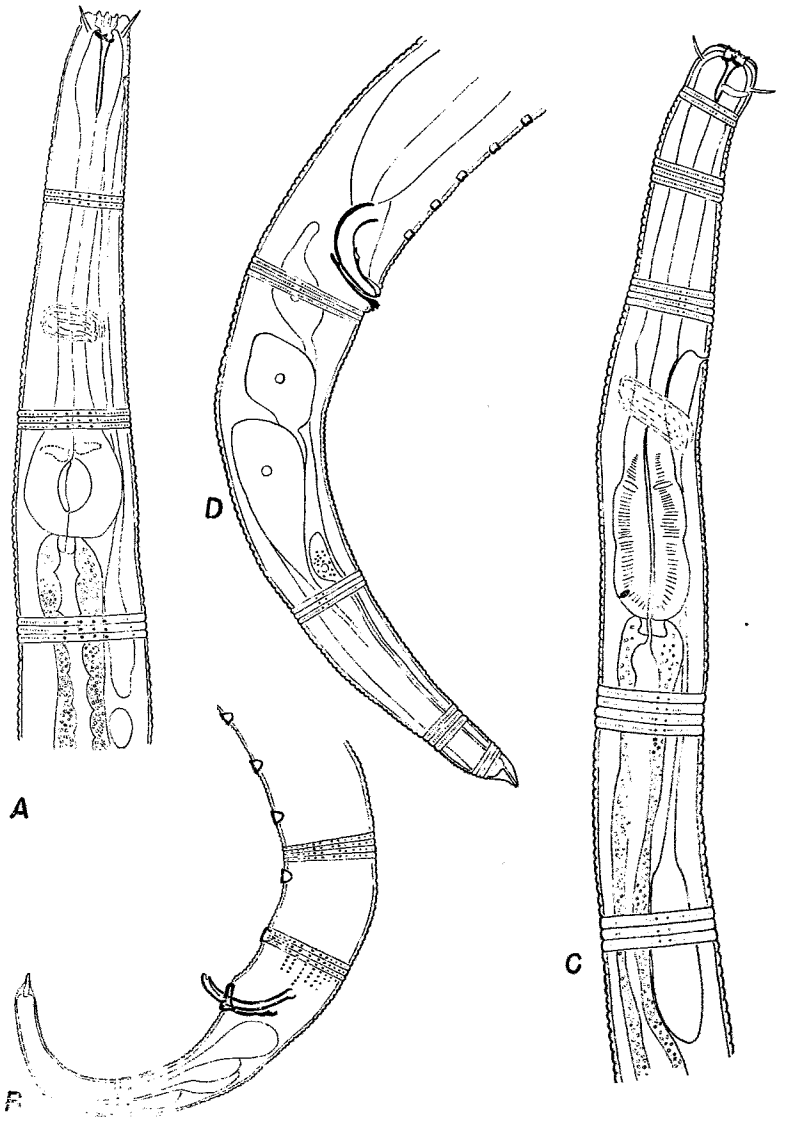

FIGURE 4—A-B—*Chromadora quadrilineoides*: A—esophageal region. B—male tail. C-D—*Chromadorella filiformoides*: C—esophageal region. D—male tail.

74 Spicules simply arcuate. (Cuttyhunk Hole, Mass.)
Nygmatonchus scriptus Cobb, 1933

External circle of 4 setae or papillae
Esophagus without distinct bulb, cylindroid (cuticle with basketwork or rods).
75 Stoma with three distinct solid teeth. (Aransas Bay, Texas)
Euchromadora striata (Eberth, 1863)
76 Stoma with a single hollow dorsal tooth (Aransas Bay, Texas)
Paraeuchromadora longicaudata n. sp.
77 Stoma without distinct tooth (Sea Grass, Key West, Fla.).
Actinonema pachydermata Cobb, 1920

Esophagus with distinct terminal bulb.
78 Amphids 1-2 spirals. (Coast of Europe and New Foundland. v. Allgen, 1935)
Chromadorina macrolaima (de Man, 1889)

Amphids transverse.
79 Stoma divided into two distinct parts. Esophageal bulb massive, pyriform; divided in two sections by muscles. (Coasts of Holland, North Sea, New York, North Carolina and Aransas Bay, Texas).
Spilophorella paradoxa (de Man, 1888)

Stoma not divided into two sections.
Cuticular punctation interrupted laterally.
80 Teeth absent. (Cuttyhunk Hole, Mass.) *Dasylaimus nudus* Cobb, 1933
81 Teeth hollow. (Coast of Northern Europe and New Foundland v. Allgen, 1935).
Neochromadora poecilisoma (de Man, 1893)
82 Dorsal tooth opposed by denticles. (Humus! Devil's Foot Island, Woods Hole, Mass.).
Denticullela pellucida Cobb, 1935

Three sclerotized teeth, no denticles.
83 Esophagus with simple rounded terminal bulb. (Aransas Bay, Texas).
Chromadora quadralineoides n. sp.

Esophagus with elongated, subdivided bulb.
Chromadorella Filipjev, 1918
84 Eye spots present; male with two preanal supplements.
(Sumatra and Aransas Bay, Texas).
Chromadorella macrolaimoides (Steiner, 1915)
85 Eye spots absent; male with five preanal supplements. (Cedar Bayou, Texas).
Chromadorella filiformoides n. sp.

Cuticular punctation not interrupted laterally.
85 Dorsal tooth massive, hollow, esophageal bulb simple.
(Coast of Europe and Texas). *Chromadorita tentabunda* (de Man, 1880).
Dorsal tooth not massive.
87 Teeth hollow, weak, bulb elongate, five supplements.
(Copano Bay, Texas). *Prochromadorella micoletzkyi* n. sp.
88 Teeth solid, bulb simple, two supplements. (Port Bay, Texas).
Prochromadorella bipapillata n. sp.
89 Teeth hollow, dorsal, 15-16 supplements. (Coast of Europe and New Foundland v. Allgen, 1935).
Prochromadorella mucrodonta (Steiner, 1916) n. comb.

Euchromadora striata (Eberth, 1863)

Cuticle with five to six modified hexagons laterally in mid-region; spinerette asymmetric ventrally; excretory cell posterior to base of esophagus. Intestine with 16-20 hexagonal cells in a circumference; esophagus with three faint subdivisions to bulbar region. Pigment spots absent.

Male 1.3-1.5 mm.; a, 34; b, 4.4-5.4; c, 8.6-9.3; tail 5.7 anal body diameters long; spicules similar, arcuate, faintly cephalated 48μ long gubernaculum with two lateral pieces and one medial piece.

Female 1.6-1.68 mm.; a, 21-24; b, 6-6.2; c, 7.4-8.0; V, 50-52%; G_1, 16-17%: eggs (1-10 per uterus) approximately spherical, 40μ in diameter when not under pressure; tail 9 anal body diameters.

HABITAT.—Originally from Atlantic Coast of Europe and Mediterranean. Present material from depth of 4 feet, Mud Island, Aransas Bay, Texas, July 27, 1950.

REMARKS.—This is one of the largest and most striking members of the family Chromadoridae. Well worthy of zoologic study. It feeds on algae and, therefore, it should be possible to cultivate it in the laboratory.

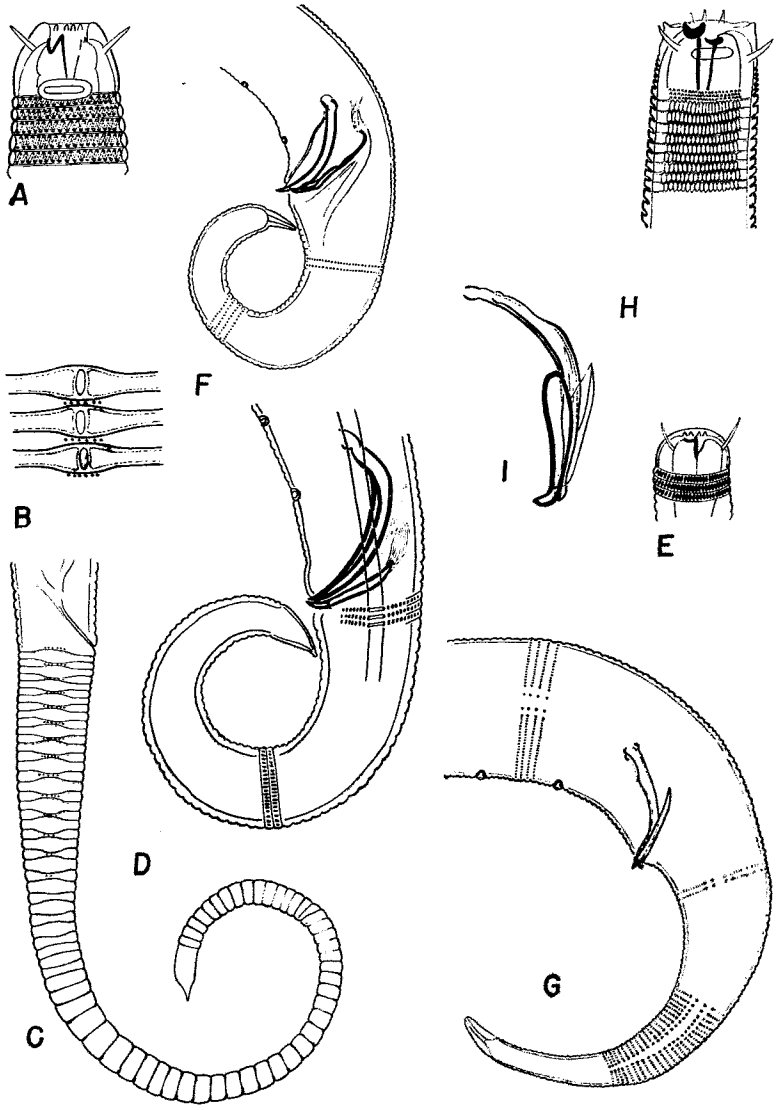

FIGURE 5—A-C—*Paraeuchromadora longicaudata*: A—head. B—cuticle of mid-region. C—female tail. D-E—*Prochromadorella micoletzkyi*: D—male tail. E—head. F—*Prochromadorella bipapillata*: male tail. G—*Chromadorella macrolaimoides*: male tail. H-I—*Euchromadora striata*: H—head. I—spicules gubernaculum.

Paraeuchromadora Stekhoven & Adam, 1931

Amphids transverse heavy walled, postlabial; cuticle coarsely striated, rods in anterior part of body, disappear posteriad, cuticle in mid-and post-regions with lateral internal flecks. Esophagus without distinct bulb, stoma weak, with one hollow dorsal tooth. Type—*P. amphidiscata* Stekhoven & Adam, 1931.

Paraeuchromadora longicaudata n. sp.

Cephalic setae four, 3μ long. Male unknown. Female 740-810μ; a, 27-31; b, 6.4-7.4; c, 3.7; V, 40-42%; G_1, 12-16%; G_2, 12-13%; egg (1) 100-110 by 18-20μ. Tail very characteristically long and hooked.

HABITAT.—Depth of 4 feet, Mud Island, Aransas Bay, Texas, July 27, 1950.

REMARKS.—The other two species of this genus have a relatively much shorter tail (c, 6-8).

Spilophorella paradoxa (de Man, 1888)

Tip of tail very long, narrow and conoid. Male 590μ; c, 18.5; b, 4.5; c, 5.9; spicules arcuate, 28μ or 1.4 anal body diameters; gubernaculum double, distally dentate; tail 4.5 anal body diameters; supplements absent. Female 904μ; a, 13; b, 6.1; c, 5.6; V, 51%.

HABITAT.—Originally described from Holland Coast, later recorded from various Atlantic Coasts of Europe and found by the writer on New York and North Carolina Coasts. Present material collected at depths of 3 and 4 feet, Copano and Aransas Bays, Texas.

Chromadora quadrilineoides n. sp. (syn., *C. quadrilinea* Filipjev, 1918 of Chitwood & Chitwood, 1938)

Pigment spots present, near base of stoma; excretory pore opposite mid-region of stoma, cell immediately posterior to base of esophagus.

Male 600-624μ; a, 26-28; b, 5.4-6.0; c, 7.0-8.0; tail 3.8-4.1 anal body diameters long; spicules acruate distally forked, 25μ long; gubernaculum with distal transverse bar; five stirrup-like preanal supplements.

Female 600-740μ long; a, 19-24; b, 5.5-7.0; c, 6.0-7.3; V, 45-49%; G_1, 12-20% G_2, 9-17%; eggs subspheroid, with rugosities, 36 by 21μ.

HABITAT.—Depth of 4 feet, Mud Island, Aransas Bay and on rudder of boat, Rockport Harbor, Texas, July 22 and 27, 1950.

REMARKS.—This appears to be the same species as that previously described by Chitwood & Chitwood (1938) from sea lettuce, Long Island, N. Y. It differs from *C. quadrilinea* Filipjev, 1918 in having forked spicules and five preanal supplements instead of simple spicule tips and five supplements. Since subsequent European authors have not changed the description of *C. quadrilinea* we must conclude our previous identification was an error.

Chromadorella Filipjev, 1918

Cuticle coarsely striated, with fine punctations interrupted laterally causing two to four rows of enlarged punctations. Amphids transverse, difficult to distinguish. Stoma with three subequal sclerotized teeth; esophagus with elongate posterior bulb, inconspicuously subdivided. Tail cylindro-conoid. Type: *Chromadorella filiformis* (Bastian, 1865).

Chromadorella filiformoides n. sp.

Ocelli absent; punctations interrupted laterally between postcephalic and caudal tip regions in two rows of very slightly enlarged punctations; excretory pore about 0.5 esophageal lengths from head; esophageal bulb with three faint divisions.

Male 1.2 mm.; a, 35; b, 8.7; c, 7.4; spicules strongly arcuate, 22μ long or 3/4 of anal body diameter; gubernaculum with small distal teeth; tail 4.6 anal body diameters long; supplements five.

Female 1.00-1.03 mm.; a, 22-23; b, 8.0-8.3; c, 6.5-7.6; V, 50-54%; G_1, 12-14% G_2, 12-14%; egg (1) 42 by 34μ; tail 3.7-4.6 anal body diameters long.

HARITAT.—Sargassum from Cedar Bayou, Texas, July 9, 1950.

REMARKS.—This species agrees remarkably with *C. filiformis* (Bastian, 1865) as described by de Man (1890) but the absence of ocelli appears a distinguishing feature.

Chromadorella macrolaimoides (Steiner, 1915)

Orange pigment spots present; punctations interrupted laterally forming four rows of pronounced dots:excretory pore 1.5-2 head diameters from anterior end; esophagus bulb massive, with two clear divisions (third faint).

Male 1.06-1.2 mm.; a, 22-30; b, 5; c, 6; tail 5.5 anal body diameters long; spicules arcuate, slightly cephalated, 26μ long; gubernaculum distally bar-like two preanal supplements. Female 1.15-1.28 mm.; a, 22-25; b, 4.8-5.0; c,5.8-6.4; V, 48%; tail 5.6-7 anal body diameters long. Tip of tail with elongate point; egg (1) 42 by 24μ, shell punctate.

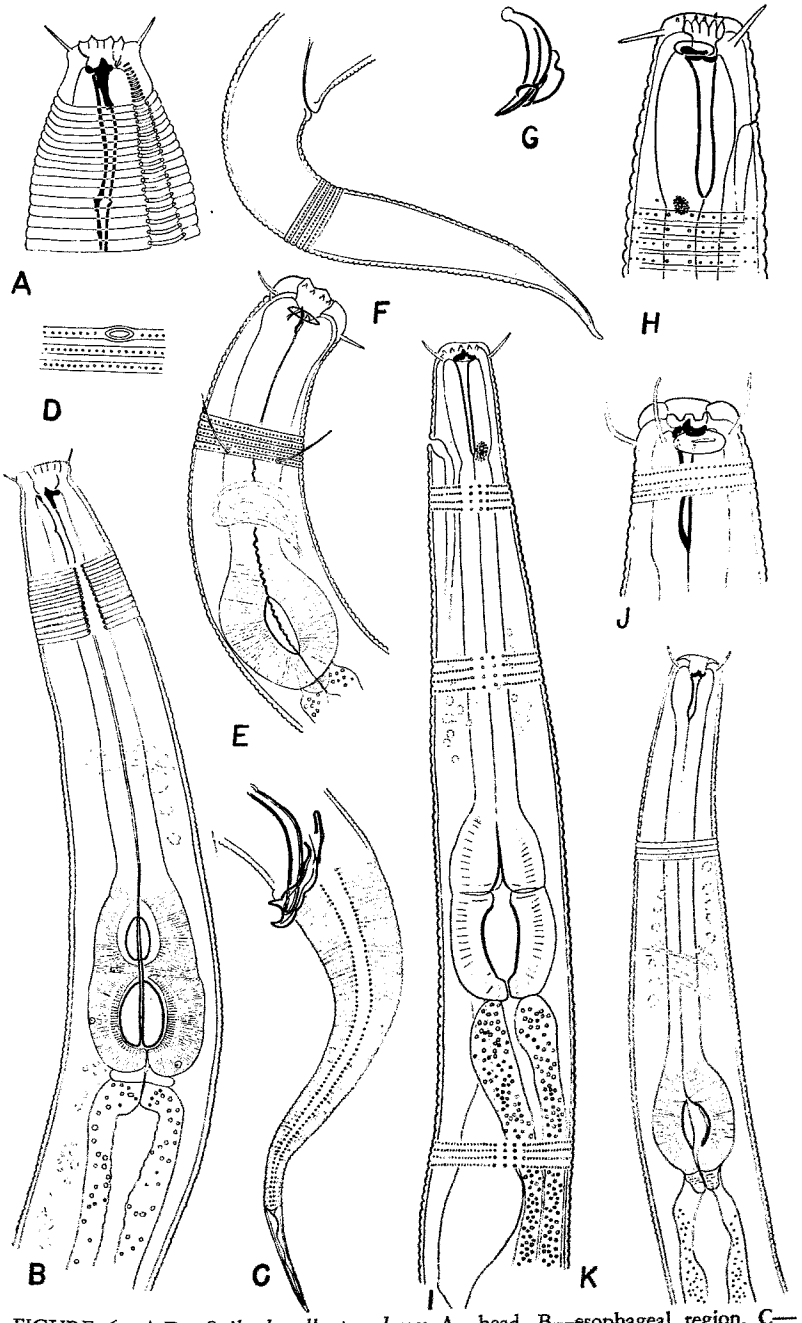

FIGURE 6—A-D—*Spilophorella paradoxa*: A—head. B—esophageal region. C—male tail. D—detail of cuticle. E-F—*Chromadorita tentabunda*: E—esophageal region. F—female tail. G-I—*Chromadorella macrolaimoides*: G—spicules and gubernaculum. H—head. I—esophageal region. J-K—*Prochromadorella bipapillata*: J—head. K—esophageal region.

