WILD FLOWERS OF LATE SPRING

By Paul C. Standley
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By the first of May the earliest spring flowers, such as bloodroot, spring-beauty, marsh marigold, Jack-in-the-pulpit, and adder's-tongue, have bloomed and faded. Opening in the first days of sunshine, these welcome flowers mark the end of winter and draw more attention than those of any other season.

They are but forerunners of a host of others, less modest in hue, which attract notice by their vivid tints and masses of color rather than delicacy and grace of form. It is only during May that we find in fields and woodlands some of these most brilliant of all the wild flowers of Chicagoland.

In the woodlands the coarser plants have not yet grown rank and tall. In the forest preserves or the dunes along the lake shore, in the shade of oaks and hickories, the ground is carpeted with violets in blue, white, or yellow, the delicate white flowers of wild lily-of-the-valley, blue phlox, and wild geranium or cranesbill. In favored spots, especially in the dunes, are many clumps of lady's-slippers, finest of northern orchids, scarcely exceeded in beauty and rich coloring by any orchids of tropical forests. The yellow ones are the most common, but in a few places are luxuriant colonies of the showy lady's-slipper, its flowers or "slippers" pure white with markings of crimson. The stemless lady's-slipper or moccasin flower, one of the most celebrated American wild flowers, is probably now extinct in the Chicago region.

The edges of the woods are banked with marvelous displays of fragrant crabapple, and scarcely fragrant but nevertheless handsome red haw or hawthorn. In the dunes are many elegant trees of flowering dogwood, one of the finest flowering trees of temperate climes. There, too, the common columbine thrives when not too much molested by vandals. On the open sand in the mornings there are clumps of spiderwort or Tradescantia, which is aggressive enough to maintain a foothold even in many vacant city lots. Its petals are blue as the sky, but so delicate that they wither in the sun, and all the flowers are closed by noon. Another plant of similar situations is the golden Coreopsis, much like its sister of the gardens.

In open fields, or even in the thinner woods, are large colonies of may-apple, each plant with two broad leaves and a single pure white flower hidden beneath them. The plants often grow in rings like the fairy rings of mushrooms, each circle apparently originating from a central plant now disappeared. With them often are wide meadows scarlet with Indian paint brush or painted cup, a plant that shows bewildering variation in its coloring, and often over large stretches is yellow rather than red. Almost always associated with it are the butter-colored heads of ragwort.

The open fields, too, are a favored habitat of the wild strawberry, a pretty plant in spring, before it has attained its summer untidiness of long runners that strangle weaker competitors. Whoever has seen a field or dune covered with spirelike spikes of blue lupine will not soon forget the sight. Other flowers of open fields or brushy thickets are the graceful wild roses, the compact bushes of New Jersey tea, lush clumps of white and purplish pentstemons, and dense masses of meadow-rue, whose fernlike leaves often are mistaken for those of maidenhair fern. On moist prairies there are large colonies of shooting-star, its drooping flowers pinkish purple, or in this region often almost pure white, their form suggesting that of their relative, the cyclamen.

By late spring even the swamps, whose vegetation is sluggish in growth because of the cold water, are showing signs of abundant vegetation. Their handsomest flower is the stately blue iris.

Many spring flowers of the Chicago area have been reproduced in the Hall of Plant Life (Hall 29), where Museum visitors may see how well they hold their own in competition with famed flowers of the tropics.

GRASS TREES

Grass trees of Australia and other South Pacific lands are often called "black boys" because at a distance they are sometimes mistaken for natives. A specimen of grass tree is on exhibition in the Hall of Plant Life (Hall 29). The plant is a member of the lily family, yucca-like in characteristics. It is known also as the grass gum tree because of the red and yellow resin obtained from it, which is used in the manufacture of spirit lacquers.

