

material for microscopic examination. In 1877, Sollas demonstrated, by his examination of several genera belonging to the English chalk, the identity of their structure with that of living hexactinellids, lithistids, and monactinellids. Zittel, in 1876, published his microscopic investigations embracing the whole of the fossil sponges, together with a monograph of the genus *Cœloptychium*. In this work, as well as in the studies published during the following year, it was fully demonstrated that all fossil sponges could be included in the scheme of classification erected for existing sponges. Zittel succeeded in showing that a large number of sponges referred to the *Calcispongiæ* by previous authors had been originally arenaceous, but the sandy material had been dissolved, and in its place calcareous substance had been laid down. This removed the greatest difficulty in the study of fossil representatives of the *Silicispongiæ*. Zittel also demonstrated the true calcareous structures of numerous fossil *Calcispongiæ*, whose existence had been called in question by E. Haeckel in his monograph of the *Calcispongiæ* (1872), and in spite of much contradiction at first, Zittel's evidence ultimately received general acceptance.

The application of the microscopic method, which had been used by Zittel and Sollas, was followed in almost all the later publications on fossil sponges, and the classification proposed by Zittel for recent and fossil sponges was confirmed in its main features and further improved by the zoological and anatomical investigations of O. Schmidt, F. E. Schulze, Carter, Vosmaer, Lendenfeld, and others.

The most distinguished students of fossil sponges at the present day are G. J. Hinde and Hermann Rauff. The former has published a monograph of the fossil sponges (1884) in the Natural History Collection of the British Museum, and is at present engaged on a monograph of the fossil forms of Great Britain, parts of which have appeared since 1887 in the publications of the Palæontographical Society. Rauff has produced in his *Palæospongiology* (1893) an exemplary representation of all the palæozoic forms of sponges.

*Cœlenterates*.—Up to the year 1825 there was great insecurity about the organisation of the organisms at present comprised under the group of the Cœlentera. The schemes of classification attempted by Lamouroux, Esper, Lamarck, and others are full of errors; the researches of Ehrenberg and