

## NEW MUSEUM EXHIBITS

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### The Fossil Forests of Gilboa

The restoration group, shown in the accompanying plate, was formally opened to the public on February 11, 1925. This piece of work was executed by the artist and sculptor, Henri Marchand, and his two sons, Georges and Paul, under the supervision of the writer.

The restoration of the Gilboa tree and a full description of the material collected may be found in a paper by the writer, *The Upper Devonian Forest of Seed Ferns in Eastern New York*, published in *New York State Museum Bulletin 251* (18th Report of the Director of the State Museum). The first material was found at Gilboa in 1869 when a freshet in the valley of the Schoharie creek exposed in the bedrock standing stumps of fossil trees. These fossil trees were described by Sir William Dawson of Montreal, but there was not enough material found at the time to enable him to place the trees accurately. Loose stumps from a higher horizon were reported in 1897 when Professor Charles S. Prosser, then connected with the New York State Survey, was working in the Gilboa area. All further efforts to relocate the Schoharie forest or to find some additional evidence of its extent were fruitless until the summer of 1920. Since 1920 the city of New York has been doing construction work on a dam at Gilboa; and through the courtesy of the Board of Water Supply and the various engineers connected with the work, together with zealous collecting by members of the Museum staff and others, much new material has been obtained, including seeds, foliage, roots etc.

It was not, however, until June 1922 that the writer had at hand material enough to enable her to identify these trees correctly and to attempt a restoration. The trees were found to belong to the Pteridosperms, or seed-bearing ferns, and are the earliest geological record (Upper Devonian or late Middle Devonian) of the seed-bearing habit. To these trees was given the name *Eospermatopteris*, from the Greek, meaning dawn of the seed fern (*eos*-dawn; *sperma*-seed; *pteris*-fern). Fossil tree stumps were found at three different horizons, the second 60 feet above the first, the third 100 feet above this. There were then three successive forests of trees which were ultimately destroyed by the sea and buried. The Gilboa forests grew along the low shores of the western Catskill mountain region,

facing the interior sea which at that period covered all of central and western New York. They grew in marshes which were easily covered by the rise of the tides and their bulbous bases with the long straplike roots anchored them in the soft black muds.

The restoration shows in the foreground an idealized reproduction of the rock section at Gilboa. The three fossil tree horizons are shown, and here the actual fossil stumps are used. In the middle foreground is a representation of the Schoharie creek with a side stream joining it at the left in a series of falls, as is seen in reality in one of its tributaries, the Manorkill. The background is a visualization of the forest as it might have appeared growing along a swampy shoreline in Devonian times. In front of the painting, at either side, are actual life-sized restorations of these seed ferns. Among the fern trees are occasional Protolpidodendrons, (lycopod types) similar to the "Naples tree," a restoration of which has stood for many years in the Museum.

### "What is a Fossil?"

It has been the policy of the State Museum to make its exhibits intelligible and interesting to the general public, and this has been especially a problem in the Hall of Invertebrate Paleontology. With this in mind, restoration groups and explanatory cases are being introduced among the fossil exhibits. Of this latter kind are the two cases explaining "What is a fossil?", planned to give the unscientific visitor a background which will allow him to study the fossil exhibits with more understanding.

A label with a full, but simplified, definition of a fossil is placed at the top of one case. This case shows examples of all the different ways in which a fossil may be preserved. Likewise in this case is a series of specimens showing various stages in fossilization from loose shells on a sea beach or river bank through loosely consolidated to completely cemented fossil-bearing rocks. Examples of the effect of partial and complete weathering on fossil-bearing rocks are also shown. Clay concretions, often mistaken for fossils because of their odd shapes, likewise have their place here, as well as pseudo-fossils which are of inorganic nature—either stains from decaying vegetable matter or branching mineral incrustations often mistaken by the uninitiated for fossil mosses or ferns.

The second case has various illustrations of the preservation of organisms according to their original composition. Here are shown the effect of conditions of preservation upon the original form, also

fragmentary preservation and the distortion of fossils by movements of the rock beds in which they are preserved. In this case belongs also the explanation of types, models, restorations, "squeezes" of various kinds, thin sections, natural and polished sections which are so often seen in fossil exhibit cases and not always comprehended.

Very full explanatory labels accompany all the examples; but for those who wish to spend less time there are subheadings with the specimens which with the full title label permit them to gain something from these cases with a quick survey.

The results obtained from these two cases have been very gratifying. They have attracted wide attention not only from the general public but also from scientific visitors.

