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PRELIMINARY NOTE ON PLANKTONIC OEGOPSIDA CEPHALOPOD LARVAE OBTAINED BY THE INTERNATIONAL INDIAN OCEAN EXPEDITION*

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ABSTRACT

This account is based on 28 samples of Oegopsida collected with the Indian Ocean standard net, during the International Indian Ocean Expedition. With a few exceptions, most of the specimens are in larval stages. Out of 34 specimens discriminated, 10 are so young or in defective condition to be identified specifically. The remaining 24 specimens are identified to species or at least generic level. All except two species, belong to a single family, Cranchiidae. Species with records of occurrence and remarks, if any, are included in the paper along with illustrations of some of the species.

INTRODUCTION

THROUGH the resolution of the Consultative Committee for the Indian Ocean Biological Center (IOBC), I was assigned the study of Oegopsida (Cephalopoda Decapoda) collected by the International Indian Ocean Expedition. I have received 28 lots of Oegopsida specimens from the IOBC. More materials are expected to be available in future. This report is a preliminary account of the specimens so far as I have received, but I believe that even this small material gives an aspect of planktonic cephalopod fauna of the Indian Ocean.

I owe many thanks to the those concerned, with the curatorial and sorting works of the IIOE matrials, and to the crew of the participating research vessels for their effort in collecting specimens from the Indian Ocean. The cephalopods other than Oegopsida from the same source will be reported elsewhere by Dr. Iwao TAKI, Professor Emeritus, University of Hiroshima.

MATERIAL

The source of 28 lots of specimens under report are shown below:

Ship - cruise	Station	Ship - cruise	Station
Anton Bruun - A	11	Vityaz - 31	4641
Discovery - I	5267	Vityaz - 35	5184
,,	5437	,,	5207
,,	5446	,,	5208
,,	5523	,,	5209
Kagoshima-Maru		,,	5211
III/63-64	13	,,	5217
,,	17	,,	5220
,,	20	,,	5222
,,	29	,,	5226
INS. Kistna - XV	353	,,	5247
Oshoru-Maru - I/63	11	,,	5260
,,	24	,,	5266
,,	31	,,	5281
,,	43		

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The station position, date, time and other relevant sampling data are given in "The Handbook to the International Zooplankton Collection, curated and processed at the Indian Ocean Biological Center, vol. I, Station List (1969).

RESULT (SYSTEMATICS)

With few exceptions, the present materials are all in larval stages. Out of 34 specimens examined, 10 specimens are so young or in defective condition to be identified. The remaining 24 specimens were identified to species or at least generic level. All, except two species, belong to a single family, Cranchiidae. Species with records of occurrence and remarks are given below.

Family *ENOPLOTEUTHIDAE*

Pterygioteuthis giardi Fischer, 1896

Occurrence: 1 specimen from Discovery - 1, St. 5267 (DML-15 mm) (Fig.1f)
Remarks: This is one of the commonest enoploteuthids in the warm water areas of world oceans. The single specimen, a young male, has some characteristics worth noting here. A diagnostic comparison of the species of genus *Pterygioteuthis, viz., giardi, gemmata* and *microlampas* was given by Berry (1914) and Voss (1967).

(1). The dorsal arm (rda. of Fig.1f) has, from proximal to distal, 3-4 pairs of rather large suckers, 2 pairs of large hooks, 5 pairs of small hooks and 6-7 pairs of minute distal suckers. The number of hooks and suckers appear to be larger than usual.
(2) The left ventral arm is hectocotylized. The ventral arm has an unpaired, single large hook near the distal tip. No suckers.

(3). There are two opaque blocks of tissue that show a certain reflection or irridescence imbedded in each tentacular stem. They are particularly clearly seen in the present specimens. They are considered to be photogenic organs. The one near the base is larger than the other situated about the mid-point of the stem and is as large as the largest light organ on the antero-ventral surface of the eye.

