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CESTODE PARASITES IN *MYLIOBATIS GOODEI* GARMAN (MYLIOBATIFORMES: MYLIOBATIDAE) FROM RÍO DE LA PLATA, URUGUAY, WITH A SUMMARY OF CESTODES COLLECTED FROM SOUTH AMERICAN ELASMOBRANCHS DURING 1975–1979

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Abstract.—Specimens of 7 cestode species, 4 described as new, were collected from spiral valves of 4 *Myliobatis goodei* captured in the La Plata estuary near Montevideo, Uruguay. *Discobothrium arrhynchum* sp. n. differs from all other members of the genus by lacking a myzorhynchus. It most closely resembles *D. myliobatidis* by having relatively large suckers, markedly craspedote immature proglottids, an average of 21 testes per proglottid, and a vagina extending laterally rather than medially to the testes. *Caulobothrium* is recognized as a valid genus but *Rhabdotobothrium* is considered a junior synonym. Two species-groups within *Caulobothrium* are recognized, and a new species in each one is described. *Caulobothrium uruguayense* sp. n. most clearly resembles *C. tetrascaphium* by having more than 100 proglottids per strobila, craspedote proglottids, preovarian testes, more than 100 testes per proglottid, a very long cephalic peduncle, and genital pores in the anterior ⅓ of the proglottid. It differs by having 14 or 15 rather than 25 bothridial loculi and recurved rather than straight cirrus sacs. *Caulobothrium ostrowskiae* sp. n. most closely resembles *C. myliobatidis, C. opisthorchis* and *C. multorchidum* by exhibiting postovarian testes. The new species differs from *C. opisthorchis* by having fewer testes and by lacking vitelline follicles encircling the postovarian testes; it differs from *C. multorchidum* by having elongate rather than broad flaplike bothridia; and it differs from *C. myliobatidis* by having fewer bothridial loculi. *Rhabdotobothrium dollfusi* and *R. anterophallum* become *Caulobothrium dollfusi* and *C. anterophallum*. *Phyllobothrium myliobatidis* sp. n. differs from *P. auricula,* which it most closely resembles, by having longer and thinner bothridial pedicels and much smaller cirrus sacs. Contracted specimens of *Phyllobothrium* sp. and immature specimens of 2 species of *Acanthobothrium* are briefly described and discussed. A table listing hosts examined and one listing cestodes collected during study of South American elasmobranch parasites from 1975–1979 are included.

From 1975–1979 the authors collected helminth parasites from a total of 117 euryhaline stingrays captured in various parts of northern and eastern South America. This report represents the last in a series of taxonomic papers reporting our findings. Herein we report helminths parasitizing *Myliobatis goodei* Garman (Myliobatiformes: Myliobatidae) from Río de la Plata, Uruguay and present a list of hosts examined and parasites collected as a result of our study. Specimens representing 7 species of cestodes were collected from the spiral valves of 4 *M. goodei*. All appear to represent new species, but the condition of our material permits description of only 4.

Spiral valves were removed from hosts and placed in ice-water for one hour. They were then slit longitudinally and immersed in 10% formalin for transportation to the laboratory. Spiral valves were systematically dissected and examined for helminth parasites; those present were removed and stored in 70% ethanol. Most collected specimens were stained with Mayer's hematoxylin and mounted in Canada balsam for study as whole mounts. However, some specimens were serially cross-sectioned, cut at 8 μm and stained with hematoxylin-eosin, to confirm certain aspects of proglottid morphology. All figures were drawn with the aid of a drawing tube; measurements are in μm unless otherwise stated.

Discobothrium arrhynchum, sp. nov.

Figs. 1–2

Description (based on 30 specimens).—Strobila craspedote, apolytic, aspinose, up to 3,350 long, composed of 43–48 proglottids. Scolex 177–186 long by 233–326 wide, composed of 4 suckers each with lateral flap partially enclosing suctorial opening; suckers and scolex spinose. Suckers 132–216 long by 120–256 wide. Apical organ or myzorhynchus lacking. Cephalic peduncle lacking. Neck extremely short, not measured. Immature proglottids wider than long, markedly craspedote. Mature terminal proglottids 408–672 long by 192–312 wide. Testes 29–72 in diameter, 18–28 ($\bar{x}$ = 21, n = 50) in number, 3–4 ($\bar{x}$ = 3.5) preporally, 5–9 ($\bar{x}$ = 6.8) postporally, 9–16 ($\bar{x}$ = 10.7) antiporally. Cirrus sac in anterior ⅓ of proglottid, 36–79 long by 12–48 wide, containing unspined eversible cirrus. Genital pore 25–32% ($\bar{x}$ = 27.5%) of proglottid length from anterior end. Genital atrium shallow, simple. Vagina opening anteriorly to cirrus sac, extending posteriorly lateral to postporal testicular field, reaching near posterior $^1/_5$ of proglottid. Ovary in posterior $^1/_5$ of proglottid, bialate, 36–96 long by 36–108 wide at isthmus, anterior to posteriormost extent of vagina. Mehlis' gland prominent, ootype immediately posterior to ovarian isthmus. Vitellaria follicular, follicles extending nearly entire length of proglottid, 5–17 in diameter.

