

known before, beyond the well-known differences between the spines near the actinostome, the smooth spines near the abactinal system, and the typical primary coronal spines covered with uniform granulation and serration, or the more or less distinct fluting and serrations of the spines of *Dorocidaris*. The discovery in the Caribbean Sea of a species of *Dorocidaris* (*Dorocidaris blakei*, A. Agassiz), with flat fan-shaped radioles, shows that we may expect, even in the genera of *Cidaris* with uniform radioles, an amount of variation in the shape of the spines and their ornamentation fully as great perhaps as that with which we are familiar in *Rhabdocidaris*, *Goniocidaris*, and the like.

During the "Blake" expedition of 1878-79, a number of specimens of *Dorocidaris blakii* were collected from different localities. These are extremely interesting as showing the gradual passage of a long cylindrical tapering radiole, either fluted or not, with more or less prominent serrations, into a broad flat fan-shaped spine. The detailed descriptions and figures of these spines will appear in the reports of the "Blake" Echinids.

Bahia, 7 to 20 fathoms.

Fernando Noronha, shallow water.

St Vincent, Cape Verde, 15 to 20 fathoms. April, 1873.

Dorocidaris (*Cidaris*).

Orthocidaris, A. Agassiz, 1863, *non* Cotteau.

Dorocidaris, A. Agassiz, 1869, Bull. Mus. Comp. Zool., vol. i.

**Dorocidaris* (*Cidaris*) *bracteata*¹ (Pl. I. fig. 1; Pl. XLII. fig. 1).

Dorocidaris bracteata, A. Agassiz, 1879, Proc. Am. Acad., vol. xiv. p. 197.

This species is the Pacific representative of *Dorocidaris papillata*, which has such a wide range in the Atlantic. It is characterised by the small size of the papillæ covering the abactinal area, and the small size of the mammary boss of the primary tubercles, their smaller number compared to specimens of *Dorocidaris papillata* of the same size, the great size of the abactinal area, and the short slender papillæ surrounding the base of the primary spines. The primary radioles are long, pointed, slender, deeply fluted, the fluted edges more or less serrated (Pl. I. fig. 1). The serrations are frequently connected into lamellæ, or in other specimens, those from deeper stations, the serrations are largest and most prominent on the lower third of the shaft; they are very distinct, extending over the whole surface of the spines, and the fluting is scarcely perceptible. The short slender primary spines of the actinal surface are smooth, and strongly fluted. The largest primary spines are twice the diameter of the test. In alcoholic specimens the papillæ of the ambulacral, interambulacral, and abactinal areas are light reddish-brown, the spines