When more specimens become available in the future, the variations of counts of the armature of the arm will be clarified.

Family *BRACHIOTEUTHIDAE*

Brachioteuthis sp.

Occurrence: 1 specimen from Vityaz-35, St. 5209 (DML-5mm).

Remarks: The specimen is too small to be identified to the species level. It is likely that this is *B. riisei* Steenstrup (1882) which is the commonest species of the genus in the tropical-temperate regions of the oceans.

Family *CRANCHIIDAE*

Liocranchia reinhardti Steenstrup (1856) (Fig.1 a)

Occurrence: 1 specimen each from Anton Bruun-A, St. 11 (DML-36 mm). Discovery- 1, St. 5523 (DML-17mm); Kagoshima-Maru III/63-64, St. 17 (DML-34mm); INS. Kistna-XV, St. 353 (DML-16mm); Vityaz-35, St.5208 (DML-6mm); Do. St. 5209 (DML-7mm); and Do. St. 5266 (DML-16mm).

Liocranchia valdiviae Chun 1906 (Fig.1d)

Occurrence : 1 specimen from Vityaz-35, St. 5260 (DML—9.5 mm) and 1 specimen from St. 5281 of the same (DML—8mm).

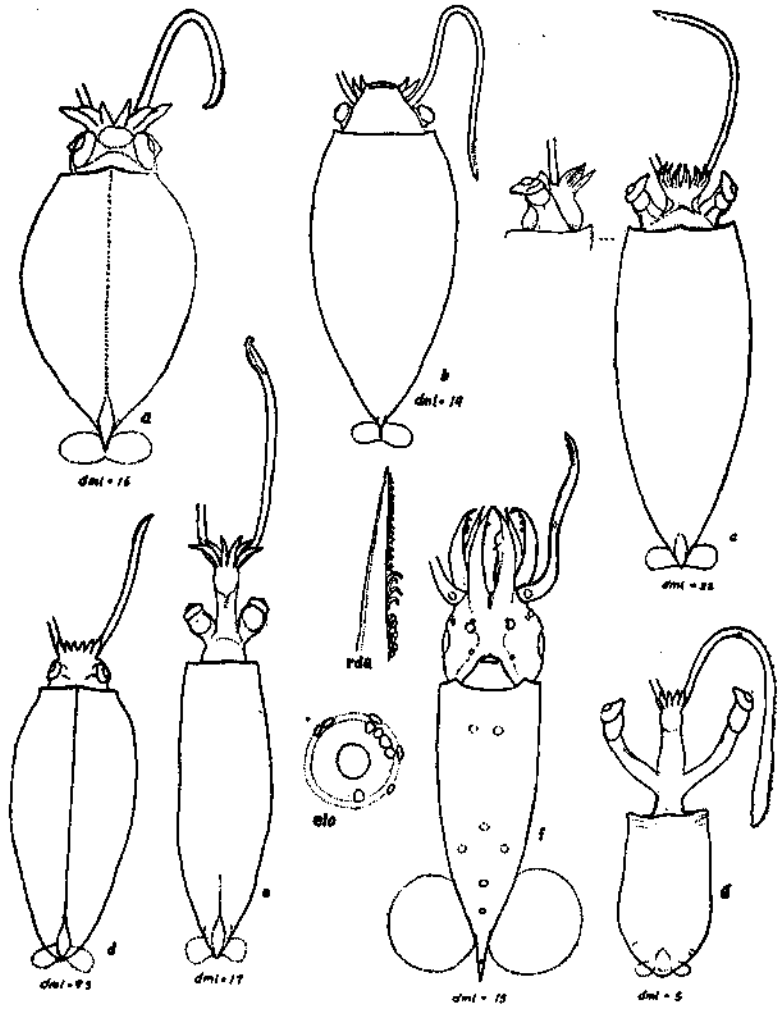

Fig. 1a. *Liocranchia reinhardti* from INS. Kistna—XV, Stn. 353; b. *Helocranchia* sp. from Vityaz-35, Stn. 5226; c. *Sandalops melancholicus* from Kagoshima - Maru III/63–64, Stn. 20; d. *Liocranchia valdiviae* from Vityaz-35, Stn. 5260; e. *?Galiteuthis* sp. from Vityaz-35, Stn. 5217; f. *Pterygioteuthis giardi* from Discovery-I, Stn, 5267-rda : right dorsal arm, elo : external light organ of the right eye; and g. *Bathothauma lyromma* from Oshoro-Maru-I/63, Stn. 11.

