

thickened condition of the margin. Both the specimens in which this condition has been observed are males. It is not impossible that it may have been produced by rubbing against objects during pursuit of the female, but in this case we should expect some similar condition in other genera, and I know of none.

I have recently had the opportunity of seeing the extensive and well-preserved series of specimens collected by Professor A. Milne-Edwards during the voyage of the "Talisman,"¹ among which he drew my attention to a species of *Aristeus*, in which the scaphocerite of all the adult males had the foliaceous extremity produced in length to a considerable degree (Fig. X.). It would seem as if this condition might be valuable as not interfering with the speed of the male when in chase of the female, and perhaps of grasping her when caught.

Figure c on Pl. L. shows the scaphocerite previous to its having undergone much change; but a slight emargination, which is not a constant feature, demonstrates the area in which the abnormal thickening takes place in older male specimens.

In some of the younger stages, such as may be seen in those of *Sergestes* (*Elaphocaris crassus*, Pl. LXI. fig. 4c; *Platysaccus crenatus*, Pl. LXIII.; and *Elaphocaris*, pp. 354, 359), and in the Zoea of *Alpheus* (Pl. LXXXIX. fig. 4e), the scaphocerite exists as a cylindrical multiarticulate appendage, fringed with ciliated hairs attached to each articulus on one side only, which demonstrates its homotypical relation with the basephysis of the pereonic and pleonic appendages. From this condition it gradually passes into the uniaarticulate squamose plate of the normal scaphocerite, the only exception being in the genus *Atya*, in which a diæresis crosses the middle of the scaphocerite (Pl. CXVI.).



FIG. X.—*Aristeus coralinus*, A. Milne-Edwards. Scaphocerite.

The third joint of the peduncle in all *Macrura* articulates with the second by two corresponding tubercles, one on the inner, and one on the outer margin; the inner being considerably the more advanced, gives the articulation an oblique direction.

The fourth joint articulates with the third by similar processes on the upper and lower margins; and the fifth joint articulates with the fourth by processes on the inner and outer sides. Thus the peduncle is capable of being moved in every direction by the powerful muscles situated at the base, the range of movement being considerably increased by the alternating articulations, and the correspondingly alternate positions of the muscles of each succeeding joint.

The fifth joint is generally short, constantly anchylosed with the fourth, or so rigidly

¹ I cannot here pass over the opportunity of acknowledging the great courtesy of Professor A. Milne-Edwards in sending over to me at Plymouth the beautiful specimen in order that I might have the opportunity of making the drawing from which the above figure was taken.