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M. J. PENRITH

A NEW SPECIES OF FLAT FISH,
MANCOPSETTA MILFORDI, FROM SOUTH AFRICA,
WITH NOTES ON THE GENUS *MANCOPSETTA*

September 1965 September
Volume 48 Band
Part 7 Deel



ANNALS OF THE SOUTH AFRICAN MUSEUM
ANNALE VAN DIE SUID-AFRIKAANSE MUSEUM

Cape Town Kaapstad

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Verkrygbaar van die Suid-Afrikaanse Museum, Posbus 61, Kaapstad
(Kontant met bestelling, posvry)

OUT OF PRINT/UIT DRUK

1, 2(1, 3, 5, 7-8), 3(1-2, 5, t.-p.i.), 5(2, 5, 7-9),
6(1, t.-p.i.), 7(1, 3), 8, 9(1-2), 10(1-3),
11(1-2, 7, t.-p.i.), 21, 24(2), 31(1-3), 44(4).

Price of this part / Prys van hierdie deel

25c

Printed in South Africa by
The Rustica Press Pty., Ltd.,
Court Road, Wynberg, Cape

In Suid-Afrika gedruk deur
Die Rustica-pers Edms., Bpk.,
Courtweg, Wynberg, Kaap

A NEW SPECIES OF FLATFISH, *MANCOPSETTA MILFORDI*, FROM SOUTH AFRICA, WITH NOTES ON THE GENUS *MANCOPSETTA*

By

M. J. PENRITH*

South African Museum, Cape Town

(With 2 figures in the text and 1 plate)

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INTRODUCTION

The genus *Mancopsetta* was proposed by Gill (1881) to replace the pre-occupied generic name *Lepidopsetta* used by Gunther (1880) when describing *M. maculata*, the first of the bothid fishes found which lacked pectoral fins. This species has until now remained the only species in the genus and has been known from a very few specimens found in the Southern Hemisphere. The related genus *Achirosetta* (Norman, 1930) was known from two species, both rare and recorded only from the Southern Hemisphere. Recently the South African Museum was presented with two specimens of a bothid fish lacking pectoral fins. These have been assigned to the genus *Mancopsetta*.

Mancopsetta milfordi sp. n.

(fig. 1, pl. III)

Material:

S.A.M. 24041: trawled by a commercial trawler in 300 fathoms west of Cape Town. Standard length 393 mm. (Holotype).

S.A.M. 23767: trawled by a commercial trawler in 370 fathoms west of Cape Town. Standard length 298 mm.

The body is compressed, sinistral and fairly elongate, the maximum depth being about $2\frac{2}{3}$ in body length (excluding the caudal fin). The axial portion of the body is thickened relative to the rest of the body in the smaller specimen,

* Seconded from the Council for Scientific and Industrial Research Oceanographic Unit, University of Cape Town.

but this seems to become less marked with increase in size as it is not noticeable in the larger specimen. The caudal peduncle is very short, being only $\frac{1}{3}$ of the longitudinal diameter of the eye.

There is a single straight lateral line on both sides with about 160 scales on the ocular side. The scales are ctenoid with normally eight to twelve spinules. Towards the edges of the fish, especially on or near the fins, the spinules project at an angle away from the body, but on the main trunk they lie flat. The entire head, including the jaws and part of the eyes, is covered with fine scales. The eyes are separated by a low, scaled, bony ridge. All fin rays, including the caudal, have a row of scales.

The head from the tip of the maxilla to the hindermost edge of the operculum is contained 4 times in standard length, while the greatest diameters of the eyes (both eyes equal) are $\frac{1}{4}$ the length of the head. The snout is slightly shorter than the eye diameter. There is a small fleshy growth over the front of the maxilla. The mouth reaches back to a point almost level with the posterior edge of the lower eye. Teeth are present on both sides of the jaw but are slightly better developed on the ocular side. The mouth has a very wide gape and is protrusible. The membranes on the ocular side are more protrusible than those on the blind side. There are nine small gill-rakers on the lower arch of the first gill.

