

Vanderbilt University School of Medicine reported to the Society of American Bacteriologists meeting in Chicago.

Fungi which attack the entire body, not just the skin, are fatal in a high percentage of cases, he pointed out. So far, the search for substances active against these fungi has met with little success.

These serious fungus diseases include actinomycosis, or lumpy jaw, which attacks man as well as cattle; histoplasmosis; blastomycosis; and coccidioidomycosis, or Valley fever. The lungs and other internal organs are affected, and the diseases are

sometimes mistaken for tuberculosis or for cancer.

Ethyl vanillate is a new substance with the chemical name, ethyl 3-methoxy-4-hydroxy-benzoate. It is a by-product of wood pulp manufacture, is quite inexpensive and is nontoxic to humans at concentrations of 30 to 40 mg per cent in the blood.

The only disease-producing fungi not stopped by this chemical are *Cryptococcus neoformans*, cause of European blastomycosis, and *Candida albicans*, cause of moniliasis.

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#### ENGINEERING

## Snows Give Power

► **STREAMS FROM** spring melting snows on Austria's highest mountain peak drop more than three-quarters of a mile to give light and power to homes in Vienna, 250 miles away.

Thirty to 40 feet of snow has been piling up during the winter on the Grossglockner, a mountain rising to more than two miles above sea level in the Austrian province of Salzburg. Now it is melting to icy water which is caught in two artificial lakes high on the mountain.

From these lakes the water drops through tunnels to the power station in the valley far below. There is a vertical drop of 4,080 feet at one point from the higher lake, Mosserboden, to the lowest power house. This long drop of a great volume of water develops the highest pressure per square inch of any station of its size, according to engineers of the project.

Kaprun, as this ECA-sponsored undertaking is called, is one of the largest hydroelectric power projects in Europe. When completely finished, it will produce 600 million kilowatt hours of energy per year, 10% of Austria's total power production. Part of the huge project will be completed by 1952, and, if all goes well, the whole project will be finished in 1955.

The Kaprun plant, with two generating units, began producing power in 1944. At first it was available only for use in the Salzburg province. Over a year ago, con-

nections with Vienna were completed and now much-needed power flows into the nation's capital.

The possibility of making use of the Grossglockner's melting snows was first considered by a German engineering firm more than 20 years ago. The firm gave up its attempt to construct a power project after finding that canals built high on the mountain to channel water froze during the winter.

The Nazis resurrected the project shortly after war broke out. They solved the weather problem by carrying the water through tunnels that kept it above freezing temperature. The two artificial lakes freeze only on the surface, so power production is unhampered by temperature changes.

The Nazis used 3,000 slave laborers when they began to build Kaprun. They spent the equivalent of \$25,000,000 and the lives of many of the workers.

Today again 3,000 workers toil at Kaprun, but they are well paid, fed and clothed. They receive a higher than average wage, to compensate for the hard mountain labor. Machines also must conform to mountain conditions. The type of swaying cableway used to transport tourists up high mountains is used at Kaprun for carrying men and materials up the Grossglockner, through terrain where even American bulldozers cannot build roads.

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#### AGRICULTURE

## Fire Seeds Into Ground

► **USING THE** escalator principle is the best way yet found to fire peanut and certain other seeds into the ground with correct spacing at modern tractor speeds.

Peanut plants must be exactly spaced, either three or five inches apart, depending on the kind. To do this, J. G. Futral of the Georgia Agricultural Experiment Station, Experiment, and R. L. Allen of Georgia Institute of Technology's engineering experiment station, Atlanta, hit on the idea of adapting the escalator.

Up a slope of 45 degrees, they ran a thick belt with holes sized to carry just one peanut, picked up from the hopper or pocket of a planter. Toward the top of the slope, this belt is covered with another, soft rubber one to hold the seeds in place while the belts go over a roller and turn downward to the top of a short delivery tube.

Here the two belts turn sharply around rollers, away from each other, shooting the seed through the tube and into the ground. A four-row planter has been built.

Practical working speeds will depend not on the ability of the planter to pop the seed uniformly in the rows, but on how fast the operator is able to drive with reasonable ease, the two scientists explain. In sheer planter capacity, the new four-row unit is equal to about ten horse-drawn, two-row planters.

Already proved for performance with peanuts and soybeans, the high-speed accuracy may soon be extended to other crops with seeds of size and form suitable for the equipment. Using pelleted seeds, any crop for which accurate spacing is important could be planted by this method.

Details of the operations are reported in the journal, *AGRICULTURAL ENGINEERING* (April). The National Peanut Council and the U. S. Tillage Machinery Laboratory at Auburn, Ala., cooperated in the early stages of the work.

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#### AERONAUTICS

## Exhaust Blast from Another Plane Starts Jet Engine

See Front Cover

► **JET ENGINES** in planes at advanced stations in Korea where external power is not available are being started by the exhaust blast from an operating plane standing in front of it, a General Electric service engineer on duty with a fighter group in that country has revealed.

Jet aircraft usually rely upon field power units for starting, rather than their own electrical system, because of the large amount of power required. Several types of self-contained starting units are under development but none are in extensive use. A storage-battery type is not satisfactory if used to start the engine itself because of the size and weight of the unit that would be required.

The blast method in use in Korea, as shown on the front cover of this week's *SCIENCE NEWS LETTER* and described by T. J. McIntyre, G.E. engineer, requires that the plane with the operating engine be placed so that its exhaust tailpipe is directly aligned with the intake of the plane whose engine is to be started. It must be far enough ahead to protect the pilot and airframe from the high-temperature blast. This exhaust blast is sufficient to start rotation of the engine in the plane behind.

Tests in Korea were made with the North American F-86 fighters, which are equipped with General Electric J-47 turbojet engines. In the initial test, the pilot wore an oxygen mask for protection, but this precaution was found unnecessary. Neither plane nor engine suffers any damage from the excessive heat or the blast effect of the discharge, Mr. McIntyre stated.

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