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NEGLECTED PAPERS ON NAIADES BY W. I. UTTERBACK

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To the list of papers on naiades by W. I. Utterback which was compiled by Johnson (1969) may be added the following, less familiar work.

1928. Phylogeny and ontogeny of naiades. Proceedings of the West Virginia Academy of Science **2**: 60-67.

This paper is primarily a recapitulation of the naiad classification initiated by Ortmann (1910). Since Utterback provides no references to authorities other than himself, it is impossible to ascertain the source(s) of some of his more intriguing remarks, such as the statement that *Cumberlandia monodonta* (Say) can produce two broods of glochidia in a single summer. Noteworthy contributions are a description of volvocoid naiad sperm bodies (see Utterback, 1931) and a discussion of some remarkable aspects of the biology of *Megaloniais gigantea* (Barnes). The latter contribution offers no advance over Utterback (1915-1916) or the earlier account by Howard (1914).

1930. A new genus of freshwater mussels (naiades). *Ibid.*, **4**: 66-69, text figures 1-3.

This paper is a discussion of *Utterbackia*, which Baker (1928) had already described and based on *Anodonta imbecilis* Say. Superior notes on the natural history of this species had been provided by Allen (1924) and Tucker (1927, 1928).

1931. Sex behavior among naiades. *Ibid.*, **5**: 43-45.

Little advance is made beyond Utterback's (1915-1916, 1928) earlier works.

1933. New glochidia. *Ibid.*, **6**: 32-36, text figures A-C.

Descriptions and discussions of the glochidia of seven naiad species and alleged subspecies are given. Much of this information had not previously been published.

REFERENCES CITED

- Allen, E. 1924. The existence of a short reproductive cycle in *Anodonta imbecilis*. — Biological Bulletin **46**: 88-94.
- Baker, F. C. 1928. The fresh water Mollusca of Wisconsin. Part II. Pelecypoda. — Bulletin of the Wisconsin Geological and Natural History Survey, No. 70: 1-495.
- Howard, A. D. 1914. Experiments in propagation of fresh-water mussels of the *Quadrula* group. Appendix IV to the Report of the United States Commissioner of Fisheries for 1913: 1-52. Separately issued as Bureau of Fisheries Document No. 801.
- Johnson, R. I. 1969. The Unionacea of William Irvin Utterback. The Nautilus **82**: 132-135.
- Ortmann, A. E. 1910. A new system of the Unionidae. The Nautilus **23**: 114-120.
- Tucker, M. E. 1927. Morphology of the glochidium and juvenile of the mussel *Anodonta imbecilis*. Transactions of the American Microscopical Society **46**: 286-293.
- Tucker, M. E. 1928. Studies on the life cycles of two species of fresh-water mussels belonging to the genus *Anodonta*. Biological Bulletin **54**: 117-127.
- Utterback, W. I. 1915-1916. The naiades of Missouri. American Midland Naturalist **4**: 41-53, 97-152, 181-204, 244-273, 311-327, 339-354, 387-400, 432-464. Repaged and reprinted in 1916 by University of Notre Dame Press, Notre Dame, Indiana, pp. 1-200.