Remarks: This species is distinguished from the preceding species by its smooth mid-dorsal line and elongated shape of the mantle. But, these characteristics may not be distinct before the stage with DML-about 5 mm. Thus, a specimen from Oshoro-Maru-I/63, St. 43 could not be specifically identified.

Pyrgopsis "pacificus (Issel, , 1908)"

Occurrence : 1 specimen from Oshore-Maru-I/63, St. 31 (DML-36 mm).

Remarks: The specimen is unusually gelatinous and flabby. It is not clear at present if it is due to the action of the preservative or to the nature of the present material.

Sandalops melancholicus Chun 1906 (Fig. 1c)

Occurrence : 1 specimen each from Discovery-I, St. 5446 (DML-6 mm); Kagoshima-Maru-III/63-64, St. 13 (DML-10 mm); Do. St. 20 (DML-22, mm); Vityaz-53, St. 5222 (DML-20mm); and Do. St. 5247 (DML-8 mm).

Bathothauma lyromma Chun, 1906 (Fig. 1g)

Occurrence: 1 specimen from Discovery-I, St. 5437 (DML-5, mm); 1 specimen from Oshoro-Maru-I/63, St. 11 (DML-4 mm); 2 specimens from Vityaz-35, St. 5209 (DML-3, 4 mm)

Remarks: The specimens are all very small (cf. DML-114 mm reported by Voss (1963) and in poor condition.

Helicocranchia sp. (Fig. 1b)

Occurrence : 1 specimen from Vityaz-35, St. 5226 (DML-19 mm).

Remarks: The huge funnel and "pedunculated ' fin represent the generic characters. According to Clarke (1966) only two species of this genus are known. The present specimen hardly agrees with *H. beebei* Robson 1948 in many aspects, but may be rather close to *H. pfefferi* Massy 1907, which was originally reported from the North Atlantic and subsequently from the west coast of North America (Okutani and McGowan 1969).

?Galiteuthis sp. (Fig. 1e)

Occurrence : 1 specimen from Vityaz-35, St. 5217 (DML-14 mm).

Remarks: Definite identification is not possible . The general features agree with what Issel (1920) reported, except for a less distinct lanceola in the present material. However, more specimens representing serial developmental stages may be needed for specific identification.

Unidentified Larvae

Very early larvae from Kagoshima-Maru-III/63-64, St. 13; Do. St. 29; Vityaz-35, Sts. 5207, 5208, 5211 (2 spec.) and 5220, ranging in DML from 2 to 4 mm are probably Cranchiid larvae. Another early larva of which visceral part is missing from Vityaz 35, St. 5184 seems to be either an Enoploteuthid or an Octopoteuthid.

DISCUSSION

Not much discussion is possible from observations of such sparce material. However, the collections demonstrate that Cranchiidae outnumber (31 specimens

of at least 7 species against 3 non-Cranchiidae) other oegopsids in the upper layer of the Indian Ocean, as is also the case in the tropical seas. *Licoranchia reinhardti* is likely the commonst Oegopsida here. Additional material which may become available in the near future will help in the proper identification of the species as well as give us an idea of the relative abundance and distribution of the species in the Indian Ocean.

All forms identified to the species level have been reported from the Indian Ocean by the previous authors, except *Sandalos melancholicus* which is a new addition to the Indian a Ocean cephalopod fauna, but this could also be only a larval stage of a large Taoniid.