

XXXVI. NEW LEAF FOSSILS FROM THE PERMIAN OF CENTRAL OKLAHOMA

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Within the past year two fossil plants have been discovered in the Enid formation of the Permian red beds of central Oklahoma. So far as the writer is aware, these are the first plants to be recorded from this particular horizon. Both fossils are ferns and of the general types found in the Permian in other parts of the world.

The smaller fossil was discovered by the writer in northern Oklahoma County. It came from a small creek, in the northwest quarter of sec. 16, T. 14 N., R. 3 W., about four miles southwest of Edmond. It represents a leaf about 9 inches long and 3 inches broad, poorly preserved in a broken fragment of red sandstone washed down in the bed of the creek.

The larger fossil came from southwestern Logan County. It was found on the farm of Mr. Adams in the NE. $\frac{1}{4}$, NE. $\frac{1}{4}$, sec. 13, T. 15 N., R. 4 W., near the village of Navina and about 12 miles southwest of Guthrie.

It is probable that both fossils came from approximately the same geological horizon, namely a sandstone member of the Permian. The Navina specimen may occur 50 to 100 feet above the Edmond specimen.

The horizon is probably above the Wellington, and is doubtless one of the sandstone members of the Garber formation as the latter term is now being used by Aurin and Clark.

Some years ago the writer accompanied David White, the noted plant paleontologist of the U. S. Geological Survey, on a collecting tour in the region north of Perry, Noble County. On the trip we secured a number of plant fossils, among which I happen to remember that Dr. White identified the gigantic fern, *Gigantopteris*, first described from China. The horizon from which the Noble County plant remains came is probably part of the Wellington as the term is now being used, being 100 to 200 feet lower stratigraphically than the horizon of the Edmond and Navina ferns herein described.

Prof. Charles E. Decker, who has examined the specimens, comments on the fossils as follows:

"Two fragments of large fronds of a fern were recently found near Navina, 12 miles southeast of Guthrie in the red Permian sand

stones. The larger one is about a foot long and the other seven inches in length. None of the pinnae are complete, but the longest fragment is 4 inches, indicating that the frond was eight or more inches in width. The pinnae are nearly parallel, being one-eighth inch in width. They are close set, and bent back on the pinnae at an angle of about 15 degrees. Because they are bent down into the mass of sandstone, the exact length cannot be measured, but they seem to be three-eighths to one-quarter inch in length. The vention does not show and the specimens are so poorly preserved that even the generic determination has not been possible.

And Dr. White, to whom crude "take off" impressions on paper were sent makes the following observations, in a letter dated November 25, 1925: "In reply to your letter of November 5 enclosing a carbon-rub of a fossil fern discovered in sandstone near Navine in the southwestern portion of Logan County, Oklahoma:

"The rubbings that you send are pretty obscure and the details can not be analyzed; but the nerve traces so far as they can be followed correspond in habit to those of *Gigantopteris*. In fact, all of the evidence revealed by the rubbing points fairly distinctly to *Gigantopteris*. And further, if the central axis is correctly indicated, and, in particular, if the *trend* of the margins runs as indicated in your pencil sketch, there is hardly room for doubt that you have a specimen of *Gigantopteris* of larger size.

"Accordingly, I am sending you a night letter as follows:

"Fern impression in sand stone near Navina represents species of *Gigantopteris* not yet described from America. Genus abundant and characteristic of Permian in Oklahoma and Texas. Connects through Korea with south central China. Type locality. *Gigantopteris flora* possibly earlier than *Angara* which lived farther north. White."

"I hope the specimen is in good care. I think I saw similar material in sandstone a little way northeast of Stanford, Texas. I have been hoping to get down in that region and have the opportunity to collect some of the splendid material there to be gathered."