There is no trace of any pectoral fin on either side. The pelvic fin on the ocular side is larger than that on the blind side. On the eyed side the anterior base of the pelvic fin is median, while posteriorly the base is twisted to the left, i.e. on to the ocular surface of the body (fig. 1).

The body proportions and meristic counts of the two specimens are given in Table I and compared with a specimen of *M. maculata* from the collection of the British Museum (Natural History) (Registered No. 1930.5.6: 41).

The colour, preserved in formalin, is brown-grey with the anal and dorsal fins grey slate/blue. There is no trace of any pattern.

TABLE I

	<i>M. milfordi</i>	<i>M. milfordi</i>	<i>M. maculata</i>
Total length	456	334	239
Standard length	392	298	199
Greatest depth	143 (364)	99 (332)	88 (442)
Head length	101 (258)	76 (255)	53 (266)
Length of snout	22 (56)	15 (50)	10 (50)
Diameter of eye (horizontal)	24 (61)	20 (67)	17 (85)
Interorbital width	8 (17)	5 (15)	3 (15)
Length of Maxillary	48 (122)	33 (111)	18 (90)
Number of scales in lateral line	164	177	119
Dorsal rays	130	133	119
Anal rays	109	110	98
Pelvic rays, blind side	6	6	5
Pelvic rays, ocular side	7	7	7
Gill-rakers, lower arch	9	9	12

Body proportions and meristic counts of *M. milfordi* and *M. maculata*. Body proportions in millimetres and in thousandths of standard length in parentheses.

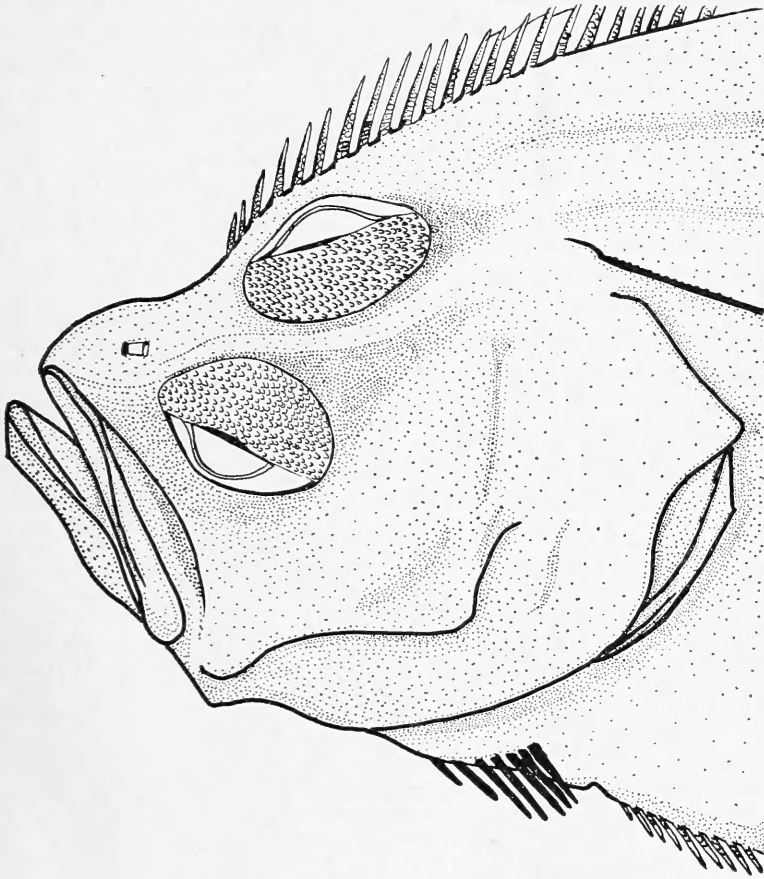


FIGURE 1. Head of *M. milfordi* showing the twisting of the posterior portion of the left pelvic fin onto the ocular surface.