HABITAT.—Originally described from Sumatra. Present material from rudder of boat, Rockport Harbor, July 22, 1950 and Sargassum from Cedar Bayou, Texas, July 9, 1950.

Chromadorita tentabunda (de Man, 1890)

Cephalic setae about ½ head diameter; ocelli absent; body setae about 6-8μ long. Male 372μ long; a, 18.6; m, 5.2; c, 5.2; spicules arcuate, flanged, 20-22μ long (1.2 anal body diameters); tail four anal body diameters long testis extending nearly to excretory cell; supplementary organs absent.

Female 400-490μ long; a, 12-14; b, 4.4-5.6; c, 5.0-5.4; V, 45-50%; G_1, 14-19% G_2, 17-18%; with massive vaginal development; tail 5.0-5.2 anal body diameters long.

HABITAT.—Found at depths of 3 and 4 feet, Copano Bay and Mud Island, July 26 and 27, 1950. Originally described from Coasts of Holland and France.

REMARKS.—Present specimens agree in all respects with the exception that they are smaller, 600-700μ in Europe with a, 18-22. It may be necessary to separate this form later.

Prochromadorella micoletzkyi n. sp.

Cephalic setae ½ head diameter cuticular marking interrupted laterally in adanal region of male.

Male 1.00-1.14 mm.; a, 41; b, 7.8-9.0; c, 8.3-11; spicules arcuate, indistinctly cephalated, heads bent medially, 30-34μ long or 1.5 anal body diameters; gubernaculum 16-18μ long, with paired lateral teeth; tail 3.3-4 anal body diameters long, uniformly cylindro-conoid; five inconspicuous supplementary organs.

Female 900μ -1.01 mm.; a, 20-40 (probably low measurements due to pressure; b, 7.8-9.3; c, 6.4-6.7; V, 44-47%; G_1, 12-15%; G_2, 12-15%; one rounded egg per uterus, 48 by 32μ.

HABITAT.—Weeds at depth of 3 feet, Copano Bay, July 26, 1950.

REMARKS.—This species is very similar to *P. neapolitana* but differs in the adanal absence of lateral punctations in the male.

Prochromadorella bipapillata, n. sp.

Cephalic setae 2/5 head diameter, cuticular marking very delicate, not interrupted laterally, unusual for the genus in having well developed bulb (probably will eventally be placed in a separate genus).

Male 1.33-1.35 mm.; a, 26-28; b, 5.2-6.7; c, 6.8-7.4; tail 4-4.5 anal body diameters; spicules arcuate, 21-22μ; gubernaculum double, with paired terminal teeth; supplements two.

Female 1.34 mm.; a, 28; b, 16.1; c, 6.7; V, 51%; G_1, 15% G_2, 11% tail 6 anal body diameters long.

HABITAT.—Weeds at depth of three feet, Port Bay, Texas, July 26, 1950.

REMARKS.—The bulb form of this species and the teeth are as in the genus *Chromadora* rather than *Prochromadorella.* However, in the current system it keys out here.

FAMILY *Microlaimidae* de Coninck & Stekhoven, 1933

Amphids circular to 1-2 spiral; distinctly post labial in position; cuticle finely to coarsely punctate, labial rugae weakly developed. Cephalic sensory organs: 6 papillae plus 10 setae or, 6 papillae and 4 setae. Stoma cylindroid, surrounded by esophageal tissue, teeth at anterior end or in mid-stomatal region. Esophagus usually terminated by bulbar swelling. Male with papilloid to chromadoroid supplements; gubernaculum not specially developed. Female with reflexed or out-stretched ovaries. Low grade polymyarian. Fresh water or marine.

SUBFAMILY Microlaiminae Micoletzky, 1922

Ovaries out-stretched. Teeth in mid-stomatal region. Preanal supplements if present, papilloid. Cuticle faintly punctate. Esophago-intestinal valve elongate. Marine and brackish.

Stomatal region of esophagus distinctly set off, bulbar *Bolbolaimus* Cobb, 1920

90 Cephalic setae papilloid, very short, stomatal bulb spheroid. (Belmar, New Jersey Coast). *Bolbolaimus pellucidus* Cobb, 1920.

91 Cephalic setae 1/3 head diameter, stomatal bulb spheroid. (Beaufort, N. C., Collector A. S. Pearse). *Bolbolaimus cobbi* Chitwood, 1938.

92 Cephalic setae ½ head diameter, stomatal bulb squarish. (Nobsca Beach, Woods Hole, Mass.) *Bolbolaimus punctatus* Cobb, 1920.

Stomatal region of esophagus not distinctly set off.

Microlaimus de Man, 1880

93 Amphids posterior to stomatal region. (Aransas Bay, Texas).
Microlaimus texianus n. sp.

Amphids opposite stomatal region.

94 Excretory pore anterior to nerve ring. (Beaufort, N. C.)
Microlaimus dimorphus Chitwood, 1937

95 Excretory pore anterior to nerve ring. (Bogue Sound, N. C.)
Microlaimus chitwoodi Gerlach, 1950
(syn. *M. dentatus* Chitwood, 1937 not Allgen, 1933)
Microlaimus texianus n. sp.

Stomatal region of esophagus not enlarged; amphids 12μ from anterior end, 4.5μ across, broken circle; teeth very weak; excretory pore 30μ from head; striae 1.2-1.5μ apart, very finely punctate; tail conoid, 3.1-4.4 anal body diameters long. Male unknown. Female 660-664μ long; a, 25-28; b, 6.6-6.9; c, 10; V, 50%; G_1, 19-25%; G_2, 17-23%.

HABITAT.—Depth of 4 feet, Mud Island, Aransas Bay, Texas, July 27, 1950.

REMARKS.—This species keys out with *Microlaimus cyatholaimoides* de Man, 1922 according to the revision of the genus by Gerlach (1950). However, it differs in the vulva position which is 75% in that species.

SUBFAMILY Ethmolaiminae Filipjev & Stekhoven, 1941

Ovaries reflexed. Teeth in mid-stomatal region or at anterior end of stomatal region. Esophago-intestinal valve short. Fresh water or marine. This group is debatable having been placed with chromadorids and cyatholaims as well as with microlaims.

96 Three opposed sclerotized teeth at anterior end of stoma, tail hair-like. (Malay Archipelago and Long Island Sound, N. Y.)
Statenia trichura Allgen, 1930

97 Single tooth at mid-region of stoma, tail not hair-like.
(Cuttyhunk Hole, Woods Hole, Mass.) *Neotonchus punctatus* Cobb, 1933

FAMILY *Cyatholaimidae* de Coninck & Stekhoven, 1933

Amphids multispiral; cephalic sensory organ, usually 6 internal papillae or setae and external circle of 10 setae. Cuticle coarsely punctate, hypodermal glands commonly conspicuous. Stoma usually cyathiform (i.e., two part, funnel-shaped); onchia, if present, at junction of anterior and posterior parts; usually with 12 conspicous labial rugae. Esophagus clavate to cylindroid. Male usually with duplex gubernaculum, commonly dentate or denticulate; supplementary organs setose, tuboid, or cup-like. Female with reflexed ovaries. Musculature high degree polymyarian. Marine (1 or 2 possible brackish species).

SUBFAMILY Cyatholaiminae Micoletzky, 1922

Stoma shallow or funnel-shaped, if two part, posterior part weakly sclerotized; jaws or mandibles absent; usually with dorsal tooth or onchium, parallel to axis.

98 Teeth, stoma, and labial structures rudimentary. (Biscayne Bay, Fla.)
Nannolaimus guttatus Cobb, 1920

99 Teeth absent, stoma cyathiform, supplements chromadoroid, i.e., cup-like.
Woods Hole, Mass.) *Dispira punctata* Cobb, 1933

100 Teeth absent, stoma almost spheroid, supplements absent. (Woods Hole, Mass.)
Dispirella truncata Cobb, 1933

At least one dorsal tooth.

Supplements chromadoroid.

101 Labial rugae (12) digitiform, long, projecting anteriad. (Mass., N. Y. and N. C. Coasts). *Pomponema mirabile* Cobb, 1917

102 Labial rugae (12) short, but prominent. (New Jersey Coast).
Anaxonchium litorium Cobb, 1920

Supplements tuboid (4). *Acanthonchus* Cobb, 1920

103 Amphids 1.5 head diameters from anterior end. (Marine mud, San Pedro, California). *Acanthonchus viviparus* Cobb, 1920

104 Amphids 2-2.5 head diameters from anterior end. (Rockport Harbor, Texas).
Acanthonchus cobbi, n. sp.

Supplements setose *Paracanthonchus* Micoletzky, 1924

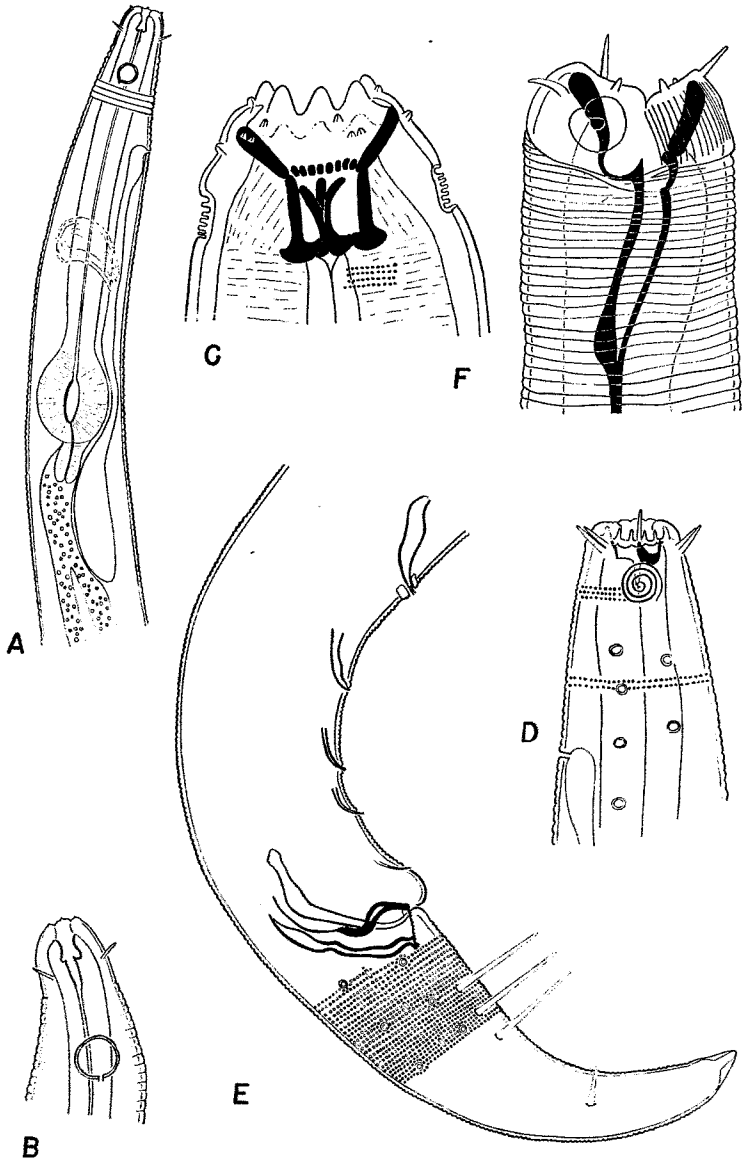

FIGURE 7—A-B—*Microlaimus texianus*: A—esophageal region. B—head. C—*Halichoanaloimus quattuordecimpapillatus*: head. D-E—*Acanthonchus cobbi*: D—head. E—male tail. F—*Ichthyodesmodora chandleri*: head.

105 Supplements 5. (Coast of Europe, also from Conn., Collector D. J. Zinn, and N. C., Collector, A. S. Pearse).
Paracanthonchus caecus (Bastian, 1865)
Supplements 4.
106 *c*, 15-18. (Coast of Denmark, also New Foundland v. Allgen, 1935).
. . . . *Paracanthonchus macrodon* (Ditlevsen, 1919)
107 c, 8.5-11. (Possibly brackish, Silver Springs, Fla.).
Paracanthonchus truncatus (Cobb, 1914)
syn. *Cyatholaimus truncatus* Cobb, 1914
Acanthonchus cobbi n. sp.

Sublateral wings absent; excretory pore 2-2.5 head diameters back. Male 1.3 mm.; a, 27 b, 5.8; c, 15; spicules arcuate, slightly cephalated 34μ; gubernaculum double, 32μ, each half with trifid claw; anterior supplement, 24μ, distally forked; second, 15μ, also forked; third and fourth supplements, 10 and 9μ, respectively. Female 1.5 mm.; a, 23; b, 6.2; c, 10.9; V, 48%; G_1, 15% G_2, 18%.

HABITAT.—Piling, Rockport Harbor, Texas with barnacles, at depth of 3-4 feet.

REMARKS.—This species is probably the one referred to by Cobb (1920) as a second possible species at Woods Hole, Mass., later identified by the writer erroneously as *A. viviparus*.

SUBFAMILY Choanolaininae Filipjev, 1934

Stoma deep two parts, 6 or 12, heavily sclerotized ridges, dorsal tooth absent; jaws absent.
Cuticle bearing fish bone-like longitudinal markings.
108 Two circles of cephalic setae (Woods Hole, Mass.).
Pteronium obesum, Cobb, 1933
109 One circle of cephalic setae (Woods Hole, Mass.).
Nunema nanum Cobb, 1933
Cuticle without fish bone-like markings.
110 Amphids 1.5 spiral, supplements setose. (New Hebrides and N. C. Coasts).
Gammanema ferox Cobb, 1920
Amphids multispiral.
111 Supplements chromadoroid. (Coast of New Hampshire).
Troglolaimus uniformis Cobb, 1920
112 Supplements papilloid (Aransas Bay, Texas).
Halichoanolaimus quattuordecimpapillatus n. sp.
Halichoanolaimus quattuordecimpapillatus n. sp.

External circle of ten papillae; amphids 1/6 head diameter, 2-3 winds. Male 1.47 mm.; a, 31; b, 5.6; c, 6.4; spicules saber-like, 1.2 body diameters long;gubernaculum parallel, curved, double; preanal papillae 14, medioventral; tail conoid with filiform tip 4/5 of tail length. Female 1.9 mm.; a, 17; b, 7.0; c, 6.3; V, 45%, G_1, 15%; G_2, 14%; filiform part of tail 6/7 of tail length.

HABITAT.—*Chaetopterus* tube, depth of 3 feet, Mud Island, Aransas Bay, Texas, July 27, 1950.

REMARKS.—Among the long tailed halichoanolaims this species is apparently most closely related to *H. filicauda* Filipjev, 1918 and *H. longicauda* Ditlevsen, 1919, but the former species is described as having seven preanal papillae, the latter as having none.

SUBFAMILY Selachinematinae (Cobb, 1915)

Stoma shallow, with two or three jaws bearing sclerotized complex mandibles.
Paired lateral mandibles.
113 Mandibles non-retractile, each with 4 longitudinal rows of denticles.
(Colon, Panama). *Selachinema ferox* Cobb, 1915
114 Mandibles retractible, each claw-like with 7 terminal denticles.
(Atlantic Coast, locality not stated). *Cheironchus vorax* Cobb, 1917
With three mandibles.
115 Mandibles with odd number of teeth. (Seaweed, Miami, Fla.)
Synonchium obtusum Cobb, 1920
Mandibles with even number of teeth. *Synonchiella* Cobb, 1933
116 Cephalic setae 1 head diameter long. (Woods Hole, Mass.).
Synonchiella ferox Cobb, 1933
Cephalic setae 1/14-1/5 head diameter.
117 Amphids 1/4 head width. (Woods Hole, Mass.)
Synonchiella denticulata Cobb, 1933

118 Amphids 1/2 head width. (Coasts of Mass., and N. C.).
Synonchiella truncata Cobb, 1933

Synonchiella truncata Cobb, 1933

Cephalic setae 1/4-1/5 head width; amphids 1/2 head width. Male 1.6 mm.; a, 34; b, 7.7; c, 11; 8 preanal supplements. Female 1.6 mm.; a, 26; b, 8.5 c, 10: V, 49%; G_1, 11%; G_2, 14%. Habitat.—Sands, Woods Hole, Mass., North Carolina Coast.

Synonchiella ferox Cobb, 1933

Cephalic setae 1 head diameter long. Male 3.3 mm.; a, 40; b, 9; c, 16; supplements 23. Female unknown. Habitat.—Penzance, Woods Hole, Mass.

Synonchiella denticulata Cobb, 1933

Cephalic setae 1/5-1/4 head diameter; amphids 1/4 head width. Male unknown. Female 2.2 mm.; a, 31; b, 9; c, 11; V, 48%; G_1, 14% G_2, 12%.
HABITAT.—Sand, Woods Hole, Mass.

