

## A New *Neptunea* from the Pacific Northwest

BY

ALLYN G. SMITH

Associate Curator

Department of Invertebrate Zoology, California Academy of Sciences, San Francisco, California 94118

(Plate 14)

FOR MANY YEARS the operations of commercial trawlers along the west coast of North America, particularly off central and northern California and the Pacific Northwest, have been restricted to moderate depths generally not exceeding 100 fathoms and usually in the range of 50 to 75 fathoms. In the last ten years, however, due to offshore fisheries investigations by the California Division of Fish and Game and similar organizations, excellent table fish, such as sole and sablefish (black cod), have been discovered in commercial quantities in much deeper water.

As a result, trawler captains have been lengthening their lines and making successful hauls on new fishing grounds at depths ranging from 100 fathoms to 400 fathoms with the possibility of increasing the range to as deep as 500 fathoms. These deeper-water trawl hauls started early in 1948, when two otter-trawl captains worked their nets in 200 fathoms off the northern California coast and continued to get good results in the 185 to 215 fathom range (HOLMBERG, 1948; SCOFIELD, 1948).

To conchologists fortunate enough to enlist the cooperation of trawl fishermen to save some of the deeper-water mollusks brought up in their nets instead of throwing them back overboard as they usually do, some of the deeper hauls have turned out to be veritable bonanzas. The larger carnivorous mollusks, such as *Neptunea* and *Beringius*, have been turning up more frequently and this has been true also for many smaller species.

Among other mollusks obtained from trawler captains in the last several years by Mr. Everett C. Stiles of Bellingham, Washington, is a new species of *Neptunea* taken sparingly in an area from Cape Flattery, Washington, north to Cape Scott at the northern end of Vancouver Island, British Columbia.

*Neptunea stilesi* A. G. SMITH, spec. nov.

(Plate 14, Figures 1 to 7)

**General Diagnosis:** This *Neptunea* is of medium size for the genus and is distinguished mainly by its much

shorter spire compared with other Northwest Pacific species, such as *Neptunea pribiloffensis* (DALL, 1919), *N. phoenicea* (DALL, 1891), and *N. lyrata* (GMELIN, 1791). In general shape it is closer to *N. beringiana* (MIDDENDORFF, 1848), which has a smaller, somewhat heavier shell and a geographical range much farther to the north. It has a capacious bodywhorl with an unflared lip when adult, and a short canal. In color it is off-white to beige or yellowish and occasionally a reddish-brown. Major sculpture consists of widely-spaced, moderate to heavy, rounded spiral chords or ribs, which are usually darker in color than the ground-color of the shell.

**Description of the Holotype:** Shell from an adult living specimen with operculum, of short fusiform shape with a relatively short spire, a large, evenly-rounded, tumid bodywhorl that terminates in a capacious aperture, and a short canal bent slightly to the left and rather sharply to the rear. Divergence of spire (apical angle) approximately 87°. Nuclear whorls damaged at the tip, about 2 remaining, nearly straight-sided, with a small channel near the suture and a low chord below it, otherwise smooth. Postnuclear whorls 4½, rounded, and decorated with a series of evenly-spaced, low, rounded, spiral ribs of which there are 14 on the bodywhorl and 3 each on the preceding postnuclear whorls, with a fourth showing near the suture at the base of the penultimate whorl; uppermost rib weak, the remaining are stronger. The spacing of the spiral ribs becomes gradually wider with the growth of the shell, being 5 to 9 mm apart near their terminations at the peristome. Spaces between the spiral ribs slightly concave and decorated with from 2 to 4 fine spiral chords. Transverse sculpture consists of many, closely-spaced, rather rough lines of growth, overridden by the fine intercalated spiral chords; it is much roughened on the canal. Sutures distinct and slightly channeled; below them the tops of the whorls are slightly flexed, forming a shallow, encircling channel. Outer lip fairly thick, blunt-edged, unflared, somewhat crenulated by the major spiral chords, with a small notch at its anterior terminus with the bodywhorl. Inner lip a smooth wash of callus only. Columella sinuate, terminating on



the canal in a well-marked siphonal fasciole that extends to the tip of the canal. Color of shell cream-white, the major spiral chords a contrasting red-brown. Aperture white, porcellaneous. Operculum heavy, normal for the genus. Periostracum lacking.

Measurements are: length, 93.9; maximum diameter, 64.9; length of aperture (including canal), 71.5; width of aperture, 31.8; length of canal, about 20 mm.

