

A NEW SPECIES OF CRINOID (PTILOCRINUS PINNATUS)  
FROM THE PACIFIC COAST, WITH A NOTE ON BATHY-  
CRINUS.

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In working over the stalked crinoids obtained by the United States Fisheries steamer *Albatross* in the north Pacific, I find the following interesting form which has never been described. The species is represented by twenty-four calyces, most of them with more or less of the stem attached, fourteen stems and pieces of stems, and a number of detached arms and pinnules. None of the specimens are absolutely perfect, but four are nearly so, having lost only a few pinnules, and in one or two the distal portion of the arms. These specimens were all obtained at station No. 3342, on September 3, 1890, in 52° 39' 30" north latitude, 132° 38' 00" west longitude, near the coast of Moresby Island, Queen Charlotte group, in a depth of 1,588 fathoms. The bottom was gray ooze and coarse sand, and the bottom temperature 35.3° F. (corrected). This is remarkable in being the only stalked crinoid known from the eastern Pacific, with the exception of the closely related *Calamoerinus diomedæ* A. Agassiz from the Galapagos Islands. I was at first inclined to regard this form as a second species of *Calamoerinus*, but a more careful examination has convinced me that it should be separated generically; and for it, therefore, I propose the generic name of

PTILOCRINUS *a* Clark, new genus.

The characters of the genus are given with those of the type species, *Ptilocrinus pinnatus*.

PTILOCRINUS PINNATUS Clark, new species.

*Type*.—Cat. No. 22603, U.S.N.M.

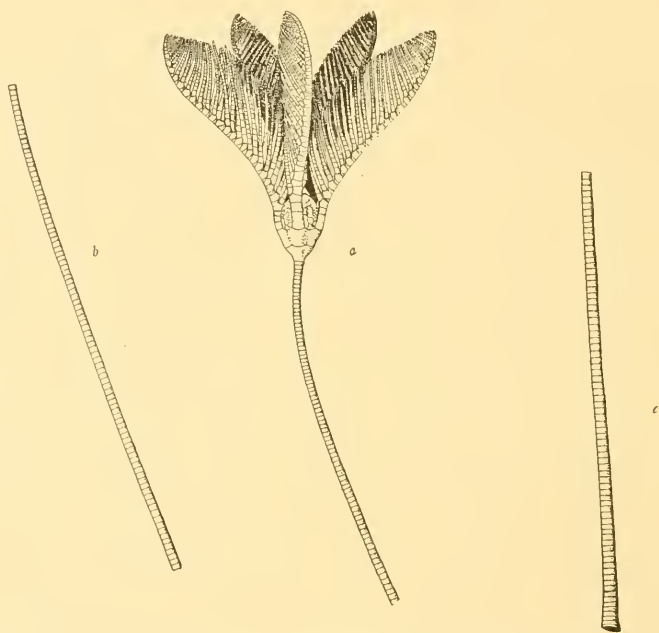
Basals completely anchylosed into a funnel-shaped cup as in *Bathycrinus*, about four-fifths the height of the primary radials. The height

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*a* πτιλον, feather; κρινον, lily.

of the basal cup is about equal to its width where it joins the radials, and to twice its diameter at the dorsal pole. (See fig.)

Primary radials closely united, the interradial sutures usually distinct, but in some cases nearly obsolete; basi-radial sutures usually rather more distinct than the interbasal. The primary radials are elongate, the median part of each one raised into a rounded ridge, giving the calyx a rounded pentagonal aspect when viewed dorsally. About two-thirds of the center of the superior edge of the primary radials is occupied by the first brachials; but the radials are not especially incised for their reception



PTILOCRINUS PINNATUS. *a*, CROWN AND UPPER PART OF STEM. *b*, MIDDLE OF STEM. *c*, LOWER PART OF STEM.  $\frac{1}{2}$  NAT. SIZE. SEE ALSO PLATE LIII FOLLOWING PAGE 556.

The arms are five in number, and are unbranched. They consist of about sixty joints, with pinnules on (in most cases the left of) the third and all succeeding. The first brachial is usually a syzygy, as are the fourth and sixth, with another after about ten joints, and two or three at irregular intervals toward the tip of the arm. The longest pinnules are between the twentieth and twenty-fifth, these having about thirty joints. The pinnules decrease gradually in length toward the calyx, the first having about twenty joints; distally the decrease in length is rather more rapid, the pinnules at the end of the arms having about ten joints.

The longest stem is 355 mm. in length, and is composed of 360 joints, very uniform in size, but becoming somewhat lower toward the calyx,

and again near the base. The stem is smooth and very slender, all the joints being practically cylindrical; it tapers gradually from the base upward, expanding again slightly near the calyx. There appears to be a rather unusual amount of flexibility in the stem of this species, especially near the calyx, for in some of the specimens it is so much arched that the arms point straight down; on removing them from the alcohol, the stem may be straightened out again without injury.

