

least to its southern limit. The food and resting habits of this species are worthy of further study, and this should be undertaken by those who live in the region of its occurrence.

It is certain that both *S. grosvenorii* and the upland form of *S. ovalis*, are quite xerophilous, the former somewhat more so, and that both occur in closely contiguous places in the western part of the state, sometimes so close together that they appear to be mixed, just as they are in the loess. They, with other species with which they are associated, again suggest that the climate during the deposition of the loess of Iowa and vicinity was not moist and cold, but may have been quite as warm and dry as that of western Iowa is to-day.

The variation in habits and form of these species, quite as strikingly duplicated in some others, should also lead to caution in forming judgment concerning climatic conditions of past periods of time. Hasty conclusions based on individual species are always unwise; it is always safer to take entire faunas into account. If this were done we might have fewer "theories" and wildly fantastic explanations, but some of our scientific work would rest on a sounder foundation.

NEW SPECIES AND RACES OF LYMNAEIDAE FROM NEWFOUNDLAND

BY FRANK C. BAKER AND STANLEY T. BROOKS

In July, 1934, the junior author made a trip to the Island of Newfoundland for the purpose of collecting its molluscan fauna. This territory is, as far as the mollusks are concerned, almost a *terra incognita*, and it is not surprising that new forms should be found, since the region is completely isolated from the mainland and from adjacent islands. A complete report on the Mollusca collected will be published by the junior author.

Stagnicola palustris papyracea nov. var.

Shell differing from *S. p. ungava* F. C. Baker in being more ovate with spire and aperture about equal in length, the whorls of the spire not as high as in those of *ungava*, the sutures less deeply indented; inner lip narrow, the columellar plait quite distinct and the umbilical chink small or absent; color light

horn, interior of aperture light or dark chocolate color; sculpture of finer lines than in *ungava*. All apices are decollate and but four whorls remain, but there are apparently six whorls in mature examples.

Length 18.6, diam. 10.5, apert. length 10.5, width 5.7 mm. Holotype
 " 18.1 " 10.0 " 10.5 " 5.7 mm. Paratype
 " 17.1 " 9.9 " 9.5 " 5.1 mm. Paratype

Type locality: Rocky pond near Whitbourne, Newfoundland.

Types: Carnegie Museum, Section of Recent Invertebrates, No. 62. 26761; *Paratypes*: Museum of Natural History, Univ. Ill., No. Z. 36336; Academy of Natural Sciences, Philadelphia, No. 164120.

This race of *palustris* at once suggests *S. p. ungava*, differing in its shorter spire, narrower inner lip and distinct columellar plait. It differs from *S. p. elodes* in its shorter less acute spire and obese body whorl. The shells are very thin which suggests the varietal name. The thinness of shell is probably due to lack of limestone rocks in the pond. The race is very constant in form and does not appear to vary to any extent toward typical *palustris* or its known varieties.

***Stagnicola palustris perpalustris* nov. var.**

Shell obese, with large ovate aperture and short, dome-shaped spire, the latter shorter than the aperture; sutures well impressed; outer lip thin with only a slight variceal thickening within the edge; inner lip rather broad, appressed tightly to the columella leaving only a slight umbilical chink; columellar plait heavy, parietal wall with distinct callus; color dark horn, interior of aperture dark chocolate colored; sculpture of heavy growth lines and impressed spiral lines; surface often malleated; only four whorls visible in mature shells, all spires decollated. Young shells indicate that there are probably six whorls in fully mature shells.

Length 19.1, diam. 11.3, apert. length 12.0, width 6.6 mm. Holotype
 " 17.6 " 10.4 " 11.1 " 6.0 mm. Paratype
 " 17.1 " 10.5 " 10.5 " 5.8 mm. Paratype

Type locality: Pools along Exploits River, Grand Falls, Newfoundland. *Types*: Carnegie Museum, Section of Recent Invertebrates, No. 62. 26762; *Paratypes*: Museum of Natural History, Univ. Ill., No. Z. 36337; Academy of Natural Sciences, Phila., No. 164119.

This race of *palustris* is at once recognized by its broad form, depressed spire and large aperture. It does not closely resemble any of the described forms of this protean species, approaching most closely to some short-spired forms of *S. p. nuttalliana* from the Rocky Mountain area.