Mancopsetta milfordi differs from *M. maculata* in the number of dorsal and anal rays and lateral line scales, the twisting of the posterior end of the left pelvic fin onto the ocular surface and in certain body proportions. It resembles *M. maculata*, however, in general body shape, especially head shape, and in the type of scales.

The species is named for Mr. C. S. Milford, managing director of the trawling firm, Messrs. Irvin and Johnson (Pty.) Ltd., in recognition of generous support for marine biological research.

GENERIC GROUPING

According to Norman (1934) there are only two genera of bothids (both known only from the Southern Hemisphere) which lack both pectoral fins.

These two genera, *Mancopsetta* and *Achiropsetta* are said to differ in the following characters. . . .

- (a) *Achiropsetta* is said to have a flat scaled interorbital space, whereas that of *Mancopsetta* is stated to be a naked narrow bony ridge.
- (b) *Achiropsetta* is said to be more elongate and to have a thickened trunk.
- (c) In *Mancopsetta* the pelvic fin on the ocular side is not directed to the left posteriorly as is said to be the case in *Achiropsetta*.
- (d) In both genera the scales are small and ctenoid, but in *Mancopsetta* the 8-14 spinules lie flat, whereas in *Achiropsetta* there are only one or two spinules which are directed away from the body.

These differences would seem to be clear cut, but the finding of a second species of *Achiropsetta*, *A. slavae* (Andriashev, 1960) and the present species have suggested that the differences between the genera are not so marked as was formerly thought. Neither *A. slavae* nor *M. milfordi* fits completely the generic description of the genus in which it has been placed. The distribution of various taxonomic characters among the four species of bothids which lack pectoral fins is shown in Table II below.

TABLE II

	<i>Achiropsetta</i>		<i>Mancopsetta</i>	
	<i>tricholepis</i>	<i>slavae</i>	<i>maculata</i>	<i>milfordi</i>
Dorsal rays	132	114-117	116-119	130-133
Anal rays	114	93-96	97-98	109-110
Lateral line scales	?	115	114-120	164-177
Depth in standard length	2.4	2	2.2	2.7
Gill-rakers in lower arch	9-10	12	12	9
Head in standard length	4.5	3.5	3.8	4
Coloration	plain	patterned	patterned	plain
Fleshy lip on maxilla tip	present	present	present	present
Spinules on scales	vertical	vertical	flat	flat
Pelvic fin of eyed side twisted to the left	yes	no	no	yes
Maximum known total length (mm.)	105	63	270	456
Smallest known total length (mm.) ..	100	48	134	334

Comparison of the four known species of bothid fishes which lack pectoral fins.

From the table it is clear that the only important character that the two species of *Achiropsetta* have in common, and distinct from the two species placed in the genus *Mancopsetta*, is the unusual form of the scales with vertically projecting spinules.

Although *A. tricholepis* is stated to have a flat scaled interorbital space (Norman, 1930, 1934), a specimen examined from the collection in the British Museum (1933.5.8: 1) shows a clear bony ridge. *M. maculata* on the other hand was said (Norman, 1934) to have a bony ridge without scales. In the specimen of *M. maculata* examined however, scale pockets were clearly present on the ridge. It seems likely that the scales were rubbed off in the trawl net. A scaled ridge is therefore present in *M. maculata*, *M. milfordi* and *A. tricholepis*. Nothing is known concerning this feature in *A. slavae*.

Another difference, the thickened trunk in *Achiropsetta*, is most probably a function of size as it is present in *Achiropsetta* (of which only small specimens are known) and the smaller of the two *M. milfordi* but not in the larger nor in *M. maculata*.

From the illustrations in Norman (1934) there is a strong suggestion of marked differences in the shape of the head in *M. maculata* and *A. tricholepis* but this is caused by illustrating the largest available example of the former species and the smallest of the latter. Figure 2 gives some idea of the changes of head shape that may occur in a species with an increase in size.

