have only to summarise the foregoing observations. I do it in the following words :— *with the exception of the genera Darwinella, Ianthella, and Psammopemma, all genera are devoid of any properties separating them absolutely from one another.*

The further conclusions deducible from this statement will be given in the last part of this Report, for they will only be instructive when we shall have learned the properties used at the present time in order to distinguish and characterise the species. An abstract discussion of all such properties would lead me too far; it is besides unnecessary, since the following chapter, devoted to the description of the forms brought home by the Challenger Expedition, may serve as a better illustration of them than any however detailed but abstract discussions. Some remarks with respect to the external character of the following descriptions: as in my memoir on the Challenger Calcarea, the reader will not find any specific diagnoses; I must confess I regard them in most cases as a loss of space and time, and altogether superfluous, especially as nearly every species in the Challenger Collection of Keratosa is represented by a single specimen only, so that the tendency to vary could not be made out. As to this question in general, I refer the reader to the extremely instructive paper of Heincke on the varieties of the herring[1]; on the other hand, I invite him to peruse the diagnoses of Calcarea given by Haeckel in his "Kalkschwämme" for every species. Would he receive any idea of the animal from a similar diagnostic description? I think not. And this with respect to Sponges, the geometrical properties of whose spicules present far more tenable systematic distinctions than is the case with regard to the Keratosa. As to those described in this paper, I regard their entire descriptions as diagnoses, and end this chapter with the following observations of a practical nature.

All the specimens in the collection not devoid of soft parts have been examined with regard to their canal system and skeleton. The skeletal fibres have been examined both in spirit and mounted in Canada balsam, after previous treatment with ammonia, in order to remove the soft parts. These latter have been examined in sections stained in different ways by different staining fluids; for it must be stated that while for the Calcarea no other staining fluid but picro-carmine is to be recommended, the matter is quite different with regard to the Keratosa, so that in each case the investigator must proceed experimentally.

[1] Die Varietäten des Herings, Berlin, 1877.