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NEW FRESH-WATER MOLLUSKS FROM  
NORTHERN ASIA

(WITH ONE PLATE)

BY

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Walter Rathbone Bacon Scholar, Smithsonian Institution



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During the years 1932 and 1933 a journey was made through certain parts of Siberia and northern Kazakstan, under the grant of the Walter Rathbone Bacon Scholarship<sup>1</sup> of the Smithsonian Institution. The object of this expedition was to investigate the molluscan fauna of the region, and in the course of working up the material collected, several forms have been discovered which appear to be undescribed. A report on the fauna as a whole will appear at a later date, but in the meantime it appears to be desirable to place on record a brief description of the new forms, which is given below.

**VALVATA ANTIQUILINA, n. sp.**

Plate 1, fig. 4

Shell of moderate size for members of this genus, length 6.4 mm, broadly conical; surface smooth, with minute crowded lines of growth; whorls four and seven-eighths, convex, very slightly flattened; aperture subcircular, very slightly angulated along the superior margin, lip continuous, attached to the preceding whorl for about 0.6 mm. The dimensions of the type are as follows: Length 6.4 mm, greater diameter 5.9 mm, lesser diameter 5.2 mm, aperture length 3.1 mm, aperture width 2.5 mm.

*Type*.—U.S.N.M. no. 469212, collected at Lake Khomotenoye, Aj-Bulat drainage basin, Siberia. This is approximately 370 kilometers southeast of Omsk.

This species has some resemblance to both *V. piscinalis* (Müller), and *V. antiqua* Morris, and in many respects is intermediate between these two species. It differs from most forms of *V. piscinalis* in having

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<sup>1</sup> Created through a bequest to the Institution by Mrs. Virginia Purdy Bacon "to be used in establishing a traveling scholarship, to be called the Walter Rathbone Bacon scholarship for the study of the fauna of countries other than the United States of America."

the shell as a whole more solidly built, the spire more bluntly conical, and the whorls less broadly rounded, those in the new species being a little flattened, and turning sharply into the suture. *V. antiquilina* differs from *V. antiqua* Morris (pl. 1, fig. 5) in the proportions of the shell (see measurements below), the new form being slightly more broadly built, in having the suture a little deeper, and in the whorls being regularly rounded and slightly flattened, rather than rounded and projecting downward as in *V. antiqua*.

No living specimens were found, all the shells being empty and bleached. Apparently this species lived in Lake Khomotenoye at some former time when the water level stood considerably higher than at present.

*Measurements of the Shells of Valvata antiquilina, n. sp., from the Shore of Lake Khomotenoye, Siberia*

No. of whorls	Length mm	Greater diameter mm	Lesser diameter mm	Aperture length mm	Aperture width mm
4 3/4	6.4	6.0	5.5	2.7	2.5
4 3/4	6.0	5.1	4.7	2.8	2.4
4 5/8	5.7	4.8	4.6	2.3	2.1
4 5/8	5.5	4.9	4.7	2.4	2.4
4 1/2	5.6	5.4	4.8	2.5	2.4
4 1/2	5.4	4.9	4.7	2.5	2.3
4 1/2	5.3	4.8	4.5	2.7	2.1
4 1/4	5.3	4.8	4.5	2.6	1.9
4 1/4	4.7	4.5	4.1	1.9	1.8
4 1/8	4.9	5.1	4.6	2.7	2.2

*Measurements of the Shells of Valvata antiqua Morris from Grays, Essex (Type Locality)*

No. of whorls	Length mm	Greater diameter mm	Lesser diameter mm	Aperture length mm	Aperture width mm
4 7/8	7.3	6.1	5.3	2.8	2.6
4 7/8	6.4	5.2	4.5	2.8	2.3
4 3/4	6.3	5.5	5.0	2.8	2.3
4 5/8	6.4	6.0	5.6	3.2	2.9
4 5/8	6.3	5.2	4.9	2.4	2.3

**LYMNAEA (GALBA) PALUSTRIS SARIDALENSIS, n. subsp.**

Plate 1, fig. 1

Shell of moderate size, length 23.9 mm, elongate, and much narrower in proportion to the length than in the usual forms of *palustris*; light horn-colored, thin, surface smooth, minutely wrinkled, lines of growth not prominent, crossed by impressed spiral lines; whorls

seven and one-half, regularly convex; spire long and narrow, more than half the length of the shell; suture moderately deep; aperture elongate-elliptical; outer lip gently rounded, periphery sharp and thin; columella somewhat twisted; umbilical chink a minute elongated slit.

