

their outer edge (fig. 6, *i,g*). There are no proper upper arm plates, but (as in *Gorgonocephalus*, *Astroschema*, and *Ophiomyxa*) the vault of the arm is strengthened and partly covered by grains, or small plates, lying under the skin. Near the base of the arm they are arranged in a double vertical row (fig. 4, 5, *j*) ending on the upper median line in a stout piece (*j'*), the base, on which is mounted the peculiar spine of this species (*z*). The vertical exterior double rows of hook-bearing grains, found in *Astrophyton*, *Gorgonocephalus*, *Astroclon*, *Astrocnida*, *Astroporpa*, *Astrogomphus*, *Astrochele*, and *Astrotoma* do not exist at all in this genus, which agrees in this respect with *Trichaster*, *Astroceras*, *Astroschema*, *Ophiocreas*, and *Astronyx*. The chief bracing pieces, namely, radial shield and genital plate, are stout and firmly hinged, and the former (fig. 3, *l*), instead of being composed of united overlapping scales, is solid; while the latter (*o*) is firmly bedded in a series of soldered plates, which connect it with the side arm plates (*i*). Attached to the articulation is a short, very stout, genital scale (*n*). The arm bones are lower and wider than among kindred genera, but are jointed in the usual way; that is to say, the inner face presents a vertical prominence constricted in the middle (fig. 14,  $\beta$ ), while the outer face has a similar but horizontal prominence (fig. 13, *y*), and the two, held together by muscles and skin, make a free-playing joint. At each forking of the arm a curious modification takes place. The bone, while retaining its general form, is much widened and is split vertically almost in two (fig. 16); on the inner face of each half is a vertical hour-glass prominence ( $\beta$ ), and the outer face of the arm bone next within is suitably modified (fig. 15) by being much widened, and by having, at its constricted part, an articulating peg, or wedge, which fits into the hollow between the two vertical hour-glasses just described. At the joint outside these, the forking is perfect, and each prong has an arm bone of nearly the normal shape.

TABLE OF SPECIES OF *Astrophyton*.

Only one madreporic shield at inner angle of an interbranchial space.	{	Disk with very high radial shields bearing a few stout stumps, covered with thick skin, and often fluted, . . . . .	} <i>Astrophyton costosum</i> .	
		No tentacle scales on pores. Disk and arms quite smooth, the latter with faint belts of hooklets, . . . . .		} <i>Astrophyton nudum</i> .
		Radial shields closely beset with small thorny stumps, . . . . .		
		Upper disk and arms set with smooth grains of several sizes, . . . . .		} <i>Astrophyton exiguum</i> .
Five madreporic shields, one at inner angle of each interbranchial space.	{	Disk set sparsely with minute, short, slender spines, which are continued in groups of three along upper surface of arm, . . . . .	} <i>Astrophyton spinosum</i> .	
		Disk covered with fine, close-set grains, which form cross ridges on the radial shields; and on the arms, belts alternating with those of the hooklets, . . . . .		} <i>Astrophyton cæcilia</i> .
		Disk and upper surface of arm set with spaced grains, which are fine and nearly equal, . . . . .		