

AUSTRALIAN MUSEUM SCIENTIFIC PUBLICATIONS

Allan, Joyce K., 1940. A rare stalk-eyed squid (*Bathothauma lyromma* Chun) new to Australian waters. *Records of the Australian Museum* 20(5): 320–324. [15 March 1940].

doi:10.3853/j.0067-1975.20.1940.581

ISSN 0067-1975

Published by the Australian Museum, Sydney

nature culture **discover**

Australian Museum science is freely accessible online at
www.australianmuseum.net.au/publications/
6 College Street, Sydney NSW 2010, Australia



A RARE STALK-EYED SQUID (*BATHOTHAUMA LYROMMA* CHUN) NEW TO AUSTRALIAN WATERS.

By

JOYCE ALLAN,
Assistant Conchologist, Australian Museum.

(Figures 1-7.)

A very rare cephalopod has been found recently in Australian waters. It was collected in a surface net of the Fisheries Investigation vessel "Warreen" from St.62/38 (Tasmania), N. 200 horizontal; and, with the permission of Dr. H. Thompson, Officer in Charge, Fisheries Section, Council for Scientific and Industrial Research, I am now able to record it for the first time from Australia. I wish to express my thanks to Dr. Thompson for the opportunity to examine this rare cephalopod.

Only on four previous occasions has this species, *Bathothauma lyromma* Chun, been recorded. The genus *Bathothauma* was created by Chun¹ for a single specimen caught in 3,000 m., west of Cape Verde in the Guinea Stream by the "Valdivia" Expedition in 1903; but only a brief description of the characters is given in a general account of a pelagic family of squids, the Cranchiidae, in which he placed it. Robson,² when describing a model of this species in the British Museum, remarked that up till 1930 only two specimens of this very rare cephalopod were known: the "Valdivia" one from the Atlantic, and another obtained by the United States Fisheries Commission steamer "Albatross" in the eastern Pacific.

A third one, however, which Robson does not mention, is recorded by Joubin.³ This was caught during the 1910 voyage in 3,660 m., at St.3039 (Lat. 36° 05' 30" N.; Long. 9° 00' 30" W.), and though it was only a juvenile specimen, measuring but 10 mm. from the mouth to the posterior end (Chun's specimen measuring approximately 92 mm.), Joubin had no hesitation in considering it *Bathothauma lyromma*. He states that it does not differ from Chun's figures, and substantiates this by a figure (pl. xiv, fig. 4) of his specimen. Thiele⁴ points out that another juvenile species for which Joubin in the same work created a new genus and species, *Fusocranchia alpha*, should belong, in his opinion, to the genus *Bathothauma*; but Joubin's figures of the preserved specimen (pl. xiv, figs. 5-9) do not seem to me to show the characters sufficiently to substantiate Thiele's statement.

The fourth specimen of *Bathothauma lyromma* was collected by Dr. William Beebe at Nonsuch Island, Bermuda. Though an excellent photograph of it appeared in the Bulletin, New York Zoological Society, Vol. xxxiii, No. 2, 1930, p. 76, no facts were given. It appears, then, that only these four specimens were known until the "Warreen" had the good fortune to collect a specimen in Australian waters.

¹ Chun.—Zool. Anz., xxxi, 1907, p. 86.

² Robson.—Nat. Hist. Mag. (B.M.), ii, No. 16, 1930, pp. 257-9.

³ Joubin.—Res. Camp. Sci. Monaco, liv, 1920, p. 72, pl. xiv, fig. 4.

⁴ Thiele.—Handb. der Syst. Weicht., 1931, p. 933.

Though Chun in the original description of his new genus and species gives no figures of his specimen, he provides excellent ones in his "Valdivia" report,⁵ and further elaborates the characters of the family Cranchiidae, leaving little doubt as to the identification of the Australian specimen. It should be mentioned here that Chun refers in his text (p. 389) to a photograph of the "Albatross" specimen sent to him by Hoyle, who incidentally had described its eyes and luminous organ,⁶ and that this interested him as it showed that the eye-stalks of his (Chun's) specimen were not normal. To illustrate this, Chun figures the ventral surface of the Atlantic *Bathothauma lyromma* with its eye-stalks in their abnormal position (fig. 6), and the dorsal surface of the same specimen with the eye-stalks as shown normal in the photograph of the eastern Pacific "Albatross" one sent to him by Hoyle (fig. 7). Chun's explanation of the latter figure reads: "Fig. 7. Dasselbe Exemplar, Dorsalansicht. Nat. Grösse. Die Augienstiele sind unter Berücksichtigung ihres Verhaltens bei einem zweiten Exemplar gestreckt dargestellt."