***Stagnicola newfoundlandensis* nov. sp.**

Shell elongated with acute somewhat turreted spire as long as or longer than the aperture; spire whorls rounded with well impressed sutures; body whorl well rounded; aperture ovate, outer lip thin, inner lip flattened and reflected over the umbilical region leaving a small chink; the callus on the parietal wall is thin or absent; columellar plait absent or but slightly developed; color dark horn, aperture coffee colored within; sculpture of coarse growth lines and well developed spiral lines; there are six whorls.

Length	20.0	diam.	9.9	apert. length	10.0	width	5.3 mm.	Holotype
"	22.0	"	10.0	"	10.0	"	5.1 mm.	Paratype
"	18.8	"	9.2	"	9.0	"	4.7 mm.	Paratype
"	17.0	"	9.0	"	9.2	"	5.1 mm.	Paratype

Type locality: Camp 31, 8 miles from Lomond, Bonne Bay, Newfoundland. *Types*: Carnegie Museum, Section of Recent Invertebrates, No. 62. 26763; *Paratypes*: Museum of Natural History, Univ. Ill., No. Z. 36338; Academy of Natural Sciences, Philadelphia, No. 164118.

This lymnaeid resembles some of the elongate forms of the *Stagnicola emarginata* complex, especially *canadensis* and *ontariensis*. The color of the shell and aperture are different from *canadensis* and the inner lip is not turned back to form so flat a projection over the umbilical region. Compared with specimens of *ontariensis* from the St. Lawrence River below Quebec the shell is more elongated with longer, narrower, more acute spire, the inner lip is not flattened and the color is much darker. A few specimens of the new form resemble certain forms of *S. palustris elodes* but the typical forms have a different and heavier sculpture, a more rounded body whorl, a more acute spire, and the columellar lip is wider at the lower part and lacks the heavy, twisted plait of typical *elodes*.

There is great variation in height of spire and width of shell but the greatest number of specimens are uniform and it seems

best to recognize this form as a species distinct from either the *palustris* or *emarginata* complex.

Fossaria obrussa brooksi F. C. Baker

Shell differing from *Fossaria obrussa decampi* in having a longer, more acute and turreted spire, a shorter, more obese body whorl, a smaller, rounded aperture and a larger umbilicus; whorls shouldered; color light or dark horn, the aperture chocolate or coffee colored within; there are six whorls.

Length 11.5, diam. 6.0, apert. length 5.1, width 2.9 mm. Holotype
 " 9.1 " 4.7 " 4.6 " 2.2 mm. Paratype
 " 8.4 " 4.0 " 3.8 " 2.0 mm. Paratype

Type locality: Camp 31, 8 miles from Lomond, Bonne Bay, Newfoundland. *Types*: Carnegie Museum, Section of Recent Invertebrates, No. 62. 26764; Museum of Natural History, Univ. Ill., No. Z. 36339; Academy of Natural Sciences, Philadelphia, No. 164117.

This distinct little lymnaeid is related to *obrusa*, approaching most nearly to the race *decampi*. Its long scalariform spire, short, rounded body whorl, and small rounded aperture will at once distinguish it from *decampi*. It is named for Dr. Stanley T. Brooks who collected the Newfoundland material.

TWO NEW WEST AMERICAN SPECIES OF NUCULANIDAE

BY IDA S. OLDROYD

Leda austini, n. sp. Fig. 2.

Shell of medium size, concentrically ridged, but the ridges are few and unevenly distributed; epidermis thin and in most of the specimens taken it was worn off leaving patches of chalky white. Posterior end attenuated, beaked; anterior end rounded and about $\frac{1}{3}$ the length of the shell; umbones slightly elevated, rounded; ventral margin convex; dorsal margin concave. Length 12; height 5; diameter 3 mm.

Range: West Coast of Vancouver Island, Nootka Light. 2231-3-B; Porlier Pass 75 fms.; West of Gabriola Island 25 fms. Type in the Pacific Biological Station, Nanaimo, B. C. Type locality off Neck Point, in 100 fathoms. Specimens from type locality and from other stations in the Stanford Collection.



Baker, Frank Collins and Brooks, Stanley Truman. 1935. "New species and races of Lymnaeidae from Newfoundland." *The Nautilus* 49, 10–13.

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