

those which have consolidated spicules or firm external cortex, are those most likely to retain their original forms. Even the looser kinds of sponges, however, may under certain circumstances preserve their rotundity of form, in which case they will usually show external markings, but not so well internal structure, unless when sliced. On the other hand, when completely flattened, which is usually the case in shaly beds, only an outline of the form remains, and sometimes not even this, while the forms and in part the arrangement of the spicules are usually apparent. Farther, the hollow and thin-walled species are more liable to be completely flattened, though in some cases, as in the Devonian *Dictyospongiæ*, they may retain their form. It was this property, and the membranous appearance of the outer coat, that for a long time sustained the belief that these were plants rather than sponges.

In the case of the sponges procured in the shales at Little Metis, perfect flattening has occurred, and in many cases the spicules have been separated, and appear as mere spicular patches or layers. In other instances, however, they remain approximately in their natural position, and even the general outline of the form can be observed. The collections include several species of sponges, Hexactinellid and Monactinellid; but, so far as observed, one of them is more abundant and better preserved than the others. The following may serve as a preliminary rough description of the species collected,—which will be more fully described and commented on by Dr. J. George Hinde, F.G.S., the author of the British Museum Catalogue of Fossil Sponges. See paper appended.

1. *Protospongia tetranema*. S. N. (Fig. 1)<sup>1</sup> The general form has been spheroidal, probably with an osculum or oscula at top. Root composed of four long spicules in two pairs, which diverge somewhat and then bend toward each

<sup>1</sup> This figure is a restoration, with two of the spicules enlarged. The defensive spicules and osculum are conjectural, being based merely on loose spicules and general form.