

are short, flaring at the extremity, of a greenish colour, banded with white and brown, or with violet brown transverse bands. These are of a very uniform size both over the ambulacral and interambulacral areas of the actinal surface; these curved spines extend only to the edge of the ambitus, where they are replaced by short sharp spines (Pl. XVI. fig. 6*a-c*) covered by a muscular sheath, the extension of the cuticle of the test (Pl. XVI. figs. 2, 3, 4, 7-9) which in the shorter spines of the ambulacral area and of the median interambulacral zone (Pl. XVI. figs. 7-9) forms a simple bag at its extremity, while in the somewhat longer spines both of the edge of the ambulacral and of the interambulacral zones the sheath is constricted in several places according to the length of the spines (Pl. XVI. figs. 2-4), and is frequently banded with transverse patches of colour.

The whole test both on the actinal and abactinal sides carries short, sharp, slender miliary spines (Pl. XVI. fig. 5), similar in structure to the longer spines of the abactinal surface (Pl. XVI. fig. 6.) This extension of the muscular sheath of the test over the spine or a portion of the spine is characteristic of those spines of Echinothuridæ in which, owing to the absence of the milled ring proper as in other Echinids, the spines have retained a more or less embryonic structure, and the muscular belt which, starting from the edge of the scrobicular circle in Echinoids, generally terminates at the milled ring, extends in some species of this family along the shaft of the spines either along a part of the shaft or beyond its tip. This is a feature which is eminently characteristic of all young Echinids which I have had occasion to examine. It reminds us also of the mode of growth of the pedicellariæ as a protuberance of the calcareous test covered by the general cuticle covering the whole test, which eventually forces its way through this as also do the young spines of Echinids, while in some of the Echinothuridæ this sheath remains permanently growing with the growth of the spines of the abactinal region. In other species of the group (*Asthenosoma coriaceum*) this cuticle extends over the miliary tubercles with rudimentary spines, leaving small pits which are more or less regularly arranged along the coronal plates of the test. These spines differ materially from the primary spines of the Perischoechinidæ, which so far as is known are provided with a milled ring. The tubercles also are both perforate, imperforate and not crenulate, differing in this respect from those of the Diadematidæ proper. Towards the abactinal system and over the actinal system the integument of the test is so thick as to conceal completely the sutures of the plates. The elongated narrow actinal plates are remarkable (Pl. XVII. fig. 4) for the arrangement of the small tubercles they carry in regular horizontal rows concentric with the test; the pair of pores, the continuation of the poriferous zone, are placed in the centre of each actinal plate.

In the abactinal system (Pl. XVII. figs. 2, 3) the ocular and genital plates, with the exception of the madreporic body, are indicated when denuded of spines by a large, somewhat indistinct plate, smooth towards the ocular or genital pore and covered with coarse granulation at the anal edge. The anal system itself is covered by coarse distant granu-