the matter is quite different, and it depends very often exactly on our conceptions as to whether the given group forms a class or a family whether we subdivide it directly into genera or preliminarily into orders and suborders. Now we have seen that there exist in science quite opposite opinions as to what the genus ought to represent, and that many naturalists find no absolute distinction between genus and species. We have also seen that in the Keratosa, to use the words of Prof. F. E. Schulze,[1] "die Entscheidung der Frage, ob eine Anzahl verwandter Formen als Arten einer Gattung oder als Varietäten einer Art hinzustellen sind, oft besonders schwierig erscheint." Be that as it may, the given forms must be classified and introduced in the system, and the hesitation of the classifier must come to an end. On what now may his final decision depend? That it may depend on the inspiration of the moment is undeniable, but I think the importance of this latter factor must not be exaggerated. Every conscientious investigator will always search for more positive arguments, and it is plain that if he regard the corresponding group as an order subdivisible into families, he will bring his hesitation to an end by creating a new genus; and, on the contrary, if he believe the group to be only a family, he will describe the series of forms in question as a species with varieties. Accordingly, and as I remarked before, from *this* point of view a reliable answer to the question put on the preceding page is the most desirable.

Numerous and very conflicting opinions have been expressed on the problem of the affinities of the horny sponges. I begin with that of Oscar Schmidt. This naturalist does not deny the close relationship of his Ceraospongiæ with the Monactinellida, and namely with Chalinidæ, moreover, he regards them as forming no larger systematic unity than a family; but he considers[2] them to present an independent natural group, and is decidedly against any introduction of true Chalinidæ into it. Hyatt goes still further. He regards the Keratosa as forming an independent order, a very significant statement, since the naturalist just named, when writing that "the characteristics of the order Keratosa are more clearly defined than those of any other among the class Porifera," &c. (Revision, &c., vol. i. p. 399), was of the opinion that the whole group of Porifera form nothing more than a class of Infusoria.[3] There are in his valuable memoir on the North American Porifera no further explanatory observations in this direction, but it is plain that the words above quoted admit of but one explanation, namely, that the Keratosa are to be regarded as a group systematically equivalent to the groups Calcarea and Silicea. Gray[4] and Bowerbank,[5] in harmony with Grant, call the Keratosa also an order, but they class within it the true horny sponges with sponges producing "proper spicules." Finally, Carter,[6] agreeing on the whole with Gray and Bowerbank, differs from them in this point, that he considers the Keratosa to represent two orders, without forming,

[1] *Zeitschr. f. wiss. Zool.*, Bd. xxxii. p. 612.
[2] Spong. d. adriat. Meeres, II. Suppl., p. 9; Spong. d. Küste v. Algier, p. 36.
[3] Revision, &c., vol. ii. p. 481.
[4] *Proc. Zool. Soc. Lond.*, 1867, p. 503.
[5] Monograph Brit. Spong., vol. i. p. 205.
[6] *Ann. and Mag. Nat. Hist.*, ser. 4, vol. xvi., 1875, p. 132.