Host.—Myliobatis goodei Garman (Myliobatiformes: Myliobatidae).

Table 1.—South American elasmobranchs examined by the authors for parasitic helminths during 1975–1979.

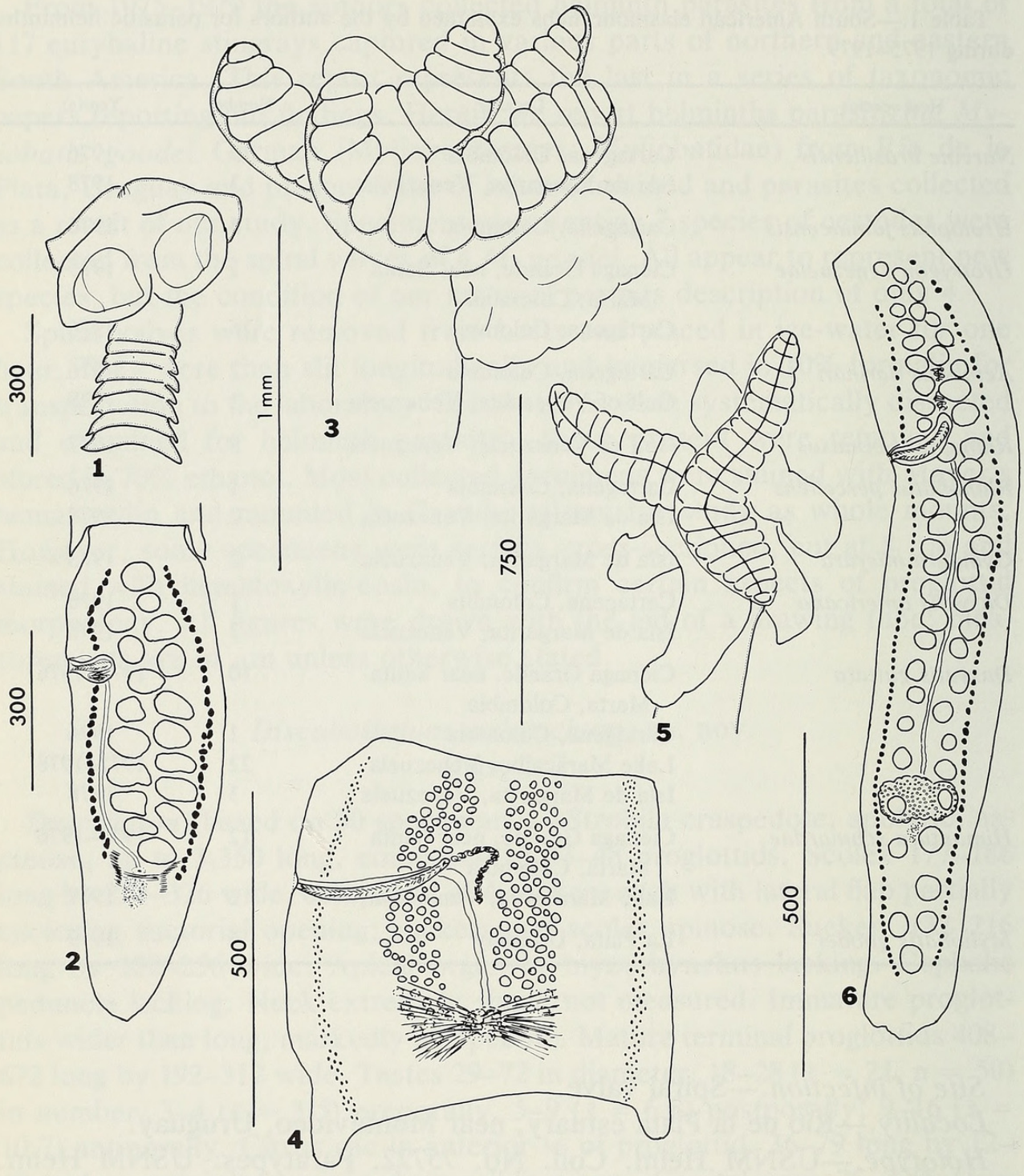
Host species	Locality	Number	Year(s)
Narcine brasiliensis	Cartagena, Colombia	17	1976
	Isla de Margarita, Venezuela	3	1978
Urolophus jamaicensis	Cartagena, Colombia	5	1976
Urotrygon venezuelae	Cienaga Grande, near Santa Marta, Colombia	1	1975
	Cartagena, Colombia	16	1976
Aetobatis narinari	Cartagena, Colombia	2	1976
	Gulf of Venezuela, Venezuela	1	1978
Rhinoptera bonasus	Gulf of Venezuela, Venezuela	9	1977
Rhinobatus percellens	Cartagena, Colombia	1	1976
	Isla de Margarita, Venezuela	2	1978
Gymnura micrura	Isla de Margarita, Venezuela	2	1978
Dasyatis americana	Cartagena, Colombia	1	1976
	Isla de Margarita, Venezuela	3	1978
Dasyatis guttata	Cienaga Grande, near Santa Marta, Colombia	10	1975–1976
	Cartagena, Colombia	1	1976
	Lake Maracaibo, Venezuela	22	1977–1978
	Isla de Margarita, Venezuela	3	1978
Himantura schmardae	Cienaga Grande, near Santa Marta, Colombia	12	1975–1976
	Lake Maracaibo, Venezuela	2	1977
Myliobatis goodei	La Plata, Uruguay	4	1979

