

layer deep as tightly as they could possibly be crowded together, all headed downward. All in the hole were adult specimens. The lateral ones had wedged themselves in underneath the ones forward of them until they were seemingly forced to the bottom of the hole, and there became an immovable mass, as there would be no other way of escape but to back out, which the lateral ones were not inclined to do, but on the other hand were anxious to go ahead. With the water bubbling up through the space left in the center of the hole, the shells had become very smooth and shining. With a stick I dug down about fourteen inches and gathered about a pint of shells from the walls, and a great number fell down the hole. I do not know how much further it extended as it filled with dirt and shells from my interruption. About a month later I returned to get some of the water for analysis, but it had ceased to flow and dried up; recently dead shells were very plenty all around. I scraped up a cigar-box full more of them. My impression would be that the water, either from its cool temperature or some appetizing ingredient, was the attraction. I have been sorry ever since that I did not give it more thought at the time. The figure in the upper right-hand corner, while not artistic, serves to show the manner in which the shells were adhering to the walls of the hole; the density of the mass is not over-illustrated in the least, if any difference they were even more tightly arranged than illustrated; there was not a space in which a shell could possibly move.

DESCRIPTIONS OF NEW JAPANESE LAND SNAILS.

BY H. A. PILSBRY AND Y. HIRASE.

Eulota (Euhadra) irrediviva n. sp.

Shell umbilicate, resembling *E. mercatoria*, but very much more depressed. Sculpture of fine growth-lines, minute scattered papillæ, and densely crowded, very fine spiral striæ; the surface rather glossy. The specimens are fossil and have lost color except a dull reddish band above the periphery and sometimes another below it. Whorls 5, the apical one rather large, the last whorl double the width of the preceding, slightly subangular in front, only a trifle descending to the aperture. The aperture is oblique, wide and low, the upper and basal margins subparallel; lip reflexed and recurved, the basal lip noticeably straightened. Alt. 21, diam. 36 mm.

Okinoerabushima, Osumi. Type no. 87335 A. N. S. P., from no. 1250 of Mr. Hirase's collection.

The most depressed member known of the *mercatoria* group, and requiring comparison with no other species. It has been found only as a fossil, probably quaternary, and is the first land snail to be described from the island.

Eulota (Aegista) tokunoshimana n. sp.

Shell openly umbilicate, depressed with convexly conic spire, thin but rather strong, reddish brown, the spire a little paler. Surface dull, densely covered with minute short scales or the papillæ left after the loss of scales. Whorls 7 to $7\frac{1}{2}$, convex, very closely coiled, the last descending a trifle in front, barely perceptibly angular in front, elsewhere rounded, especially beneath. The aperture is rather small, oblique, lunate, the narrowly expanded and slightly thickened lip forming about three-fourths of a circle.

Alt. 14.3, diam. 21, width of umbilicus 5 mm.

Alt. 14, diam. 21.5, width of umbilicus 4 mm.

Alt. 13.5, diam. 18.5, width of umbilicus, 4 mm.

Tokunoshima, Osumi. Type no. 87334 A. N. S. P., from no. 1210 of Mr. Hirase's coll.

A peculiar, compact and high-spined *Aegista*, with more the sculpture of *Plectotropis*.

Eulota (Plectotropis) pressa n. sp.

Shell openly umbilicate, depressed, low-conic above, convex below the rather acute peripheral carina; thin, dull brown. Surface somewhat shining, finely striate, the striæ irregular, but not scaly. Whorls $5\frac{1}{3}$, the last hardly descending in front. Aperture small, oblique, the upper margin straightened, hardly expanded, lower margin narrowly expanded, slightly reflexed, thin, and deeply arcuate. Alt. 6.2, diam. 10.8, width of umbilicus 3.2 mm.

Okinoshima, Tosa. Types no. 87336 A. N. S. P., from no. 1181 of Mr. Hirase's collection.

A small, plain species, with the spire higher than in *E. intonsa*, and the last whorl narrower.

Eulota (Aegista) friedeliana var. *vestita* n. var.

Differs from *E. friedeliana* by being very densely covered with minute short scales. Alt. 9, diam. 16.5, width of umbilicus 5 mm.

Oshima, Osumi. Types no. 87338 A. N. S. P., from no. 1199 of Mr. Hirase's collection.

Eulota friedeliana var. *goniosoma* n. var.

More widely umbilicate and more depressed than *friedeliana* or var. *peraperta*. Whorls $5\frac{1}{2}$, the last bluntly angular at the periphery. Surface covered with short triangular cuticular scales, or their short solid bases. Alt. 8.5, diam. 19, width of umbilicus 7 mm.

Shimo-Koshikijima, Satsuma. Types no. 87337 A. N. S. P., from no. 1238 of Mr. Hirase's collection.

Eulota (Aegista) kobensis var. *pertenuis* n. var.

Shell very thin, very openly umbilicate, the spire very low; nearly planorboid. Lightly striate. Whorls 5, the last very slightly descending in front. Peristome expanded, *thin*, not thickened within. Alt. 6, diam. 15 mm., width of umbilicus 5.5 mm.

Irazuyama, Tosa. Types no. 87340 A. N. S. P., from no. 1098a of Mr. Hirase's collection.

Eulota (Aegista) kobensis var. *koshikijimana* n. var.

Shell rather thin, nearly planorboid, chestnut-colored; surface dull, densely, finely and sharply striate. Whorls $5\frac{1}{2}$, the last somewhat descending in front. Peristome expanded, narrowly reflexed, flesh-colored, only slightly thickened within. Alt. 6.5, diam. 15, width of umbilicus 5.3 mm.

Shimo-Koshikijima, Satsuma. Types no. 87341 A. N. S. P., from no. 1241 of Mr. Hirase's collection.

This is quite a distinct form by its thin lip and minutely lamellose cuticle.

The four *Aegistas* described above would probably be treated as species by many Helicologists, but their relationships are, we think, better shown by connecting them with the allied forms.

LIMAX MAXIMUS AND OTHER SLUGS IN CALIFORNIA.

BY ROBERT E. C. STEARNS.

The occurrence of *Limax maximus* at Redlands, as reported by Mr. Bartsch in the May number of the NAUTILUS, carries this form farther inland and to a higher altitude than heretofore known on the



Pilsbry, Henry Augustus and Hirase, Y. 1904. "Descriptions of new Japanese land snails." *The Nautilus* 18, 32–34.

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