

## FOREST OF 350,000,000 YEARS AGO IS SUBJECT OF NEW MURAL PAINTING IN HALL 38

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A large mural painting representing a forest of Devonian times has been installed in Ernest R. Graham Hall (Hall 38). The painting visualizes the diverse flora of this remote period, approximately 350,000,000 years ago. So far as known, these were the truly primeval forests, since in this period the gradually expanding plant life first attained the size of trees. The representation of the forest is based chiefly on observations made from fossil specimens.

Prominently shown in the painting are large trees with bushy crowns, believed to be the oldest of all trees. They are commonly known as Gilboa trees, and technically called *Eospermatopteris* (*eos*, dawn; *sperma*, seed; *pteris*, fern—thus, the dawn of seed ferns). They were first discovered in the vicinity of Gilboa, New York, when an autumn freshet sweeping the upper valley of Schoharie Creek exposed in the bedrock of the banks a series of erect or slightly inclined stumps. One of these stumps is now on exhibition in Graham Hall. Roots, foliage and seed-bearing capsules of the trees are preserved in the study collection of the Department of Geology.

extensive root systems. Their trunks tapered gradually and terminated in bushy crowns of long, gently arched fronds, spirally arranged. These fronds are shown in the painting in various stages of development. The Gilboa trees strongly resemble the tree ferns of modern tropical jungles.

Interspersed with the Gilboa trees grew a giant ancestor of the modern clubmosses, the *Protolepidodendron* (*proto*, first; *lepis*, scale; *dendron*, tree), or Naples tree, as it is commonly known, due to its discovery near Naples, New York.

The Naples tree attained a height of twenty-five feet, and a diameter of nearly a foot at the base. From this base rose a straight trunk, tapering, at first rapidly, then very gently, and finally dividing into slender, gracefully drooping, forked branches to which the open, needle-like, persistent leaves imparted a feathery aspect. The Naples tree is the oldest of its kind known.

Also shown in the painting are *Calamites* (*calamus*, a reed), ancestors of our present day "horsetails" or scouring rushes. Fossil evidences of these plants have been found in widely distributed areas.

The *Calamites* grew in swamps, from stout, underground rhizomes. They had hollow

stems, must have been much taller than their modern dwindled descendants.

Of the less conspicuous plants represented in the painting, *Psilophyton* (*psilon*, smooth; *phyton*, stem) may be mentioned. These grew in marshes from cylindrical, woolly rhizomes that were attached by short, round rootlets. They were comparatively small plants, seldom exceeding six feet in height. *Psilophyton* may be considered transitional between seaweeds and true land plants.

The Devonian forest may have been entirely devoid of insect life. However, since insects, like worms, are soft-bodied organisms and therefore rarely found in the fossil state, it is possible that crickets and katydids may have chirped in the Devonian jungles, but have left no records of their existence.

Another remarkable fact with regard to this ancient flora is that none of the trees show annual rings of growth. This was doubtless due to the fact that the climate was generally uniform and not subject to marked seasonal changes. The flora extended from eastern North America through the Arctic region to northwestern Europe. It is obvious, therefore, that there was a land connection between North America and



Mural painting representing a Devonian forest, by Charles R. Knight. Presented by Ernest R. Graham and on exhibition in Hall 38.

Gilboa trees grew abundantly in shore muds bordering the Devonian Sea west of the present Catskill Mountains. They were majestic for their time, attaining heights up to forty feet. They had bulbous bases, with

or pithy stems which were divided into inequidistant nodes. The few branches were placed in whorls. Leaves were short and pointed, and also in whorls. The Devonian *Calamites*, judging from the size of their

Europe during the period.

The painting is one of the nearly completed series of twenty-eight presented to the Museum by Ernest R. Graham. Charles R. Knight is the artist.

### BURDOCK AND EVOLUTION

By PAUL C. STANDLEY

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Are new plants originating today in the Chicago region? A curious burdock never found elsewhere indicates that this may be the case. In the summer of 1930 William F. C. Grams presented to the Museum specimens of a strange burdock with deeply cut leaves that he had found growing at Des Plaines, Illinois. The deep cutting made the leaves very different in appearance from those of the common barnyard burdock, which is an immigrant from Europe.

Several years ago the same abnormal burdock was described by Professor W. N. Clute, formerly of Joliet, as a new form, *Arctium minus* f. *laciniatum*. Search made this year in botanical books by the Department of Botany of Field Museum revealed

no record of the occurrence of such a form in Europe. Specimens from Des Plaines were sent to the Botanical Museum of Berlin, which owns probably the largest collection of European plants in the whole world; the Director reported that the plant was not represented in the Berlin collections.

It seems probable, therefore, that the cut-leaved burdock, which has been found only in northeastern Illinois and near-by Indiana, really has originated recently there, as a mutation or sport from the common burdock. If this is true, there is a paradox of a distinct form of a European plant that is unknown in Europe!

### PREHISTORIC TOOLS RECEIVED

A collection of flint implements approximately one million years old, representing the earliest definitely determined handiwork

of prehistoric man yet discovered anywhere in the world, has been received at Field Museum of Natural History from Ipswich, England, where they were found. These tools were discovered as the result of excavations made in a gravel deposit of Pliocene age by J. Reid Moir, well-known British archaeologist, who has been placed in charge of certain investigations for Field Museum.

According to Henry Field, Assistant Curator of Physical Anthropology, who worked with Mr. Moir for a period last year, the gravel bed in which investigations are being conducted was deposited about one million years ago, and this indicates that the implements found there are approximately of the same date as the famous Peking skull. Coming from below the "red crag" or stratum deposited by the first glaciation, the implements apparently prove that man existed previous to the glacial period.





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