NEW UPPER DEVONIAN PLANT MATERIAL

By Winifred Goldring

Eospermatopteris (seed fern) Material

Base with roots. After the earlier notices with regard to Eospermatopteris, the Upper Devonian seed fern, were published, some doubt was expressed as to the trees having grown in the place where they were found (Gilboa, Schoharie county), because stump after stump was taken from the quarry with no roots attached, although slabs of rock were found with detached roots, nor was it quite understood how the roots were attached. In the spring of 1923, while collecting at Gilboa, the writer by the merest chance came upon a large slab near the top of one of the dumps showing the underside of a tree base with long, radiating, straplike roots attached along the margin. The specimen was obtained under difficulties and set up in concrete to form a Museum exhibit, through the kindness of Henri Marchand who was then working on the Gilboa restoration group. The slab, as exhibited, measures 5 feet, 7 inches by 6 feet, 4 inches. The base of the stump is about 14 inches in diameter, and the radiating roots, from one-half inch or less to about an inch in width, extend without termination as far as the rock is preserved. From a study of this and other specimens it appears that the roots were undivided. Much larger specimens were found in the quarry, after this specimen was obtained, with roots at least 9 feet long, but it was impracticable to get them out. The specimen shown is in sandstone, but other specimens were found on the dumps sometime later showing the impression of the root base in the shale bed beneath the sandstone, often with the radiating roots well shown. The shale bed which nowhere is of great thickness, as pointed out in the fuller paper on these trees (N. Y. State Mus. Bul. 251), represents the muds in which the trees grew.

A photograph of the slab showing the tree base with its roots, as it is now exhibited in the Museum, is shown on the accompanying plate.

Petiolar scars. Hitherto specimens of stumps and trunks found at Gilboa have lacked the bark or, where the outer surface was shown, it was on the lower parts of stumps where no markings were distinguishable. This past summer three specimens were brought in by a local collector, R. Veenfliet jr, of Schoharie, N. Y., showing large, rounded scars, spirally arranged on a bit of the outer surface of a trunk, or scattered. With these scars in two

specimens is shown a portion of outer cortex with anastomosing, strengthening strands of schlerenchyma, as in the outer cortex of Eospermatopteris. After much study and comparison with other forms the conclusion has been reached that these spirally arranged markings are the scars marking the place of attachment of petioles of the large fronds of the tree fern, Eospermatopteris. The scars probably came from a young tree or from the upper portion of a larger trunk, for it is doubtful that the scars would be so distinct on the lower part of the older trunks, and they would, without question, have been more stretched apart as the result of elongation and increase in girth.

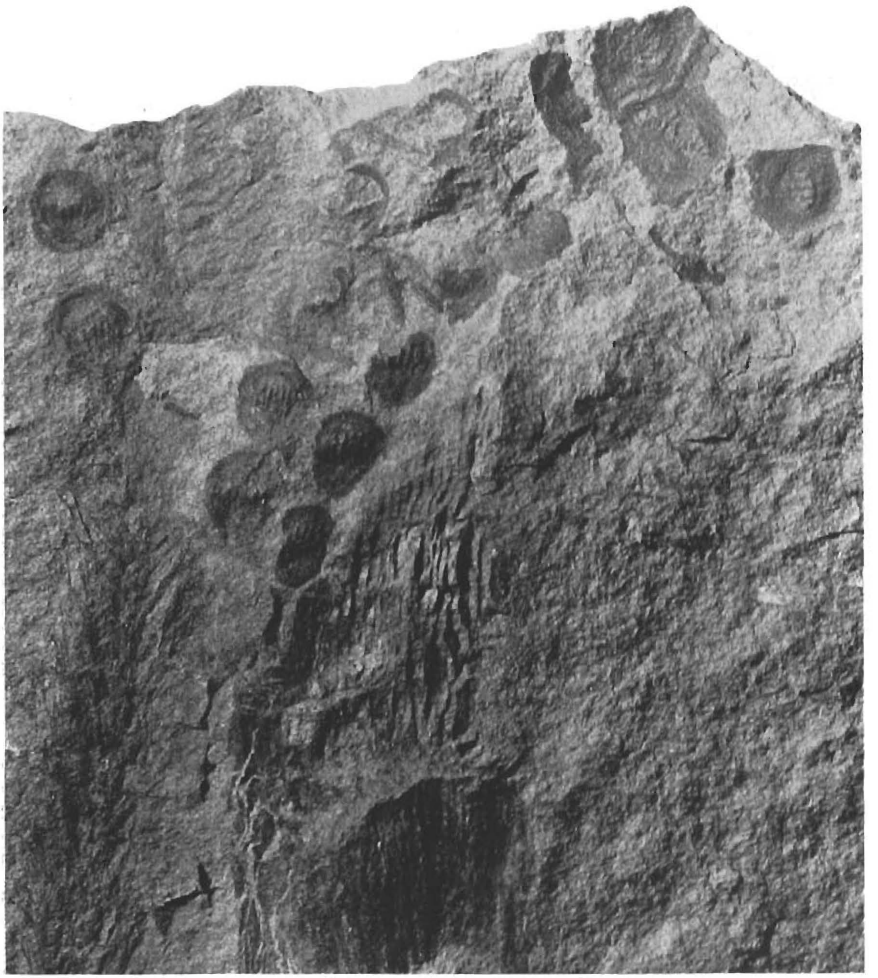
The two accompanying photographic plates show well the character and arrangement of the scars. One photograph shows also a piece of a Protolepidodendron branch. The occurrence of this species has already been recorded. It has been found sparsely in the beds containing the tree fern material and, while it has not yet been worked out, appears to be a different species than P. primaevum (Rogers) — our well-known "Naples tree."