**Type Locality and Range:** Because of lack of accurate data, no specific type locality can be pinpointed. Most specimens received for study were trawled in depths of approximately 100 to 125 fathoms in the area bounded, in general, on the south by La Perouse Bank, 40 miles west of Cape Flattery, Washington, and on the north by Cape Scott at the northern tip of Vancouver Island, British Columbia. A single specimen was dredged in 34 fathoms, Hakai Pass, British Columbia, by Dr. I. McT. Cowan of the University of British Columbia (UBC No. 1540). Another half-grown shell was also taken by Dr. Cowan in about 85 fathoms, Queen Charlotte Sound, just north of Cape Scott. An old, dead adult specimen in the Stanford University Collection (Department of Geology) was dredged in 110 fathoms, Virago Sound, British Columbia.

**Disposition of Specimens:** Holotype deposited in the California Academy of Sciences, Geology Type Collection, no. 13124.

Twenty-eight paratype shells have been placed in several institutions, including the California Academy of Sciences, Stanford University, the University of British Columbia, Los Angeles County Museum of Natural History, United States National Museum, and the Academy of Sciences of the U. S. S. R. (Leningrad); and in the private collection of Everett C. Stiles. Preserved animals of 6 paratypes have been deposited in the California Academy of Sciences, Invertebrate Zoology Type series, nos. 371 to 376, inclusive.

**Remarks:** This fine new species of *Neptunea* is dedicated to Mr. Everett C. Stiles of Bellingham, Washington, whose diligence in enlisting the interest and cooper-

ation of several Pacific Northwest trawler captains has resulted in most of the specimens that have been available to date. Although it is found in the same general area and at about the same depths as the heavily-ribbed *Beringius eyerdami* A. G. SMITH, 1959, it has been taken less frequently and must be rated as a relatively rare species.

In the type lot of 29 shells, 23 were obtained alive, 17 with opercula, although in most instances the animals had disintegrated and could not be saved. There is considerable variation in this series of shells in size, sculpture and color. Size limits are shown by the following measurements:

Dimension	Largest	Smallest
Length, over-all	116.1 mm	69.5 mm
Maximum diameter	72.3 mm	48.6 mm
Length of aperture and canal	78.2 mm	54.4 mm
Width of aperture	35.3 mm	26.4 mm
Length of canal	26.0 mm	8.3 mm
Number of postnuclear whorls	6	3 $\frac{3}{4}$
Apical angle	96°	72°

The most striking sculptural feature is the presence on typical specimens of prominent spiral ribbing of a red-brown color against a cream-white background. This feature is not at all consistent, however. Twenty-eight of the 29 shells can be ranked as follows in terms of the presence and prominence of the spiral ribs or chords:

Ribs obsolete or weak	6
Ribs of medium strength	7
Ribs fairly prominent	15

The shell texture of full-grown adults is only moderately heavy; in younger specimens the shell is quite thin and partially translucent. Older shells have a heavy wash of callus on the inner lip, which makes the peritreme complete. There is no tendency for the outer lip to flare with age or senility. While a small anterior notch, though present, is not especially prominent in the holotype, it

### Explanation of Plate 14

Figure 1: *Neptunea stilesi* A. G. SMITH, spec. nov. Holotype, Calif. Acad. Sci. Geol. Type coll. no. 13124. Length: 93.9 mm; maximum diameter: 64.9 mm; apical angle: 83°. Apertural view.

Figure 2: Same, dorsal view.

Figure 3: Enlarged view of the nuclear tip of a subadult paratype from 85 fms, Queen Charlotte Sound, British Columbia. Length (nuclear whorls only): 5.5 mm; maximum diameter: about 3 mm; number of nuclear whorls: 2 $\frac{1}{2}$ .

Figure 4: Paratype. Brownish color-form with subobsolete spiral sculpture. Length: 94.3 mm; maximum diameter: 65.8 mm; apical angle: 77°.

Figure 5: Paratype with well-developed spiral ribs. Length: 106.0 mm; maximum diameter: 71.7 mm; apical angle: 92°.

Figure 6: Paratype with somewhat weaker spiral ribs having fine intercalaries between them, stronger on the body-whorl. Length: 106.4 mm; maximum diameter: 69.1 mm; apical angle: 78°.

Figure 7: Radula of paratype animal, Calif. Acad. Sci. Inv. Zool. Type Series no. 371, slide no. 490. Center section, mounted width: 1.1 mm.