Site of infection.—Spiral valve.

Locality.—Río de la Plata estuary, near Montevideo, Uruguay.

Holotype.—USNM Helm. Coll. No. 75722. Paratypes: USNM Helm. Coll. No. 75723; Univ. Nebraska State Museum No. 21003.

Discobothrium arrhynchum differs from all other members of the genus by lacking a myzorhynchus. It most closely resembles *D. myliobatidis* Dailey and Mudry, 1968 and *D. japonicum* Yamaguti, 1934 by having relatively large suckers and *D. myliobatidis* by exhibiting markedly craspedote immature proglottids, an average of 21 testes per proglottid, and a vagina extending posteriorly lateral to the testes rather than medial to them. By possessing 18–28 testes per proglottid, the new species differs markedly from *D. japonicum*, which has 6.



Figs. 1–6. *Discobothrium arrhynchum:* **1,** Scolex; **2,** Mature proglottid. *Caulobothrium uruguayense:* **3,** Scolex; **4,** Mature proglottid. *Caulobothrium ostrowskiae:* **5,** Scolex; **6,** Mature proglottid.

Caulobothrium Baer, 1948

Two recognized genera, *Caulobothrium* Baer, 1948 and *Rhabdotobothrium* Euzet, 1953, possess scolices comprising 4 pedicellated septate bothridia without marginal loculi and no myzorhynchus along with proglottids