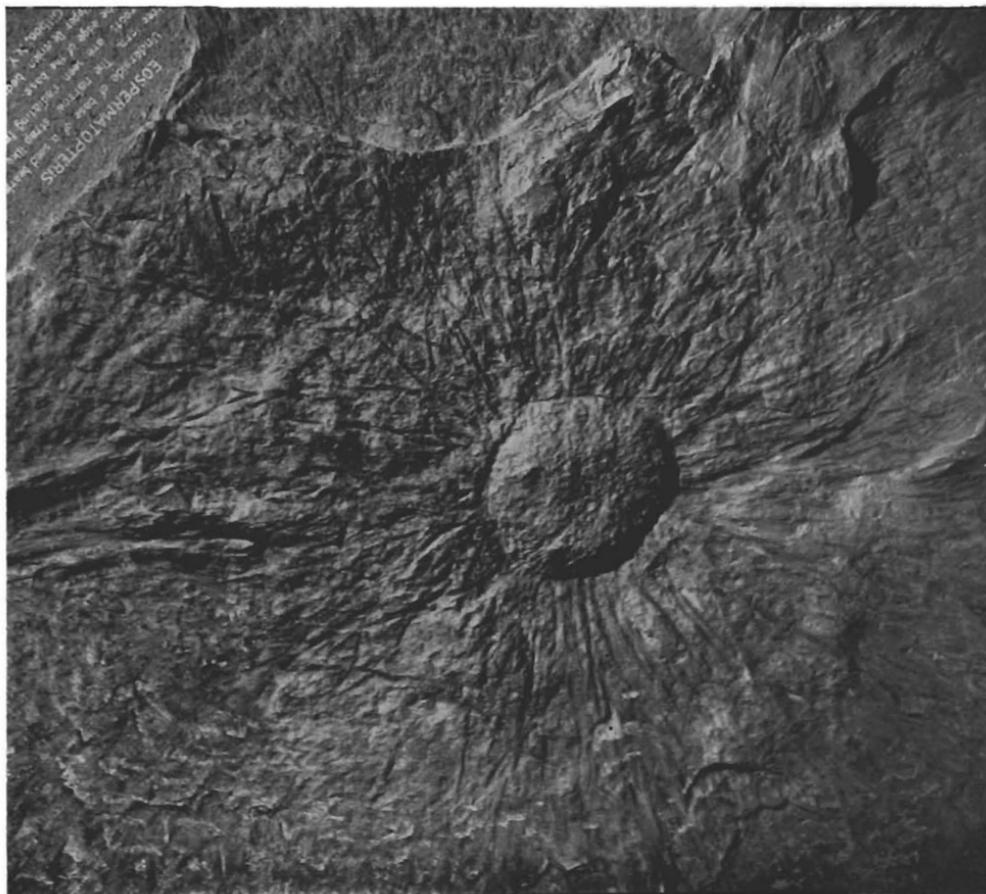
### "What is a Geological Formation?"

This exhibit was planned as a companion to the "What is a Fossil?" exhibit and serves a similar purpose. It has been placed near the entrance to the Hall of Invertebrate Paleontology at the beginning of the series of synoptic cases, and has already attracted considerable attention.

The case was designed to give a better understanding of the meaning of a geologic formation. On top of the case is a title label giving a comprehensive and understandable definition of a geological formation, and in the case is a large, very full explanatory label. Six geologic maps of the State are shown. One map gives the surface distribution of the rocks of all the different ages. Each of the other five maps shows one of the important divisions: the present outcrop of the rocks of that age; the former extent of the rocks, which erosion has decreased; and the extension of these rocks southward under the younger beds. Five cross sections made through different parts of the State show the under surface conditions: the relations of the beds of the different ages, their general slope and thickness. A geologic column is used to show in more detail the succession from the oldest to the youngest beds in the eastern and western areas.

A plate of drawings of a few characteristic fossils has been made for each age. The visitor is referred to the synoptic cases where are displayed the actual fossil specimens of these and other species, and also outcrop maps of the various formations and maps showing the configuration of North America at each stage.

Colored photographs of typical exposures of the rocks of the different formations add to the attractiveness and instructive value of this case. These photographs are colored in oil so that there is no danger of fading. The museum draughtsman, E. J. Stein, has made a specialty of this oil coloring, and it will be possible for any museum to obtain photographs if desired.



Eospermatopteris. Underside of base showing radiating strap-like roots. Slab 5 feet, 7 inches by 6 feet, 4 inches.