The dorsal processes belong in general to the dorsal ambulacra, but exceptions have been found in *Deima*, *Oneirophanta*, *Orphnurgus*, and *Pannychia*, which carry processes not only all over the dorsal ambulacra but also in a row situated above the pedicels along each side of the body; these lateral processes are in communication with the ventral lateral ambulacra, which thus carry both pedicels and processes. *Colochirus*, Troschel, &c., among the Pedata, proves that this is a peculiarity not exclusively characteristic of these four forms. In all the Deimatidæ, as well as in several forms belonging to the Psychropotidæ, the dorsal processes are arranged in one or several rows along each ambulacrum. Those animals which, as, for instance, *Oneirophanta* and *Deima* are provided with processes of unusual size and length, have them disposed only in a single row. Very rarely, and, as far as I know, only in *Benthodytes sanguinolenta*, and possibly in *Pannychia moseleyi*, the processes are found scattered over the lateral interambulacra. In the family Elpidiidæ, on the contrary, traces of such an arrangement in rows are obvious, but the processes are fewer in number and the rows have a tendency to become dissolved. A closer examination of the representatives of the family in question shows that the processes do not as a rule change their position, but are situated at fixed places, either anteriorly, or both anteriorly and posteriorly, thus leaving a greater or smaller portion in the middle of the back devoid of all processes. At the same time it will be seen that the number of the processes is definite, as in *Scotoplanes globosa* which always carries only three pairs,—a very remarkable peculiarity, which is, doubtless, to be found in most of the representatives of the family in question, though through lack of necessary material I have not been able to distinguish it; in some forms, as, for instance, in *Elpidia glacialis*, they vary a little in size as well as in position, but even here can be found traces of a tendency to become definite in number and position. In the Elpidiidæ the processes are most evidently disposed in pairs, and though the latter themselves are of a very variable size when compared to one another, nevertheless each pair is made up of processes of equal size.

As before noted another kind of dorsal ambulacral appendage is present, which, being generally odd and very large, traverses the bivium from the one ambulacrum to the other, and appears to be made up of one pair of processes or more, viz., it is penetrated by one or several pairs of wide tubes which are in communication with the two dorsal ambulacra. It is most evident that since the animals are supplied with such a large and long appendage, which either has its free end rounded or provided with lobe-like processes, their appearance is highly characteristic. In *Peniagone*, *Scotoanassa*, &c., the appendage in question is situated anteriorly, and is usually broad, flat, and made up of several pairs of canals; in *Euphronides* it is placed a little behind the middle of the dorsum, and presents a more conical form, while in *Psychropotes* it protrudes near the posterior extremity of the body, and is remarkable for its gigantic size and tail-like aspect; the appendages of the two last-mentioned genera are penetrated by a single pair