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**Preliminary Descriptions of New Species of Mollusks,
from the Northwest Coast of America.**

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CHRYSODOMUS CREBRICOSTATUS. n. s.

Shell elongate, apex attenuated, blunt at the end; whorls (nuclear) three, (normal) four—total seven or more; texture porcellanous; epidermis bright yellow brown, shell beneath it, and at the aperture, white; columella nearly straight, smooth; outer lip hardly thickened, waved by the ridges. Sculpture composed of very prominent revolving flat topped ridges, separated by channelled interspaces, which the ridges slightly overhang. There are three of these ridges on the smaller whorls, and fourteen or more on the last whorl, of which the posterior four predominate in size and strength. The tops of the ridges are waved here and there, showing a tendency to transverse costæ, which, however, are not present in any of the specimens. Top of the whorls squarely shouldered by the first ridge. On the ridges are usually one or two rather deeply incised lines, and a large number of delicate striæ cover the whole surface parallel with the ridges. The cylindrical form of the embryonal whorls (which are free from strong ridges) is a remarkable character, but common to *C. Kennicottii*, Dall. Length, 3.5 in.; greatest width, 1.65 in. Length of aperture, 1.65 in. Canal very short, hardly differentiated from the aperture. Siphonal fasciole none, or barely perceptible.

Habitat, Unalashka, 100 fathoms; W. H. Dall.

This remarkable species is entirely unlike any other, and recalls *Purpura trochlea*.

CHRYSODOMUS BRUNNEUS. n. s.

Shell small, yellow brown, sculptured with revolving rounded ridges, separated by incised lines, and by transverse, rather narrow, slightly waved costæ, which become obsolete on the periphery of the last whorl. Canal short; aperture lunate or elongate oval; outer lip crenate, rather thin; inner lip smooth. Whorls six, rounded; suture conspicuous with the rounded posterior ends of the costæ, rendering it wavy; ridges, eight on the fifth whorl, twice as numerous on the last whorl. Costæ, about fourteen on the last whorl. Length, 0.7 in.; width, 0.32; canal and aperture, 0.35 in.; spire, 0.35 in.

Habitat, Nunivak Island, Bering Sea, 10 fathoms, Dall. Most nearly related to *F. latericeus*, Moller, as figured by Philippi (abbild), and *F. pellucidus*, Hancock.

CHRYSODOMUS VIRENS. n. s.

Shell small, similar to the last species in general characters, but covered with a grass-green epidermis, tinged with livid brown, in some specimens.

The canal is more clearly defined, the aperture much shorter and rounder, the ridges and grooves less prominent and clearly defined. The costæ are more arcuated posteriorly, and the embryonic whorl larger, with revolving threads, instead of being smooth. Whorls, five and a half. Costæ, nine to eleven on the last whorl; ridges more numerous than in the last species, but almost too faint to count. Length, 0.65 in.; width, 0.34 in.; canal and aperture, 0.37 in.; spire, 0.3 in.; width of aperture, 0.17 in. Length without canal, 0.18 in.

Habitat, Kyska Harbor, ten fathoms, Dall.

None of the specimens fully adult, but clearly different from any other described species of the genus.

VOLUTOPSIS CALLORHINUS. n. s.

Shell white, solid, smooth, with faint traces of revolving striæ; spire acute; embryonal whorls very minute, not mammillate; suture distinct, not channelled. Canal very short, wide, straight; aperture rounded, outer lip thickened, strongly waved behind; posterior angle not acute. Whorls, seven, evenly tapering, not inflated. Length, 2.0 in.; width, 0.9 in.; aperture and canal, 0.92 in. long; spire, 1.08 in. long; width of aperture, 0.4 in.

Habitat, St. Paul Island, Bering Sea. Found two specimens dead, on Fur seal rookery. Dall.

The apex alone would distinguish it from any described species.

CHRYSODOMUS ROSEUS. n. s.

Shell small, of a rosy color when fresh, smooth to the touch, elegantly proportioned. Whorls six, well rounded, but not inflated; suture distinct; apex not mammillate, but evenly and elegantly rounded off. Sculpture consisting of delicate, evenly distributed revolving grooves, with wide interspaces, of which there thirty or forty on the last whorl; these are crossed by faint lines of growth. Aperture rounded ovate, outer lip thin, columella arcuated, polished, not thickened; canal very short and wide. Fasciole none.

