

THE  
VOYAGE OF H.M.S. CHALLENGER.

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ZOOLOGY.

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REPORT on the DEEP-SEA KERATOSA collected by H.M.S. Challenger during the Years 1873-76. By ERNST HAECKEL, M.D., Ph.D., Hon. F.R.S.E., &c., Professor of Zoology in the University of Jena.

PREFACE.

THE remarkable organisms which are described in the following pages were handed over to me by Dr. John Murray partly in 1887, partly several years ago, when I was occupied with the examination of the Radiolaria collected by H.M.S. Challenger. The fact that in the majority of these deep-sea organisms the main mass of the body was composed either of siliceous Radiolarian tests or of calcareous Foraminifera shells, cemented together by an organic substance, was of peculiar interest to me, inasmuch as it had led to the expression of very different opinions by the naturalists who had previously examined them. Several spongiologists (among them some well-known authorities) had denied their sponge-nature, and declared that these peculiar objects were either Rhizopods or other Protozoa. Other naturalists, on the contrary, who were closely acquainted with the Rhizopods, could not acknowledge their Rhizopod nature, neither could they make out the class to which they belonged.

A closer comparative examination of these doubtful organisms of the deep sea has led me to the conviction that they are true sponges, for the most part modified in a peculiar manner by the symbiosis with a commensal organism which is very probably in most cases (if not in all) a Hydropolyp stock. At least the majority of the specimens, I have no doubt, are true Keratose Sponges, although the state of preservation was too imperfect for the recognition of all the finer structures, especially the characteristic