

supplies of graphite, of petroleum, and of illuminating gas, useful to man at the present day. We may write of them and draw their forms with the carbon which they themselves supplied.

NOTE TO CHAPTER II.

EXAMINATION OF PROTOTAXITES (*Nematophyton*), BY PROF. PENHALLOW, OF MCGILL UNIVERSITY.

Prof. Penhallow, having kindly consented to re-examine my specimens, has furnished me with elaborate notes of his facts and conclusions, of which the following is a summary, but which it is hoped will be published in full:

"1. *Concentric Layers*.—The inner face of each of these is composed of relatively large tubes, having diameters from 13.6 to 34.6 micro-millimetres. The outer face has tubes ranging from 13.8 to 27.6 mm. The average diameter in the lower surface approaches to 34, that in the outer to 13.8. There is, however, no abrupt termination to the surface of the layers, though in some specimens they separate easily, with shining surfaces.

"2. *Minute Structure*.—In longitudinal sections the principal part of the structure consists of longitudinal tubes of indeterminate length, and round in cross-section. They are approximately parallel, but in some cases may be seen to bend sinuously, and are not in direct contact. Finer myceloid tubes, 5.33 mm. in diameter, traverse the structure in all directions, and are believed to branch off from the larger tubes. In a small specimen supposed to be a branch or small stem, and in which the vertical tubes are somewhat distant from one another, this horizontal system is very largely developed; but is less manifest in the older stems. The tubes themselves show no structure. The ray-like openings in the substance of the tissue are evidently original parts of the structure, but not of the nature of medullary rays. They are radiating spaces running outward in an interrupted manner or so tortuously that they appear to be interrupted in their course from the centre towards the surface. They show tubes turning into them, branching into them, and approximately horizontal, but tortuous. On the external surface of some specimens these radial spaces are represented by minute pits irregu-