exhibiting postvaginal testes. The validity of the genera as natural (monophyletic) groups has been questioned, most recently by Appy and Dailey (1977). Appy and Dailey concluded that the species included in *Caulobothrium* and *Rhabdotobothrium* represented a group distinct from those included in *Rhinebothrium* Linton, 1890 whose species exhibit only prevaginal testes. However, they did not agree that the distinctions between *Caulobothrium* and *Rhabdotobothrium,* the presence or absence of a cephalic peduncle, respectively, constituted valid grounds for generic distinction because species assigned to both *Caulobothrium* and *Rhinebothrium* possess peduncles of varying lengths. We examined type-specimens of the following species of *Caulobothrium* and *Rhabdotobothrium* as well as published descriptions of all 10 previously-known species and specimens of 2 new species described in this paper: *Caulobothrium myliobatidis* Carvajal, 1977 (USNM Helm. Coll. No. 74143), *C. anacolum* Brooks, 1977 (73969, 73970), *C. multorchidum* (Young, 1954) Appy and Dailey, 1977 (45976, 74598), *C. opisthorchis* Riser, 1955 (37415), *C. tetrascaphium* Riser, 1955 (37414), *C. longicolle* (Linton, 1890) Baer, 1948 (7663, 34959, 35940, 36008), and *Rhabdotobothrium anterophallum* Campbell, 1977 (73203-4). We discovered 2 distinct groups regardless of peduncle length. One group of species is characterized by 40 or fewer proglottids per strobila, acraspedote proglottids, and fewer than 100 testes per proglottid. Members of that group include *C. opisthorchis, C. multorchidis, C. myliobatidis, C. anacolum,* and one of the new species described herein. Of those, only *C. anacolum* lacks postovarian testes, a trait unique among rhinebothriine cestodes to the other 4 species. The second group, containing *C. tetrascaphium, C. longicolle, C. insignis* (Southwell, 1911) Baer, 1948, *C. tobijei* (Yamaguti, 1934) Baer, 1948, *Rhabdotobothrium dollfusi* Euzet, 1953, *R. anterophallum,* and the second new species to be described, is characterized by more than 100 proglottids per strobila, craspedote proglottids, preovarian testes, and more than 100 testes per proglottid. Of those species, the 2 placed in *Rhabdotobothrium* lack any cephalic peduncle whereas the other species all possess very long cephalic peduncles. Members of the first group of species all exhibit moderate-length peduncles. Two interpretations seem possible; first, all the above species represent a monophyletic group with 2 divergent lineages or, secondly, each of the 2 groups is derived independently from a different *Rhinebothrium* species-group. In neither case would *Rhabdotobothrium* be logically considered a valid genus unless each of the 2 groups of *Caulobothrium* were also accorded generic status. If the second possibility is true, suggesting that the presence of postvaginal testes is either a homoplastic or plesiomorphic trait, species assigned to *Rhinebothrium* would also have to be segregated into various generic groupings. Pending a phylogenetic analysis of all rhinebothriine groups, we retain *Caulobothrium* and consider *Rhabdotobothrium* a junior subjective synonym. *Rhabdotobothrium dollfusi* be-

comes *Caulobothrium dollfusi* (Euzet, 1953) comb. n. and *R. anterophallum* becomes *C. anterophallum* (Campbell, 1977) comb. n.

Caulobothrium uruguayense, sp. nov.
Figs. 3–4.

Description (based on 30 specimens).—Strobila craspedote, apolytic, up to 30 mm long, composed of 100–150 proglottids. Scolex with 4 pedicellated bothridia, 825–1,100 long by 825–1,100 wide; pedicels 75–160 long. Bothridia elongate, 930–1,302 long by 232–418 wide, divided horizontally by 13 or 14 septa forming 14 or 15 total loculi. Cephalic peduncle long, aspinose, 1,860–2,418 long. Immature proglottids wider than long. Mature proglottids 465–651 long by 391–512 wide. Testes in anterior $^4/_5$ of proglottid, 12–26 in diameter, 136–223 ($\bar{x}$ = 185, n = 50) in number, 29–50 ($\bar{x}$ = 44) preporally, 36–58 ($\bar{x}$ = 52) postporally, 67–103 ($\bar{x}$ = 89) antiporally. Cirrus sac in anterior ⅓ of proglottid, elongate, posterior end recurved, 72–384 long by 19–36 wide, containing spined eversible cirrus. Genital atrium shallow, simple. Genital pore 32–39% ($\bar{x}$ = 35%) of proglottid length from anterior end. Vagina anterior to cirrus sac, vaginal sphincter weakly developed. Ovary follicular, bialate, X-shaped in cross section, in posterior $^1/_5$ of proglottid, 186–279 long by 326–419 wide at isthmus. Vitellaria follicular, follicles 7–10 in diameter.

Host.—Myliobatis uruguayensis.

Site of infection.—Spiral valve.

Locality.—Río de la Plata estuary, Uruguay.

Holotype.—USNM Helm. Coll. No. 75724. Paratypes: USNM Helm. Coll. No. 75725; Univ. Nebraska State Museum No. 21002.

Etymology.—This species is named after the country in which its host was collected.

Caulobothrium uruguayense possesses a very long cephalic peduncle, thus differing from *C. dollfusi* and *C. anterophallum* which lack peduncles. By possessing genital pores in the anterior ⅓ of the proglottid, *C. uruguayense* resembles *C. tetrascaphium;* all other species exhibit genital pores at mid-proglottid. The new species differs from *C. tetrascaphium* by possessing 14 or 15 bothridial loculi rather than 25 and by exhibiting cirrus sacs which are curved anteriorly at their posterior ends rather than extending in a direct line or slightly posterior from the genital pore.