In preparing this account of *Bathothauma lyromma*, I have thought it worth while to include copies of the illustrations of Chun's type specimen as well as illustrations of the Australian form.

Class CEPHALOPODA.
Subclass DIBRANCHIA.
Order DECAPODA.
Family CRANCHIIDAE.
Genus *Bathothauma* Chun, 1906.

Bathothauma Chun, Zool. Anz., xxxi, 1907, p. 86.

Haplotype.—*Bathothauma lyromma* Chun.

Characters of the Genus.—Fins widely spaced. Posterior end of body rounded. Eyes on large plump stalks. Body sac-like. Fins small, rounded, tapering towards the fin attachment. Posterior end of gladius (pen) shaped to a transverse clasp, which gradually expands laterally and with its shovel-shaped ends serves as a support to the fin-attachment. Eyes large, oval, running to a point on the ventral side above the large luminous organ. Eye-stalks long, broad, bent lyre-shaped. Head long and slender. Arms small, tentacles very large; tentacle stalks armed with numerous suckers in two rows along their entire length. Club slightly expanded, very long, keeled. Sac-like end section of the main stomach is turned up ventrally forwards. Pancreas compact, horseshoe-shaped, lying on both sides of the liver, which projects far into the respiratory cavity (Chun).

Bathothauma lyromma Chun.

Bathothauma lyromma Chun, Zool. Anz., xxxi, 1907, p. 86; Wiss. Ergeb. Deutsch Tiefsee-Exped., "Valdivia", xviii, Teil i, 1910, pp. 389-391, Taf. lvi, F. 9, Taf. lvii, F. 1, 2, Taf. lviii, F. 6, 7. *Id.*, Hoyle, 7th Intern. Zool. Cong., Boston, 1907, pp. 831-35 ("advance print" separately paged). *Id.*, Joubin, Res. Camp. Sci. Monaco, liv, 1920, p. 72, pl. xiv, f. 4. *Id.*, Robson, Nat. Hist. Mag. (B.M.), ii, No. 16, 1930, p. 259. *Id.*, Thiele, Handb. der Syst. Weicht., 1931, p. 982, F. 882.

⁵ Chun.—Wiss. Ergeb. Deutsch Tiefsee-Exped., "Valdivia", xviii, Teil i, 1910, pp. 1-400, Taf. lvi, F. 9; Taf. lvii, F. 1, 2; Taf. lviii, F. 6, 7.