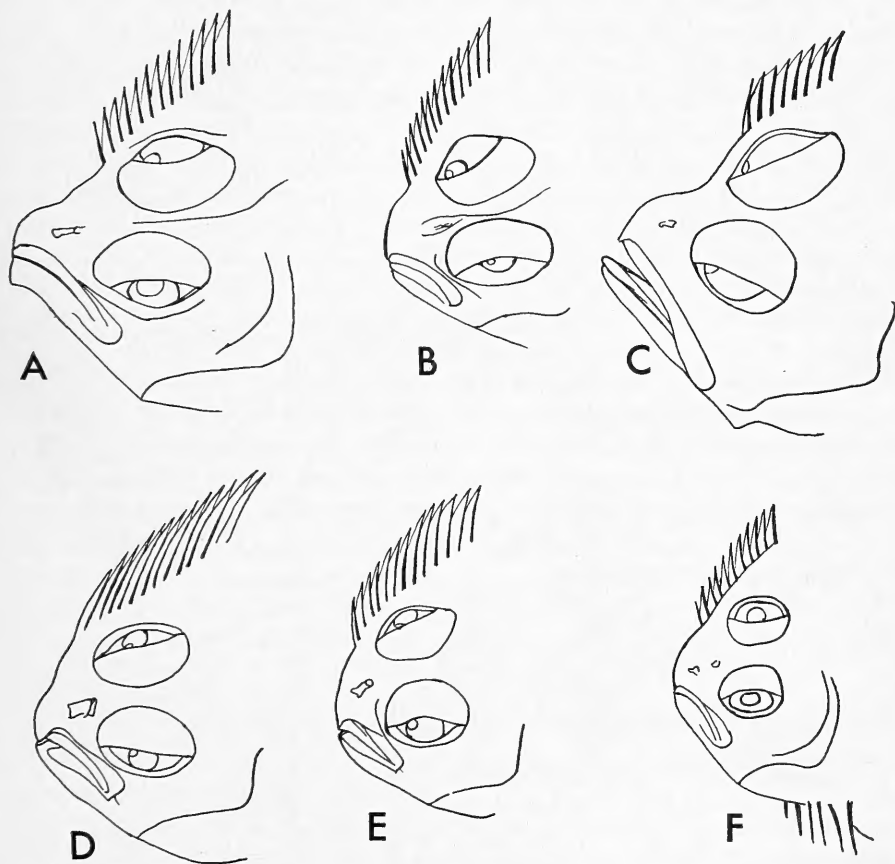


FIGURE 2. Head shapes of various specimens of the genus *Mancopsetta* redrawn from various sources (not to scale).

- A. *M. maculata* of 238 mm. total length (After Norman, 1934).
- B. *M. maculata* of 134 mm. total length (After Gunther, 1880).
- C. *M. milfordi* of 334 mm. total length.
- D. *M. slavae* of 63 mm. total length (After Andriashev, 1960).
- E. *M. slavae* of 56 mm. total length (After Andriashev, 1960).
- F. *M. tricholepis* of 100 mm. total length (After Norman, 1930).

From the above it is evident that there is only one important and constant difference between the two genera *Mancopsetta* and *Achiropsetta*, viz. the type of spinules present on the scales. At the same time, however, there are several clear points of similarity between *A. tricholepis* and *M. milfordi* and again between *A. slavae* and *M. maculata*.

It is extremely probable that the presence of vertically projecting spines in *Achiropsetta* is a larval or juvenile character as similar spines occur in many bothid larvae (Kyle, 1913). Andriashev (1960) holds a similar view and has stated 'It is very probable that the peculiar prickliness of the body of *Achiropsetta* (that is, the strongly developed, vertically projecting spines) can be considered as a larval character of a caenogenetic nature'. He also noted the similarity in fin counts between *A. slavae* and *M. maculata*, as well as the fact that these two species had the most similar distribution. He concluded, however, that the specimens of *A. slavae* could not be assigned to the genus *Mancopsetta* since in the latter genus the body is not transparent and the scales do not have the vertically projecting spinules. Andriashev further states that it is not possible to explain these in terms of development, as the difference in size between the smallest *M. maculata* and the largest *A. tricholepis* is only 29 mm. The greatest similarities are, however, between *M. milfordi* and *A. tricholepis*, where the minimum difference between the two species is 229 mm., and between *A. slavae* and *M. maculata*, where the difference is 71 mm.