*Type*.—U.S.N.M. no. 469734. It comes from a small, somewhat saline lake on the Steppe Sari Dala, 15 kilometers southwest of Pavlodar, northern Kazakstan.

This species is known only from the type locality, which is about 400 kilometers southeast of Omsk, and 600 kilometers north of Lake Balklash. Some idea of the geographical position may be given by stating that Pavlodar is situated approximately midway between Delhi, British India, and the Arctic Ocean.

*Measurements of the Shells of Lymnaea palustris saridalensis, n. subsp., from the Steppe Sari Dala 15 Kilometers Southwest of Pavlodar, Kazakstan*

Length mm	Greater diameter mm	Lesser diameter mm	Aperture length mm	Aperture width mm
25.7	9.5	9.0	10.7	5.4
25.0	9.6	8.7	10.4	5.0
24.9	9.9	9.1	10.8	5.9
24.8	8.9	8.2	9.5	4.8
24.7	9.4	8.6	10.3	5.5
24.5	9.5	8.4	9.9	4.9
24.2	9.5	8.8	10.0	5.6
24.1	9.8	9.2	11.0	5.9
23.9	9.7	8.8	10.4	5.8
23.9	9.5	8.9	10.4	5.3
23.9	9.5	8.8	10.2	5.5
22.3	8.5	7.7	9.5	5.0
21.0	7.9	7.4	8.7	5.1
19.0	7.4	7.2	7.7	4.6
18.0	7.7	7.1	8.0	4.7

**LYMNAEA (GALBA) PALUSTRIS KAZAKENSIS, n. subsp.**

Plate 1, fig. 7

This resembles *L. palustris saridalensis* but has eight whorls, which are somewhat shouldered; the suture is very deeply impressed, the lower side of the whorls slopes into the suture in a plane not far from the vertical, the superior margin of each whorl, however, while at first gently curved, finally turns abruptly into the suture; the spire is very long, forming nearly three-fifths of the length of the shell as a whole, and has a somewhat turreted appearance.

*Type*.—U.S.N.M. no. 470457, from a small dry lake bottom near the village of Novo Troetskaya, northern Kazakstan.

*Measurements of the Shells of Lymnaea palustris kazakensis, n. subsp., from near  
Novo Troetskaya, Kazakstan*

Type	Length mm	Greater diameter mm	Lesser diameter mm	Aperture length mm	Aperture width mm
	30.0	11.7	10.9	12.3	7.4
	26.5	10.9	10.4	11.3	6.3
	25.7	10.7	9.9	11.0	6.5
	25.1	9.9	10.0	11.3	6.6
	24.9	10.5	9.8	10.8	6.3
	24.8	10.2	9.5	10.5	5.7
	24.6	10.2	9.6	10.4	6.1
	23.8	9.9	9.0	10.4	5.9
	23.4	10.0	9.2	9.8	6.3
	21.2	8.9	8.5	8.9	5.3
	20.4	8.5	7.8	7.8	4.8

**LYMNAEA (GALBA) PALUSTRIS DRAVERTI, n. subsp.**

Plate 1, fig. 9

Shell somewhat resembling that of *L. palustris kazakensis* but having a more broadly conical spire; whorls seven and a half, convex, gently rounded, turning gradually into the suture, which is deep; aperture small and subovate, oval by comparison with that of *kazakensis*, columella not twisted, umbilical chink of large size.

*Type*.—U.S.N.M. no. 469681, from the River Om, near Omsk, Siberia.

This species is known only from the type locality. Collected by Prof. Pierre Dravert, after whom it is named.