FAMILY *Tripyloididae* de Coninck & Stekhoven, 1933

Amphids 1-2 spire, more or less post-stomatal; 6 cephalic papillae and 10 cephalic setae in one circle; cuticle minutely punctate; stoma surrounded by esohageal tissue, wide, more or less conoid, subdivided into two or more cavities; esophagus cylindroid. Male with parallel, duplex, dentate or denticulate gubernaculum; supplements absent. Female with reflexed ovaries. Marine.

SUBFAMILY Tripyloidinae Micoletzky, 1924

Characters of family.
119 Stoma wide, nearly capsuliform. (Black Sea and N. Y. Coast).
Bathylaimus cobbi Filipjev, 1922

Stoma rather conoid, with 3-4 subdivisions.
120 Small tooth at base of first stomatal region. (Potomac River, brackish).
Nannonchus granulatus Cobb, 1915
121 Without teeth. (Coasts of Europe and Nova Scotia).
Tripyloides marinus (Bütschli, 1874)

SUPERFAMILY *DESMODOROIDEA* Steiner, 1927

Helmet usually present; glandular tube setae present or absent; cuticle annulated but not punctate. Amphids various, but not vesiculate. (Practically all marine).

SUBFAMILY Desmodorinae Micoletzky, 1924

Body not epsilonoid; glandular tube setae absent; ambullatory bristles absent.

Subfamily Desmodorinae Micoletzky, 1924

Helmet present; amphids spiral; dorsal tooth usually well developed; cuticle not tiled.
122 Helmet with longitudinal markings. (Copano Bay, Texas).
Ichthyodesmodora chandleri n. sp.
123 Helmet internally etched. (Mass. and N. C. Coasts).
Desmodorella cephalata Cobb, 1933

Helmet not internally etched or with longitudinal markings.
Amphids circular.
124 Amphids single contour, tooth present, setae absent. (Salt River, Jamaica).
Xenonema obesum Cobb, 1920
125 Amphids double contour, teeth present. (Shackleford's Banks, N. C.).
Acanthopharyngoides scleratum Chitwood, 1936

Amphids double contour, tooth absent.
126 Setae (4) at base of helmet. (Kingston Harbor, Jamaica).
Bolbonema brevicolle Cobb, 1920

Setae (4) papilloid, anterior part of helmet.
127 Helmet wider than long. (Costa Rica, Pacific Coast).
Micromicron cephalatum Cobb, 1920
128 Helmet narrower than long. (Costa Rica, Pacific Coast).
Antomicron pellucidum Cobb, 1920

Amphids spiral.
129 Helmet setae numerous. (Port Royal, Jamaica).
Croconema cinctum Cobb, 1920

130 Helmet setae few (1). (Soil! Virginia).
Amphispira rotundicephala Cobb, 1920
131 Helmet setae 4 plus 8, body with ten longitudinal rows of minute bristles. (Coast of N. C.). *Heterodesmodora hirsuta* Chitwood, 1936

Ichthyodesmodora new genus.

An unusual form with dorsal and ventral jaws; helmet distinct with sagittal annulation on median (at least the ventral) side. Amphids broken circle monospiral. Probably with six setose papillae and four cephalic setae. Dorsal tooth massive. Cuticular annulation 1μ wide, not hirsute, without longitudinal ridges. Esophagus terminated by elongate cylindroid bulb 2/5 length of esophagus, lining of bulb thickened, musculature broken making three subdivisions to bulb.

Ichthyodesmodora chandleri, n. sp.

Juvenile 690μ long; a, 17; b, 3.8; c, 8.7.

HABITAT.—Weeds at depth of 3 feet. Copano Bay, Texas, July 26, 1950.

REMARKS.—This genus is closely related to *Desmodora* and *Desmodorella* differing from both genera in the form of the head and the longitudinal cuticular markings of the helmet.

SUBFAMILY Ceramonematinae (Cobb, 1933)

Helmet present; amphids spiral to shepherd's crook; dorsal tooth absent; cuticle tiled.

Cuticle with transverse plates.

132 Cephalic setae thick. (Shackleford's Channel, N. C.).
Dasynemoides setosum Chitwood, 1936

Cephalic setae thin.

133 Setae 2/3 head with. (Shackleford's Banks, N. C.).
Dasynemella phalangida Chitwood, 1936
134 Setae 1/5 head width. (Eelgrass, Woods Hole, Mass.)
Dasynemella sexalineatum (Cobb, 1920)

Cuticle with deeply overlapping plates.

135 700-1000 annules. (Vineyard Sound, Mass.)
Pristionema octalata Cobb, 1933

80-300 annules
Four cephalic setae. *Pselionema* Cobb, 1933
136 86 annules. (Bogue Sound, N. C.). *Pselionema hexalatum* Chitwood, 1936
137 100 annules. (Beaufort, N. C.). *Pselionema beauforti* (Chitwood, 1936)
138 110 annules. (Beaufort, N. C.). *Pselionema rigidum* Chitwood, 1936
Ten cephalic setae. *Ceramonema* Cobb, 1920
139 Staff of amphid much longer than crook. (Algae, Kingston Harbor, Jamaica). *Ceramonema attenuatum* Cobb, 1920

140 Staff of amphid equal to crook.
Dots in tiling. (Beaufort, N. C.). *Ceramonema reticulatum* Chitwood, 1936
141 No dots in tiling. (Bogue Sound, N. C.).
Ceramonema sculpturatum Chitwood, 1936

SUBFAMILY Monoposthiinae Filipjev, 1934

Amphids circular; cuticle with marked longitudinal ridges; helmet sometimes questionably separable from exceedingly coarse annules.

142 Female with two ovaries. *Rhinema retrorsum* Cobb, 1920
Female with one ovary.
143 Male with two spicules. *Nudora lineata* Cobb, 1920
Male with one spicule. *Monoposthia* de Man, 1889
144 Twelve longitudinal ridges. *Monoposthia duodecimalata* Chitwood, 1936
145 Six longitudinal ridges. *Monoposthia hexalata* Chitwood, 1936

SUBFAMILY Stilbonematinae Chitwood, 1936

Helmet present or absent; amphids minute, slit-like dorsal tooth, rudimentary or absent; cuticle not longitudinally ridged or tiled.

146 Cuticular pores present. (Ocean Beach, Miami, Florida).
Leptonemella cincta Cobb, 1920

Cuticular pores absent.

147 Male with acorn-like supplements. (Kingston Harbor, Jamaica).
Laxonema majum Cobb, 1920

148 Male without acorn-like supplements. (Kingston Harbor, Jamaica).
Stilbonema brevicolle Cobb, 1920

SUBFAMILY Richstersiinae Cobb, 1933

Helmet absent; amphids spiral; cuticle not tiled or strongly ridged but sometimes with rows of setae.
Serpentine nematodes, striae faint.
Supplements absent.
149 Stoma weak, ovaries outstretched. (Mass. and N. C. Coasts).
Spirina parasitifera Cobb, 1928
150 Stoma weak, ovaries reflexed. (North Carolina).
Eubostrichus parasitiferus Chitwood, 1936
151 Stoma well formed, armed, ovaries reflexed. (New Hampshire).
Pseudonchus rotundicephalus Cobb, 1920
Supplements present.
152 Supplements sigmoid, two rows. (Mass., N. C.).
Polysigma uniforme Cobb, 1920
153 Supplements straight, one row. (New Hampshire).
Mesodorus cylindricollis Cobb, 1920
154 Supplements sigmoid, one row. (Mass.). *Sigmophora rufum* Cobb, 1936
Not serpentine, striae pronounced.
155 With longitudinal rows of bristles or hooks.
With hooks, very obese. (N. C.). *Richtersia beauforti* Chitwood, 1936
156 With bristles, moderately obese. (N.C.).
Metonyx horridus Chitwood, 1936
Without longitudinal rows of bristles or hooks. *Metachromadora*
157 Eight rows of 5 cephalic setae, *a*, 20-26. (Mass. and N. C. Coasts).
Metachromadora cancellatus (Cobb, 1933)
Cephalic setae otherwise.
158 Lateral alae present, a, 27-45. (N. C.).
Metachromadora onyxoides Chitwood, 1936
Lateral alae present.
159 *a*, 9-24; 8 papilloid supplements. (N. C.).
Metachromadora obesa Chitwood, 1936
160. *a*, 30, papilloid supplements. (Mass. and N. C.).
Metachromadora campycoma (Cobb, 1933)
161 *a*, not given, ten papilloid supplements. (Mass.).
Metachromadora alata (Cobb, 1933)

FAMILY *Draconematidae* Steiner, 1930

Body not epsilonoid; glandular tube setae present; ambulatory bristles absent; helmet present.
With paired preanal rows of subventral glandular setae. Only American species known. (Mass?). *Draconema cephalatum* Cobb, 1929

FAMILY *Epsilonematidae* Steiner, 1927

Body epsilonoid or tending in that direction; glandular tube setae absent; ambulatory bristles present; helmet present.
Only one species seen, *Bathyepsilonema* sp., never described, specimen lost. (Connecticut Beach, Collector, D. J. Zinn).

SUPERFAMILY *DESMOSCOLECOIDEA* Stekhoven, 1935

Cuticle coarsely striated, punctations absent; helmet present; amphids vesiculate; four short cephalic setae; stoma not sclerotized; ovaries reflexed; tubular gland setae present; supplementary organs absent; esophagus without clear divisions, glands often free; ocelli commonly present. Marine except for one species.

FAMILY *Desmoscolecidae* Southern, 1914

Body not generally hirsute.
Concretion annules 12-22. *Desmoscolex* Claparede, 1863
163 17 coarse annules, (Bogue Sound, N. C. and Aransas Bay, Texas).
Des moscolex americanus Chitwood, 1936

164 17 annules without rock-like concretions.
Desmoscolex nudus n. sp.

165 18 coarse annules, (Beaufort, N. C.).
Desmoscolex paraminutus Chitwood, 1936
Concretion annules, 33-76. *Tricoma* Cobb, 1894

166 Tail of 7 annules (total annules unknown). (Jamaica, West Indies).
Tricoma major Cobb, 1912

Tail of more or less than 7 annules.

167 Total annules 29. (Beaufort, N. C.). *Tricoma aurita* Chitwood, 1936
168 Total annules 37. (Aransas Bay, Texas). *Tricoma filipjevi* n. sp.
169 Total annules 66. (Beaufort, N. C.). *Tricoma spinosa* Chitwood, 1936
170 Total annules 70-72. (Bogue Sound, N. C.).
Tricoma cylindicauda (Chitwood, 1936)

171 Total annules 61. (Aransas Bay, Texas).
Tricoma spinosoides n. sp.

172 Without opaque concretion annules. (Rockport, Texas).
Eudesmoscolex luteocola n sp.

Desmoscolex americanus Chitwood, 1936

Seven specimens of this species, somewhat smaller than the previous materials, 297-385μ long. Agreeing otherwise with the type. This species of 17 annules is characterized by large rock concretions on the large annules. At times they break off revealing that this material is a concretion.

HABITAT.—Depth of 4 feet, Mud Island, Aransas Bay, Texas, July 27, 1950.

REMARKS.—The life history of this form should make a very interesting problem.

Desmoscolex nudus n. sp.

Female 270μ long; a, 7.4; b, 5.8; c, 5.2; V, ?53%; G_1, 22%; G_2, 19%; ocelli 4.8 by 4μ, opposite third annule. Total large annules 17; subdorsal setae on annules 1, 3, 5, 9, 11, 13, 16, 17; subventral setae on annules 2, 6, 8 12, and 14. Vulva probably at annule 10; anus at annule 15. Coarse annules with very fine granulation, separated by 2-2.5 small annules, latter seem to go through large annules without interruption.

HABITAT.—Scrapings from surface empty conch shell in aquarium, Rockport, Texas, July 6, 1950.

Tricoma filipjevi n. sp.

Body marked by 37 opaque concretion annules. Male 355μ long; a, 6.6; b, 3.6; c, 3.7; spicules 42μ long, slightly cephalated; gubernaculum with proximal arch. Tube setae consisting of subdorsal pairs on annules 3, 7, 11, 16, 20, 25, 30, and 34 and subventral pairs on annules 2, 4, 6, 8, 11, 14, 18, 22, 27, 30, 34 and 35. Ocelli elongate orange pigment spots at level of annules 9-11; tail consisting of six annules; anus on annule 31.

HABITAT.—Depth of 4 feet, Mud Island, Aransas Bay, Texas, July 27, 1950.

REMARKS.—There are four other species of the genus *Tricoma* with 37 annules, *T. cobbi Steiner*, 1916, *T. nematoides* (Greeff, 1869), *T. elongatus* (Panceri, 1876), and *T. lissus* (Steiner, 1916). In all *T. nematoides* and *T. lissus* there is a considerable distance between the opaque annules. In *T. nematoides* the interannular region is several times as wide as the annule proper.

Tricoma spinosa Chitwood, 1936

Male 512 μ; a, 11.6; b, 7; c, 4.6; spicules 32μ; gubernaculum 14μ total annules 66; ocelli 8 by 3μ, at level of 9-10 annules; lateral seta on second annule; subdorsal setae on annules 4, 8, 13, 16, 20, 25, 30, 35, 42, 47, 53 and 58; subventral setae on annules 4, 7, 11, 15, 18, 21, 24, 27, 30, 38, 42, 46, 51, and 60; total subdorsal setae setae 12 pairs; total subventral setae 14 pairs; setal pairs on adjoining annules in one or two cases. Tail annules 11.

HABITAT.—Depth of 4 feet Mud Island, Aransas Bay, Texas, July 27, 1950.

REMARKS.—This species was originally described from Bogue Sound, N. C. on the basis of one female. The present collection supplies the male. It is particularly pleasing to see them together.

Tricoma spinosoides n. sp.

Total annules 61. Male 400μ; a, 12; b, 6.6; c, 4.6; spicules 26μ; gubernaculum 13μ; ocelli 3.6μ across; subdorsal setae on annules 9, 12, 17, 21, 26, 30, 37, 42, 46, and 51; subventrals on setae 4, 8, 11, 14, 17, 20, 22, 24, 28, 31, 34, 38, 40 45 48 and 55. Total subdorsal ten pairs, subventral seventeen pairs. Female 380μ; a,9.5; b,4.7; c, ?; ocelli 6.8μ across, opposite twelfth annule; first two annules not opaque; subdorsal setae on annules 7, 12, 16, 19, 23, 36, 44, 47 and 53; subventral setae on

annules 6. 10, 13, 17, 20, 23, 27, 31, 35, 39, 42, 45, 48 and 55; total subdorsals ten pairs subventrals 14 pairs; vulva probably about twenty-sixth annule; tail probably 12 annules.

HABITAT.—Depth of 4 feet, Mud Island, Aransas Bay, Texas, July 27, 1950.

REMARKS.—Very closely resembling *T. spinosus* but differing in annule number and setal distribution.

Eudesmoscolex luteocola n. sp.

Juvenile 200μ long; a, 7.1; b, 3.5; c, (?) 9. Ocelli absent; body of approximately sixty-four simple annules; paired subdorsal tube setae on annules 10, 30 and 64; minute submedian spines apparently in four submedian rows but due to some torsion in the specimen these could not be distinguished in all body regions.

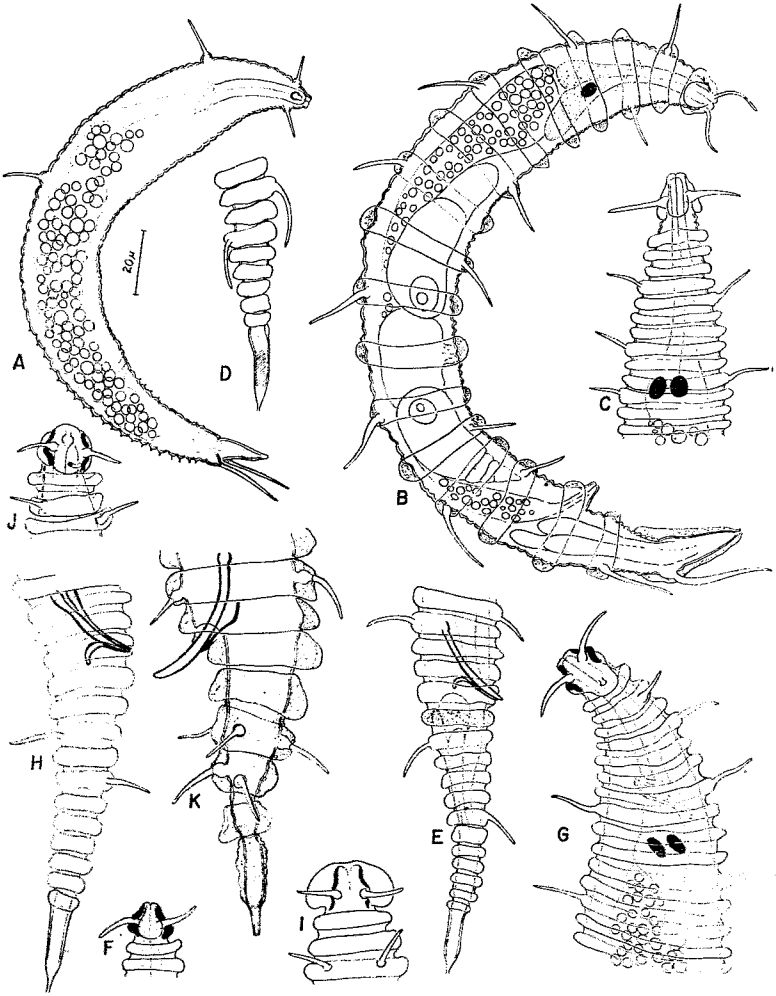

FIGURE 8—A—*Eudesmoscolex luteocola*. B—*Desmoscolex nudus*. C-E—*Tricoma spinosoides*: C—Esophageal region. D—tail of female. E—tail of male. F-H—*Tricoma spinosa*: F—head, median view. G—esophageal region. H—tail of male. I-K—*Tricoma filipjevi*: I—head, dorsal view. J—head, lateral view. K—tail of male.

