

both in form and in the structure of the petals according to age and sex, that I am quite convinced it is impossible to define the Kerguelen specimens as a different species. One of the specimens from Station 310 combines the features of the two sexes in having nearly flush posterior ambulacral petals, while the anterior petals are almost as deeply sunken as in well-developed females of the same size.

Dr Studer also collected *Hemiaster ccrdatus*, Verrill, at Kerguelen Island, and enumerates it as a distinct species in his list of Kerguelen Echinoderms (Berlin Akad. Monatsb., July 1876, p. 457). He also speaks of finding the young in the cavity of the external pouches of the petals of the large females. Mr Edgar Smith has also noted this species in the Echinodermata of Kerguelen Island (Trans. Roy. Soc., 1879, vol. clxviii. p. 272).

From the evidence furnished by the large material collected by the Challenger, there seems but little doubt the species which have thus far been distinguished as *Hemiaster australis*, *Hemiaster philippii*, and *Hemiaster cavernosus* are all different stages of growth of one and the same species, but owing to the great difference in structure between the ambulacral petals of the males and females, and the extraordinary changes this species passes through from its youngest stage until it has reached its adult sexual form, it was very natural that these several stages of growth should on scanty material have been regarded as so many distinct species.

The coloration of specimens from different localities appears also quite distinct, and in some cases the test and spines are of a light brownish-yellow, in striking contrast to the dark-coloured specimens found at other localities.

Station 151. February 7, 1874. Off Heard Island. 75 fathoms; mud.

Station 310. January 10, 1876. Lat. 51° 30' S., long. 74° 3' W.; 400 fathoms; bottom temperature, 7·9° C.; mud.

Kerguelen Island, Betsy Cove. 15, 25 and 250 fathoms.

Kerguelen Island. 10 to 100 fathoms.

\**Hemiaster gibbosus* (Pl. XX. figs. 5, 16, 22; Pl. XXXIX. fig. 16).

*Hemiaster gibbosus*, A. Agassiz, 1879, Proc. Am. Acad., vol. xiv. p. 210.

This is quite a large species, measuring 30 mm. in length. The outline seen from above is variable, in one case (Pl. XX. fig. 5) it was nearly elliptical; in another specimen of about the same size, the posterior extremity was much the widest (Pl. XX. fig. 6). Seen in profile the test is vertically truncated at the posterior extremity, the apex is close to the posterior edge, thence the test slopes gradually towards the anterior, somewhat beyond the apical system. The anterior extremity is also abruptly truncated and rounded towards the flat actinal surface. The posterior extremity of the actinal surface forms a rounded keel, as is seen from the anal extremity (Pl. XX. fig. 8). The outline seen facing the anterior extremity is nearly globular. The small anal system is placed high upon the