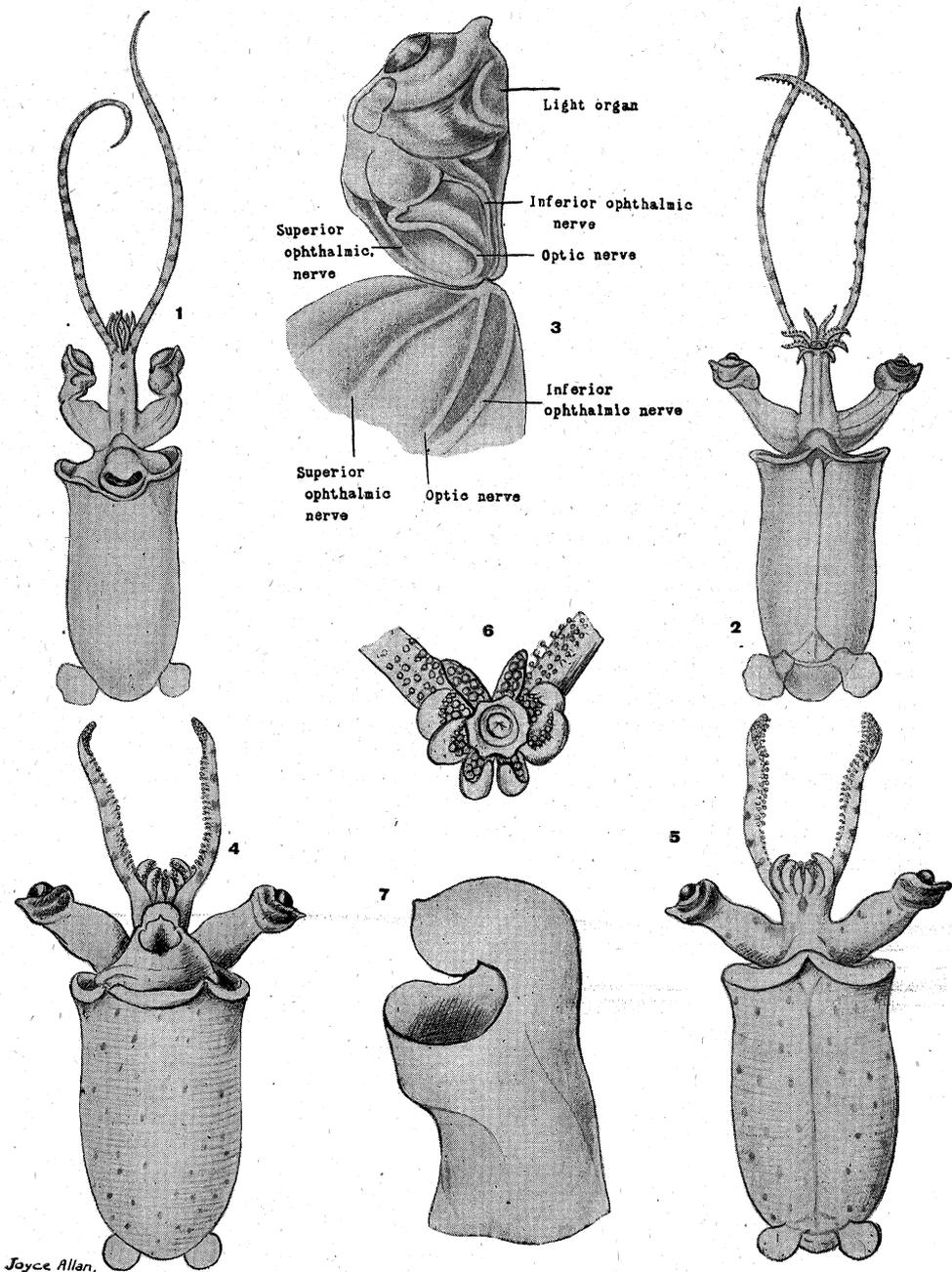
⁶ Hoyle.—7th Intern. Zool. Cong., Boston, 1907, pp. 831-835 ("advance print" separately paged).

Though the Australian form of this species is much smaller than the type specimen and is apparently immature, structurally it is well developed and shows the typical characteristics of the genus and species as described by Chun. Outstanding are the sac-like body with rounded posterior end, conspicuous rounded fins set well apart, large eyes on long plump eye-stalks, long head bearing short sessile, and two very long, non-retractile, tentacular arms, and the very peculiar large hood-shaped siphon.

The "Warreen" specimen shows considerable shrinkage of the tentacular arms, neck portion of the head, and the fins through preservation, but it is easy to see that their proportionate length would be greater when alive. The tentacular arms rise from between the first and second ventral pairs of sessile arms, and, unlike those in many cephalopod groups, are non-retractile. They bear numerous stalked suckers on their club-like extremities, and along the length of the stalks other suckers arranged in two rows on each side, but towards their base in places only a single row on each side. In Chun's description of his specimen we are led to understand, and his illustrations bear this out, that the suckers throughout the length of the tentacular stalks are arranged in one row along each side. In the Australian specimen the suckers are for the main length definitely in two rows with a groove between them, though they change at their base to a single row on each side. The sessile arms are well covered with large suckers, mostly in two rows. The first two dorsal arms are the smallest, the second pair slightly larger, the third pair the largest, and the fourth or ventral pair almost equal them in size. The neck is long and from its base on each side rise the large, plump eye-stalks. These are sufficiently transparent to enable the nerve system to be clearly seen running its course. The eye is elongated and ellipsoid with a long axis, as Hoyle points out (*loc. cit.*), apparently directed vertically in the natural swimming position of the animal. Beneath the eye-ball lies the luminescent organ, occupying a depression close to the apex of the ocular ellipsoid. The eye in the Australian form appears to be exactly as in Chun's figure, which I have included.