Interradial plates are present, similar in character to those of *Calamocrinus diomedæ*, but much larger in proportion.

Some of the specimens are parasitized by *Eulima pilocrinicola* Bartsch, which in one has resulted in a very considerable distortion of the calyx. Another has three holes completely perforating the plates of the calyx, evidently made by this species.

#### BATHYCRINUS AUSTRALIS Clark, new name.

In 1876<sup>a</sup> Sir C. Wyville Thomson described a new *Bathycrinus* from a single specimen taken by the *Challenger* at Station No. 106, August 25, 1873, in 1° 47' north latitude, 24° 26' west longitude, under the name of *Bathycrinus aldrichianus*, illustrating his description with a woodcut of a drawing made on board the *Challenger*. Subsequently about a dozen other specimens of *Bathycrinus* were obtained by the *Challenger*, which were referred by Sir Wyville to this species.

In working up the stalked crinoids of the *Challenger* collection, Dr. P. Herbert Carpenter<sup>b</sup> found that Sir Wyville had united two species under the name of *B. aldrichianus*, not realizing at the time that the single small specimen obtained near the equator was specifically distinct from the larger examples secured in the South Temperate Zone.

Now unfortunately Doctor Carpenter in his great work applied Sir Wyville's name *B. aldrichianus* to the specimens obtained in the South Temperate Zone, being led into error through Sir Wyville's later writings, where he limits the name *B. aldrichianus* to these same examples; and he gives the new specific name *Bathycrinus campbellianus* (Wyville Thomson MSS.) to the single specimen obtained at station No. 106, the very one which eight years before served as the type of *B. aldrichianus*. The woodcut originally used in 1876 to illustrate *B. aldrichianus* was used again in 1878<sup>c</sup> to illustrate the same species; but Doctor Carpenter in 1884 used the same woodcut to represent his *B. campbellianus*. It is clear, then, that the names *B. aldrichianus* and *B. campbellianus* are synonyms, being founded on the same specimen, and also that the name *B. aldrichianus* used by

<sup>a</sup>Jour. Linn. Soc. London, Zoology, XIII, p. 50, fig. p. 49.

<sup>b</sup>Challenger Reports, Report on the Crinoidea, vol. xi of Zoology, p. 239.

<sup>c</sup>The Atlantic, II, p. 85, fig. 23.

Doctor Carpenter for the southern specimens is wholly inadmissible for them, being based on the specimen referred to (and described) by him as *B. campbellianus*.

I propose, therefore, that the species called by Doctor Carpenter *B. aldrichianus* be known as *Bathycrinus australis*, and that 46° 16' south latitude, 48° 27' east longitude, be considered the type-locality.

The species of *Bathycrinus*, then, are as follows:

Genus BATHYCRINUS Wyville Thomson.

1872. *Bathycrinus* WYVILLE THOMSON, Proc. Roy. Soc. Edinb., VII, p. 772.

Type. — *Bathycrinus gracilis* Wyville Thomson.

BATHYCRINUS GRACILIS Wyville Thomson.

1872. *Bathycrinus gracilis* WYVILLE THOMSON, Proc. Roy. Soc. Edinb., VII, p. 772.

Type-locality. — 47° 38' north latitude, 12° 18' west longitude; H. M. S. *Porcupine*.

BATHYCRINUS CARPENTERII (Danielssen and Koren).

1877. *Hyacinus carpenterii* DANIELSSEN and KOREN, Nyt Magazin for Naturvidenskaberne, XXIII, 3die Hefte, p. 45.

Type-locality. — 63° 22' north latitude, 1° 20' east longitude; 65° 55' north latitude, 7° 20' east longitude; or 65° 15' north latitude, 0° 36' west longitude: Norske Nordhavsexpedition.

BATHYCRINUS ALDRICHIANUS Wyville Thomson.

1876. *Bathycrinus aldrichianus* WYVILLE THOMSON, Jour. Linn. Soc., XIII, p. 50, fig. p. 49. (= *B. campbellianus* of Carpenter.)

Type-locality. — 47° 47' north latitude, 24° 26' west longitude; H. M. S. *Challenger*.

BATHYCRINUS AUSTRALIS A. H. Clark.

*Bathycrinus aldrichianus* P. II. CARPENTER (not of Wyville Thomson).

Type-locality. — 46° 16' south latitude, 48° 27' east longitude; H. M. S. *Challenger*.

BATHYCRINUS PACIFICUS A. H. Clark.

1907. *Bathycrinus pacificus* A. H. CLARK, Proc. U. S. Nat. Mus., XXXII, p. 510, fig 2.

Type-locality. — 33° 18' 10" north latitude, 135° 40' 50" east longitude; U. S. Bureau of Fisheries Steamer *Albatross*.