*Measurements of the Shells of Lymnaea palustris draverti, n. subsp., from the  
River Om, near Omsk, Siberia*

Type	Length mm	Greater diameter mm	Lesser diameter mm	Aperture length mm	Aperture width mm
	19.6	8.8	8.2	7.7	4.8
	19.2	9.1	8.7	8.9	5.4
	18.5	8.4	7.6	7.7	4.6
	17.9	9.2	8.1	8.3	5.5
	17.7	8.3	7.6	7.8	4.8
	16.3	7.9	7.1	7.3	4.4
	16.0	8.2	7.4	7.5	4.7
	15.8	7.8	7.2	7.2	4.7
	15.2	7.4	6.8	7.0	4.4
	14.1	7.0	6.4	6.2	3.7
	13.4	7.0	6.3	6.0	3.5

## LYMNAEA (GALBA) PALUSTRIS BOLOTENSIS, n. subsp.

Plate 1, fig. 3

Shell somewhat smaller than in all the subspecies here described (length 22.7 mm) but of greater thickness; the general appearance somewhat barrel-shaped in comparison with *kazakensis* and the others, as a result of the shallowness of the suture, and the relatively large size of the last three whorls; the aperture is small and roundly auriform, the columella thin and only slightly twisted, and the outer lip thin, sharp and without any tendency toward flaring.

*Type*.—U.S.N.M. no. 469821, from flooded area between the Rivers Chaganak and Chederti, Djarla-Uli drainage basin, northern Kazakstan.

*Measurements of the Shells of Lymnaea palustris bolotensis, n. subsp., from several localities in Kazakstan*

Type	Length mm	Greater diameter mm	Lesser diameter mm	Aperture length mm	Aperture width mm	Locality
	22.7	8.9	8.5	8.1	5.4	Flooded area between the Rivers Chederti and Chaganak.
	21.4	9.1	8.7	9.3	6.8	Same.
	21.4	8.4	7.9	9.5	5.4	River Chaganak.
	21.3	8.9	8.1	8.7	5.7	Small lake (No. 6) near Novo Troetskaya.
	21.1	8.5	8.3	8.4	5.3	Same.
	20.8	9.0	8.1	8.7	5.9	River Chaganak.
	20.7	8.1	7.8	8.8	4.8	Lake No. 6, as above.
	20.4	8.1	7.8	7.6	5.1	Same.
	20.4	8.1	7.5	8.6	5.3	Chederti-Chaganak, as above.
	20.1	8.4	7.7	8.7	5.6	River Chaganak.
	20.1	8.3	7.9	8.1	5.3	Same.
	19.5	8.0	7.4	8.2	5.3	Same.
	18.5	8.5	7.9	8.8	5.2	Same.
	17.6	7.6	7.1	8.7	4.8	Chederti-Chaganak, as above.
	13.6	6.9	6.5	7.0	4.1	Same.

The four subspecies of *Lymnaea palustris* here described are all closely similar, but in any moderately large series it is possible to distinguish the different forms without difficulty. *Lymnaea palustris saridalsensis* is characterized by the tall spire, slightly convex whorls, and moderately impressed suture; *kazakensis* is distinguished by even higher spire, slightly convex whorls turning sharply into a deep suture; *draverti* by its shorter and broader, though still acute, spire, more con-

vex whorls, and smaller subovate aperture and very gently curved columella; while *bolotensis* has a shorter spire with fat whorls, and shallower suture.

**LYMNAEA (RADIX) ZAZURNENSIS, n. sp.**

Plate 1, fig. 2

Shell of fairly large size, length 18.5 mm, broad relative to the length, horn-colored; surface bright, glossy, crossed by many regularly spaced lines of growth which give the shell a slightly ribbed appearance, and by many microscopic spiral impressed lines; whorls five, convex, protruding and well rounded in all cases; the body whorl nearly semicircular in outline on the left side; having a slightly shouldered appearance at the junction with the preceding whorl, but actually having a small V-shaped depression intervening and continuing around the shell for at least one whorl above the aperture; aperture ovate-ellipsoidal; outer lip thin, sharp; inner lip gradually curving, columella nearly flat, not twisted, spreading out to some extent over the umbilical region, which is seen from the side and below to be fairly wide open.

*Type*.—U.S.N.M. no. 470709, collected at Lake Zazurnia, in the mountain range known as Khamar Daban, eastern shore of Lake Baikal. The species is known only from the type locality.