Length, 0.9 in.; width, 0.45 in.; spire a trifle shorter than the aperture, plus canal.

Habitat, Arctic Ocean, Capt. Everett Smith.

An exceedingly elegant and peculiar species, which may grow to a larger size. The sculpture reminds one of the true *Fusus islandicus*, which, however, has a long canal. The epidermis is not perceptible, and all the specimens were imbedded in lumps of dense spongy growth.

LIOMESUS (? *CRASSA*, Nyst var.) *NUX.* n. s.

Shell short, very solid, smooth, except for microscopic revolving striæ, with an ivory-like surface, which in young living specimens is covered with a beautifully reticulated, short, velvety epidermis, of a brownish color. The adult shell is white, or with a band of livid purple. Suture distinct; spire very short; whorls, five, last much the largest, very rotund. Outer lip thickened, smooth, projecting beyond the columella, whose anterior edge is smoothly and widely twisted, so that a glimpse can be had of the interior

axis. Column thickened, short, somewhat flattened. Length, 1.28 in. End of columella to tip of aperture, 0.8 in. Spire, 0.5 in.

Habitat, Aleutian Islands on rocky bottom. I do not know the *crassa* to which Mörch refers, as a variety, but having examined another from the Doggerbank, I find they have some characters wholly distinct from this species, which I refer to *B. dalei*. (See my list of shells in the Proceedings.)

BUCCINUM CASTANEUM. n. s.

Shell large, clear chestnut brown, with a smooth surface, except for microscopic, closely set, revolving striæ. Suture distinct, not channelled. Apex rounded, straight, with a faint fasciole. Aperture circular. A slight glaze on the columella. Surface expanded, and smooth, not projecting beyond the lip. Color livid whitish or purple. Length, 2.5 in. Spire, 1 in. Width, 0.75 in.

Habitat, Shumagin Islands, twenty fathoms. A very remarkably distinct form in a young specimen and not the rule. I know of no specimens with so rarely faint costæ on the junior whorls.

BUCCINUM (? *CASTANEUM* var.) *TRICARINUM.* n. s.

This form, which I now consider to be a variety of the foregoing, has a similar color and fine sculpture, and is furnished with one strong carina on the last whorl. When the lip is not fully developed, the young *Chrysodomus liratus*, and were passed off as *Buc. glaciale* of the carinated form. On examination it is found to be essentially different, and by that name is surmised. It is found in the Western Pacific, at a depth of five fathoms. No intermediate specimens. Length, 3.08 in.; width, 1.5 in. Aperture large, thickened than in the typical *B. castaneum*.

BUCCINUM PICTURATUM. n. s.

Shell of moderate size, rather slender, with fine wavy striæ, the interspaces between the striæ usually rise above the general surface as in the typical form. There are seven to nine faint, very oblique transverse lines. Color varies in different specimens. Epidermis whitish, painted with oblique lines distributed in patches transverse to the

axis. Column thickened, short, somewhat arcuated, with no fasciole. Greatest length, 1.28 in. End of columella to tip of spire, 1.2 in. Width, 0.8 in. Length of aperture, 0.8 in. Spire, 0.5 in.

Habitat, Aleutian Islands on rocky bottom, ten fathoms; Dall.

I do not know the *crassa* to which Mörch has referred the typical *B. dalei*, Sow., as a variety, but having examined authentic specimens of the *B. dalei* from the Doggerbank, I find they have a smooth and polished epidermis, and are wholly distinct from this species, which (from figures) I had before referred to *B. dalei*. (See my list of shells from Bering Strait, in these Proceedings.)

BUCCINUM CASTANEUM. n. s.

Shell large, clear chestnut brown, with whorls seven in number, inflated and smooth, except for microscopic, closely crowded, revolving striae. Suture distinct, not channelled. Apex rather acute, pointed. Columella straight, with a faint fasciole. Aperture wide, rounded, more than semi-circular. A slight glaze on the columella. Outer lip heavily thickened, expanded, and smooth, not projecting before the column nor waved; within livid whitish or purple. Length, 2.5 in. Width, 1.1 in. Length of aperture, 1 in. Width, 0.75 in.