While it is not possible at this stage in our knowledge of these fishes to suggest that *A. tricholepis* is actually the juvenile stage of *M. milfordi* or *A. slavae* that of *M. maculata*, it is suggested that for the reasons given above, and bearing in mind that these four species, in lacking pectoral fins, form a unique group within the family Bothidae, the species should not be separated into two genera but should rather be united into one genus, *Mancopsetta*. The differences between the species of the former genus *Achiropsetta* and those of *Mancopsetta* being far more likely due to growth rather than major genetic differences. The generic definition of *Mancopsetta* will, however, have to be modified from that given by Norman (1934), not only to include the species formerly placed in the genus *Achiropsetta*, but also the new species *M. milfordi*.

GENUS MANCOPSETTA

Lepidopsetta (non Gill, 1864) Gunther, 1880, p. 18.

Mancopsetta Gill, 1881, p. 373.

Achiropsetta Norman, 1930, p. 361.

Body fairly elongate, compressed and sinistral. Eyes large, close together and with the upper parts of each eyeball densely scaled. Lower eye a little in advance of the upper. Mouth of moderate size not reaching farther back than a point level with the posterior edge of the lower eye, maxillary narrow, not expanded behind. Jaws and teeth about equally developed on both sides. A small fleshy growth over the front tip of maxilla. Teeth small, conical and usually uniserial; vomer toothless. Few gill-rakers, those present being short.

Dorsal fin starting far forward on head. All fin rays simple, scaled. Pelvic fin of eyed side may or may not be posteriorly deflected to the left. No true pectoral fins but a fin bud may be present in small specimens. Lateral line on both sides single, straight and well developed.

Type species *Lepidopsetta maculata* Gunther, 1880.

The genus contains four species:

M. maculata (Gunther) 1880.

M. tricholepis (Norman) 1930.

M. slavae (Andriashev) 1960.

M. milfordi sp. n.

DISTRIBUTION

Andriashev (1955) has discussed the distribution of these fishes and has shown that they are known from a few specimens found over a wide area of the Southern ocean. The following are the only published locality records:

M. maculata. This species is known from three specimens, all caught by bottom trawling in deep water—

Marion Island: 46° 43' S. 38° 5' E. 580 m. (Gunther, 1880).

Falkland Islands: 45° 45' S. 59° 35' W. 311–247 m. (Norman, 1937).

South Georgia: 53° 48' S. 35° 57' W. 411–401 m. (Norman, 1938).

M. tricholepis. This species is known from only two examples taken by bottom trawling in shallow water—

Tierra del Fuego: 53° 00' S. 68° 06' W. 22–20 m. (Norman, 1930).

Falkland Islands: (No details available) (Norman, 1937).

M. slavae. Four specimens of this species are known and all were caught in midwater using an Isaacs–Kidd midwater trawl—

Wilkes Land: 64° 51' S. 114° 17' E. 725 m. cable (Andriashev, 1960).

(Antarctic) 63° 50' S. 116° 25' E. 1,100 m. cable (Andriashev, 1960).

64° 22' S. 121° 08' E. 1,100 m. cable (Andriashev, 1960).

64° 10' S. 127° 46' E. 1,100 m. cable (Andriashev, 1960).

M. milfordi. Known from only two specimens both taken by bottom trawl in deep water—

Cape of Good Hope, west of Cape Town. 550 m.

Cape of Good Hope: 33° 40' S. 17° 30' E. 675 m.

Some of these records are very widespread, especially *M. maculata* and suggest that these fishes are more common than the small number of known records would suggest. This is undoubtedly due to the very small amount of trawling that has been undertaken in the Southern ocean. More collecting would be very useful, as a good set of growth stages would certainly show whether *M. slavae* and *M. maculata* are in fact growth stages of the same species, and likewise with *M. milfordi* and *M. tricholepis*.

