sea floor such opportunities became more numerous and the covering pieces began to develop along new lines.

Let us suppose that we have an original circlet of ten enlarged peristomial epineurals, that these occasionally capture and crush small organisms and that they can be drawn inward by adductors (turning on their long axis—a power possessed by all the epineurals of our specimen) and thus carry such particles to, and press them into, the oral cavity. The second pairs of epineurals could also occasionally capture organisms and thrust them under the peristomial circlet or move orad over this circlet when it was in the indrawn position. The first circlet might thus come to function as secondary jaws, moving on their inturned edges over the sloping oral surface of the adambulacral jaws and developing permanent sliding joints. At a later stage the second epineurals would come to be placed permanently over them and assume the original functions of the first circlet.

Now, in our specimen we have throughout the food groove an epineural for every adambulacral save the first. Orad of the first, however, and resting on it by a marginal face is a single plate which we must consider as a modified epineural of an earlier circlet which has wholly lost its original function.

How profoundly this earlier circlet has been modified may be seen by noting the present form of these plates. The marginal faces in contact with the adambulacrals have been widened and beveled to make a good sliding joint fitting the V shaped groove formed by the contact of the latter. This may be seen in plate III, fig. 2, a side view of a pair of these plates and taken before they had been more fully freed from the matrix. The faces apparently resting against the "torus?" are also widened. The outer marginal faces are narrower and consist of an aborad short portion and a longer orad portion that appears to be of the nature of a rounded, blunt, movable spine. The remaining marginal face of each plate shows an inner heavy blunt tooth below the smaller rounded tip of the spine-like piece. The broad contiguous face of each pair was flat and close fitting.

As the plates of the secondary jaws assumed more and more an indrawn position the second pairs of epineurals moved permanently orad and met over them. The secondary jaws being powerful organs of defense, a complete covering of the peristomial cavity by the second circlet was not necessary. This new circlet (marked as first epineurals in our figures) was thus free to increase the diameter of the central capturing ring, which they did by shifting their attached ends farther aborad. We find that they have encroached on the higher oral face of the interradial marginals and secured thereon well marked excavations with a clearly defined semicircular aborad border (plate