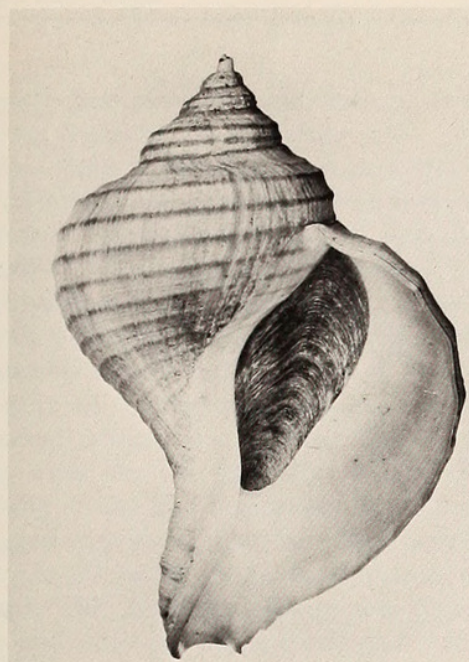


Figure 1

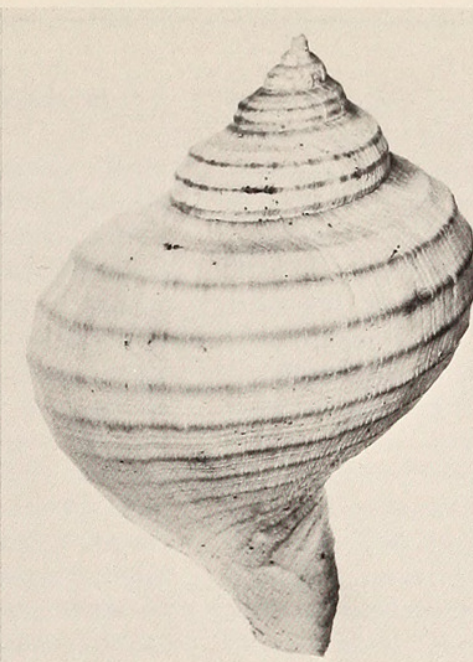


Figure 2



Figure 3

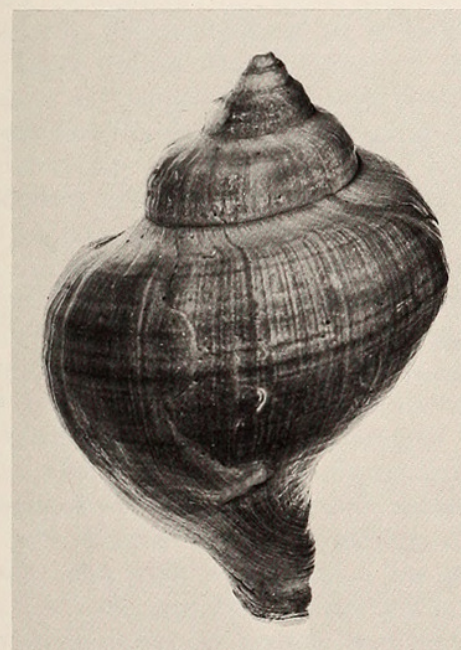


Figure 4



Figure 5

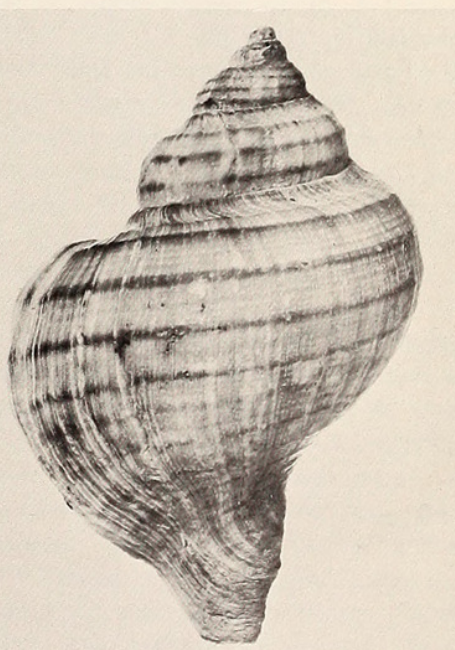


Figure 6

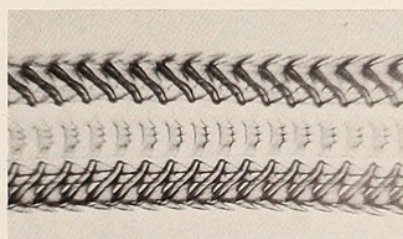


Figure 7







Smith, A. G. 1968. "A NEW NEPTUNEA FROM THE PACIFIC NORTHWEST  
NEPTUNEA-STILESI NEW SPECIES MOLLUSCA GASTROPODA." *The veliger* 11,  
117-120.

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