BOTANY

Trees Alter the Landscape Making Stable Hills of Dunes

TREES make shifting hills of sand stand still. Plants turn lakes into solid land.

How these and other works of creation are brought about by the plant life of forests and meadows was told to the radio audience of the Columbia Broadcasting System by Prof. H. C. Cowles, head of the botany department of the University of Chicago, in a talk broadcast under the auspices of Science Service.

The work of vegetation in turning wandering sand dunes into anchored hills was outlined in rapid summary by Prof. Cowles:

"The sand dunes of our lake and ocean shores are among the most dynamic of landscapes. Even on a single windy day a dune may change its place and form considerably. One of the most interesting cases of the struggle for existence is to be seen in the dunes, where some of our hardiest plants have a bitter fight for life against the sand. Trees like the cottonwood, shrubs like the willow and sand cherry, and grasses like the sand reeds are most successful here, their victory being due to the fact that these plants are able to send out roots from their shoots if buried, or shoots from their roots if unburied.

"Eventually these plants may become abundant enough to cover the dune and prevent its further movement, whereupon a host of plant species may start on the stabilized sand, representing a second stage in dune plant succession. In this second stage there may be juniper, pine, and other plants, varying with the climate and geographic location. These first plants of the stabilized dune are those that require sunlight and can endure dry soil and high evaporation.

"As the pines and other trees of this stage grow in size, they cast more and more shade, which in time tends to cause the soil to become more moist and more suitable for shade plants and more and more unsuitable for pines—so, a situation arises where hardwoods such as oaks germinate in the shade of the light requiring pines. Thus hardwoods follow pines in natural succession.

"Similarly, in many places the oaks may be succeeded by the still more shade-tolerant beech and maple. Since beech and maple seedlings are tolerant of the shade cast by the parent trees, they may develop in such shade without difficulty and thus carry on the same type of forest that existed there before. Beech and maple forests, therefore, may perpetuate themselves almost indefinitely. For this reason such a forest is termed a climax forest."

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PHYSIOLOGY

Hearing Affected by Rigidity of Ossicle Chain

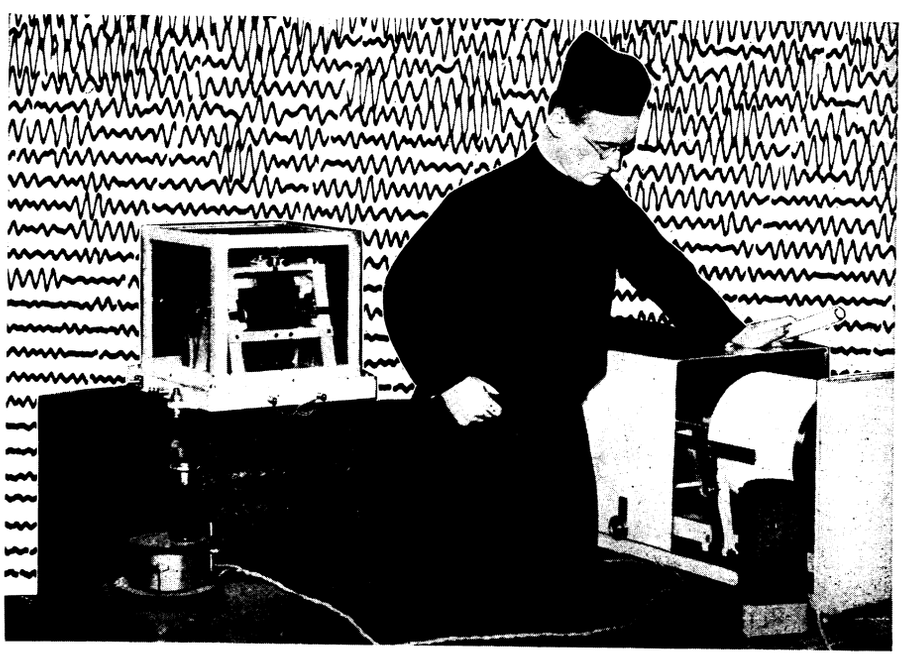
RESEARCH into the causes of deafness was a chief topic considered by the American College of Surgeons during one of its sessions at New York City recently.

Encouraging results in the search for the causes of deafness other than infections of the ear were reported by Dr. S. J. Crowe of the Johns Hopkins Hospital and Medical School.

Experiments have shown that changes in the length and diameter of the passage from the outer to the middle ear affect markedly the clearness and resonance of spoken words, Dr. Crowe reported. Damage to the eardrum has little effect if the tiny bones of the ear and their ligaments are not damaged. These bones, known as the ossicles, are part of the complex mechanism for transmitting atmospheric vibration caused by sound to the inner ear, where the hearing nerve receives its stimulus.

Any condition or injury which increases the rigidity of the chain of ossicles or interferes with its movements causes an impairment in the transmission of low tones, further experiments revealed. Any injury which decreases the rigidity of the chain of ossicles causes impairment in the transmission of high tones. A large part of the sound entering the normal ear is absorbed by the mobility of a membrane located between the ossicles and a part of the ear called the cochlea, which is concerned with tone perception. Making this membrane immobile greatly increases the sensitivity of the cochlea for spoken words and tuning fork tones.

Science News Letter, October 24, 1931



RECORDING BABY EARTHQUAKES

Recently an intense microseismic storm rocked the crust of the earth. The microseisms, sometimes referred to as "baby earthquakes," began shortly after midnight—if indeed they can ever be said to begin, since they are practically continuous. They grew in intensity until they reached remarkable amplitudes at mid-morning, and continued unabated for the rest of the day. The period of the microseismic waves was about five seconds, and the maximum amplitudes exceeded one-half inch on the records of the Canisius College Seismic Observatory, Buffalo, N. Y. The indicated actual ground movement was approximately one two-thousandth of an inch. The man at the instrument is the Rev. John F. Delaney, S. J., seismologist of the Observatory.