HABITAT.—Depth of 4 feet, Mud Island, Aransas Bay, Texas, July 27, 1950.

REMARKS.—Two other species of *Eudesmoscolex* have been described. *E. oligochaetus* Steiner, 1916 and *E. papillosus* Schulz, 1935. Both of these species have nine pairs of subdorsal tube setae.

FAMILY *Greeffiellidae* (Filipjev, 1929)

Body generally hirsute.

173 Specimens 310-340μ long. (Sponges, Biscayne Bay, Fla.).
Greeffiella dasyura Cobb, 1922

SUBORDER MONHYSTERINA

Esophago-intestinal valve dorso-ventrally flattened, usually rather elongate; stoma if well developed, usually cylindroid to conid, without an axial tooth; teeth usually not prominent; stoma may or may not be surrounded by esophageal tissue; stomatal rugae absent; ovaries out-stretched or reflexed; supplements papilloid to tuboid, sometimes minute depressions but not cup- or stirrup-like. Marine or fresh water.

SUPERFAMILY *PLECTOIDEA* Chitwood, 1937

Amphids 1-2 spiral or nearly circular cavities, rarely circular, rarely pore-like; ends of esophageal radii tuboid; ovaries reflexed; cuticular punctation faint if present.

FAMILY *Plectidae* Oerley, 1880

Bulbar region of esophagus muscular terminated by a distinct valved bulb; cephalic setae four or none; stoma usually cylindrical or conoid; unarmed.

SUBFAMILY Plectinae Micoletzky, 1922

Labial region without specialized modifications; terminal excretory duct sclerotized. (Fresh water.—Genera: *Plectus* Bastian, 1865; *Anaplectus* de Coninck & Stekhoven, 1933; *Plectoides* de Man, 1904; *Chronogaster* Cobb, 1913, syn. *Walcherenia* de Man, 1921; *Paraplectonema* Strand, 1934, syn. *Paraplectus* Filipjev, 1930).

SUBFAMILY Wilconematinae n. subfam.

Labial region with web-like or other modifications; terminal excretory duct sclerotized. (Fresh water.—Genera: *Wilsonema* Cobb, 1913; *Tylocephalus* Crossman, 1933; *Teratocephalus* de Man, 1876, syn. *Mitrephorus* v. Linstow, 1877; *Anthonema* Cobb, 1913; *Anonchus* Cobb, 1913; *Bitholinema* de Coninck, 1931).

SUBFAMILY Haliplectinae n. subfam.

Labial region without specialized modifications; terminal duct not sclerotized. (Marine.—General: *Haliplectus* Cobb, 1913; *Aplectus* Cobb, 1914; *Polyplaimium* Cobb, 1920, and *Linolaimus* Cobb, 1933).

174 With ellipsoid median bulb. (Brackish water, East Coast, United States).
Haliplectus pellucidus Cobb, 1913

Without ellipsoid median bulb.

175 Cephalic setae apparently absent. (Beach, Belmar, New Jersey).
Polyplaimium exile Cobb, 1920

176 Cephalic setae four, 1 head diameter long. (Beach sand, Woods Hole, Mass.).
Linolaimus quadricoma Cobb, 1933

FAMILY *Leptolaimidae* Oerley, 1880

Bulbar region of esophagus muscular but without valved (i.e., pigeon wing) bulb; cephalic setae four or none; stoma usally narrow, cylindrical, or apparently absent; cuticle usually rather coarsely striated. Mostly marine.

SUBFAMILY Leptolaiminae n. subfam.

Amphids large, circular to unispiral; stoma narrow, cylindrical or apparently absent, unarmed.

177 Species over 2 mm. long. (Beaufort, N. C.).
Leptolaimus maximus Chitwood, 1936
178 Species under 1 mm. long. (Aransas Bay, Texas).
Leptolaimus plectoides n. sp.

Leptolaimus plectoides n. sp.

Cephalic setae 3μ long; amphids 2.5 head diameters from anterior end, circular with internal process, amphidial width 0.3 body diameters; stoma minute, narrow, surrounded by esophageal tissue ?16 or 25μ long, exact extent difficult to determine; striae 1.2μ wide; esophagus plectoid with non-valved bulb; esophago-intestinal valve elongated; intestinal cell inclusions colorless. Female 514μ long; a, 28; b, 4.3; c, 6:9; V, 52%; two ovaries, reflexed; eggs 42 by 16μ, one per uterus; tail cylindro-conoid, 5 anal body diameters long.

HABITAT.—Depth of 4 feet, Mud Island, Aransas Bay, Texas, July 27, 1950.

REMARKS.—The present species appears to be most closely related to *L. ditlevensi* (Steiner, 1916) Chitwood, 1936, syn. *Dermatolaimus ditlevensi*, but differs from that species in that the tail is longer, *c* being 8.7 in *L. ditlevensi*.

SUBFAMILY Rhabdolaiminae n. subfam.

Amphids minute, pore-like; stoma very narrow, cylindrical. (Marine or fresh water.—Genera: *Rhabdolaimus* de Man, 1880 and *Syringolaimus* de Man, 1888).

Only three species known from North America, *Rhabdolaimus terrestris* de Man, 1880 and *R. minor* Cobb, 1914 from fresh water, and *Syringolaimus smarigdus* Cobb, 1928, marine.

Syringolaimus smarigdus Cobb, 1928

With three minute outwardly acting teeth, characteristic of subfamily; stoma 40μ long; excretory pore anterior to nerve ring; tail striated. Male 850μ: a, 30; b, 5.2; c, 5.2. Female 760-860μ: a, 25: b, 5; c, 8.5 V, 50%; G_1, 15%; G_2, 15% eggs (one per uterus) 56μ by 18μ.

HABITAT.—Originally described from shell of snail, *Alectrion obsoleta* feeding on *Ralfsia* and possibly other algae at Woods Hole. Massachusetts. In this collection it was obtained free from Sargassum, Cedar Bayou, Rockport, Texas, July 9, 190.

COMMENTS.—Cobb (1928) labelled clear areas of the mid-caudal region of *Syringolaimus smarigdus* ph? or questionable phasmids. A careful study of these areas (Fig. 9K) reveals that they represent a break in the cuticular annulation but no pores appear to be present. Similar paired caudal clear areas are also present on some members of the genus *Tricoma* (see fig. 8D & H). It is a curious happening and may have some significance that we do not understand at present. Phasmids are paired lateral caudal pores connected both with glands and with nervous system. Thus far they have never been demonstrated in an organism with caudal glands. It seems possible that caudal glands and phasmidial glands are one and the same. If that is true, the present clear areas may represent real ghosts of an earlier position of orifice of the glands. For such structures for which no internal connections are demonstrable we propose the term *phasma, phasmata*. As things now stand there are adequate other characters, i.e., excretory system, hypodermal glands, amphids, setae, etc., for the separation of Phasmidea and Aphasmidea.

FAMILY *Camacolaimidae* Stekhoven & de Coninck, 1933

Cephalic setae four: stoma minute or absent; often armed with dorsal more or less axial, tooth; amphids primarily unispiral; posterior region of esophagus glandular; terminal excretory duct never sclerotized. Marine or fresh water.

SUBFAMILY Camacolaiminae Micoletzky, 1924

Amphids anterior to cephalic setaae. Marine.
Tooth absent.
180 Ocelli absent. (Sea-grass of Key West, Fla.) *Neurella simplex* Cobb, 1920
181 Ocelli present. (Marine algae, Panama). *Ionema ocellatum* Cobb, 1920
182 Tooth with two large knobs at base. *Anguinoides stylosum* Chitwood, 1936
Tooth without large knobs at base.
183 Tooth massive, with large shoulder; ocelli absent. (Beach, Devil's Island, Woods Hole, Mass.). *Ypsilon exile* Cobb, 1920
Tooth not massive, without shoulder.

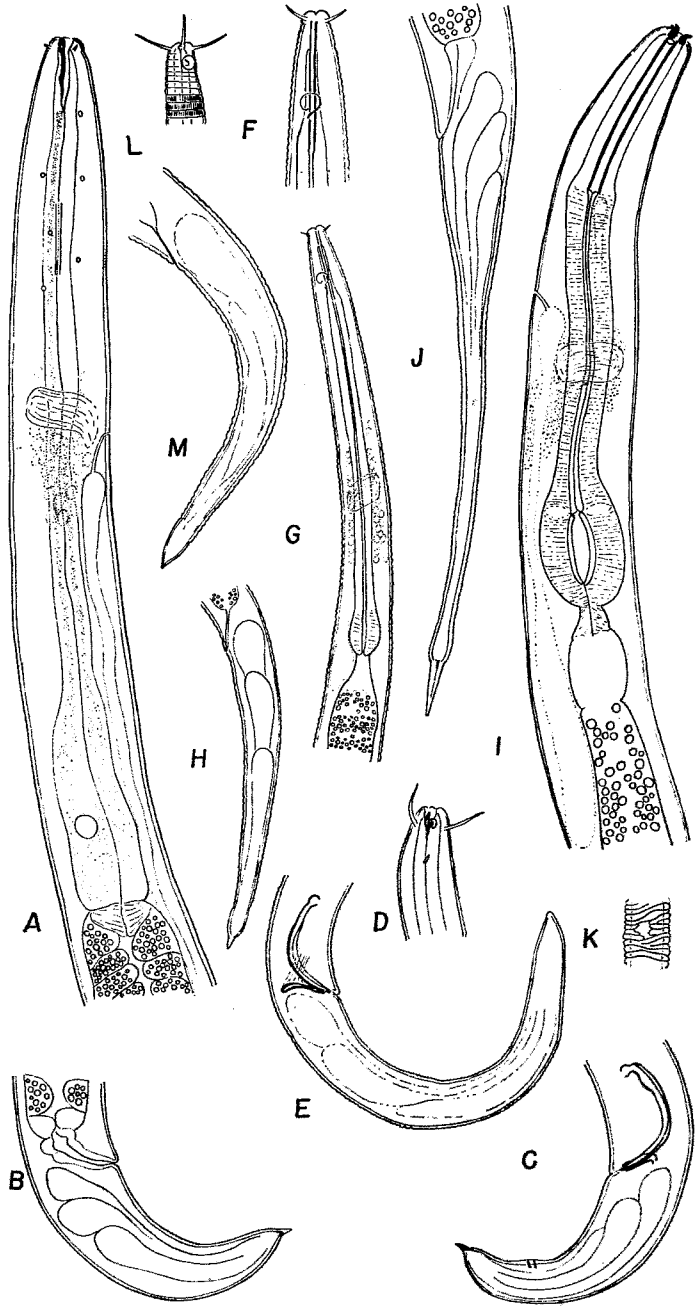

FIGURE 9—A-C—*Camacolaimus tardus*: A—esophageal region. B—female tail. C—male tail. D-E—*Digitonchus cylindricaudatus*: D—head. E—male tail. F-H—*Alaimella cincta* F—head. G—esphageal region. H—female tail. I-K—*Syringolaimus smarigdus*: I—esophageal region. J—female tail. K—detail of mid-caudal region.

184 Male with supplements extending to head. (Originally from Holland, also from brackish leaf mold, Devil's Foot Island, Mass., Cobb, 1925).
Deontolaimus papillatus de Man, 1880

Without supplements extending to head.
Ocelli present.

185 Tooth short, conoid, esophageal glands overlapping intestine. (Buzzard's Bay, Mass., and Key West, Fla.).
Onchium ocellatum Cobb, 1920

186 Tooth long, tip sharp. (Eelgrass, Biscayne Bay, Fla.)
Onchulella ocellata Cobb, 1920

187 Tooth long, tip blunt. (Eelgrass, Biscayne Bay, Fla.).
Nemella ocellata Cobb, 1920

Ocelli absent.
Cephalic seta less than 0.5 head diameter.
Camacolaimus de Man, 1889

188 Cephalic setae 1/5 head diameter. (Coast of Holland and Aransas Bay, Texas).
Camacolaimus tardus de Man, 1889

189 Cephalic setae 3/7 head diameter. (Beaufort, N. C.).
Camacolaimus prytherchi Chitwood, 1935

Cephalic setae 9/10 head diameter. *Digitonchus* Cobb, 1920

190 Axial tooth length 1.5 head diameters. (Martha's Vineyard, Mass.).
Digitonchus uniformis Cobb, 1920

191 Axial tooth length 0.7 head diameter. (Cedar Bayou, Rockport, Texas).
Digitonchus cylindricaudataus n. sp.

Camacolaimus tardus de Man, 1889

Amphid minute, unispire, 1.5μ across; setae 0.15 head diameter; dorsal tooth blunt, attached through most of length; tail with dorsally conoid tip. Male 1.0 mm.; a, 50; b, 5.5; c, 14; testis extending to within 12% body length of base esophagus; spicules arcuate, cephalated, 25μ. Female 1.26-1.6 mm.: a, 32-50; b, 6.6-7.2; c, 16-29; V, 53-61%; ovaries each about 20%; tail 2.5-3 anal body diameters. Eggs (one per uterus), 55 by 30μ.

HABITAT.—Originally collected on coast of Holland, later other Northern European Coasts. Present collection, depth of 4 feet, Mud Island, Aransas Bay, Texas, July 27, 1950.

Digitonchus cylindricaudatus n. sp.

Cephalic setae 0.9 head diameter long; amphids unispire 2.4μ across; dorsal tooth blunt, apophysis short. Male 1.17 mm.; a, 73, b, 5.3; c, 11; testis extending to within 25% body length of base of esophagus; spicules 23μ long, arcuate, cephalated; tail 6 anal body diameters long.

HABITAT.—Sargassum from Cedar Bayou fish trap; Aransas Bay, Texas, July 9, 1950.

SUBFAMILY Aphanolaiminae Chitwood, 1935

Amphids posterior to cephalic setae. Marine or fresh water.

192 Cuticle with clear delicate longitudinal markings. (Sand bar, Biscayne Bay, Fla., and Aransas Bay, Texas). *Alaimella cincta* Cobb, 1920.

193 Cuticle without longitudinal markings or, if present, very faint.
(Algae near Lighthouse, Bahia, Brazil). *Alaimella truncata* Cobb, 1920

Alaimella cincta Cobb, 1920

Female 1.02 mm.; a, 42; b, 4.6; c, 10; V, 33%; one ovary, posterior, reflexed no eggs. Four cephalic setae 2 head diameters long; amphids circular, 0.6 head diameter wide, with central raised fleck. Cuticle coarsely striated, striae 1.4-2.4μ apart; with longitudinal minute ridges, approximately 0.4μ wide. Tail 5.5 anal body diameters long, conically cylindroid.

HABITAT.—Originally from Biscayne Bay, Fla.; present specimen from depth of 4 feet, Mud Island, Aransas Bay, Texas.

SUPERFAMILY *AXONOLAIMIDEA* Chitwood, 1937

Amphids unispire to multispire or shepherd's crook, rarely circular; stoma cylindroid, to conoid if well developed, teeth if present, at anterior end in form of 3 or 6 eversible prorhabdions; stoma three part without valve to clavate; ends of esophageal radii tuboid; ovaries out-stretched (except a few species of comesomes); cuticle not punctate (except in some comesomes). Marine with a few exceptions.

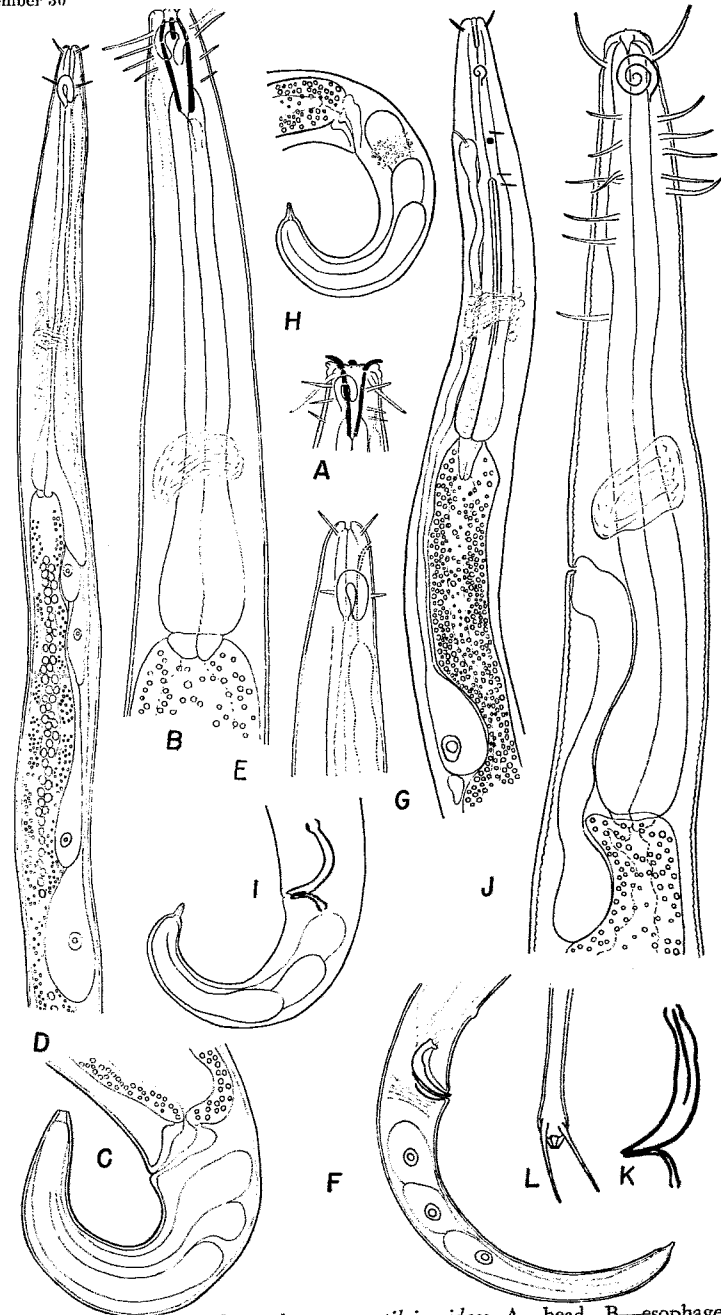

FIGURE 10—A-C—*Odontophora angustilaimoides*: A—head. B—esophageal region. C—tail of female. D-F—*Pseudaraeolaimus perplexus*: D—esophageal region. E—head. F—tail of male. G-I—*Araeolaimus texianus*: G—esophageal region. H—tail of female. I—tail of male. J-L—*Sabatieria hilarula*: J—esophageal region. K—spicules and gubernaculum. L—tip of tail.

