

apophyses are developed in pairs, growing symmetrically on both sides of the ring. The most important of these apophyses are:—(1) basal apophyses, arising from the basal pole of the ring; (2) mitral apophyses, arising from the apical pole; (3) dorsal apophyses, arising from the middle of the dorsal rod; and (4) ventral apophyses, arising from the middle of the ventral rod. The two former arise in the principal axis, the two latter in the sagittal axis of the body. Very frequently the latter pair is replaced by two pairs of transverse branches, one inferior (mandibular) and one superior (orbital). The apophyses of the ring are either simple or branched, often very large, richly ramified, and give origin to a number of further products.

Whilst in the Stephanida the primary sagittal ring alone represents the whole skeleton, it produces in all other Stephoidea one or more secondary rings. The most important of these is the horizontal basal ring, appearing first in the Semantida (Pl. 92). From the base of the sagittal ring there arise in the horizontal basal plane two pairs of lateral branches or "basal apophyses." The curved opposite branches of the corresponding pairs become united on each side of the primary ring (right and left), and so produce a second, horizontal ring, perpendicular to the former. This basal ring encloses two paired basal gates, which are enclosed on the medial side by the basal rod of the sagittal ring, and on the lateral side by two united apophyses (*Semantis*, Pl. 92, figs. 1, 2). These two primary basal gates are of the greatest morphological importance; we call them the "jugular gates or jugular pores" (in the description of Bütschli, the pores I, *loc. cit.*, p. 498). The dorsal pair of basal apophyses (on their posterior edge) are the coracal rods, *e* (rods *e* of Bütschli); the opposite ventral pair (on their anterior edge) are the clavicular or furcular rods, *f* (rods *e1* of Bütschli); compare Pls. 92–95, and their explanation.

The skeleton of *Semantis*, the prototype of the Semantida, thus assumes the characteristic form of a signet-ring. The basal ring enclosing the two jugular pores corresponds to the seal-plate. It is commonly more or less horizontal; but often the apophyses descend obliquely (Pl. 92, figs. 1, 2, 13, &c.), more rarely laterally (Pl. 29, fig. 11). The further development of this typical form is essentially effected by the production of new basal pores in the horizontal seal-plate. In *Semantrum* (Pl. 92, figs. 3, 4, 5) we find already four basal gates. Behind the jugular gates is formed a second pair, the "cardinal gates" (pores II of Bütschli). These are enclosed on the anterior margin by the coracal rods (*e*), on the posterior margin by the scapular rods (*d*), a third pair of basal apophyses, arising behind the former from the sagittal ring and uniting with them (the rods *e2* of Bütschli). Commonly the two posterior, or cardinal gates are much larger than the two anterior, jugular gates. This characteristic basal plate of *Semantrum*, with two pairs of basal pores, is of the greatest morphological importance, as it is inherited in by far the greater number of the NASSELLARIA, though not so generally as Bütschli supposes. The basal ring of *Semantrum* is either more circular