absence of genital pores, it is difficult to analyse this apical system with certainty. The arrangement of the primary tubercles is much like that of *Cystechinus;* from two to five primary tubercles, varying considerably in size, occupy the coronal plates both of the ambulacral and interambulacral areas on the abactinal side. The spines vary greatly in shape in different parts of the test (Plate XXXIV. figs. 11*a–f*). The cluster of primary tubercles of the posterior abactinal region of the test above the anal system, carry paddle-shaped radioles (Pl. XXXIV. fig. 11); on the anterior part of the test and the ridge extending to the apical system they are more elongate, often sharp (Pl. XXXIV. figs. 11*a*, *d*). The same diversity is also found on the actinal side, where the paddle-shaped primary radioles are concentrated on the actinal keel and near the posterior extremity; the tubercles of other parts of the actinal surface, carrying very differently shaped radioles. The miliaries are uniformly scattered over the test, distant, carrying short, slender sharp spines.

Fayal; 2650 fathoms. May 27, 1873.

Palæotropus.

Palæotropus, Lovén, 1874, Études sur les Echinoïdées, p. 17 (Kongl. Svensk. Vet. Akad. Handl., vol. xi. No. 7).

The systematic position of the deep-sea genera allied to *Palæotropus* in having simple ambulacra, extending from the actinostome to the apical system, suggests for criticism the relationship of all the other Spatangoids when tested by this character alone. The genera, which like *Palæotropus*, *Pourtalesia*, *Echinocrepis*, *Spatagocystis*, *Cystechinus*, and *Urechinus* have only simple pores extending from the actinostome to the apical system in all the ambulacra differ from all the other Spatangoids living and fossil (except it be genera like *Infulaster*, of which the structure of the ambulacra is not well known). Some of the Spatangoids proper are characterised by the difference in structure of the anterior ambulacrum and the lateral ambulacra; such genera, for instance, as *Brissus*, *Meoma*, *Faorina*, *Desoria*, and *Brissopsis*, in which in the anterior ambulacrum the pores are brought together and extend singly from the apex to the actinostome (except immediately round the actinostome where the pores are separated again). In others, as in *Hemiaster*, *Palæostoma*, *Schizaster*, *Spatangus*, and *Plagionotus*, the pores are separated near the apical system in all the ambulacra within the peripetalous fasciole, while they are so separated within the fasciole only in the lateral ambulacra of the former group, and in both groups they are simple again below the peripetalous fasciole.

In genera without distinct petals, such as *Linopneustes*, *Paleopneustes*, *Homolampas*, *Argopatagus*, and *Genicopatagus* the arrangement of the pores in all the ambulacra closely resembles that of such genera as *Collyrites*, *Ananchytes*, and *Holaster*, while in *Micraster* we have the first indication of the specialisation found in the group to which *Hemiaster*, *Spatangus*, *Palæostoma*, and the like belong.

Among the older genera *Hemipneustes*, and among the recent genera *Agassizia*, on