Lepidophyte Material

Rootlike organ. This specimen, figured in the accompanying photographic plate, was found loose along the edge of one of the big dumps at Gilboa and is the only specimen of the kind that has so far been obtained. It has every appearance of being part of a rootlike organ of a lepidophyte (lycopod-like plant). The root systems of plants of the Lepidodendron, Bothrodendron and Sigillaria groups were alike in that there was no tap root but the trunk passed down into regularly forked and spreading arms or rootlike organs (Stigmariae), bearing spirally disposed, long and slender rootlets. We have already recorded the occurrence of Protolepidodendron remains in the Upper Devonian beds at Gilboa and very recent collecting has brought to light a new species of apparent Sigillarian nature. This rootlike organ probably belongs to one or the other of these two lepidophytes.

Sigillaria (?) gilboensis sp. nov. This new species was added to our collection in the late fall of 1925 through the courtesy of Luther Dennis, superintendent with the Hugh Nawn Contracting Company. Only four specimens have been found, so far as is known, and three of these are in the possession of the State Museum. The best preserved specimen is shown in the accompanying photographic plate; the other two specimens are too poor for photographing and

Eospermatopteris. Specimen showing petiolar scars. Natural size.



Eospermatopteris. Specimen showing petiolar scars and some cortical tissue. About two thirds natural size.

Lepidophyte. Root-like organ or stigmaria, probably of Protolepidodendron or Sigillaria. Natural size.

Sigillaria (?) gilboensis sp. nov. Portion of trunk with long grasslike leaves. About one-fourth natural size.

of little value for study. In the type specimen the trunk is 3 inches in diameter and a little more than 2 feet is preserved. The leaves are long and grasslike; they may reach a width of one quarter of an inch, but most of them measure less than this. None of the leaves has been found preserved to the full length, but specimens without terminations have been found 8, 9 and 11 inches long. In one of the other specimens the trunk likewise has a diameter of 3 inches; the diameter of the third trunk is between 4 and 5 inches.

As a general rule, leaves of lepidophytes were persistent for a comparatively short time on trunks, but they were more persistent in Sigillaria than in Lepidodendron, comparatively thick branches being found with attached leaves in the case of the former. It is possible that our specimen is a large branch rather than a trunk. It is also very likely that the leaves in this older form were persistent on the trunk for a longer time than in later species, just as in our "Naples tree," Protolepidodendron primaevum (Rogers), of the Upper Devonian the leaves were found to be persistent well down on the trunk. We have in this Gilboa form a new species which has been referred with a query to the genus Sigillaria until more material is available for study. It is possible that a new genus may have to be created for this form.