

septate, and more recent examinations have shown so many undoubted instances of branching—as may be seen in the figure—that the relationship to *N. Loganii* cannot be questioned.

As stated in my former paper, these larger cells have a diameter of $12-22\ \mu$, but as this applies only to the siliceous casts, we must add to this, assuming the walls to be of the same thickness as in *N. Loganii*, $10.5\ \mu$, which would make the total diameter of the original cells $31.5\ \mu$, or equal to some of the larger cells of *N. Loganii*.

A secondary system of filaments is also evidently present. Casts of small tubular cells are very frequent. They have a diameter ranging from 1 to $1.5\ \mu$. Together with these there are also casts of branching filaments, many of which have free terminations and exactly resemble the young hyphae of a fungus. These latter were in all probability derived from a fungus growing in the plant as a feature of its decay. The fact, however, that the larger cells of the medulla branch, permits me to consider that some of the casts at least, belonged to a secondary plexus of filaments which were in all essential respects the same as in *N. Loganii* or *N. lacum*.

Spores are abundant. These bodies are of a reddish-brown color, measure $1.58\ \mu$ in diameter and are often aggregated into dense, spherical masses of reddish brown, resinous looking substance. To this I would refer the spherical masses of a similar character already noted as occurring in both *N. Loganii* and *N. crassum*, and it seems highly probable that they were derived, in each case, from associated fungi.

The fine striation or transverse marking on the casts, as originally pointed out by Mr. Etheridge,¹ has been noted by me in more than one case. It is not, however, a constant feature, but occurs only now and then. If such marking represented structure in the cell wall, we might reasonably expect to find it, if not on the casts of all the cells, at least on so many of them as to leave no doubt in our minds relative to its proper connection. On the other hand, such markings are distinct from the ordinary striation of the cell wall and their position is variable. They resemble in fact markings made upon the casts by pressure of some external structure exerted through the cell wall. In my last communication on this plant,² I expressed a doubt as to these markings representing any structure in the cell wall, and from more recent examinations I do not hesitate to express the belief that that they are in reality caused by the filaments of the intercellular plexus.

From the facts stated above, it would appear that there is ample reason for confirming the position already assigned to this plant. It may be only another condition of *N. Loganii*; but this, in view of the highly altered nature of the specimens so far obtained, cannot be definitely affirmed, and for the present, therefore, it must necessarily remain under its present specific name.

NEMATOKYLON CRASSUM, *Do.*

The original description of this plant is as follows :—

"Fragments of wood with a smooth, thin bark and a tissue wholly composed of elongated cylindrical cells with irregular pores or markings. No pith, medullary rays, nor rings of growth."

¹ Quart. Jnl. Geol. Soc., Aug., 1881, 192; fig. 1.

² Quart. Jnl. Geol. Soc., Nov., 1883, 166.

³ Trans. R. S. C., vi. iv. 13.