



BOTANY

**Horsetails**

➤ ONE of the most interesting of outdoor sights, when late winter is hesitating on the verge of the first frosty week of spring, is a bed of the spore-bearing shoots of the horsetail or scouring rush, pushing its way up into the chill air in a wayside ditch.

There is something eldritch, gnomelike, about these stiff, leafless, jointed stems, each bearing at its summit a symmetrical little cone marked off with what look like even, six-sided scales.

As a matter of fact, the other-earthly appearance of the horsetail is not inappropriate, for the horsetails we see are the relics of an earlier earth. They are the last roses of a very long geological summer. They are among the oldest of all the plants, and in the heyday of their tribe, during the Coal Age, they were giants with trunks a foot in diameter and 50 feet or so in height.

As has often happened in the course of geological history, the big members of the tribe fell first in the face of changing climatic conditions and the competition of newer species of plants, leaving the meekest of their kind to inherit the earth, or at least so much of it as the newer vegetation would spare them.

The horsetail is one of the very few living plants that can trace an unchanged ancestry so far back. Virtually all the other genera that lived during that remote time have utterly disappeared, or have left descendants so modified that they could hardly be recognized as the off-shoots of their ancestors.

We may get some idea of its antiquity when we reflect that since its first modest appearance on the earth all of its giant compeers, the club-moss trees and seed-ferns of the coal age, have passed away; that the whole vast array of flowering plants, together with all modern ferns and mosses, have appeared and developed; that the empire of the dinosaurs rose, flourished and fell; that all reptiles, birds and mammals have come into being, and that compared

with the horsetail, Man is a mere child of yesterday.

The plants get their name, horsetails, from the bristly, much-branching, non-fruitle stalks of some of the species, which do have a more or less superficial resemblance to the jointed tail of an animal. The Latin name, Equisetum, is almost the exact equivalent of the English.

Their other name, scouring-rushes, comes from their usefulness as pot-cleaners, in old-time kitchens. Long before the modern much-advertised scouring pads and powders ever reached the market, the stems of these humble vegetables made copper and tin-ware bright. The interesting thing about it is that the harsh stiffening of the scouring-rush's stem and the effective scraping flakes of the scouring powder are both made of the same chemical substance—silica.

Science News Letter, March 10, 1951

**CHEMISTRY**

**Lignin Used in Rubber Manufacture**

➤ THE RUBBER soles on shoes may soon be made partly from rubber, partly from a wood product now going to waste.

Lignin, one of the two main compounds in wood, can replace carbon black, a finely-divided form of carbon now used in manufacturing rubber. The lignin-rubber products, so far made only for test purposes, have properties just as good as, and in some cases better than, those made with the usual rubber and carbon black.

Use of now-discarded lignin with rubber to make such items as shoe soles was foreseen by Dr. J. J. Keilen of the Polytechnic Institute of Brooklyn, who described studies on rubber-lignin mixtures to members of the American Chemical Society. W. K. Dougherty and W. R. Cook of the West Virginia Pulp and Paper Co., Charleston, S. C., assisted in the work.

The supply of carbon black is now tight and is expected to become much more critical in the coming months. Lignin is available in quantities up to about 2,000 tons a year. This is from two to four times the amount of carbon black now used by the rubber industry.

Lignin-rubber mixtures will not be used for tires for awhile yet, however. There are still some properties of the combination that have to be ironed out for tire use, Dr. Keilen warned.

Science News Letter, March 10, 1951

**● RADIO**

Saturday, March 17, 1951, 3:15-3:30 p.m. EST  
 "Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. Victor R. Boswell, Division of Fruits and Vegetable Crops and Diseases, Agricultural Research Administration, Beltsville, Md., will discuss "New Seeds for New Crops."

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