1816. SAVIGNY, MARIA JULES-CÉSAR LELORGUE, born 1777, died 1851 (Hagen).

Mémoires sur les Animaux sans vertèbres. Première partie. Description et Classification des animaux invertébrés et articulés, connus sous les noms de Crustacés, d'Insectes, d'Annélides, &c. Premier fascicule. Mém. 1–2. Théorie des organes de la bouche des Crustacés et des Insectes. *Insecta*, Linn. A Paris. Janvier 1816.

Savigny tells us in the preface that he based his theory on the examination of some 1500 species of insects and crustacea, most of them scarcely four or five lines in length, and some far smaller. These were carefully dissected, and complete descriptions drawn up and accurate drawings made of the organs of nutrition, motion, sensation, respiration, &c.

The theory in brief is, that whatever form of mouth the insects may take, it is always composed of the same elements. In the second mémoire he divides the Insecta of Linnæus into two classes, 1. insectes *Hexapodes*, which in the perfect state never have more than six feet attached to the first three rings of the body, including all the winged insects with "la Puce, le Pou, le Ricin, les Forbicines, les Podures," the latter two more doubtfully added; 2. insectes *Apiropodes*, with more, sometimes many more, than six feet, including "les Entomostracés, les Crustacés, les Pycnogonum, Scorpions, Araignées et autres insectes sans antennes, les Scolopendres, les Iules." He shows that in the mouth of the crab are to be found the elements which constitute the mouth of the Hexapod insect, but in addition other elements which must of necessity be analogous to the six feet of the Hexapods. All doubt on this point, he says, is removed by what we find in *Gammarus*. This, like the crab, has two compound eyes, four antennæ, a large upper lip, a tongue deeply bifid (the labium inferius), two mandibles, two first maxillæ, two second maxillæ free, not forming together a lower lip. Behind these second maxillæ are not found six auxiliary maxillæ as in the crab, but two only united at the base and exactly imitating a lower lip surmounted by its two palps. But these palps are armed with strong hooks or nails. After them come not ten but fourteen feet, four more than in the crab, a number just equal to the auxiliary maxillæ which *Gammarus* has fewer than the crab. In truth, he says, all Crustacea properly so-called have sixteen feet, of which more or fewer are converted into auxiliary maxillæ. He noticed that in removing the head from some of the smaller Crustacea, the *Cymothoæ* for example, the maxillipeds remain attached to the first ring of the body. This I have found with some of the Amphipoda.

The mistake which Fabricius made in placing in the same genus the *Pycnogonums* without antennæ, and the *Cyami* which have four, Savigny attributes to the real relations "in the habitation, mode of life, and above all, the general form of body of these parasitic insects." But in a note he says, "les Pycnogonum ne sont point parasites à la manière des Cyames. Il parait qu'ils s'attaquent principalement aux coquillages bivalves." In comparing *Cyamus*, a close relation of the Gammari, with *Nymphon* of the Pycnogonum family, Savigny hopes to show how Nature passed from the mouth of the Crustacea to that of the Arachnides. He states that the head of *Cyamus* is "pourvue de gros yeux composés," and in describing the eyes of *Nymphon*, "tres-petits, lisses et groupés près de la tête sur le dos," he adds "ce qu'il y a de singulier, c'est qu'on trouve aussi deux petits yeux lisses au Cyame. Ce sont même les seuls que les naturalistes aient aperçus." The singularity, however, is on the part of Savigny, who, Lütken says, introduced the fiction of the large compound eyes. He does not figure them either in the upper or under view which he gives of the animal. In the "Rapport fait à la première Classe de l'Institut," by the "commissaires MM. Cuvier, de Lamarck et Latreille, rapporteur," Savigny's mistake was accepted without question, to