

## 4. RHACHIOPTERIS, n. sp.

(Plate XII. fig. 7.)

Along with the above, in Dr. Newberry's collection, is a singular fragment enclosed in a large nodule of chert from the Corniferous Limestone. It shows clearly about 8 inches of the base of an immense petiole, from 4 to 2 inches in breadth, and attached to shreds of tissue, which seem to represent a part of the stem torn away with it. Its structure is preserved, and consists of delicate large-celled parenchyma, with slender bundles of vessels, about eighteen of which are visible. In structure they are very similar to those of the last species; but the scalariform vessels are accompanied by more woody tissue. They are parallel in the distal end of the fragment, but near its base become tortuous and branching. In the part which represents the stem, or possibly part of its roots, they assume the form of cylindrical rods of parenchyma with a central bundle of vessels. In form and outward marking it resembles *R. gigantea* of my Royal-Society Memoir; but in the latter the structure is not preserved. The present specimen must have belonged to a tree fern of grander proportions than either of those previously noticed.

In the cellular tissue of some parts of this great petiole there are numerous round granules, resembling those figured by Corda in his description of *Protopteris Cottai*\*, and supposed by that writer to be grains of fossilized starch. Mr. Carruthers has more recently described similar starch-granules in the tissues of an Eocene fern†. Whether the granules in the cells of the present specimen are really remains of starch, or merely rounded siliceous concretions, such as are often found in the cells of silicified plants, I am by no means certain. Perhaps the fact that similar round grains are seen in the interior of some of the woody fibres militates against their organic character. They are certainly not markings on the cell-walls, but spherical bodies contained within the cells; and if starch-grains, they may claim to be the oldest known, being of Middle Devonian age.

## 5. NÆGGERATHIA GILBOENSIS, n. sp.

(Plate XII. fig. 8.)

Leaf rhombic-obovate, with a broad base. Nerves or radiating plicæ nine in number, not forked, and with fine striæ between them. Length  $3\frac{2}{3}$  inches. Breadth  $2\frac{1}{2}$  inches.

This leaf occurs in the collections of Mr. Lockwood, from Gilboa. It belongs, without doubt, to the provisional genus *Næggarathia*, and seems to have been bent in a conduplicate manner, and clasping or decurrent, on a stem or branch. It does not seem to have been a fern; but beyond this I am not inclined to hazard any opinion as to its affinities.

\* Beiträge, pl. 49.

† Quart. Journ. Geol. Soc. Aug. 1870.