OBOLELLA CRASSA Hall (sp.)

Plate x, figs. 1, 1a-f.

Orbicula? crassa Hall, 1847. Pal. N. Y., vol. i, p. 290, pl. lxxix, fig. 8a.

Avicula? desquamata Hall, 1847. Pal. N. Y., vol. i, p. 292, pl. lxxx, figs. 3a, b.

Obolella (Orbicula ?) crassa Ford, 1871. Amer. Jour. Sci., 3d ser., vol. ii, p. 33.

Obolella crassa, O. desquamata Billings, 1871. Can. Nat., new ser., vol. vi, p:218. Idem, 1872. Amer. Jour. Sci., 3d ser., vol. iii, p. 356.

Dicellomus crassa Hall, 1873. Twenty-third Rep. N. Y. State Cab. Nat. Hist., p. 246, pl. xiii, figs. 6-9.

Obolella crassa Ford, 1881. Amer. Jour. Sci., 3d ser., vol. xxi, p. 131, figs. 1, 2.

The original description of the species appears to be that of the exterior of the ventral valve, and is as follows: "Ovate-orbicular, with the apex near the narrow extremity; apex obtuse; surface marked by strong concentric wrinkles and fine radiating striæ.

"These characters are preserved in the cast, a small portion only of the shell remaining upon the specimen.

"Position and locality.—This species was found in the intercalated calcareous strata, among the shales of the Hudson River group, two miles northeast of Troy."

Mr. Billings, in 1861 (Geol. Vermont, vol. ii, p. 947), thought that Avicula? desquamata Hall might be referred to the genus, and in 1871 Mr. Ford referred Orbicula? crassa Hall to Obolella. Later, in 1877 (Amer. Jour. Sci., 3d ser., vol. xv, p. 128), the latter observer placed Avicula? desquamata as a synonym of O. crassa, saying: "The species known as Obolella crassa of the Troy beds may also be briefly noticed in this connection. It includes the species already widely known under the name of O. desquamata, from the same locality, this latter, as may be shown, having been founded upon the dorsal valve of the former. The ventral valve is always more acutely pointed at the beak than the dorsal, but beyond this feature there is nothing, so far as I have been able to discover, by which they may be distinguished from each other externally. The surface of each, when perfect, is both radiately and concentrically striated. As a rule, however, the imbricating edges of the successive layers of growth are the only markings visible.

"Of the interior of the ventral valve an excellent figure was given by Mr. Billings (Amer. Jour. Sci., 3d ser., vol. iii, May, 1872, p. 355); but the interior markings of the dorsal valve have nowhere, to my knowledge, yet been accurately shown. The scars are nearly the same with those of the dorsal valve of *O. chromatica*, but the smaller pair close to the beak are here, in the majority of cases, distinctly connected with the larger pair directly beneath them; while the central pair, instead of running parallel with each other throughout, diverge at the mid-length of the valve, and extend onward in slender falcate forms into the anterior fourth of the shell. Their parallel portions are, how-

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