FAMILY *Axonolaimidae* Stekhoven & de Coninck, 1933

Amphids unispiral, spiral to shepherd's crook, rarely broken circle; cuticle not punctate or minutely punctate, usually rather smooth; ovaries out-stretched; gubernaculum usually with posterior apophyses; supplements papilloid or absent.

SUBFAMILY Axonolaiminae Micoletzky, 1924

Stoma conoid, rhabdions well developed; amphids unispire, circular to shepherd's crook. (Marine).

194 Cephalic sensory organs papilloid (amphid small unispire, midstomatal in location). (Coast of Peru). *Margonema ringens* Cobb, 1920.

At least four cephalic setae, sometimes subcephalic setae also.

195 Amphids circular; stoma with six eversible odontia. (Coast of Peru).
Apodontium pacificum Cobb, 1920

Amphids spiral to shepherd's crook.

Esophagus rather clavate, six well developed, eversible odontia.
Odontophora Bütschli, 1874

196 Subcephalic setae mixed with cephalic in two transverse rows. (Sebastopol and North Carolina).
Odontophora angustilaima (Fillipjev, 1918)

197 Subcephalic setae in four longitudinal rows of three each.
Odontophora angustilaimoides n. sp.

Esophagus more elongate; prorhabdions not clearly eversible as odontia.

198 Female with one ovary, posterior. (Woods Hole, Mass.)
Synodontium fecundum Cobb, 1920

Female with two ovaries. *Axonolaimus* de Man, 1889

199 Amphids with sides longitudinally parallel, four cephalic setae, subcephalic absent. (Coasts of Northern Europe).
Axonolaimus spinosus (Bütschi, 1874)

Amphids more shepherd's crook in form, subcephalic setae present.

200 Subcephalic setae (4) posterior to stomatal region. (Coasts of Northern Europe, Mass., and North Carolina).
Axonolaimus elongatus Bütschli, 1874

Subsephalic setae (8) opposite stomatal region.

201 Subcephalic setae in two circles. (Beaufort, N.C.)
Axonolaimus subsimilis Chitwood, 1936

202 Subcephalic setae in one circle. (Beaufort, N.C.)
Axonolaimus odontophoroides Chitwood, 1936

Odontophora angustilaimoides n. sp.

Cephalic and subcephalic setae forming four submerian rows of diminishing size, most anteriad, i.e., cephalic, 1 head diameter long; amphids short shepherd's crook, opposite prostome; excretory pore opposite mid-stomatal region; tail very bluntly conoid, 3.5 anal body diameters long; intestine of large cells, probably four in a circumference. Female 1.7-1.75 mm.; a,29-34; b,11-12; c,16-22; V,49-51%; G_1, 21%; G_2, 28%; eggs one per uterus, 150-160μ long by 40-42μ wide.

HABITAT.—Depth of 4 feet, Mud Island, Aransas Bay, Texas, July 27, 1950.

SUBFAMILY Campylaminae Chitwood, 1937

Amphids greatly elongated, shepherd's crook, not situated on a sclerotized plaque; stoma cylindroid with three anterior points or greatly reduced.

203 Stoma greatly reduced. (Marine sand, San Pedro, California).
Campylaimus inequalis Cobb 1920

204 Stoma cylindroid with three anteriorly directed points. (Pacific Coast of Costa Rica).
Pseudolella cephalata Cobb, 1920

SUBFAMILY Diplopeltinae Rauther, 1930

Amphids unispire, situated on a sclerotized plaque; stoma weakly developed, walls not sclerotized.

205 Seagrass off Key West, Florida. *Didelta maculata* Cobb, 1920

SUBFAMILY Cylindrolaiminae Micol., 1922

Amphids unispire to circular, not situated on plaque; stoma narrow, cylindroid or short, not strongly sclerotized in either case.

Stoma narrow, cylindrical; esophagus with distinct muscular bulbar regions, glands not free. *Araeolaimus* de Man, 1888 (syn. *Coinonema* Cobb, 1920)

206 Scattered cervical setae present. (Key West and Biscayne Bay, Fla., on algae). *Araeolaimus punctatus* (Cobb, 1920) syn. *Coinonema punctatum* Cobb, 1920

Scattered cervical setae absent.

207 Amphids unispire to circular. (Shackleford's Channel, N.C.) *Araeolaimus cylindrolaimus* Chitwood, 1936

208 Amphids 1.5 spiral to shepherd's crook. (Rockport Harbor, Texas). *Araeolaimus texianus* n. sp.

209 Stoma short, non-sclerotized; esophagus posteriorly broken down with glands in tandem. (Aransas Bay, Texas). *Pseudaraeolaimus perplexus* n.g., n. sp.

Araeolaimus texianus n. sp.

Cephalic setae 0.7 head diameter; stoma 6μ deep; amphids 1.5 turns, shepherd's crook, 1.6 stomatal lengths from anterior end; pigment spots and execretory pore 24μ from anterior end; lateral chords containing fine round granulations (subsurface). Male 780μ long; a,32; b,6.5; c,9.7; spicules arcuate, 28μ long; gubernaculum with posterior apophyses. Female 788μ long; a,33; b,7.3; c,11; V,52%; G_1,14%, eggs (one per uterus), 36μ by 20μ.

HABITAT.—Scraped from piling in Rockport Harbor, Texas, at depth of 3 to 4 feet, with barnacles, July 6, 1950.

Pseudaraeolaimus n. g.

Cephalic setae four; paramphidial setae four; amphids shaped like folded sausage; excretory pore near head; excretory cell posterior and in tandem with esophageal glands; stoma non-sclerotized, short, esophagus with ventral apophysis containing esophageal glands in tandem. Male with paired arcuate spicules; gubernaculum parallel, one preanal papilloid supplement probably resent. Female with two out-stretched ovaries.

Pseudaraeolaimus perplexus n. sp.

With fine yellowish granules in hypodermis; cephalic setae 0.7 head diameter; amphids 1 head diameter from anterior end; intestine with few cells, probably 4-6 in a circumference. Male 1.08 mm.; a,54; b,9; c,11; spicules 14μ; tail cylindroid, 4.4 anal body diameters long. Female 1.1-1.2 mm.; a,55-80; b,0.9; c,9.3-13; V,48%; G_1,16%; G_2,16%; eggs (one per uterus) 53 by 12μ; sperm packed in uteri, hollow type; tail 6-9 anal body diameters long.

HABITAT.—Depth of 4 feet, Mud Island, Aransas Bay, Texas, July 27, 1950.

REMARKS.—The genus *Pseudaraeolaimus* resembles members of the genus *Araeolaimus* in some ways and various genera of the Diplopeltinae in other ways. On the basis of stoma, excretory pore and esophagus we would consider diplopeltin relationships but the amphidial sclerotized plaque which is characteristic of that subfamily appears to be totally absent. In the absence of distinct sclerotized stoma *Pseudaraeolaimus* resembles *Araeolaimus* de Man, 1893 but there is no esophageal diverticulum in that genus.

FAMILY *Comesomatidae* (Stekhoven & de Coninck, 1933)

Amphids multispiral; cuticle often having minute to moderately coarse punctations; ovaries out-stretched (rarely reflexed, in one case both a reflexed and an out-stretched ovary reported from one female). Stoma cylindroid with three sclerotized points at anterior end or reduced; gubernaculum with or without posterior apophysis; supplements papilloid or absent. (Marine).

Stoma cylindroid, with three anteriorly directed points.

Cuticle with very coarse lateral punctations.

210 Spicules double-jointed. (Coast of North Carolina). *Dorylaimopsis metatypicus* Chitwood, 1936

Spicules single-jointed.

211 Ovaries reflexed. (Marine algae, Key West, Florida). *Mesonchium poriferum* Cobb, 1920

212 Ovaries out-stretched. (Kingston Harbor, Jamaica). *Pepsonema pellucidum* Cobb, 1920

Cuticle without lateral differentiation, all punctations minute, spicules double-jointed.

213 With four cephalic setae. (Marine mud, San Pedro, California)
Xinema perfectum Cobb, 1920
With ten cephalic setae. *Laimella* Cobb, 1920
214 Four short, and six long setae. (Beaufort, N.C.)
Laimella hexasetosa Chitwood, 1937
Six short and four long setae.
215 Tail filiform, *c*, 3.3. (Biscayne Bay & Key West, Fla.).
Laimella longicauda Cobb, 1920
216Tail conically attenuated, *c*, 8.5-12. (Beaufort, N.C.).
Laimella quadrisetosa Chitwood, 1936
Stoma not cylindroid, without three anteriorly directed points.
Vestibular region (Part of mouth surrounded by esophageal tissue) over 1 head diameter long.
217 Only four cephalic setae. (Seaweed, Miami, Fla.).
Cynura uniformis Cobb, 1920
218 Numerous subcephalic scattered setae merging with cephalic. (Bathing Beach, Woods Hole, Mass.).
Alaimonema multicinctum Cobb, 1920
Stoma short and wide, without elongate vestibular region.
219 Spicules elongate; gubernaculum parallel. (Beaufort, N.C.).
Comesoma minimum Chitwood, 1937
Spicules short, arcuate; gubernaculum with posterior apophyses.
Sabatieria de Rouville, 1904
220 With four cephalic, no subcephalic, setae. (Coasts of Ireland, Germany and N.C.).
Sabatieria celtica Southern, 1914
221 With four cephalic, and, four rows of subcephalic setae. (Coasts of Holland, Germany, Norway, France, North Carolina and Texas).
Sabatieria hilarula de Man, 1922

Sabatieria hilarula de Man, 1922

Cephalic setae four, 1.3 head diameters long; subcephalic setae in four submedian rows; excretory pore just posterior to nerve ring, excretory cell opposite anterior end of intestine. Male 1.5 mm.; a,29; b,7.5; c,8.3; tail conoid for half its length, then filiform to slightly enlarged tip bearing caudal setae and spinerette. Spicules arcuate, flanged, 38μ long; gubernaculum with posterior apophysis; supplements apparently absent.

HABITAT.—Originally described from coast of Holland; in this collection from depth of 4 feet, Mud Island, Aransas Bay, Texas, July 27, 1950.

SUPERFAMILY *MONHYSTEROIDEA* Stekhoven & de Coninck, 1933

Amphids circular; ends of esophageal radii not tuboid: cephalic setae 4 (?), 6, 10, 12, 16, 18 or more; stoma highly diverse. Esophago-intestinal valve (cardia) usually spheroid to cylindrical. Ovaries out-stretched (one or two exceptions.) Marine or fresh water.

FAMILY *Monhysteridae* Oerley, 1880

Stoma not styletiform; radial muscles of esophagus diffuse, esophagus cylindrical, bulb not present; sclerotized attachment points of esophageal muscles absent.

SUBFAMILY Monhysterinae Micoletzky, 1922

Stoma non-sclerotized, usually conoid into esophagus. Lips three, low, cuticle not ridged; internal circle of sensory organs papilloid; female usually with one anterior out-stretched ovary. Fresh water and marine.
222 Cephalic setae papilloid, stoma of two small cavities in tandem. (Aransas Bay, Texas). *Diplolaimella ocellata* n. sp.
Cephalic setae well developed.
223 Cephalic setae four. (Buzzard's Bay, Mass.). *Rhadinema flexile* Cobb, 1920
Cephalic setae six.
Setae pseudosegmented.
224 Female with one posterior reflexed ovary. (Sand among mussels, Devil's Island, Woods Hole, Mass.).
Rhabdocoma americanum Cobb, 1920
Female with two out-stretched ovaries. *Cytolaimium* Cobb, 1920

225 Tail cono-cylindroid, spinerette present. (Biscayne Bay, Florida).
Cytolaimium exile Cobb, 1920
226 Tail obtuse, anus subterminal, spinerette absent. (Shackleford's Channel, N.C.).
Cytolaimium obtusicaudatum Chitwood, 1936

Setae not pseudosegmented. (Female with one ovary).
Monhystera Bastian, 1865
227 Spicules 26μ long. (Cedar Bayou, Texas).
Monhystera parva Bastian, 1865
228 Spicules 42μ long. (Cedar Bayou, Texas).
Monhystera socialis Bastian, 1865

Cephalic setae ten or more.
More than twelve cephalic setae, (female with one ovary).
Eight submedian groups of extremely long cephalic setae; spicules not double-jointed. (Coast of N.C. & N.Y.).
Steineria Micoletzky, 1922, sp.
229 Eight submedian groups of cephalic setae less than 1 head diameter; spicules double-jointed. (Marine mud, San Pedro, Calif.).
Leptogastrella pellucida Cobb, 1920

Only ten to twelve cephalic setae.
230 Setae pseudosegmented. (Coasts of New Hampshire & Mass.).
Daptonema fimbriatum Cobb, 1920

Setae not pseudosegmented.
231 Amphids very large circles with faint internal spirality. (Tide pool, New Hampshire).
Gonionchus villosus Cobb, 1920

Amphids circular, not unusually large, no evidence of spirality.
Theristus Bastian, 1865
232 Somatic setae over 1 body diameter long. (Coasts of Europe, Mass. & N.C.).
Theristus setosus (Bütschli, 1874)
233 Somatic setae less than 1 body diameter long. Cephalic setae 0.6 head diameter. (Aransas Bay, Texas).
Theristus bütschlioides n. sp.

Cephalic setae 0.5 or less head diameter.
234 Spicules distally simple. (Coast of Northern Europe and New Foundland v. Allgen, 1935).
Theristus acer Bastian, 1865
235 Spicules distally forked. (Copano Bay, Texas).
Theristus elaboratus n. sp.

Monhystera socialis Bütschli, 1874

Ocelli absent; amphids 11μ from anterior end (about 1 head diameter), 3μ in diameter; esophagus clavate, terminated by valve, two clear cells and two pigmented intestinal cells set off from intestine, intestinal cells with thick rough bacillary layer. Male 1.45 mm.; a,34; b,9.8; c,9.8; spicules setiform, 42μ long (1.3 anal body diameters); gubernaculum inconspicuous; one preanal papillae; tail 4.6 anal body diameters long, caudal third cylindroid. Female 1.02 mm.; a,28; b,7.7 (foreshortened); c,8.2; V,76%; G_1,56%; eggs, spheroid, 28-30μ, embryonated 9-10 in number, possibly viviparous.

HABITAT.—Sargassum from Cedar Bayou, Texas, fish trap, July 9, 1950.

Monhystera parva Bastian, 1865

Six cephalic cetae ⅓ head diameter in length. Amphids ¾ head diameter from anterior end, 3μ in diameter. Male 516-522μ; a,23-26; b,5.1-5.7; c,5.7-6.0; spicules arcuate, 26μ long; gubernaculum with posterior apophysis, tail 5-6 anal body diameters long. Female 520-550μ; a,20-24; b,5-5.2; c,5.8-6.1; V,60%; ovary extending to within 1½ body diameters of esophageal base; egg (1) 40 by 20μ; extra pocket (anteriad) to uterus; tail 6.5 anal body diameters long, evenly attenuated. Esophagus clavate; esophago-intestinal valve much as in *M. socialis* but paired clear cells not present; first two intestinal cells forming a false bulb.

HABITAT.—Originally described from Falmouth, England, in Sargassum. Present specimens from Sargassum, Cedar Bayou, Texas, fish trap, July 9, 1950.