Habitat, Shumagin Islands, twenty fathoms; Dall.

A very remarkably distinct form in a genus where distinctness is the exception and not the rule. I know of no species at all resembling it. There are rarely faint costae on the junior whorls.

BUCCINUM (? CASTANEUM VAR.) TRICARINATUM. n. s.

This form, which I now consider to be probably an extreme race of the foregoing, has a similar color and fine microscopic sculpture, but grows larger, and is furnished with one strong carina on the junior whorls and three on the last whorl. When the lip is not formed they are remarkably similar to young *Chrysodomus livatus*, and were passed over as such by me, in the field. Afterwards, when the carinae and lip are fully formed, they look like brown *Buc. glaciale* of the carinated form. On examination, the sculpture was found to be essentially different, and by that alone its connection with *B. castaneum* is surmised. It is found in the Western Aleutians only, and was caught with bait in five fathoms. No intermediate specimens have been observed. Length, 3.08 in.; width, 1.5 in. Aperture long, 1.25 in.; wide, 0.9 in. The lip is less thickened than in the typical *B. castaneum*.

BUCCINUM PICTURATUM. n. s.

Shell of moderate size, rather slender, with acute apex, sculptured with fine wavy striae, the interspaces between which are usually flat, but occasionally rise above the general surface as flattened threads. Junior whorls with seven to nine faint, very oblique transverse costae, the prominence of which varies in different specimens. Epidermis very thin, smooth, dehiscent. Color whitish, painted with oblique reddish brown flammules, irregularly distributed in patches transverse to the whorls. Columella twisted with a

strong fasciole, lightly glazed; outer lip smooth, entire, slightly thickened, white on the edge, orange yellow within, extending a little in advance of the columella. Apex rather acute, suture appressed; whorls seven, regularly tapering, not inflated. Length 2.18 in. Width 1.0 in. Length of aperture 1.05 in. Lip not waved posteriorly and meeting the whorl at a rather sharp angle.

Habitat, Aleutian Islands; Dall.

A rather rare species, especially in a perfect state. Its nearest ally is a variety of *B. humphreysianum* (named *Finmarkianum* by Verkrutzen), which it much resembles in form, but which differs in epidermis and sculpture, and has no costæ. It is distinct from *glaber*, Jeffr. and *perdix*, Beck, which are probably varieties of *humphreysianum* and *B. cyaneum*, Brugiere, respectively.

BUCCINUM FRINGILLUM. n. s.?

Shell white, resembling *B. sericatum*, Hancock, on the one hand, and *B. ciliatum*, Fabr., on the other. It has the dense fringed epidermis of *ciliatum* (when the shell is perfect) with the sculpture of the same, but wanting the tooth on the columella and having a number of sharp carinæ not found in any specimens of *ciliatum* which I have seen. The form is much like that of *sericatum*, Hanc., except that the whorls are inflated and shouldered, and the suture canaliculate. Whorls seven. Length 1.36 in. Width 0.8 in. Length of aperture 0.66 in.

Habitat, Arctic Ocean near Icy Cape; Capt. Smith.

TROPHON MURICIFORMIS. n. s.

Shell with a short globose body and long canal resembling in general form one of the true Murices. Whorls five, the last much the largest, smooth except for lines of growth, which at short intervals project over the succeeding part of the whorl, like one roofing slate over another, hardly raised above the general contour of the whorl, except at a short distance from the suture where the varix suddenly stands out in the form of a triangular spine, concave on the anterior edge. On the last whorl there are fourteen of these spines which, still further increase the resemblance to a *Murex*, and, by the angulation they produce the posterior surface of the whorl is flattened. These spines are retained on two or three whorls but eroded from the junior whorls. The aperture is nearly semi-circular, the outer lip patulous anteriorly and deeply notched for the spine in the posterior third, meeting the whorl at an angle of 50° to the axis. Columella arcuated, with a milk white callus. Canal very narrow, curved slightly to the left, forming a split tube as in many Murices. Color of the whole shell white or whitish. Length from apex to aperture 0.44 in. Length of aperture 0.66 in. Length of canal 0.62 in. Total length 1.66 in. Width from notch to opposite spine 0.84 in. Width of aperture 0.4 in., and of canal near its middle 0.16 in.

