

GROUP I.—Arm spines on outer edges of side arm plates and parallel to arm.

Ophiura.

Ophiura, Lmk., Syst. Anim. sans Vert., 1801 (*non* Fbs., *nec*. Ltk.).

Disk granulated. Teeth, and numerous, even, close-set mouth papillæ; no tooth papillæ; spines essentially smooth, shorter than the arm joints, flattened, numerous (7-13); two tentacle scales, the upper one covering the base of the lowest arm-spine; an indentation in the back of the disk, where it is joined by the arm; four genital openings, the first pair beginning outside the mouth shields.

The disk scales, usually even and rather fine, more or less cover the small, oblong, separated radial shields, which are jointed to curved, rounded, club-headed genital plates, which are continued, by a ridge or thin plate, to the mouth shield. At the outer end of the genital plate is attached the genital scale, which is also continued, by a broken ridge or thin plate, to the mouth shield. The strong, compact, mouth angles are partly covered above by three peristomial plates, two forming an angle which is filled by the third. The arm bones are of a high type, being short and discoid, wider than high, and having the structural points of their outer and inner faces perfectly developed. (See Pl. XXXVII. figs. 1-3.)

A large *Ophiura*, supposed to be *Ophiura elaps*, Ltk., dredged in 120 fathoms by the U. S. steamer "Blake," proved, on making a section, to be a male (Pl. XLVI. fig. 3). There was a large bursa (*bu*) whose thin lining membrane (*bu'*) passed upward to the top of the arm, to whose middle line it was attached, thus limiting the sac on that side. On its upper surface it was attached to a part of the interbrachial floor of the digestive cavity (*st*) whose roof adhered closely to that of the disk, and was there smooth, while its floor was deeply folded, and descended into the interbrachial spaces, where it was attached to the disk-wall. The spermaries (δ) hung in a sort of festoon, their upper lobes, seen cut through at δ' , being packed into the upper margin of the disk, near the adductor muscle (*rm*).