

maturity by cutting off half of the roots or by wrapping a wire around the trunk. The tree, thus hurt, produces seeds far ahead of time to be sure that there will be other trees to continue the species.

When the pressure is removed from the injured tree, it returns to normal health.

The wire method is also being used in western Washington forests (see picture, p. 309).

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DENTISTRY

Fluoridation Cuts Caries

► FLUORIDATION of the water supply in Newburgh, N. Y., for the last four years has resulted in a 32.5% drop in the rate of tooth decay among the town's school children, Dr. David B. Ast, director of the bureau of dental health of the New York State Department of Health, reported at the meeting in Atlantic City, N. J., of the American Dental Association.

By contrast, the decay rate in the neighboring town of Kingston has remained the same that it was four years ago.

Newburgh and Kingston are two guinea pig towns which have been putting on a large scale trial of the value of adding sodium fluoride to the water supply for checking tooth decay. The towns are of

about the same size and characteristics. At the beginning of the fluoridation trials, the rate of decayed, missing and filled teeth among some 3,200 school children of Newburgh was 20.6 per 100 permanent teeth. The Kingston rate was 20.2.

The difference in decay rates now, Dr. Ast said, cannot be attributed to any differences in the amount of corrective dental service in the two cities.

Fluoridation of water supplies, he said, may ultimately reduce the tooth decay problem to the point where "the present dental personnel and facilities may be able to control this almost universal disease."

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ENGINEERING

Ozone as Preservative

► THE VALUE of ozone in preserving eggs, fruit and meats in storage is reviewed in a leaflet issued in New York by the American Society of Refrigerating Engineers. It was prepared by Dr. A. W. Ewell, ozone consultant of Westinghouse Electric Corporation.

Ozone is a form of oxygen with three atoms of oxygen instead of the two normally present. This special three-atom form of oxygen is found in very small amounts in fresh air.

Ozone can be produced from the oxygen in the air by several means. Important among these means is a device known as the ozonator which produces ozone by an electric discharge. A more simple ozone producer is an ultraviolet lamp.

In the presence of bacteria, molds, odor and taste-carrying vapors, and many other oxidizable substances, ozone loses its extra atom, thus making it the most powerful oxidizing gas known. It burns up the bacteria. Ozone has an advantage over other oxidizers because the only residue it leaves is common oxygen. In the quantities used in storage plants it is ordinarily harmless to human beings.

The most important use of ozone in storage plants is in egg rooms, according to Dr. Ewell. A high humidity is necessary in egg-storage rooms to reduce shrinkage. This high humidity is favorable to mold growth, but the mold growth can be controlled by ozone. When the proper amount of ozone, a relatively small quantity, is used in the egg room, and a temperature of 31 degrees Fahrenheit and a humidity of 90% are maintained, eggs after eight months'

storage, he says, are indistinguishable from eggs a few days old.

Experiences with ozone in the storage of apples, small fruits and meats are reviewed by Dr. Ewell. Its use in destroying odors other than putrefaction in cold storage rooms and ship holds is also reviewed. Storage goods subject to rancidity, such as butter, lard and fats, must be excluded from prolonged storage in even low concentrations of ozone, he states.

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MEDICINE

Skin Resistance Measures Deafness in Children

► HEARING impairment in babies as young as four months old can be diagnosed with great accuracy through a new testing method developed by Drs. John E. Bordley and William G. Hardy of the Johns Hopkins Hospital and Medical School, Baltimore.

They described the method at the State and Territorial Health Officers Conference in Washington.

Hearing defects need to be picked up at as early an age as possible, they stressed. Children with hearing impairment should have whatever treatment and special training they need before they start to school. Hearing aids, like eyeglasses, can be fitted to very young children. There are "dozens and dozens" of different kinds of hearing problems, the Hopkins scientists pointed out. Not all of them can be answered "by shouting more loudly."

The new test is one for measuring the least possible loudness at which pure tones can be heard. This is called pure-tone audiometry. Ordinarily it involves the cooperation of the person being tested, who must signal when he hears a test-tone. Babies and very young children, however, cannot be tested by this method. So the Hopkins scientists make use of skin resistance methods.

The underlying idea for this is that when humans are stimulated in various ways, sweating occurs. As a result, the skin's resistance to the passage of minute electric currents is reduced. This change in resistance can be amplified and plotted on a moving drum to give a visible record of the response to the stimulus.

To use this method in hearing tests, the child is first conditioned to develop skin resistance changes in anticipation of a standard sound. This is done by giving a light, painless electric shock a few seconds after a standard sound used as a stimulus. When the child has been conditioned, so that he regularly shows a change in skin resistance following the sound stimulus, the tone is gradually reduced in loudness until it reaches a point where the child can no longer hear it. Even when the child is too young to say whether or not he hears the tone, the point of no hearing can be told by the fact that there is no change in skin resistance.

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AERONAUTICS

Near-Vacuum Chamber Tests Supersonic Propellers

► AN underground chamber from which most of the air is removed will be in use early in 1951 in carrying out various mechanical tests upon supersonic propellers for airplanes.

It is a steel cylinder nearly 13 feet in diameter and eight feet high, sunk below ground level and covered by a removable low steel dome. Within the chamber, propellers are rotated horizontally. Before a test is started approximately 99% of the air is removed from the chamber so that a low-horsepower engine can be used to rotate the propeller at high speeds.

This new type of propeller-testing device was developed in Dayton, Ohio, by Aero-products Division of General Motors under contract with the U. S. Navy. It is designed to accomplish various mechanical tests upon supersonic propellers, also being developed under contract with the Navy and the Air Force.

Information concerning the supersonic propellers under development cannot yet be revealed. However, it is known that the blades are thin with a tapered plan form. They are for probable use in the planes powered with high horsepower gas turbine engines of the types called turbo-props. Present supersonic planes are powered with turbo-jets.

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