Diplolaimella Allgen, 1929

Small cephalic setae probably present, number uncertain; cuticle smooth; amphids circular, post-cephalic; stoma weakly sclerotized, forming two small cavities; esophagus terminated by faint swelling, well developed esophago-intestinal valve and differentiated

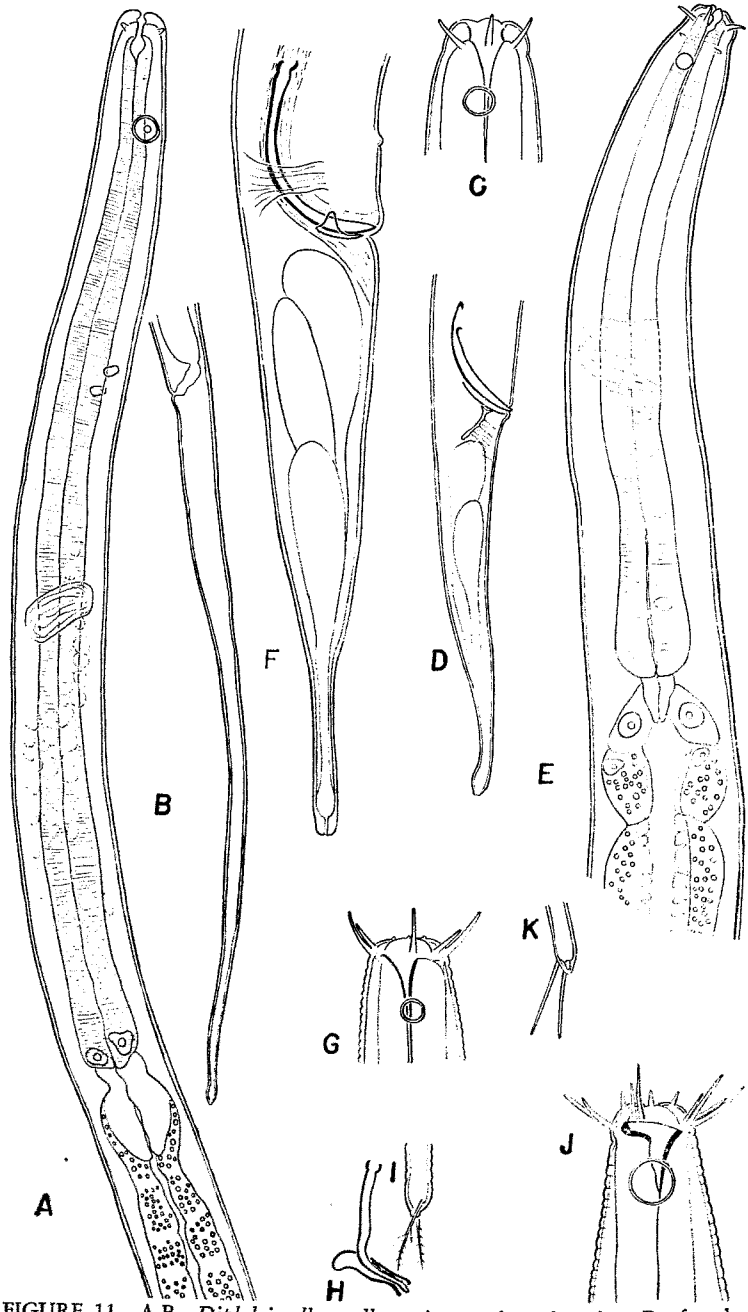

FIGURE 11—A-B—*Diplolaimella ocellata*: A—esophageal region. B—female tail. C-D—*Monhystera parva*: C—head. D—male tail. E-F—*Monhystera socialis*: E—esophageal region. F—male tail. G-I—*Theristus elaboratus*: G—head. H—spicules and gubernaculum. I—tip of tail. J-K—*Theristus bütschlioides*: J—head. K—tip of tail.

rounded intestinal valve. Male with long setaceous spicules; supplementary organs absent. Female with one ovary, anterior, out-stretched. Very filiform nemas with finely attenuated tails. Type *D. monhysteroides* Allgen, 1929.

Diplolaimella ocellata n. sp.

Stoma 4μ deep by 2μ wide (maximum); amphids 2 head diameters from anterior end, approximately ⅓ corresponding body diameter. Paired, rather colorless, rectangular eye spots at about ⅓ length of esophagus; nerve ring at 3/5 length of esophagus. Male 770μ; a,45; b,5.9; c,7.0; spicules arcuate, 22μ; gubernaculum opposed, 16μ. Female 780μ; a,65; b,5.8; c,5; V,55%; G$_1$23%. One mature ovum 72μ by 8.4μ. Tail 19 anal body diameters in length.

HABITAT.—*Chaetopterus tube* and eelgrass at depth of 3 feet, Mud Island, Aransas Bay, Texas, July 27, 1950.

REMARKS.—This form differs from the type species as described by Allgen (1929) in being considerably smaller and in having a relatively longer tail. *D. monhysteroides* is 0.97-1.1 mm.; a,51-64; b,6.1-6.7; c,8.4 in male and 6.3 in female and the vulva is at 64%. In addition Allgen does not mention the ocelli.

Theristus elaboratus n. sp.

Cephalic setae ten, longest 8μ or ½ head diameter; amphids 4.8μ in diameter, ⅔ head diameter from anterior end; scattered somatic setae about 12μ long; striae 1-2μ apart, marked. Male 940μ long; a,14.7; b,4; c,5.2; tail regularly conoid to cylindrical in posterior fourth, terminated by a pair of branched setae; spicules L-shaped, 24μ across triangle, distally forked; gubernaculum well developed with small apophysis.

HABITAT.—Depth of three feet, weeds, Copano Bay, Texas, July 26, 1950.

REMARKS.—This species is much like *T. setosus* but differs in that the setae are shorter, more sparse, and only ten, instead of 12, cephalic setae are present.

Theristus bütschlioides n. sp.

Cephalic setae twelve, longest 12μ or ⅔ head diameter; amphids very delicate in margin, less than ½ head diameter from anterior end, 9μ across; scattered submedian rows of somatic setae 18μ long; striae 2-2.5μ apart.

Male 1.48 mm.; a,37; b,5.7; c,9.2; testis extending to within 12% of body length from base of esophagus; tail 5.3 anal body diameters, posterior half cylindrical, narrow with paired caudal setae. Esophago-intestinal valve typical; intestinal sphaeroids prominent; spicules setaceous, knobbed, 116μ long or 3.8 anal body diameters; gubernaculum simple, parallel.

HABITAT.—Depth of 4 feet, Mud Island, Aransas Bay, Texas, July 27, 1950.

REMARKS.—This species differs from its closest relative, *T. bütschlii* Bresslau and Stekhoven, 1935, in having considerably longer spicules and a longer tail.

SUBFAMILY Xyalinae n. subfam.

Cephalic setae 6 plus 12; 6 or 3 lips; female with one anterior out-stretched ovary; cuticle striated; stoma sometimes sclerotized. (Marine).

Cuticle with longitudinal markings.

236 Cuticle with simple rod-like lingitudinal ridges. (Atlantic Coast from Mass. to N.C.).
Xyala striata Cobb, 1920

237 Cuticle with fish-bone longitudinal markings. (Biscayne Bay, Fla.).
Xenolaimus striatus Cobb, 1920

Cuticle without longitudinal markings.

238 Stoma with jointed, outwardly acting mandibles. (Atlantic Coast from Mass. to N.C.).
Scaptrella cincta Cobb, 1917

239 Stoma with six non-jointed minute hook-like, internally acting denticles at end of lips. (Marine mud, San Francisco Bay, Calif.).
Dactylaimus aequalis Cobb, 1920

FAMILY *Siphonolaimidae* Chitwood, 1937

Stoma styletiform; radial muscles of esophagus concentered; esophagus with weak posterior swelling; without sclerotized attachment points of esophageal muscles; female with one anterior out-stretched ovary. Marine.

240 Tail conically elongated. (Beaufort, N.C.).
Siphonolaimus conicus Chitwood, 1936

FAMILY *Linhomoeidae* Filipjev, 1929

Stoma not styletiform; radial muscles of esophagus concentered, often with sclerotized attachment points; esophagus commonly with distinct bulb. Esophagointestinal valve or cardia commonly very large; female with one or two out-stretched ovaries. Usually marine.

SUBFAMILY Linhomoeinae Filipjev, 1929

Stoma very short and wide or not distinct, walls with moderate to faint sclerotization. Cuticle practically smooth. Marine.

241 Esophageal glands more or less free, four cephalic setae, no distinct stoma; two out-stretched ovaries. (Buzzard's Bay, Mass.).
Cyartonema exile Cobb, 1920

Esophageal glands not free, basal part of esophagus well formed.
Stoma without distinct sclerotization.

242 Cuticle with distinct striae. (Probably does not belong here; Diatomivorous, Pacific Coast of Costa Rica.
Zygonemella striata Cobb, 1920

Cuticle without distinct striae.

243 Amphids labial in position, terminal esophageal bulb distinct. (Possibly near *Eubostrichus,* see Desmodoridae; Port Royal, Jamaica).
Catanema exile Cobb, 1920

244 Amphids post-labial, esophageal bulb not distinct. (Beach, Miami, Fla.).
Anticyathus tenuicaudatus Cobb, 1920

Amphids post-labial, esophageal bulb well developed.
Cephalic setae four, ovaries two. *Terchellingia* de Man, 1888

245 Amphids ¼ head width; *c,* 6-7. (Coast of N.C.).
Terschellingia communis de Man, 1888

246 Amphids ⅓ head width; *c,*5. Cost of N.C.).
Terschellingia pontica Filipjev, 1918

247 Amphids ½ head width; *c,* 4-5. (European Coast & Copano Bay, Texas).
Terschellingia longicaudata de Man, 1907

Cephalic sensory organs of external circle, ten papilloid or setose; female with one anterior ovary.
Monhystrium Cobb, 1920

248 Cephalic sensory organs papilloid. (Gill chambers of *Gecarcinus ruricola,* Jamaica and *Gecarcinus lateralis* Puerto Rico).
Monhystrium Wilson Baylis, 1915

249 Cephalic sensory organs setose. (Gill chambers of *Gecarcinus ruricola,* Jamaica and *Gecarcinus lateralis,* Puerto Rico). *Monhystrium transitans* Cobb, 1920

Stoma with distinct sclerotization.
Tail with paired subventral rows of conoid setae.

250 Head with six moderate, four long cephalic setae and four subcephalic setae. (Tide pool, New Hampshire).
Zanema acanthurum Cobb, 1920

251 Head with six moderate, four long cephalic setae and six subcephalic setae. Biscayne Bay, Florida).
Halinema spinosum Cobb, 19-

Tail without paired subventral rows of conoid setae.
Esophagus terminated by pyriform to subspheroid bulb; cardia cylindroid.

252 Cephalic setae four; stoma with small dorsal denticle. (Algae off Bahia, Brazil).
Synonema braziliense Cobb, 1920

Cephalic setae six or more; stoma without dorsal denticle.

253 Stomatal sclerotization in form of two transverse rings; four submedian and two median cephalic setae. (Coast of Holland & N.C.).
Desmolaimus zeelandicus de Man, 1880

254 Stomatal sclerotization not forming two transverse rings; four submedian, two median cephalic setae and six post-amphidial setae. (Aransas Bay, Texas).
Metalinhomoeus setosus n. sp.

Esophagus clavate to cylindroid, no distinct bulb.

255 Cephalic setae four; subcephalic setae absent; stoma with small dorsal and subventral denticles. (Rockport Harbor, Texas).
Synonemoides ochra n.g., n. sp.

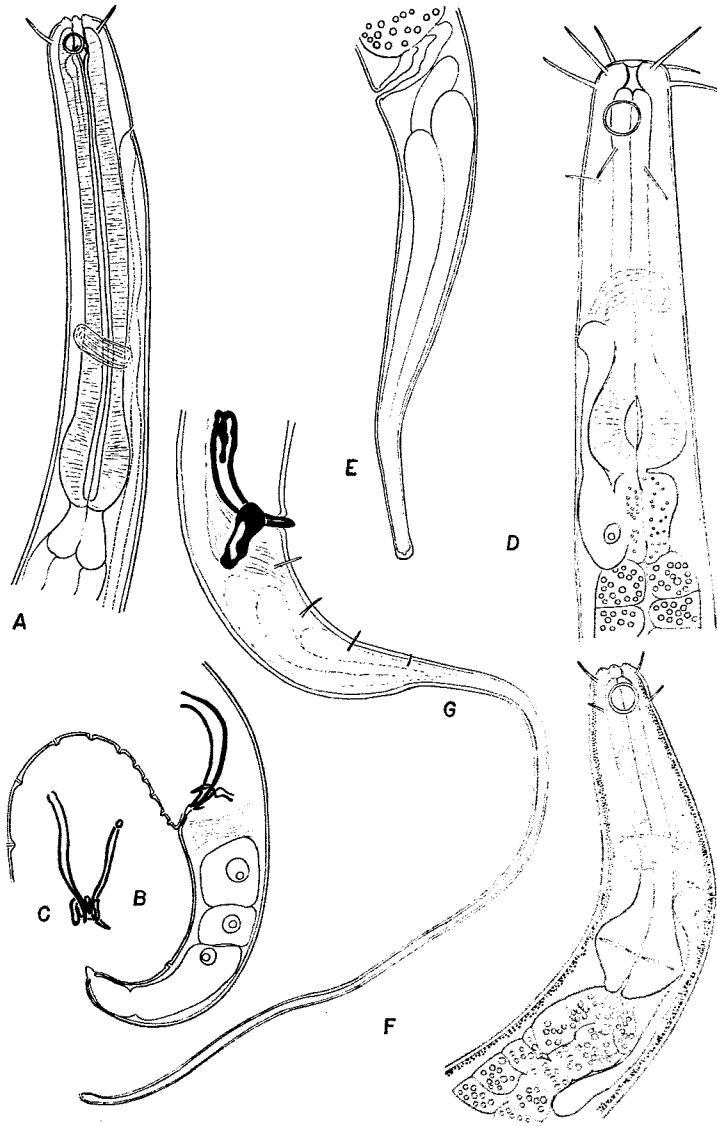

FIGURE 12—A-C—*Synonemoides ochraceum*: A—esophageal region. B—tail of male. C—spicules and gubernaculum. D-E—*Metalinhomoeus setosus*: D—esophageal region. E—tail of female. F-G—*Terschellingia longicaudata*: F—esophageal region. G—tail of female.

256 Cephalic setae 16, subcephalic four, stoma with dorsal denticle. (Bath Tub Springs, Jamaica).

Anticyclus exilis Cobb, 1920

Cephalic setae ten, subcephalic six, excretory pore at lips.

Crystallonema Cobb, 1920

257 Head with dark brown pigment. (Beach, Woods Hole, Mass.).

Crystallonema fuscacephalum Cobb, 1920

258 Head without dark brown pigment. (Miami, Florida).

Crystallonema simile Cobb, 1920

259 Cephalic setae ten, subcephalic none, excretory pore not observed. (Biscayne Bay, Florida).

Linhomoella exilis Cobb, 1920

Terschellingia longicaudata de Man, 1907

Amphids circular, 0.5 head diameter from anterior end, four cephalic, four post-amphidial setae; hypodermis containing fine dark green granules in transverse rows (similar large granules in intestinal cells). Esophagus terminated by sharp bulb and elongate narrow esophago-intestinal valve. Excretory pore posterior to nerve ring. Male 1.8-1.27 mm.; a, 29-34; b, 10.6-11; c, 4-4.9; tail filiform for ⅔ of length. Spicules arcuate, 40μ long; gubernaculum with paired posterior apophyses.

HABITAT.—Weeds at depth of 3 feet, Copano Bay, Texas, July 26, 1950. Originally described from Coast of Holland.

REMARKS.—These specimens differ somewhat from the original description as given by de Man (1907) but agree with the more recent descriptions. The pigmentation in these specimens is very striking and probably indicates a particular plant on which the nematode feeds.

Synonemoides n. g.

Cephalic setae four; subcephalic absent; amphids circular, opposite stomatal region; stoma short, with sclerotized walls and small dorsal and subventral teeth at base; esophagus clavate, lining with sclerotized thickenings; esophago-intestinal valve elongate but not cylindroid; male with median row of papilloid supplements; spicules arcuate; gubernaculum with posterior apophysis; female with anterior out-stretched ovary; tail elongate conoid with spinerette in both sexes.

Synonemoides ochra n. sp.

With yellowish pigment in chords; excretory pore 2 head diameters from anterior; excretory cell 1½ body diameters posterior to base of esophagus. Male 1.48 mm.; a, 49; b, 8.2; 2, 23; spicules 30μ long preanal supplements 11. Female 1.8-2.1 mm.; a, 40-53; b, 12-13; c, 26-30; V, 70-76%; G_1, 25% eggs (one to two mature) 80 by 36μ.

HABITAT.—Rockport Harbor and Copano Bay, Texas, July 22 and 26, 1950.

REMARKS.—This genus is clearly closely related to *Synonema* Cobb, 1920 but that genus has a well developed bulb and a cylindroid cardia or esophago-intestinal valve.

Metalinhomoeus setosus n. sp.

Cephalic setae four submedian and two median, 0.7-0.7 head diameter in length, amphids 10 across; two lateral and four submedian post-cephalic setae; excretory pore posterior to nerve ring at ⅔ length of esophagus, intestine with large dark, red-brown inclusions; female 1.6 mm. long; a, 30; b, 12.8; c, 9.5; V, 51% two opposed out-stretched ovaries; eggs (one per uterus) 78 by 42μ; tail conically attenuated.

HABITAT.—Depth of 3 feet, Chaetopterus tube and eelgrass, Mud Island, Aransas Bay, Texas, July 27, 1950.

REMARKS.—This species is unusually thick bodied for the genus, *a* usually being 60-100 in other species. In addition the cephalic setae are quite long and the amphids larger than usual.

SUBFAMILY Sphaerolaiminae Flipjev, 1929

Stoma cylindrical to globoid, heavily sclerotized.

260 Stoma greatly elongate, cylindrical (one anterior out-stretched ovary) (Coast of Peru and North Carolina). *Rhynchonema cinctum* Cobb, 1920. Stoma not greatly elongated.

Cephalic sensory organs papilloid. *Tripylium* Cobb, 1920

261 Adults 1.9-2.2 mm. long. (Gills of Gecarcinus lateralis, Puerto Rico).

Tripylium carcinicolum v. *calkinsi* Chitwood, 1935

262 Adults 1.0-1.6 mm. long. (Gills of *Gecarcinus ruricola* and *Cardisoma guanhumi*, Jamaica). *Tripylium carnicolum* (Baylis, 1915)

Cephalic sensory organs setose.