The head and body are united in three places, each side of the siphon ventrally and mid-dorsally, and the body bears a very pronounced wide, rolled-back collar, which is entire along the margin except for notches ventrally where it joins the head and in the middle line dorsally. This rolled-back margin seems much wider than that illustrated in Chun's figures of *Bathothauma lyromma*, but otherwise appears the same. Incidentally it is only in this genus of the family Cranchiidae that such a rolled margin exists. The siphon, which is extremely large, is quite unlike the average siphon found in the cephalopoda, and is characteristic of the genus. It has a peculiar hood-like opening suggesting the possibility of control of intake and output, and a base reaching almost to the

Figs. 1-7.—1. Ventral surface of the "Valdivia", Atlantic type specimen of *Bathothauma lyromma* Chun, showing abnormal eye-stalks (after Chun, Taf. lviii, F. 6). Approximately little less than half natural size. 2. Dorsal surface of same specimen, but with the eye-stalks drawn normally as in the "Albatross", eastern Pacific specimen (after Chun, Taf. lviii, F. 7). Slightly less than half natural size. 3. Side view of the left eye of the type specimen of *Bathothauma lyromma* (after Chun). Enlarged. 4. Ventral surface of the "Warreen" (Australian) specimen of *Bathothauma lyromma*. Enlarged about three times. 5. Dorsal view of same. 6. Relative position of the sessile and tentacular arms to the mouth in the same. Enlarged. 7. Side view of the hood-like siphon in the Australian form of *Bathothauma lyromma*. Enlarged.



Joyce Allan.

Figs. 1-7.—*Bathothauma lyromma*, Chun.
 (For explanation, see page 322.)

body sides. The specimen is very delicate, and constant handling was avoided as much as possible, as the skin in the smaller cephalopods at any time is easily rubbed, and the tentacles broken. For that reason I decided not to examine it internally beyond cutting the mid-dorsal line to seek the pen. The body is rounded posteriorly, bearing on the dorsal surface on each side a small rounded, delicate fin. When I first saw a specimen the fins were set wide apart with a fleshy ridge uniting them posteriorly, a similar ridge extending from their outer edges to the median line, and a formation reaching from the mantle edge to the posterior point of the dorsal surface of the squid, just as figured by Chun. In preservation, however, the fins have come much closer together. On slitting down the dorsal middle line, remnants of a very delicate, horny pen are seen. It is always difficult to prevent these delicate pens from destruction when placing cephalopods in preservative. From the pieces remaining, however, it is seen that the pen extended the full length of the body and was as described by Chun.

The colour of the specimen was pale creamy-white, with rose-red to blackish spots scattered over both dorsal and ventral surfaces, a few on the head and along the eye-stalks. Patches of colour, similar to those on Chun's figure, and, in fact, those on most genera of the family, occur at regular intervals along the tentacular arms; these still show on the specimen in spite of preservation. Round the whole body at regular intervals are wrinkle-like folds from the anterior end of the mantle to the posterior end. Though this may be due to shrinkage in the specimen, yet so regularly do they occur that they may on the other hand be a normal characteristic. Chun makes no mention of such a feature, nor does he show any colour markings on the body of his specimen, only on the arms.

The Australian specimen measures 11 mm. from the collar margin to the posterior end, and is 7 mm. wide; base of neck to mouth, 4 mm.; shortest arm, 1 mm. long; longest sessile arm, 3 mm.; tentacular arms, 7 mm.; eye-stalk to eye, 4 mm. long, 2 mm. wide. The type specimen, which Chun illustrates natural size in the "Valdivia" report, measures, according to that illustration, 92 mm. from mouth to posterior end, with the body 30 mm. wide, and the eye-stalks from base to eye 30 mm. long. It will be interesting to see if the "Warreen" brings to light further and larger specimens of this very interesting species of *Bathothauma*.