THE EARTH'S INTERNAL STRUCTURE ILLUSTRATED BY MODEL

By Henry W. Nichols
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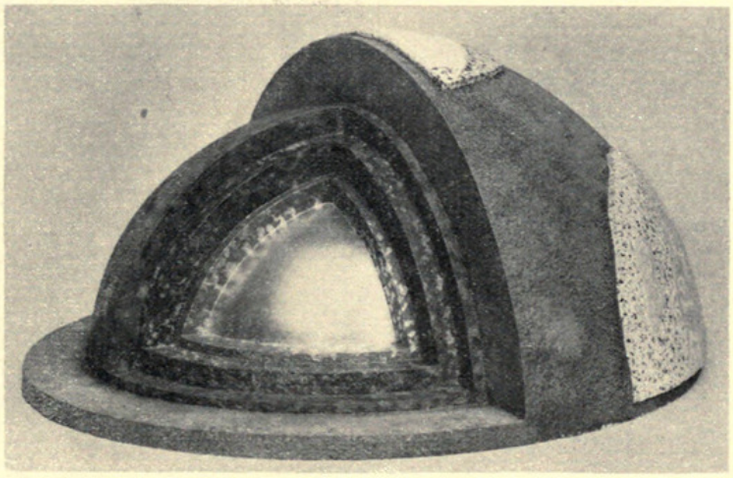
A model recently installed in Clarence Buckingham Hall (Hall 35) illustrates the internal structure of the earth. It is a representation in miniature of the southern hemisphere with parts cut away to show the interior. Instead of a thin crust over a molten interior, as the earth's structure was once conceived to be, the model shows three concentric shells of rock of increasing density enclosing a core of hot metal.

Obviously, the features shown have not been directly observed, since the earth's diameter is 8,000 miles while the deepest excavations for mines have penetrated only into the outer crust, and that for less than two miles. Yet, despite the impossibility of direct observation, the major structural features have been determined indirectly by study and measurement of geological and physical phenomena at the surface.



The Interior of the Earth

Model showing the various subterranean shells which surround a core of molten metal, according to current theories of the earth's internal structure.

These studies have been varied and complex, requiring thousands of delicate measurements, much mathematical computation, and years of work by able geologists and physicists. The most important line of attack has been a study of the effect of passage through the earth upon earthquake waves. Interpretations of the meaning of variations in the strength of gravity, and changes in elevation of land surfaces, have also been important. The study of meteorites has had its share in the accumulated data, as have determinations of the strength, melting points, elasticity, etc. of rock, and other geological and physical studies. These researches are continuing, and additional minor features of earth structure are obscurely indicated but not sufficiently confirmed to be included in the model.

As the model demonstrates, the outer one of the three concentric rock shells is incomplete. It underlies all the land, but is absent under the deeper parts of the seas. Its boundaries have not been mapped, but it probably covers about half of the surface. It is composed of granite and related rocks. This shell is called the sial, a name compounded from the first syllables of silica and alumina, the predominant elements of granitic rocks. The sial is thin compared with the more subterranean shells. It is thirty-seven miles thick over much of its extent, but the thickness is not uniform.

With the land it supports, the sial floats upon heavier basaltic rock. This basaltic second shell is called the sima, a name compounded from the first syllables of silica and magnesia, two elements present in basalt and related rocks. Besides basalt, it probably contains other heavy magnesian igneous rocks.

The sima, 700 miles thick, rests upon a third shell, the transition layer, concerning which little is known other than that is is 1,060 miles thick, and divided by two discontinuities into three concentric sub-shells. It may be composed of ultrabasic rocks heavier than basalt, or it may be a mixture of compounds of heavy metals with such elements as sulphur and phosphorus. The transition layers rest upon a metallic core 4,000 miles in diameter, which is an alloy of iron and nickel with unknown quantities of other heavy metals.

The model represents these rocks and metals as they would appear, cooled, at the surface of the earth. Their true appearance probably is quite different owing to the conditions under which they exist. The weight of the overlying rock is millions of pounds per square foot on the surface of the sima, and more at greater depths. The temperature is so high that the rocks are kept from melting only by the enormous pressure to which they are subject. The pressures and temperatures are so much greater than those encountered in ordinary human experience that little can be said positively of the physical state of the rocks or of what they would look like if they could be seen, and this therefore continues to be a matter of dispute. There is evidence that the rocks are in an extremely rigid state, and other evidence that their state is plastic. The plasticity and rigidity may resemble that of stiff pitch which is elastic and unyielding to momentarily applied forces, yet yields so readily to continued force that a lump of it will flatten and flow from its own weight.