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FOREIGN LAND SNAILS IN MICHIGAN

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During the last few years several species of foreign snails have been found in the state, and it seems desirable to have them recorded, although as Dr. Pilsbry has well said: "Until naturalized out of doors, these can hardly be regarded as belonging to our fauna, any more than the animals of zoological gardens."

1. *Arion ater* (L.).—In September, 1912, Mr. I. T. Cowles, then living at No. 148 Seyburn Ave., Detroit, reported to me that he had seen a large slug in his garden. Thinking that it might possibly be *Limax maximus* L., which has not yet been reported from the state, I asked him to bring it to me, in case he saw it again. This he did a few days later, and, to my surprise, it proved to be a specimen of this species. This seems to be the only authentic record of the species for North America. The only reference of its occurrence in this country that I have been able to find is one by Grateloup (Distr. Geog. de

la Famille des Limaciens, 1855, p. 8), who lists *Arion empiricorum* Fer., a synonym, from the "Western States." W. G. Binney (Man. Am. L. Shells, 1885, p. 463) says that Grateloup's quotation is "without authority or description," and Taylor, in his recent Mon. Brit. L. and F. W. Shells, II, 1905, p. 192, states that Grateloup's citation "is not confirmed by more recent authors."

The Detroit specimen was, in life, wholly of an old-rose color and with its yellow and black foot-fringe was a striking and beautiful object. Unfortunately the color has entirely faded out since it was placed in alcohol. It would seem to group under the var. *rufa* L. as defined by Taylor (*l. c.*), but it was far from being of the deep red color figured for the subvar. *rubra*.

Mr. Cowles also informed me that the year before he had seen a dark colored slug of the same size in his garden, which would tend to show that the species had survived at least one winter in that locality. Unfortunately the most strenuous "hunting" failed to discover any additional specimens, and, as he moved away the following year, the specimen remains unique. It is now in the Museum of Zoology of the University of Michigan.

2. *Arion circumscriptus* Johns.—On April 12, 1913, Mr. Harold Cummins, then a student in the University, collected a number of this species under boards and other debris around the "Cat Hole," a well-known sink-hole near Ann Arbor. The specimens then sent to me are now in the Museum of Zoology.

This species seems to be rapidly extending its range westward. Taylor (*l. c.*, p. 239), states that in 1904 it was found abundant at Niagara Falls, New York, by T. D. A. Cockerell. Robertson (Nat. Hist. Toronto Region, 1913, p. 290) records it from Toronto, Ontario. And in October, 1917, specimens

were submitted for identification by Mr. H. F. Wilson of the University of Wisconsin, who wrote that the species was doing considerable damage in the gardens at Madison, Wisconsin.

3. *Subulina octona* (Brug.).—In February last, Mr. W. J. Clench, formerly of Cambridge, Massachusetts, and now at the Michigan Agricultural College, Lansing, Michigan, sent in specimens of this species that he had collected in the conservatory at the College. Pilsbry (Man. Con., XVIII, p. 223), has reported it as "introduced at Miami, Florida, and in hot houses in Philadelphia, etc."

4. *Opeas clavulinum kyotense* Pils.—This species was also sent in by Mr. Clench, who found it associated with the preceding.

It has been recorded by Pilsbry (Man. Con., XVIII, p. 137) from Pittsburgh, Pennsylvania, and I have it from a conservatory at Buffalo, New York.

5. *Vitrea lucida*, (Dr.).—A single dead but full grown and quite fresh specimen of this species was found by Mrs. Calvin Goodrich, of Detroit, in the conservatory at Belle Isle Park on March 17th last.

This European species, first detected many years ago on the Pacific coast, seems to be becoming of quite general distribution in greenhouses in the east. Taylor (*l. c.*, III, 1907, p. 29) records it from Washington, D. C., and Philadelphia and Pittsburgh, Pennsylvania. Baker (Bull. Ills. St. Lab. Nat. Hist., VII, 1906, p. 119) has listed it from Chicago, Illinois, and Sterki (Pr. O. St. Acad. Sci., IV, 1908, p. 374) from Painesville, Ohio.

