

Seen in profile from its brachial side, a mouth angle has the look of a wedge-shaped block, having, however, a correspondence with the same part among Ophiurans. Outside is the furrowed articulation of the mouth frame to its fellow (fig 23, *x*). Then comes, on the upper surface, the peristomial plate (*v*), followed by the jaw (*c*), and the jaw plate (*e*) divided into nodules. On the sides are the great cavities for the first and second mouth tentacles *r'*, *r''*, which have notches in their outer margins for the passage doubtless of their nerves. Just inside the articulating surface (*x*) are two curved, nearly vertical furrows, whereof the innermost must be for the radial nerve, and the outermost for the radial water tube. Among the terminal arm twigs, the structure of side arm plates, hook grains and tentacle hooks is essentially that of *Gorgonocephalus* (figs. 19, 20, 22); farther inward, however, all hooks, whether on grains or on side arm plates, disappear, a fine granulation covers the arm (fig. 21), and even the tentacle pores themselves are obliterated inside the second fork (fig. 17). From both other genera, the present is distinguished by a total absence of under arm plates, unless the little plate at the outer corner of the mouth slit may be called one (fig. 17, *h*). On the other hand the side arm plates are strongly developed although confined, as usual, to the under surface and lower sides of the arm. Near the tip they have the usual shape (fig. 20, *i*); but near the base they take on the form of wide flat plates, meeting on the median line, and having small re-entering curves on their inner and outer edges, whereby little vacant ovals are left which look like very large tentacle pores (fig. 17, *i*). Already on the smaller twigs the tentacle hooks on the side arm plates (fig. 22, *q*) have changed from a curved and sharp outline (fig. 20, *q*) to a blunt spine-like form; and soon after, they drop off; a fine granulation covers the arm, and within half a dozen forks of the tip, nothing appears of the side arm plate but a small mamelon with a tentacle hole (fig. 21, *i*). An examination of the under side of an arm bone shows that the tentacles do not, as Gaudry supposed, lie between the bones, but on the front under surface (fig. 26, *r*) quite as among Ophiurans. At the bottom of the tentacle socket is a pore for the water tube which should first pass into the hole above and nearer the centre, and so curve upward through the substance of the bone, to descend again to the tentacle socket.

The numerous specimens of *Gorgonocephalus*, and their different sizes furnish material for a sketch of the growth of the hard parts. The young, with a disk 2.5 mm. in diameter (Pl. XXXVI. figs. 2, 3), is covered with a skin which, when dry, exhibits distinctly the underlying plates somewhat like those of *Ophiolepis*. The jaw (*c*) with its teeth (*d'*) are joined to two large side mouth shields. From this point of view no jaw plate can be seen till the animal is larger (fig. 17, *e*). Outside the side mouth shields is a plate which holds the position of a mouth shield, and sometimes takes the function of a madreporic plate (fig. 17, *a*). The remainder of the lower interbrachial space is covered by eight or nine irregular plates. Above, there is in the centre a group of six or seven primary plates (fig. 3, *g*), each encircled by a superimposed line of grains.