

in the description of *Leucaltis clathria*,¹ and yet in his system *Leucetta corticata* belongs to one genus, *Leucaltis clathria* to another. In the hypothetical genealogical tree of the genera of his natural system Prof. Hæckel assigns a different origin to the species belonging to the same genus, as for instance, deriving the species of the genus *Ascartis* partly from the genus *Ascandra*, partly from the genus *Ascetta*; the species of the genus *Ascandra* partly from *Ascartis*, partly from *Ascartis*, &c. Nevertheless, all the species of *Ascartis* or *Ascandra* are, according to him, to be united in one genus, not to be divided into two or more—a direct contradiction to the description Prof. Hæckel gives of his system in the words:—"constructed upon the phylogenetical principles of the theory of descent (ausgeführt nach den phylogenetischen Principien der Descendenz-Theorie)".² Being further obliged to acknowledge the great variability of the spicules with respect to their character whether triradiate or quadriradiate, as well as the inconstancy in the presence of the acerate form, Prof. Hæckel creates a new kind of variety, which he calls "connexive," and regards as illustrating the transition of one genus into another, and he asserts that these "connexive" varieties are "exceedingly instructive for the understanding of the origin of species (höchst lehrreich für die Erkenntniss des Ursprungs der Arten)".³ This would indeed be very instructive, if there were in the Monograph a successful attempt to prove that the seven genera of each of the three families of Calcarea are really natural; such an attempt would have been especially desirable, for in some species presenting "connexive" varieties the constancy in the form of their spicules is comparatively pronounced (*Ascetta primordialis*, *Leucetta primigenia*), and one might come to the conclusion that the generic character is in some cases more variable than that distinguishing the species. The proofs in question, however, are not to be found; the words "natural genus," "natural species," are used repeatedly, and the "naturalness" of the new system is very often urged, but there is only one passage in the whole Monograph which, although by no means proving the naturalness of Prof. Hæckel's system, alludes to the manner in which its author arrived at his systematic ideas. In the year 1871, on the coast of Lesina, Hæckel happened to find many colonial specimens of an Ascon which was composed partly of *Clathrina clathrus*, O. Sch., and partly of *Nardoa labyrinthus*, O. Sch., i.e., of two forms which, found growing separately by O. Schmidt, had been referred by him to two quite different genera. Both the sponges grew into each other without any definite boundary, and a close investigation showed that throughout the whole colony the spicules were of precisely the same form.⁴ Oscar Schmidt, in referring his *Clathrina clathrus* and *Nardoa labyrinthus* to two different genera, was guided by their external differences. The discovery of Prof. Hæckel proved that such guidance is very uncertain, and so far as this discovery caused him entirely to abandon the principles of classifying the calcareous sponges previously adopted, this discovery must be called very fortunate; but if Prof. Hæckel

¹ Kalkschwämme, Bd. ii. p. 159.

² *Loc. cit.*, p. 5.

³ *Loc. cit.*, p. 23.

⁴ *Loc. cit.*, p. 33.