

other and unite, forming a loop. General diameter, about 3 to 5 centimetres. Length of root-spicules, 6 to 7 centimetres. Wall of body apparently thin, composed of large cruciform spicules, stout at centre and tapering to sharp points, and arranged in square meshes, with smaller spicules of the same forms in the meshes. Length of largest spicules and size of meshes, 1 centimetre or less.

The structure of this sponge places it in *Protospongia* of Salter. It is true that the species of *Protospongia* are not known to have root spicules, but these must have been present in some form, and perhaps the bundle of spicules from the Menevian, described by Hicks as *P. flabella*,<sup>1</sup> may have been of this nature.

The root of this species is very peculiar in its arrangement. It seems to have been a cruciform spicule, of which the rays were bent upward and lengthened, forming a stalk for the sponge. This would give a firm attachment, and adapt itself to the gradual rise of the bottom to which the sponge was attached. The mechanical properties of such an arrangement of spicula are obviously well suited to effect their purpose.

Salter, in his original description of *Protospongia* from the Cambrian of Wales, compares it with *Acanthospongia* of Griffiths from the Silurian of Ireland, the original specimen of which he had seen; but says it has six-radial spicules. He also remarks that the spicules of *Protospongia* seem to be all on one plane.<sup>2</sup> *P. Major* of Hicks is a still older species from the Lower Cambrian or Longmynd Series, and seemingly of different structure and of much more open texture than that above described. Matthew has also noticed and figured fragments of *Protospongia* from the Lower Cambrian of St. John, New Brunswick. The present species, though somewhat later in age than the foregoing, has the merit of presenting a better state of preservation and better illustrating the general form, and more especially the root-spicules.

<sup>1</sup> Hicks' Jour. Geol. Soc., Vol. xxvii.

<sup>2</sup> Journal Geol. Soc., Vol. xx.