

diameter of the structure in its original form. The general color is that of brown coal. The surface shows occasional areas of thin coaly matter much broken up into small angular fragments, but it is chiefly characterized by a somewhat finely striated appearance due to removal of the cortical layer, with consequent exposure of the underlying strands of sclerenchyma.

The transverse section of the more perfectly preserved specimen shows an outer zone 1.5^{mm} thick, which is continuous on all sides. Central to this and thus forming the axis of the original structure, is a distinctly darker and somewhat more porous mass, containing, here and there, small irregularly rounded masses of pyrite. Upon subsequent microscopical examination, these zonal appearances were found to be due to well defined differences of structure.

The microscopical details present many features of interest and, although the general effects of decay and compression have been to completely destroy the general relations of parts, and in many cases, also, to destroy structural details, these last have been preserved, in some instances, in a remarkably perfect manner.

THE CENTRAL AXIS.—The entire central portion of the stem presents a complete absence of structural detail. The whole central area is occupied by a mass of dark colored material so disposed as to indicate its probable derivation from thin walled tissue, but much altered by decay and the subsequent effects of extreme compression. Here and there, dark colored masses appear, possibly the residue of the mucilage originally present. Throughout this region large rounded openings appear, and while some of these undoubtedly represent the displacement of pyrite, many, and probably all, represent the former locations of vascular bundles. In the dark color and structural character of this area, we find ample reason for its evident separation from the cortical zone, as ascertained upon microscopical examination. Outwardly, this area is limited by a somewhat well defined but narrow and irregular darker line, which is obviously composed of much compressed thin walled cells, but which, nevertheless, seems to suggest a somewhat definite boundary line between a