ACKNOWLEDGEMENTS

I am grateful to Professor J. L. B. Smith of Grahamstown, Dr. A. P. Andriashev of Leningrad, and Mr. P. R. Sloan of La Jolla for help in obtaining literature; to the Trustees of the British Museum (Natural History) for the loan of valuable material for comparative purposes; to Messrs. Irvin and Johnson (Pty.) Ltd. for presenting these two interesting specimens to the South African Museum; and to Dr. F. H. Talbot and my wife, Mary-Louise Penrith, for reading the manuscript.

The Trustees of the South African Museum are grateful to the Council for Scientific and Industrial Research for the award of a grant to publish this paper.

SUMMARY

A new species of bothid, *Mancopsetta milfordi* (Pisces: Bothidae), is described from deep water off the Cape of Good Hope. Four species of bothids are known which lack pectoral fins. They have been placed in two genera, *Mancopsetta* and *Achiropsetta*. It is shown that the two genera exhibit a marked overlap in characters and can be divided on only one character, which is probably a juvenile feature. The genus *Mancopsetta* is redefined to include all four species.

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- NORMAN, J. R. 1938. The coast fishes III. The Antarctic zone. *Discovery Rep.* **18**: 3-104.



Mancopsetta milfordi Holotype.

INSTRUCTIONS TO AUTHORS

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In duplicate (one set of illustrations), type-written, double spaced with good margins, including TABLE OF CONTENTS and SUMMARY. Position of text-figures and tables must be indicated.

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So proportioned that when reduced they will occupy not more than $4\frac{3}{4}$ in. \times 7 in. ($7\frac{1}{2}$ in. including the caption). A scale (metric) must appear with all photographs.

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Authors' names and dates of publication given in text; full references at end of paper in alphabetical order of authors' names (Harvard system). References at end of paper must be given in this order:

Name of author, in capitals, followed by initials; names of joint authors connected by &, not 'and'. Year of publication; several papers by the same author in one year designated by suffixes a, b, etc. Full title of paper; initial capital letters only for first word and for proper names (except in German). Title of journal, abbreviated according to *World list of scientific periodicals* and underlined (italics). Series number, if any, in parenthesis, e.g. (3), (n.s.), (B.). Volume number in arabic numerals (without prefix 'vol. '), with wavy underlining (bold type). Part number, only if separate parts of one volume are independently numbered. Page numbers) first and last, preceded by a colon (without prefix 'p'). Thus:

SMITH, A. B. 1956. New *Plonia* species from South Africa. *Ann. Mag. nat. Hist.* (12) **9**: 937-945.

When reference is made to a separate book, give in this order: Author's name; his initials; date of publication; title, underlined; edition, if any; volume number, if any, in arabic numerals, with wavy underlining; place of publication; name of publisher. Thus:

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SMITH, C. D. 1954. South African *Plonias*. In Brown, X. Y. *Marine faunas*. 2nd ed. **3**: 63-95. London: Green.

SYNONYMY

Arranged according to chronology of names. Published scientific names by which a species has been previously designated (subsequent to 1758) are listed in chronological order, with abbreviated bibliographic references to descriptions or citations following in chronological order after each name. Full references must be given at the end of the paper. Articles and recommendations of the *International code of zoological nomenclature adopted by the XV International congress of zoology, London, July 1958*, are to be observed (particularly articles 22 and 51).

Examples: *Plonia capensis* Smith, 1954: 86, pl. 27, fig. 3. Green, 1955: 23, fig. 2.

When transferred to another genus:

Euplonia capensis (Smith) Brown, 1955: 259.

When misidentified as another species:

Plonia natalensis (non West), Jones, 1956: 18.

When another species has been called by the same name:

[non] *Plonia capensis*: Jones, 1957: 27 (= *natalensis* West).

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