*Measurements of the Shells of Lymnaea zazurnensis from Lake Zazurnia, Khamar Daban, Siberia*

Type	Length mm	Greater diameter mm	Lesser diameter mm	Aperture length mm	Aperture width mm
	18.9	12.5	11.0	11.9	7.9
	18.8	13.3	11.2	11.7	7.8
	18.5	12.8	10.9	12.4	7.8
	18.2	12.4	11.1	12.2	7.7
	18.2	12.4	10.1	12.0	7.8
	17.2	12.1	10.3	11.1	7.7
	16.6	11.8	8.9	11.2	7.9
	15.9	11.1	9.9	11.7	7.9
	15.2	10.0	8.8	10.1	6.3

**PLANORBIS (SPIRALINA) JOHANSENI, n. sp.**

Plate 1, fig. 8

Shell of moderate size, greater diameter 7.5 mm, discoidal, very thin (height 1.2 mm) slightly concave above and below, closely resembling *P. compressus*; surface bright and shining, with many fine but distinct



lines of growth; whorls five and a quarter, gradually increasing in size, carinate on the upper side; the upper side of the carina of all or nearly all the whorls being visible on the dorsal side of the shell; aperture inclined and oblique, ellipsoidal; lip sharp and thin.

*Type*.—U.S.N.M. no. 470515, collected at Kotur Kulb near Boro-voje, Kazakstan.

The dimensions of the type are as follows: Height 1.2 mm, greater diameter 7.4 mm, lesser diameter 6.6 mm, aperture height 1.0 mm, aperture width 1.8 mm.

Named after Mr. Bodo Johansen, of Tomsk, who has made a study of the fresh-water mollusks of that neighborhood.

#### PHYSA SARTLANDINENSIS, n. sp.

Plate 1, fig. 6

Shell resembling that of *Physa fontinalis* but of larger size, length 12.6 mm; the aperture shorter than in that species and the spire much higher and more conspicuous; the suture more deeply impressed; whorls four and three-quarters, surface smooth, lines of growth microscopic, crossed by larger, regular, impressed spiral lines.

*Type*.—U.S.N.M. no. 469613, collected in Lake Sartlan, Barabinsk Steppe, Siberia. It is known only from the type locality.

In this new species the length of the aperture is approximately two-thirds of the length of the entire shell, while in *P. fontinalis* it is three-quarters of the shell length.

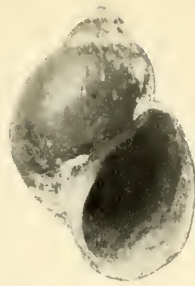
#### *Measurements of the Shells of Physa sartlandinensis from Lake Sartlan, Siberia*

Type	Length mm	Greater diameter mm	Lesser diameter mm	Aperture length mm	Aperture width mm
	12.6	7.1	5.7	8.7	4.1
	11.4	6.2	5.2	8.0	3.4
	10.6	6.0	4.8	7.4	3.1
	10.3	5.4	4.6	6.4	2.9
	10.2	5.3	4.6	6.6	3.2
	9.7	5.3	4.6	6.4	3.0
	9.5	4.9	4.1	5.6	2.3
	9.3	5.4	5.7	5.9	2.8
	9.2	5.7	4.4	6.0	3.2
	9.1	5.3	4.0	6.1	3.0





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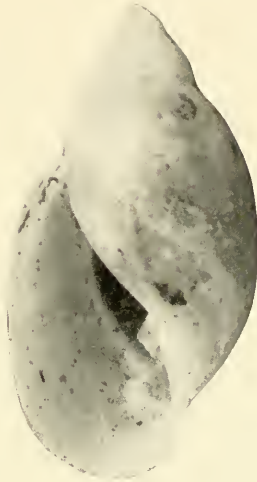
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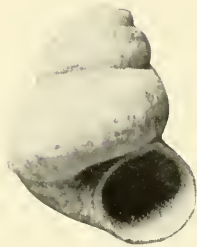
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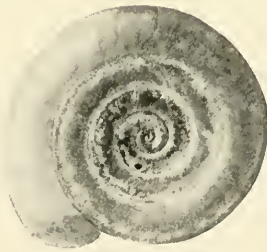
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9

NEW FRESH-WATER MOLLUSKS FROM NORTHERN ASIA

- |   |   |
|---|---|
| 1. <i>Lymnaea (Galba) palustris saridalensis.</i> | 6. <i>Physa sartlandinensis.</i>                |
| 2. <i>Lymnaea (Radix) sazurnensis.</i>            | 7. <i>Lymnaea (Galba) palustris kazakensis.</i> |
| 3. <i>Lymnaea (Galba) palustris bolotensis.</i>   | 8. <i>Planorbis (Spiralina) johansenii.</i>     |
| 4. <i>Valvata antiquilina.</i>                    | 9. <i>Lymnaea (Galba) palustris draverii.</i>   |
| 5. <i>Valvata antiqua Morris.</i>                 |   |