Caulobothrium ostrowskiae, sp. nov.
Figs. 5–6

Description (based on 15 specimens).—Strobila acraspedote, apolytic, composed of 16–20 proglottids, up to 15 mm long. Scolex with 4 pedicellated bothridia, 550–825 long by 550–825 wide; pedicels 93–112 long. Bothridia

elongate, 744–791 long by 279–326 wide, divided longitudinally by single median septum, horizontally by 17–19 septa forming 2 parallel rows of 36, 38, or 40 loculi plus terminal loculus at anterior tip of proglottid; total number of loculi 37, 39, or 41 (mode = 41). Cephalic peduncle aspinose, 232–373 long. Immature proglottids wider than long. Mature proglottids 893–1,256 long by 167–233 wide. Testes extending nearly entire length of proglottid, 19–26 in diameter, 41–63 ($\bar{x}$ = 52, n = 25) in number, 6–8 ($\bar{x}$ = 7) preporally, 13–24 ($\bar{x}$ = 19) postporally, 21–33 ($\bar{x}$ = 26) antiporally. Cirrus sac elongate, 72–132 long by 12–17 wide, containing spined eversible cirrus. Genital atrium shallow, simple. Genital pore 25–33% ($\bar{x}$ = 29%) of proglottid length from anterior end. Vagina anterior to cirrus sac, vaginal sphincter weakly-developed. Ovary in posterior ⅓ of proglottid, follicular, bialate, X-shaped in cross section, 36–96 long by 24–60 wide at isthmus. Postovarian testes present. Vitellaria follicular, extending nearly entire length of proglottid; folicles 12–17 in diameter.

Host.—*Myliobatis goodei.*

Site of infection.—Spiral valve.

Locality.—Río de la Plata estuary, near Montevideo, Uruguay.

Holotype.—USNM Helm. Coll. No. 75726. Paratypes: USNM Helm. Coll. No. 75727; Univ. Nebraska State Museum No. 21004.

Etymology.—This species is named for Dr. Margarita Ostrowski de Nuñez, who reported the first known elasmobranch cestodes from the Río de la Plata region.

Caulobothrium ostrowskiae resembles *C. myliobatidis, C. opisthorchis,* and *C. multorchidum* by exhibiting postovarian testes. *Caulobothrium opisthorchis* differs by having 78–90 rather than 41–63 testes per proglottid and vitelline follicles which encircle the postovarian testes. *Caulobothrium multorchidum* possesses flaplike rather than elongate bothridia which are markedly different from those of the new species. Finally, *C. ostrowskiae* differs from *C. myliobatidis* by having 37–41 rather than 54–58 bothridial loculi.

Phyllobothrium Van Beneden, 1850

The genus *Phyllobothrium* contains a number of species infecting a variety of elasmobranchs and possessing a variety of scolex morphologies (Williams, 1968). The most simplified, and presumably plesiomorphic, morphotype consists of 4 flaplike bothridia lacking a muscular rim and therefore lacking a distinct shape. Some species possessing such bothridia have apical suckers surmounting each bothridium and some do not; likewise, some species possess marginal loculi, such as *P. centrurum* Southwell, 1925 or even marginal loculi and horizontal septa across the face of the bothridia, producing medial loculi, as in *Phyllobothrium kingae* Schmidt, 1978. The

genus almost certainly represents a polyphyletic group whose phylogenetic relationships are virtually unknown. Williams (1968) suggested that members of the genus be catalogued and identified according to their hosts. However, in this study we collected specimens of 2 species of *Phyllobothrium,* a large species with the archetypa scolex morphology and a second, smaller species possessing amorphous bothridia and marginal loculi. Therefore, for convenience and better consistency we prefer to catalogue *Phyllobothrium* species according to general scolex morphology, recognizing that only a thorough phylogenetic analysis will produce an adequate classification of the species involved.

Phyllobothrium myliobatidis, sp. nov.
Figs. 7–9

Description (based on 4 specimens).—Strobila acraspedote, apolytic, composed of 50–75 proglottids, up to 30 mm long. Scolex up to 2.5 mm wide, composed of 4 pedicellated bothridia with marginal loculi. Pedicels 419–512 long. Bothridia 651–1,395 wide, amorphous, with single row of 83–90 marginal loculi. Cephalic peduncle aspinose, 1,023–1,302 long. Immature proglottids wider than long. Mature proglottids 465–2,418 long by 251–474 wide. Testes in anterior ¾ of proglottid, 24–72 in diameter, in single field of 122–150 in number. Cirrus sac in anterior ⅓ of proglottid, elongate, 168–240 long by 84–168 wide, containing spined eversible cirrus. Genital atrium shallow, simple. Genital pore 15–27% of proglottid length from anterior end. Vagina anterior to cirrus sac, vaginal sphincter present. Ovary in posterior $^1/_5$ of proglottid, H-shaped with posterior lobes expanding posteriorly as proglottid matures; ovarian lobes X-shaped in cross section, follicular. Vitellaria follicular; follicles 7–24 in diameter, extending entire length of proglottid, becoming more extensive as proglottid matures. Terminal proglottids possessing vitelline fields extending into medial portion of proglottid dorsally and ventrally.