263 Female with one anterior out-stretched ovary. (Beach sand, Los Angeles, Calif.). *Omicronema litorium* Cobb, 1920

Female with one posterior out-stretched ovary. *Halanonchus* Cobb, 1920

264 Amphids 1/10 corresponding body diameter. (Biscayne Bay, Fla.). *Halanonchus macrurus* Cobb, 1920

265 Amphids 1/5 corresponding body diameter. (Shackleford's Channel, N. C.). *Halanonchus macramphidus* Chitwood, 1936

SUMMARY

A total of 251 species have been reported from the American Coasts. Of these 40 species or 16 per cent are common to the Atlantic Coasts of Europe and the United States. A total of 43 species are herein reported from Rockport, Texas. Of these 6 were first described in Europe, 2 were first described from North Carolina and 1 was first described from each of the following: Massachusetts, New York and Sumatra. One species *Sabatieria hilarula* has been reported from Holland, Germany, France, North Carolina and Texas. None of the 11 species reported from the American Pacific Coasts, the 22 species reported from Florida nor the 13 species reported from Jamaica were found in the Rockport, Texas collections. It appears obvious from these data that much too little taxonomic work has been done for us to draw any conclusions. Some nematodes are probably transported by saragassum and similar materials; this may account for the finding of *Syringolaimus smarigdus* in Massachusetts and Texas.

ADDENDUM

Following the preparation of the present article two papers by C. A. Allgen (1947a, b) were located. In the first of these articles Allgen reports 15 species of marine nematodes from Tabago, British West Indies. Of these 7 were new species while the remainder were species previously described from European waters. In the second paper Allgen reports 100 species of marine nematodes from the West Coast of North America and Panama. Of these 47 species were regarded as new while the remainder were previously described. Unfortunately these organisms could not be included in the present key without a complete revision of the article. Instead a list of these species with localities is appended in Table 1.

Allgen dwells at considerable length on the geographic distribution of the species from the West Coast. The larger part of the old species were previously recorded from Europe. Only 17 of these species were known from other parts of the Pacific and of these 12 species also were first described from Europe. This is a most unusual situation as the same species of animal is seldom recorded from both the Atlantic and Pacific oceans. More often one finds similar but very slightly different species. Allgen considers his finds as evidence of a previous connection of the two oceans. He supports this view with figures showing 35 of the species from the California coast also occur on the Atlantic Coast of Europe but only 20 of the species occur in the Mediterranean. This is in contrast to his finds from the West Coast of Panama. Of the previously known species 11 were known from the Mediterranean.

Allgen's material is said to have been in rather poor condition and the illustrations leave a great deal to be desired. While there are undoubtedly some cosmopolitan species we rather expect that a more thorough study

would disclose minor differences between most of the Atlantic and Pacific forms. Most critical taxonomy is necessary before we attempt to draw far reaching general conclusions on the geographic distribution of nematodes. Allgen is very critical of the work by Cobb and the writer on the nematodes of the Atlantic Coast of North America. He states that these workers did not take cognizance of European literature and consequently proposed many synonyms. He states that American workers should attempt to fit local species to the European descriptions. This attitude seems a bit naive. As a beginner we had the opportunity of preparing specimens for identification

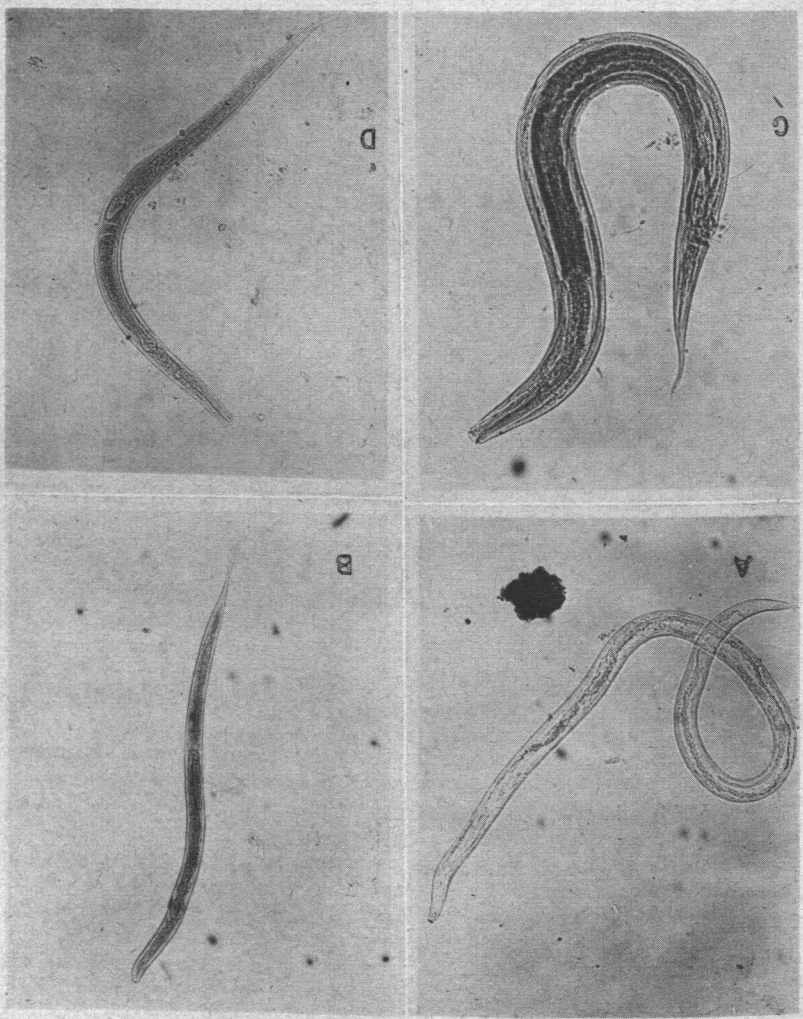

FIGURE 13—A—*Halenchus mexicanus,* juvenile, x 68. B—*Syringolaimus smarigdus,* female, x 90. C—*Theristus elaboratus,* female, x 115. D—*Monhystera parva,* female, x 125.

by Filipjev and Cobb simultaneously. We were greatly impressed by Filipjev's ability to give a name offhand to most specimens and on checking we found that the specimens agreed moderately well with the European descriptions that he mentioned. Cobb, on the other hand, usually said the species was new and often gave a different generic name from the one given by Filipjev.

There was a tendency in Europe to synonomize Cobb's genera and species. With the advantage of experience we have come to learn that Cobb was generally correct. His work was more detailed and critical than that of others. Because of this more effort was necessary than the majority of workers were willing to put into identification. Today the majority of the

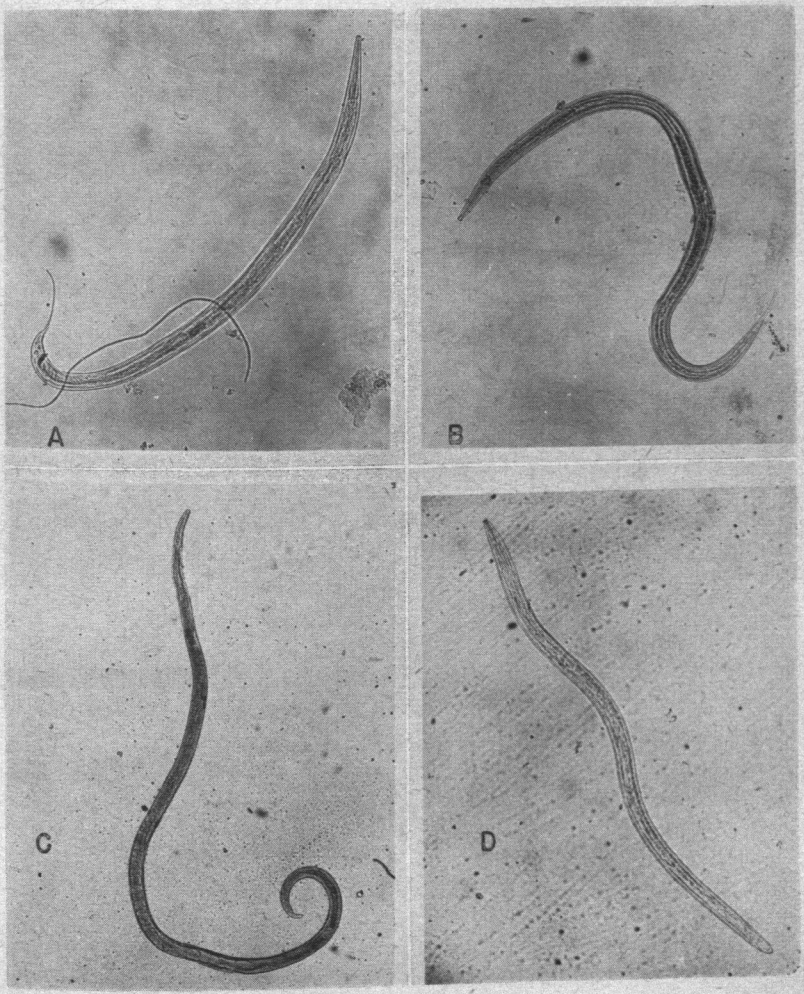

FIGURE 14—A—*Paranticoma longicaudata,* male, x 50. B—*Anaplostoma copano,* female, x 85. C—*Pontonema valviferum,* female, x 25. D—*Trissonchulus reversus,* juvenile, x 50.

genera Cobb proposed are recognized by careful students. We have passed through a phase of species synonomization and are in the midst of discovery that species of nematodes are not usually of world wide distribution. This rude awakening was initiated by physiologic and ecologic studies causing workers to conclude they were dealing with physiologic races. More thorough morphologic study indicates there are usually stable structural differences which warrant specific recognition. Earlier descriptions, with the exception of those given by Cobb, are seldom adequate. European illustrations are such that we must either conclude the species before us is new or that the author

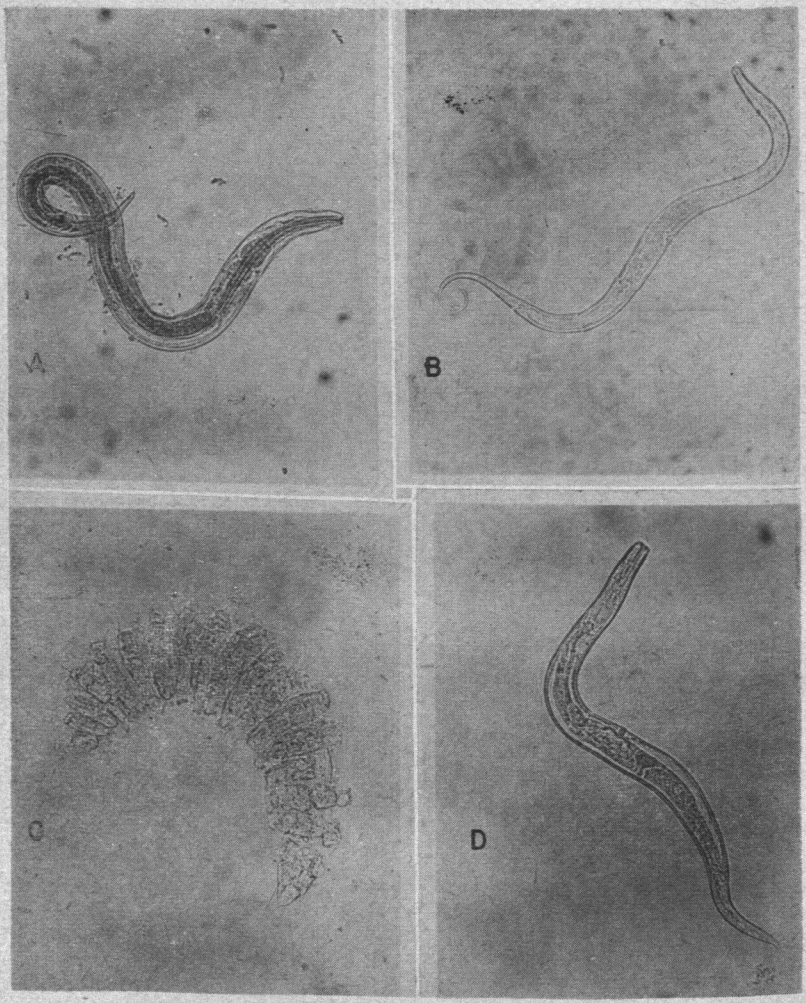

FIGURE 15—A—*Eurystomina minutisculae*, x 50. B—*Prooncholaimus aransas*, x 46. C—*Eudesmoscolex luteocola*, x 340. D—*Tricoma spinosoides*, x 205.

was in error. The work of de Man is the major exception to this rule. When we obtain a species similar to one described by de Man it is relatively easy to determine whether or not we have the same species.

CLASSIFIED LIST OF SPECIES REPORTED

By Allgen (1947a-b)

from American Waters

SUPERFAMILY *ENOPLOIDEA* Stekhoven & de Coninck, 1933

FAMILY *Enoplidae* Baird, 1853

Subfamily Enoplinae Micoletzky, 1922.

Enoplolaimus pacificus Allgen, 1947.
Locality: Perlas Isl., Panama.
Enoplus californicus Allgen, 1947.
Locality: La Jolla, Calif.
Enoplus meridionalis (Stenier, 1921) Allgen, 1947.
Locality: La Jolla, Calif.
Other localities: Coast of West Africa and North Carolina.
Enoplus micrognathus Allgen, 1947.
Locality: San Pedro, Calif.

Subfamily Leptosomatinae Micolezky, 1922

Auticoma limalis Bastian, 1865.
Localities: Contadora, Panama; San Diego, Calif; Tobago, British Indies; La Jolla, Calif.; San Pedro, Calif.
Other localities: Atlantic Coast of Europe and Africa; also Mediterranean, Campbell Islands and Patagonian Coast.
Leptosomatum bacillatum Eberth,1863.
Localities: Taboguilla, Panama; San Diego Bay, Calif.: La Jolla, Calif.;
Other localities: Coast of England, Black Sea and Mediterranean.
Leptosomatum pedroense Allgen, 1947.
Locality: San Pedro, Calif.
Leptosomatum sabangense (Steiner, 1915) Micoletzky, 1923.
Locality: Taboguilla, Panama; La Jolla, Calif.
Other localities: Sumatra. Venezuela, Red Sea and Mediterranean.
Paranticoma tenuis Allgen, 1947.
Locality: Taboguilla, Panama.
Thoracostoma anchorilobatum Allgen, 1947 .
Locality: La Jolla, Calif.
Thoracostoma crassidermum Allgen, 1947.
Locality: La Jolla, Calif.
Thoracostoma jollaense Allgen, 1947.
Locality: La Jolla, Calif.
Thoracostoma microlobatum Allgen, 1947
Locality: La Jolla, Calif.
Thoracostoma panamaense Allgen, 1947.
Locality: Taboguilla, Panama.
Thoracostoma steineri Micoletzky, 1922.
Localities: San Diego Bay, Calif.; La Jolla, Calif.
Other localities: Mediterranean.

Subfamily Oxystomininae (Micoletzky, 1924)

Halalaimus gracilis de Man, 1888.
Locality: Contadora, Panama.
Other localities: Coasts of Northern Europe, Mediterranean and Red Sea.
Halalaimus longicollis Allgen, 1932.
Locality: La Jolla, Calif.
Other localities: Coast of Norway.

Nemanema obtusicaudatum Allgen, 1947.
Locality: Contadora, Panama.
Thalassoalaimus tardus de Man 1893 var. tenuis Allgen, 1947.
Locality: Contadora, Panama.
Subfamily Phanodermatinae Filipjen, 1927.
Phanoderma campbelli Allgen, 1927.
Locality: La Jolla, Calif.
Other localities: Campbell Islands and Norway.
Phanoderma coecum Allgen, 1947.
Locality: Taboguilla, Panama.

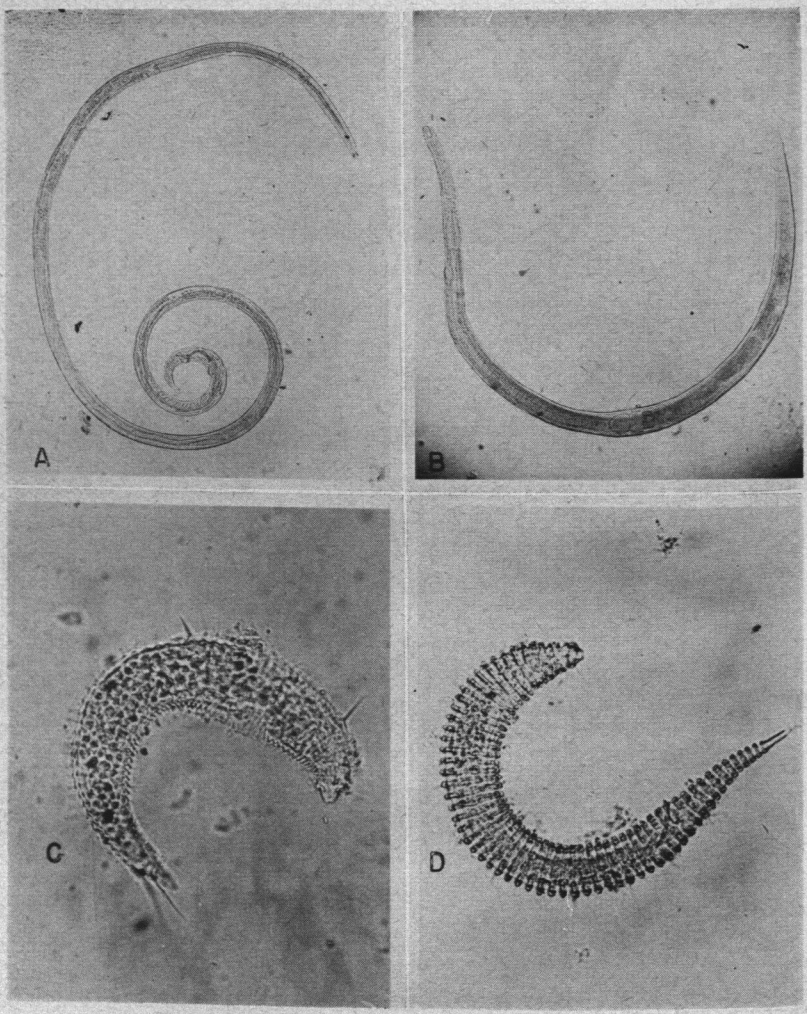

FIGURE 16—A—*Spilophorella paradoxa,* female, x 103. B—*Paraeuchromadora,* female, x 103. C—*Desmoscolex americanus,* male, x 170. D—*Chromadorita tentabunda,* female, x 170.