Habitat, Icy Cape; Smith. Bering Sea; Dall. Victoria, V. I. (young) Richardson.

This is unique among Trophons and one of the most elegant species, but excessively rare.

PANDORA (KENNERL)

Shell large, planogulated with referenc over the umbo of the valve externally smoo From the umbo an in the portion of the ve line extends ventrall anterior to it. The upon it; the posterio much that in life it been broken or cut the incised line has the appearance of li mis longer than the terior of this valve radiating from the b some lights, but not the mantle. The fi no sinus. The dor and angulated at th to that on the conv separated from the area thus marked, tric waves and radi but carrying a raph very strong.

Length, 2.2 in. sinus, 1.5 in.; behi

Habitat, Unalash

This is the finest Unalashka in 100 f ardsen, of the Don Mr. J. F. Whitea by Mr. Richardson drawings in regard addition to synony nizing this as new, that the species ha myself.

The species abo and will, it is hope Alaska, now in pre fuller and more de

PANDORA (KENNERLIA) GRANDIS. n. s.

Shell large, plano-convex, not rostrate, dorsal margin of the convex valve angulated with reference to the longitudinal axis of the shell, as well as bent over the umbo of the flat valve so as to completely overshadow it. Convex valve externally smooth except for lines of growth, chalky, somewhat twisted. From the umbo an incised line passes to the ventral margin where it ends; the portion of the ventral margin behind the point marked by the end of this line extends ventrally some distance beyond the limit reached by that portion anterior to it. The anterior portion is equal to the flat valve, which closes upon it; the posterior portion extends beyond the edge of the flat valve so much that in life it appears as if a part of the anterior ventral margin had been broken or cut out. The outer surface of the anterior area bounded by the incised line has also its lines of growth more regularly distributed, giving the appearance of light concentric sculpture, and usually retains the epidermis longer than the remainder of the valve, which is more convex. The interior of this valve is livid pearly, sparsely punctate, and with spectral grooves radiating from the hinge teeth. These are so faint that they can be seen in some lights, but not felt. They correspond to the points of attachment of the mantle. The flat valve has the ventral margin rather evenly curved, with no sinus. The dorsal margin is bent over at a right angle behind the hinge, and angulated at the umbo. The surface is marked by an area corresponding to that on the convex valve, and with a similar concentric striation, but no separated from the rest by an incised or any other definite line. Behind the area thus marked, the flat valve is a little concave, marked by faint, concentric waves and radiating, irregular lines, marked on the shell by a light groove, but carrying a raphe of epidermis. Interior pearly, with the anterior tooth very strong.

Length, 2.2 in. Depth, hinge to ventral margin of convex valve *before* the sinus, 1.5 in.; *behind* the sinus, 1.04 in. Diameter, 0.38 in.

Habitat, Unalashka to Puget Sound.

This is the finest species of *Pandora* known. It was discovered by me at Unalashka in 100 fathoms in 1872, and in 1875 was dredged by Mr. Jas. Richardson, of the Dominion Geological Survey, near Victoria.

Mr. J. F. Whiteaves, of the survey, in whose hands the material dredged by Mr. Richardson was placed, generously communicated various notes and drawings in regard to that collection, with the idea of mutually avoiding any addition to synonymy in describing supposed new forms, and while recognizing this as new, most courteously withdrew his own MS. name on hearing that the species had been for some time described and named in MS. by myself.

The species above mentioned, and a number of others are already drawn, and will, it is hoped, appear before very long in a paper on the Mollusks of Alaska, now in preparation. That paper it is intended to accompany with fuller and more detailed descriptions, including anatomical details as well as

suitable figures. The descriptions have been delayed so long by unforeseen circumstances, that it is judged best to give part of them publication now, in order that work on collections made long subsequent to my own field work may not give to foreign investigators all the credit for discoveries in which they had been preceded by those who have entrusted material to me for description, and by my own party.