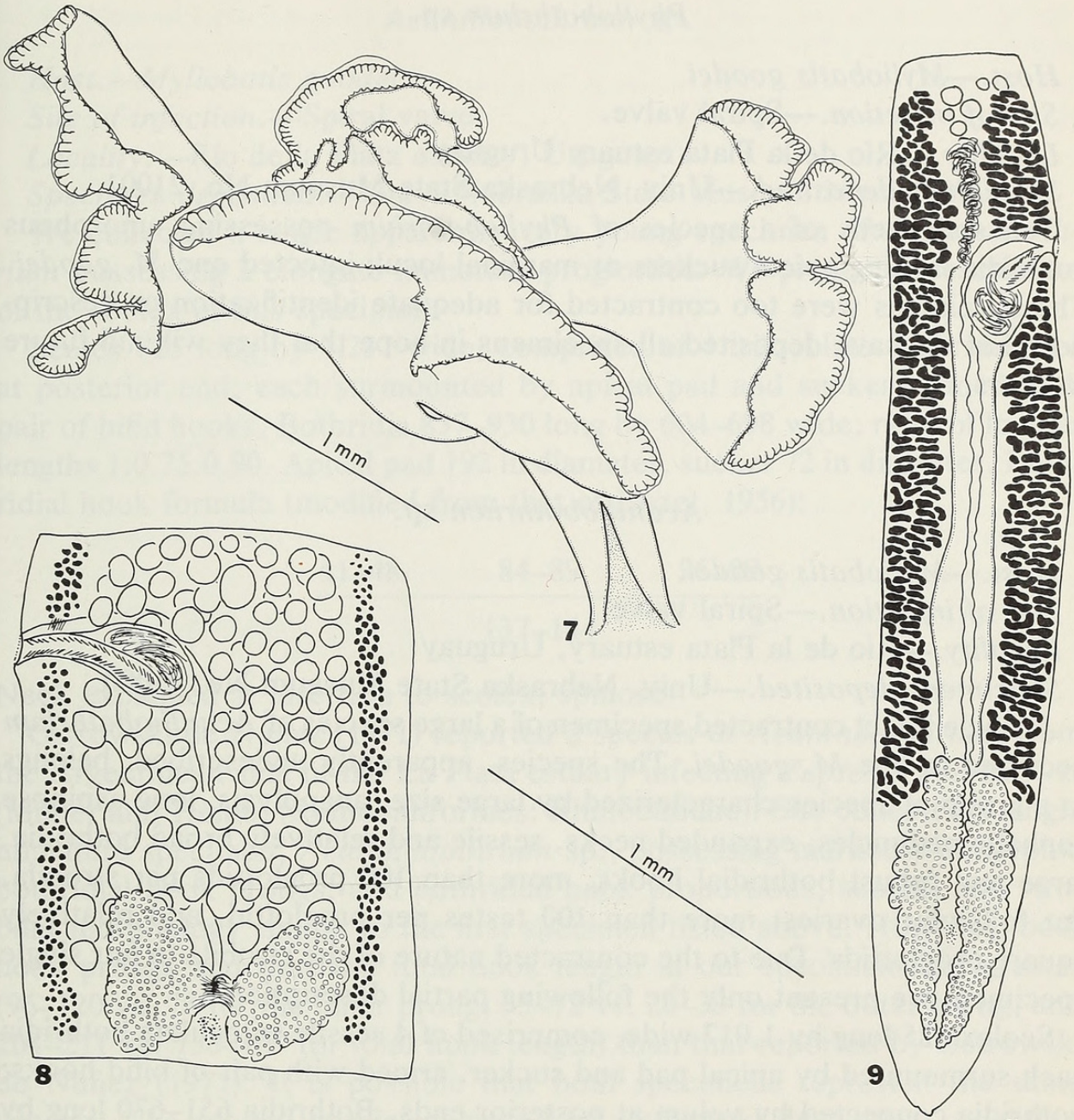
Host.—Myliobatis goodei.

Site of infection.—Spiral valve.

Locality.—Río de la Plata estuary, Uruguay.