Phanoderma cocksi Bastian, 1865.
Localities: San Diego Bay, Calif.; La Jolla, Calif.
Other localities: Coasts of England, Norway, Brittany, France, Campbell Islands.
Phanoderma gracile de Man, 1878.
Locality: La Jolla, Calif.
Other localities: Coasts of Mediterranean, Adriatic, Norway and Ireland
Phanoderma mediterraneum Micoletzky, 1923.
Localities: La Jolla, Calif.; San Pedro, Calif.; Taboguilla, Panama.
Other localities: Adriatic Sea and Mediterranean.
Phanoderma tenuicolle Allgen, 1947.
Locality: La Jolla, Calif.

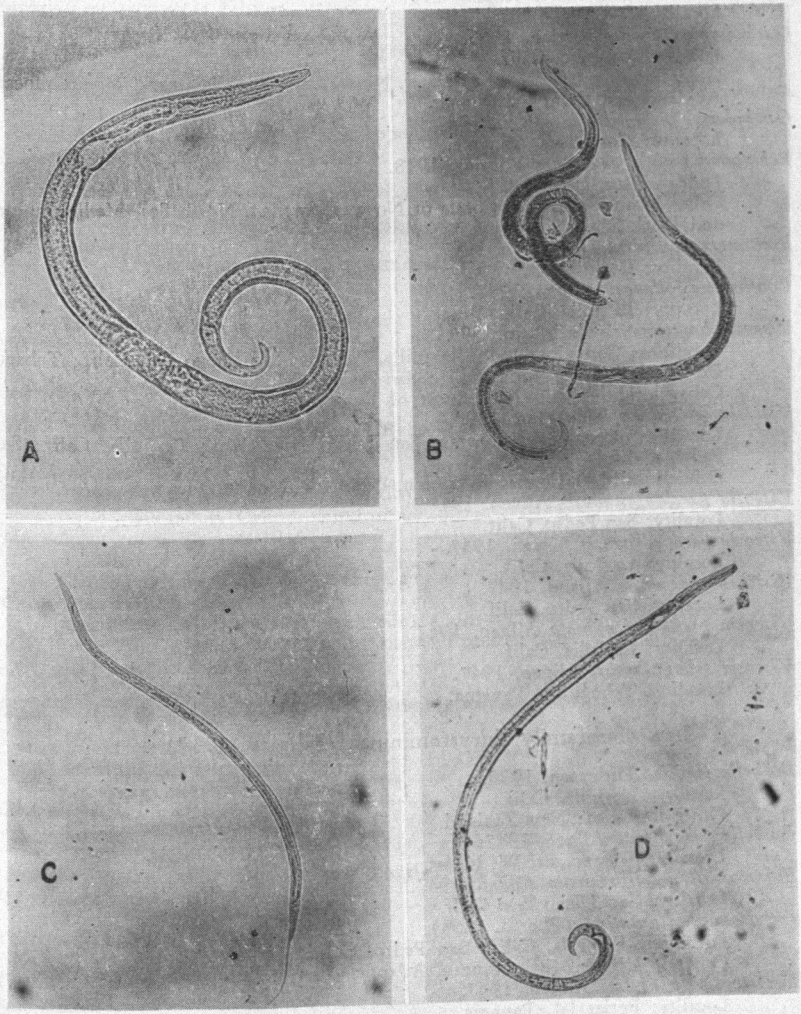

FIGURE 17—A—*Araeolaimus texianus,* female, x 170. B—*Camacolaimus tardus,* female, x 74. C—*Diplolaimella ocellata,* male, x 85. D—*Synonemoides ochraceum,* male, x 57.

FAMILY *Oncholaimidae* Baylis & Daubney, 1926

Subfamily Oncholaiminae Micoletzky, 1922

Metoncholaimus eberthi Filipjev, 1918.
Locality: Contadera and Taboguilla, Panama.
Other localities: Black Sea.
Oncholaimus dujardini de Man, 1878.
Localities: San Diego Bay, Calif.; La Jolla, Calif.
Other localities: Arctic, Norway, Red Sea, Mediterranean, Adriatic.
Oncholaimus tobagoense Allgen, 1947.
Locality: Tobago, Br. W. Indies.
Oncholaimus trichospiculum Allgen, 1947.
Locality: San Diego Bay, Calif.
Oncholaimus viridis Bastian, 1865.
Locality: La Jolla, Calif.
Other localities: Coasts of England, Norway, Sweden, Denmark, Mediterranean, Aukland and Campbell Islands.
Oncholaimellus carlbergi Allgen, 1947.
Locality: Contadora, Panama.
Pelagonema obtusicaudatum Filipjev, 1918.
Locality: San Diego, Calif.
Other localities: Arctic, Coasts of Norway, Sweden, North Sea, Mediterranean, and Black Sea.
Pontonema californicum Allgen, 1947.
Locality: La Jolla, Calif.
Pontonema jollaense Allgen, 1947.
Locality: La Jolla, Calif.
Viscosia langrunensis de Maan, 1890.
Localities: Contadora and Taboguilla, Panama; San Diego Bay, Calif.; Tobago, Br. W. Indies; La Jolla, Calif.; San Pedro, Calif.
Other localities: Northern Coast of Europe, Mediterranean Sea.
Viscosia langrunensis de Man, 1890.
Localities: Contadora, Panama; San Diego Bay, Calif.; La Jolla, Calif.; San Pedro, Calif.
Other localities: Coasts of Sweden, Denmark, Mediterranean.
Viscosia paralangrunensis Allgen, 1947.
Locality: San Pedro, Calif.
Viscosia parapedroensis Allgen, 1947.
Locality: La Jolla, Calif.
Viscosia pedroensis Allgen, 1947.
Locality: San Pedro, Calif.
Viscosia pseudosegmentata Allgen, 1947.
Locality: La Jolla, Calif.
Viscosia taboguillensis Allgen, 1947.
Locality: Taboguilla, Panama.

Subfamily Eurystomininae (Filipjev, 1934)

Bolbella pacifica Ditlevsen, 1930.
Locality: La Jolla, Calif.
Other localities: New Zealand.
Bolbella tobagoense Allgen, 1947.
Locality: Tobago, Br. W. Indies.
Eurystomatina californicum Allgen, 1947.
Locality: San Diego Bay, Calif.
Eurystomatina ornatum (Eberth, 1863).
Localities: La Jolla, Calif.; San Pedro, Calif.
Other localities: Mediterranean, Atlantic Coast of Europe and West Africa.
Eurystomatina perlasi Allgen, 1947.
Locality: Perlas Isl., Panama.
Eurystomatina propinquum Allgen, 1947.
Locality: San Diego Bay, Calif.
Eurystomatina spissidentatum Allgen, 1947.
Localities: Contadora, Panama; La Jolla, Calif.

Eurystomatina terricola de Man var. ophthalmophorum Steiner, 1921.
Locality: La Jolla, Calif.
Other localities: Port Arthur, East Asia.

Subfamily Enchelidiinae (Micoletzky, 1924)

Catalaimus max-weberi de Man, 1922.
Locality: San Diego Bay, Calif.
Other localities: Coast of Holland.
Enchelidium brevicaudatum Allgen, 1947.
Locality: La Jolla, Calif.
Enchelidium macrolaimum Allgen, 1947.
Locality: Contadora, Panama.
Enchelidium sabulicola Filipjev, 1918.
Locality: La Jolla, Calif.
Other localities: Coast of Norway and Black Sea.
Enchelidium tenuicolle Eberth, 1863.
Localities: Contadora, Panama; San Diego Bay, Calif.; Tobago, Br. W. Indies; La Jolla, Calif.; San Pedro, Calif.
Other localities: All coasts of Europe, East and West Coast of Africa, Australia, New Zealand.

SUPERFAMILY *AXONOLAIMIDEA* Chitwood, 1937

FAMILY *Axonolaimidae* Stekhoven & de Coninck, 1933

Subfamily Axonolaiminae Micoletzky, 1924

Axonolaimus diegoensis Allgen, 1947.
Locality: San Diego Bay, Calif.
Axonolaimus tenuicollis Allgen, 1947.
Locality: San Diego Bay, Calif.; San Pedro, Calif.
Odontophora pacifica Allgen, 1947.
Locality: San Diego Bay, Calif.
Subfamily Diploepeltinae Rauther, 1930.
Subfamily Campylaiminae Chitwood, 1937.
Diplopeltis californicus Allgen, 1947.
Locality: La Jolla, Calif.; San Pedro, Calif.
Subfamily Cylindrolaiminae Micoletzky, 1922.
Araeolaimus cobbi Steiner, 1916.
Locality: San Pedro, Calif.
Other localities: Coast of Northern Europe, Suez, Campbell Isl.
Araeolaimus elegans de Man, 1888.
Localities: La Jolla, Calif.; San Pedro, Calif.
Other localities: Arctic Ocean, Atlantic Coast of Northern Europe, Campbell Isl., Auckland Isl.

FAMILY *Comesomatidae*

Parasabatieria mortenseni Ditlevsen, 1921.
Locality: San Diego Bay, Calif.
Other localities: Auckland Isl.
Sabatieria pacifica Allgen, 1947.
Locality: La Jolla, Calif.
SUPERFAMILY *MONHYSTEROIDEA* Stekhoven & de Coninck, 1933
Subfamily Diplopeltinae Rauther, 1930.
Monhystera tobagoensis Allgen, 1947.
Locality: Tobago, Br. W. Indies.
Theristus arcospiculum Allgen, 1947.
Locality: Contadora, Panama.
Theristus tenuispiculum Ditlevsen, 1919. (Syn. *Leptogastella pellucida* Cobb, 1920 vide Allgen).
Locality: San Diego Bay, Calif.; San Pedro, Calif.
Other localities: Coasts of Norway, Sweden, Denmark and Belgium.
Family Linhomoeidae Filipjev, 1929.
Subfamily Linhomoeinae Filipjev, 1922.

Eleutherolaimus leptosoma (de Man, 1893) Filipjev, 1922.
Locality: San Pedro, Calif.
Other localities: North Sea, coasts of Norway and Sweden.
Eleutherolaimus obtusicaudatus Allgen, 1947.
Locality: La Jolla, Calif.
Eleutherolaimus stenosoma (de Man, 1907) Filipjev, 1922.
Localities: San Diego Bay, Calif.; San Pedro, Calif.
Other localities: Coasts of Holland, Norway, Sweden, Belgium.
Eulinhomoeus elongatus (Bastian, 1865) de Man, 1907.
Localities: La Jolla, Calif.; San Pedro, Calif.
Other localities: Arctic Ocean, North Sea, England and Campbell Isl.

Subfamily Sphaerolaiminae Filipjev, 1929

Sphaerolaimus stenosoma (de Man, 1907)
Locality: San Diego Bay, Calif.

SUPERFAMILY *CHROMADOROIDEA* Stekhoven & de Coninck, 1933

FAMILY *Chromadoridae* Filipjev, 1917

Chromadora conicaudata Allgen, 1947.
Locality: La Jolla, Calif.
Chromadora neoheterophya Allgen, 1947.
Locality: Contadora, Panama; La Jolla, Calif.
Chromadora nudicapitata Bastian, 1865.
Localities: San Diego Bay, Calif.; La Jolla, Calif.; San Pedro, Calif.
Other localities: Atlantic Coast of Europe and Mediterranean.
Chromadora pacifica Allgen, 1947.
Locality: Contadora, Panama.
Chromadora paramacrolaimoides Allgen, 1947.
Localities: Contadora, Panama; Tobago, Br. W. Indies.
Chromadora para mucrodonta Allgen, 1927.
Localities: Contadora, Panama; La Jolla, Calif.; San Pedro, Calif.
Other localities: Tasmania.
Chromadora perlasi Allgen, 1947.
Locality: Perlas Isl., Panama.
Chromadora parobtusa Allgen, 1947.
Locality: San Pedro, Calif.
Chromadorella filiformis (Bastian, 1865) Filipjev, 1918.
Locality: San Pedro, Calif.
Other localities: Atlantic Coast of Europe, Mediterranean, Black Sea, West Coast of Africa and Sumatra.
Chromadora paramucrodonta Allgen, 1927.
Locality: Perlas Isl., Bay of Panama.
Euchromadora amokurae Ditlevsen, 1921.
Locality: San Pedro, Calif.
Other localities: Southern hemisphere: Patagonia, New Zealand, Auckland Isl., Campbell Isl. and Antarctic.
Euchromadora elegans Allgen, 1947.
Locality: La Jolla, Calif.
Euchromadora loricata Steiner, 1916.
Locality: La Jolla, Calif.
Other localities: Arctic Ocean, Coast of Sweden and Tasmania.
Euchromadora vulgaris (Bastian, 1865) de Man, 1886.
Localities: Contadora and Taboguilla, Panama; Tobago, Br. W. Indies; La Jolla, Calif.
Other localities: Coasts of Northern Europe.
Hypodontolaimus zosterae Allgen, 1929.
Locality: San Diego Bay, Calif.; La Jolla, Calif.
Other localities: Atlantic Coasts of Norway, Sweden and Mediterranean.
Spilophora antillensis Allgen, 1947.
Locality: Tobago, Br. W. Indies.
Spilophora mortenseni Allgen, 1947.
Locality: Tobago, Br. W. Indies.

Spilophora pusilla Allgen, 1947.
Locality: Contadora, Panama.
Spilophorella paradoxa (de Man, 1888) Filipjev, 1918.
Localities: Contadora and Taboguilla, Panama; San Diego Bay, Calif.; Tobago, Br. W. Indies; La Jolla, Calif.; San Pedro, Calif.
Other localities: All coasts of Europe, Atlantic Coast of North America.

FAMILY *Microlaimidae* de Coninck & Stekhoven, 1933

Microlaimus honestus de Man, 1922.
Locality: San Pedro, Calif.
Other localities: Coasts of Norway, Sweden, Holland and Belgium.
Microlaimus macrolaimus Allgen, 1947.
Locality: La Jolla, Calif.

FAMILY *Cyatholaimidae* de Coninck & Stekhoven, 1933

Subfamily Cyatholaiminae Micoletzky, 1922

Cyatholaimus jollaensis Allgen, 1947.
Locality: La Jolla, Calif.
Cyatholaimus panamaensis Allgen, 1947.
Locality: Taboguilla, Panama.
Longicyatholaimus longicaudatus (de Man, 1878) Micoletzky, 1924.
Locality: Contadora, Panama.
Other localities: Coasts of Norway, France, Mediterranean.
Paracanthonchus coecus (Bastian, 1865) Micoletzky, 1924.
Localities: San Diego Bay, Calif.; San Pedro, Calif.
Other localities: All coasts of Europe, Sumatra and East Africa.
Paracanthonchus mortenseni Allgen, 1947.
Locality: San Diego, Calif.; La Jolla, Calif.
Paracanthonchus macrodon (Ditlevsen, 1919) Micoletzky, 1924.
Locality: La Jolla, Calif.
Other localities: Coasts of Norway, Sweden and Belgium, New Foundland.
Paracanthonchus paramacrodon Allgen, 1947.
Locality: La Jolla, Calif.
Paracanthonchus spectabilis Allgen, 1931.
Locality: La Jolla, Calif.
Other localities: Coasts of Norway and Belgium.
Paracanthonchus sunesoni (Allgen, 1942) Allgen, 1947.
Locality: Tobago, Br. W. Indies.
Other localities: Mediterranean.
Seuratiella californica Allgen, 1947.
Localities: San Diego Bay, Calif.; La Jolla, Calif.
Seuratiella duplex Allgen, 1947.
Locality: La Jolla, Calif.
Seuratiella gracilis Ditlevsen, 1919.
Localities: Contadora, Panama; San Pedro, Calif.
Other localities: Coasts of Norway, Sweden and Denmark.
Seuratiella pedroensis Allgen, 1947.
Locality: San Pedro, Calif.

Subfamily Choanolaiminae Filipjev, 1934.

Halichoanolaimus filicauda Filipjev, 1918.
Locality: Contadora, Panama.
Other localities: Coasts of Norway, Denmark, Black Sea and Mediterranean.
Halichoanolaimus robustus (Bastian, 1865) de Man, 1888.
Locality.
Other localities: Coasts of Northern Europe and Black Sea.
Hypodontolaimus obtusicaudatus Allgen, 1947.
Locality: San Pedro, Calif.

SUPERFAMILY *DESMODOROIDEA* Steiner, 1927

FAMILY *Desmodoridae* Micoletzky, 1924

Subfamily Desmodorinae Micoletzky, 1924

Desmodora brachycapitata Allgen, 1947.
Locality: Contadora, Panama.
Desmodora brachypharynx Allgen, 1947.
Locality: Contadora, Panama.
Desmodora californica Allgen, 1947.
Locality: La Jolla, Calif.
Desmodora cephalophora Allgen, 1947.
Locality: La Jolla, Calif.
Desmodora dubia Allgen, 1947.
Locality: Tobago, Br. W. Indies.
Desmodora paramicrochaeta Allgen, 1947.
Locality: La Jolla, Calif.

Subfamily Monoposthiinae Filipjev, 1934

Monoposthia costata (Bastian, 1865) de Man, 1889.
Locality: La Jolla, Calif.
Other localities: Northern Coast of Europe, Black Sea and West Africa.

FAMILY *Draconematidae* Steiner, 1930

Draconema cephalatum Cobb, 1913.
Locality: La Jolla, Calif.
Other localities: Arctic Ocean, Northern Coast of Europe, Mediterranean, Black Sea, Jamaica, Campbell Isl., and Antarctic.

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