

at which the specimens were dredged. Specimens of the same species from shallower regions, having pretty generally a comparatively stouter test. I may refer to the evidence furnished from the different species of *Pourtalesia*, *Cystechinus*, and *Urechinus*.

Station 133. October 11, 1873. Lat.  $35^{\circ} 41' S.$ , long.  $20^{\circ} 55' W.$ ; 1900 fathoms; bottom temperature,  $1.3^{\circ} C.$ ; globigerina ooze.

Station 205. November 13, 1874. Lat.  $16^{\circ} 42' N.$ , long.  $119^{\circ} 22' E.$ ; 1050 fathoms; bottom temperature,  $2.4^{\circ} C.$ ; grey ooze.

Station 334. March 14, 1876. Lat.  $35^{\circ} 45' S.$ , long.  $18^{\circ} 31' W.$ ; 1915 fathoms; bottom temperature,  $1.5^{\circ} C.$ ; globigerina ooze.

\**Cystechinus vesica* (Pls. XXXV., XXXV.<sup>a</sup> figs. 5-8; Pl. XXXIX. fig. 27; Pl. XLI. figs. 36, 37; Pl. XLIII. figs. 9-12; Pl. XLV. figs. 32-35).

*Cystechinus vesica*, A. Agassiz, 1879, Proc. Am. Acad., vol. xiv. p. 209.

This species is distinguished by the large size of the ambulacral plates of the abactinal side, the uniform structure of the ambulacra on the actinal side, and the regular arrangement of the coronal plates on the abactinal side of the test.

The anal system is made up of numerous irregularly-shaped plates (Pl. XXXV. figs. 9, 10). The ampullæ (Pl. XXXV. fig. 13) of the tufted actinal tentacles (Pl. XXXV. fig. 20) round the actinostome are elongate. The majority of the primary spines are solid, straight, longitudinally striated (Pl. XXXV. fig. 14), with a broad base or else smooth and cylindrical. A few large club-shaped primary spines (Pl. XXXV. fig. 15) coarsely striated at the extremity and slightly curved were also left. The smaller miliary spines are also club-shaped, slightly curved, and with serrated edges at the extremity. The apical system is disconnected, supernumerary interambulacral plates separating the bivium from the trivium (Pl. XXXV.<sup>a</sup> fig. 5); there are three genitals (Pl. XXXV. figs. 6, 7), forming small grape-like clusters attached closely to the apical system; the madreporic body is large. Pedicellariæ of three kinds, one of which is similar to the Clypeastroid pedicellariæ of *Pourtalesia* figured in the Revision of the Echini, the second kind are large, trifid, triangular and short-stemmed (Pl. XXXV. fig. 16), the third kind are short-stemmed and club-shaped (Pl. XXXV. figs. 17, 18).

The actinal system is covered by a small number of large triangular plates, extending from the actinal edge of the test to the actinostome (Pl. XXXV. fig. 12); on the abactinal surface of the test the tubercles are not as closely placed as upon the actinal side; we find only a small number of primary spines irregularly scattered over the test (Pl. XXXV. figs. 1, 2); the miliaries and secondaries are few in number and irregularly scattered over the coronal plates. Actinostome not labiate, circular (Pl. XXXV. figs. 8, 11, 12), with a slightly, raised edge internally corresponding to the auricles in the regular Echinids and Clypeastroids. In this species the relationship of this genus with the *Desmosticha* and Clypeastroids is quite striking. The large ambulacral plates, the barely disconnected