Holotype.—USNM Helm. Coll. No. 75728. Paratypes: USNM Helm. Coll. No. 75729.

Phyllobothrium myliobatidis most closely resembles *P. auricula* Beneden, 1858 by having acraspedote proglottids with genital pores in the anterior ⅓ and 122–150 testes, band-like vitellaria which proliferate as the proglottid matures, and by having similar ovarian and bothridial morphology (marginal loculi with no transverse septa present on bothridia). Euzet's (1959) illustration of *P. auricula* shows an apical sucker on each bothridium



Figs. 7–9. *Phyllobothrium myliobatidis:* **7,** Scolex; **8,** Mature proglottid; **9,** Gravid proglottid.

which appears more like a strongly developed marginal loculus than a true sucker. The new species exhibits a similar structure in some specimens. *Phyllobothrium myliobatidis* differs from *P. auricula* primarily by exhibiting longer and thinner bothridial pedicels, and by having cirrus sacs 168–240 μm long by 84–168 μm wide whereas those in *P. auricula* measure up to 400 μm long by 200 μm wide. *Phyllobothrium auricula* parasitizes *Dasyatis pastinaca* in French coastal waters while *P. myliobatidis* occurs in *Myliobatis goodei* from Uruguayan coastal waters.

Phyllobothrium sp.

Host.—Myliobatis goodei.
Site of infection.—Spiral valve.
Locality.—Río de la Plata estuary Uruguay.
Specimens deposited.—Univ. Nebraska State Museum No. 21001.

Ten specimens of a species of *Phyllobothrium* possessing amorphous bothridia lacking apical suckers or marginal loculi infected one *M. goodei.* The specimens were too contracted for adequate identification or description, but we have deposited all specimens in hope that they will aid future workers.

Acanthobothrium sp.

Host.—Myliobatis goodei.
Site of infection.—Spiral valve.
Locality.—Río de la Plata estuary, Uruguay.
Specimens deposited.—Univ. Nebraska State Museum No. 21000.

A single intact contracted specimen of a large species of *Acanthobothrium* occurred in one *M. goodei.* The species, apparently undescribed, belongs to a group of species characterized by large size, anapolysis, long aspinose cephalic peduncles, expanded necks, sessile and relatively broad bothridia, large and robust bothridial hooks, more than 100 proglottids per strobila, flat follicular ovaries, more than 100 testes per proglottid, and relatively square proglottids. Due to the contracted nature of the strobila in our single specimen, we present only the following partial description:

Scolex 825 long by 1,017 wide, comprised of 4 sessile triloculate bothridia each surmounted by apical pad and sucker, armed with pair of bifid hooks; bothridia connected by velum at posterior ends. Bothridia 651–670 long by 409–418 wide; ratio of length to width 1:0.63. Ratio of locular lengths 1:0.44:0.32. Apical pad 326–335 in diameter; suckers 74–93 in diameter. Bothridia hook prongs markedly dimorphic. Bothridial hook formula (modified from that of Euzet, 1956):

$$\frac{108 \quad 96\text{–}120 \quad 55\text{–}72}{204\text{–}211}$$

Neck expanded at insertion to scolex, aspinose. Cephalic peduncle 1,925 long, aspinose. More than 100 proglottids present. Mature proglottids apparently wider than long to squared. Ovary follicular, with flat lobes.

Acanthobothrium sp.

Host.—*Myliobatis goodei.*
Site of infection.—Spiral valve.
Locality.—Río de la Plata estuary, Uruguay.
Specimen deposited.—Univ. Nebraska State Museum No. 20999.

We collected a single apparently very young specimen of *Acanthobothrium* possessing 2 elongate immature proglottids. We present a description of the scolex of this specimen:

Scolex 825 long by 1,237 wide, comprised of 4 triloculate bothridia free at posterior end, each surmounted by apical pad and sucker, armed with pair of bifid hooks. Bothridia 837–930 long by 604–698 wide; ratio of locular lengths 1:0.75:0.90. Apical pad 192 in diameter, sucker 72 in diameter. Bothridial hook formula (modified from that of Euzet, 1956):

$$\frac{41\text{–}48 \qquad 84\text{–}89 \qquad 96\text{–}99}{137\text{–}144}$$

Neck expanded at insertion to scolex, spinose.

