importance, with every step of our progress in the knowledge of their structure, just as similar distinctions among Mollusks have lost their value as tests of the natural affinities of these animals.

If we next consider the systems of radiating tubes, it must be borne in mind that the Echinoderms have not only ambulacral tubes, as is believed, but also, in some of their representatives at least, peculiar interambulacral tubes, quite as extensive as those of the Acalephs, even though these tubes have generally been either overlooked or considered as belonging to the ambulacral system proper. In my third monograph, which is to contain the Natural History of the North American Echinoderms, I shall give a full account of the structure and connections of this complicated system. It may suffice for the present to show, that there exists a system of radiating tubes in the interambulacral zones of the Echinoderms, corresponding to the system of chymiferous tubes radiating from the sexual pouches of the Acalephs to the periphery of the disk, where it anastomoses with the circular tube of the margin, and through this with the ambulacral system, in the same manner as the interambulacral system of radiating tubes of certain Echinoderms anastomoses with a similar circular tube of the margin of their disk, and through this with the ambulacral system proper. This system of radiating tubes is nowhere more extensive, among Echinoderms, than in the families of the Scutellidæ, the Clypeastroidæ, and the Laganidæ; but the resemblance with the Discophoræ is particularly striking in the Scutellidæ, where the broad expansion of the margin of the disk leads to an obvious similarity of form to the flat disk of our common Medusæ. When tracing these homologies, however, it should not be forgotten that, like Starfishes, the Discophoræ have a broad abactinal area, in consequence of which the whole ambulacral and interambulacral area is brought down to the lower surface of the body; while in the Echinoids the ambulacral and interambulacral zones extend over the sides of the spherosome, and occupy nearly its entire surface, the abactinal area being limited to a comparatively small space, occupied by the ovarian and ocular plates and the apparatus which, in different families of Echinoids, may be connected with that region. To facilitate these comparisons, it is, therefore, indispensable to assume that some of the parts seen from the dorsal side of an Echinoid may be brought to the peripheric margin, and even to the lower side of the animal without modifying their homological relations.

Of all the systems of organs, the ambulacra, with their diversified appendages, are the most characteristic in Echinoderms, and, therefore, the most likely to form a true basis in the appreciation of these homologies. In all Echinoderms, the most important parts of that system are about the mouth, around which they form, at a greater or less distance from the oral aperture, a ring with radiating branches, extending more or less towards the opposite pole of the body, in different families.