

*Amphidetus*; we are either led to unite these genera into one genus, as has been proposed by Gray, and recognise *Breynia* and *Lovenia* merely as sub-generic types, or we are almost forced to establish for every species a different generic section, so gradually do all the characters upon which these genera are usually distinguished pass into one another.

*Breynia*, *Echinocardium*, and some species of *Lovenia* correspond remarkably well in the structure of the posterior extremity of the test; while *Breynia* and *Echinocardium* agree well in the structure of the actinal surface, yet in *Echinocardium* we can see the beginning of the sinking of the scrobicular area so specially developed in one of the species of *Lovenia* proper, while in *Breynia* and *Lovenia*, both have a peripetalous fasciole or a partial lateral fasciole, and *Breynia*, *Lovenia*, and *Echinocardium* all agree in the structure of the petals and in having an anterior intrapetalous fasciole. *Breynia* and some species of *Echinocardium* agree in having no unduly developed large primary tubercles below the petals, and the few larger primaries are placed within that area; the large primaries of *Lovenia* on the abactinal surface showing their relationship to *Spatangus*, *Maretia* and the like; while in such species of *Echinocardium* as *Echinocardium flavescens*, it would be difficult to separate it from *Breynia* except for very unsatisfactory reasons (the shape of the test and the presence of a peripetalous fasciole). The greater number of primary tubercles in the anterior part of the test of these species is, on the contrary, a feature which allies them to *Lovenia* as well as the slight beak formed over the sunken anal system, which is still more prominently developed in *Echinocardium pennatifidum*. As will be seen from the analysis of *Breynia* and *Lovenia* it is evident that these genera and *Echinocardium* are very closely related, and might very properly be considered as sub-genera only of *Echinocardium*.

*Echinocardium australe*.

*Echinocardium australe*, Gray, 1851, Ann. Mag. Nat. Hist., p. 131.

A good series of specimens of this species was collected; they show that the characters which have been used to distinguish *Echinocardium australe* from its Atlantic congener, *Echinocardium cordatum*, are reduced to differences in the shape of the anal system, the position of the apical system and the difference in outline of the profile of the test, with the slight difference in the distances of the pores of the petals. These differences are thus far quite constant in all the specimens I have examined, but seem very slight ground for maintaining the specific distinctness of the Pacific and the Atlantic representatives of the genus, and I should expect that additional material will prove this species to be identical with the European species, and to have like a few other species of Echinids, a most extensive geographical as well as bathymetrical range.

Kobe, Japan; 7 to 8 fathoms.

Station 234. June 3, 1875. Lat. 32° 31' N., long. 135° 39' E.; 2675 fathoms; bottom temperature, 1.4° C.; grey ooze.