Ostrowski de Nuñez (1971) reported 2 species of *Acanthobothrium* from the Argentinean side of the La Plata estuary infecting *Zapteryx brevirostris* (Müller and Henle) (Rhinobatiformes: Rhinobatidae). She collected a single immature specimen, *Acanthobothrium* sp., possessing markedly dimorphic bothridial hook prongs, and bothridial hook proportions, scolex, and strobilar morphology similar to the first specimen listed above. However, both hook prongs and thus the total hook length in our specimens are greater (96–120 vs. 78 for the inner prong, 55–72 vs. 26–39 for the outer prong, and 204–211 vs. 156–169 for total hook length) than that reported by Ostrowski de Nuñez (1971). It is possible that both specimens represent the same species. The second species reported by Ostrowski de Nuñez, *Acanthobothrium zapterycum,* exhibits smaller scolex dimensions and bothridial hook sizes as adults than does the single immature specimen we collected. Thus, at least 3 and possibly 4 different species of *Acanthobothrium* occur in stingrays inhabiting the La Plata region, although only one has been named.

Discussion

As mentioned in the introduction, this paper concludes a 5-year study of the cestode parasites infecting marine elasmobranchs along the eastern and northern coast of South America. Table 1 presents the hosts collected and

Table 2.—Cestode species collected in South American marine elasmobranchs during 1975–1979.

COLOMBIA

Dasyatis americana

Phyllobothrium cf. *kingae* Brooks and Mayes, 1980

Polypocephalus medusius: Brooks and Mayes, 1980

Lecanicephalum peltatum: Brooks and Mayes, 1980

Himantura schmardae

Acanthobothroides thorsoni Brooks, 1977

Acanthobothrium tasajerasi Brooks, 1977

Acanthobothrium himanturi Brooks, 1977

Rhinebothrium magniphallum Brooks, 1977

Rhinebothrium tetralobatum Brooks, 1977

Caulobothrium anacolum Brooks, 1977

Urolophus jamaicensis

Acanthobothrium cartagenensis Brooks and Mayes, 1980

Phyllobothrium cf. *kingae* Brooks and Mayes, 1980

Rhinebothrium magniphallum: Brooks and Mayes, 1980

Urotrygon venezuelae

Acanthobothrium urotrygoni Brooks and Mayes, 1980

Rhinebothrium magniphallum: Brooks and Mayes, 1980

Aetobatis narinari

Acanthobothrium colombianum Brooks and Mayes, 1980

Narcine brasiliensis

Acanthobothrium lintoni: Brooks and Mayes, 1978

Acanthobothrium electricolum Brooks and Mayes, 1978

VENEZUELA

Narcine brasiliensis

Acanthobothrium electricolum: Mayes and Brooks, 1980

Rhinoptera bonasus

Rhinoptericola megacantha: Mayes and Brooks, 1980

Dioecotaenia campbelli Mayes and Brooks, 1980

Rhodobothrium paucitesticulare Mayes and Brooks, 1980

Tylocephalum sp. Mayes and Brooks, 1980

Gymnura micrura

Acanthobothrium fogeli: Mayes and Brooks, 1980

Aetobatus narinari

Acanthobothrium tortum: Mayes and Brooks, 1980

Disculiceps sp. Mayes and Brooks, 1981

Table 2.—Continued.

HIMANTURA SCHMARDAE	
Parachristianella cf. *monomegacantha* Mayes and Brooks, 1980	*Rhinebothrium magniphallum*: Mayes and Brooks, 1980
DASYATIS GUTTATA	
Acanthobothroides thorsoni: Mayes and Brooks, 1980	*Rhodobothrium pulvinatum*: Mayes and Brooks, 1980
Acanthobothrium tasajerasi: Mayes and Brooks, 1980	*Rhinebothrium magniphallum*: Mayes and Brooks, 1980
Acanthobothrium urotrygoni: Mayes and Brooks, 1980	*Rhinebothrium margaritense* Mayes and Brooks, 1980
DASYATIS AMERICANA	
Acanthobothrium americanum: Mayes and Brooks, 1980	*Rhinebothrium corymbum*: Mayes and Brooks, 1980
Phyllobothrium centrurum: Mayes and Brooks, 1980	*Rhinebothrium margaritense* Mayes and Brooks, 1980
Rhodobothrium pulvinatum: Mayes and Brooks, 1980	
URUGUAY	
MYLIOBATIS GOODEI	
Discobothrium arrhynchum sp. n.	*Phyllobothrium myliobatidis* sp. n.
Caulobothrium uruguayense sp. n.	*Phyllobothrium* sp.
Caulobothrium ostrowskiae sp. n.	*Acanthobothrium* sp.
Acanthobothrium sp.	

the collection localities, and Table 2 presents an annotated list of the cestodes we collected.

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