

TECHNOLOGY

"Toy" Power System Solves Problems of Big Utilities

► A "TOY" power system that sprawls through a room 25 feet square at the University of Illinois is solving real-life problems for electric utilities.

Called a power network analyzer, the machine consists of 500 vacuum tubes, 2,000 telephone jacks, 2,000 coils, 7,000 resistors, 6,000 condensers, 130 meters and 5,000 indicating lights. It can be set up to simulate complex power circuits of interconnected power companies.

It shows what happens when some change is made on the system. The change could be the addition of a new power plant, more transmission lines or more big industrial loads. It even can show how bad storms affect the power system.

Part of the machine's advantage lies in its flexibility. Ideas, perhaps impossible to study by any other method, can be tried out on the machine and studied. Five men working with the machine can figure out more in 11 weeks than 50 men could figure out in two years using ordinary office calculating machines.

The Pennsylvania-New Jersey-New York power network now is being analyzed. When the machine is not being used by utility researchers, it is used by the university in its own teaching and research projects.

Three Midwestern electric utilities financed the network analyzer. The machine was designed and built by the University staff.

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Researcher Forbes had bleary orbs,
Cramped digits, inflamed pleura;
Until a friend, who feared the end,
Tipped him off to CONTOURA.*

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**Defiers of the Dunes**

► **SOME TREES** refuse to die even when they are buried!

Many thousands of people, for many years, have seen and wondered at the half-buried trees in the sand dunes around the southern and southeastern shores of Lake Michigan—the highest dunes in the world.

Some species, like oaks, give up very soon when the steady winds drift the sand deep around their trunks. Others, however, like cottonwoods and lindens, are not to be discouraged. Their branches keep on living, and throw out new roots near the new ground level established by the rising dunes.

A study on dunes in the South, on the Florida west coast, where the trees buried are magnolias, palmettos and other typically Southern species has shown that grain by grain the sand piles up. First the single trunk is buried, then the primary limbs; finally the smaller branches. With only the top above the sand and the base buried below, what was once a tree becomes a wide expansive shrub.

In some cases the original roots appear to be still functioning. In many other instances, however, enormously long adventitious roots are put forth from the stems higher up, to replace the dead ones lost in the depths of the sand. In this way new shoot and root systems are literally stacked one upon the other.

Magnolia, scrub live-oak and saw-palmetto keep their tops above invading sand by stem elongation and production of roots therefrom. Stems laid bare by winds reveal that magnolia stacks new plants upon its old frame; that both magnolia and live-oak may multiply into new individuals by the separation of formerly connected stems in the sand below.

On old stable dunes where the soil is rich and moist and the atmospheric conditions mild, magnolias may develop from seed and, barring catastrophe by man or fire, develop into normal trees and magnolia forests.

When dunes sweep into a growth of slash pine, the end result looks the same. Pine "bushes" projecting from the sand are really the uncovered tops of trees buried below. However, in this case no new roots are formed higher up on the trunks; the old roots, though buried deep, are not discouraged and keep on functioning.

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NUTRITION

Agriculture Research In Gastronomic Review

► **THE GASTRONOMIC** review of the researches conducted by the U. S. Department of Agriculture, served to President Eisenhower at the Department's Agricultural Research Center at nearby Beltsville, Md., included 23 items.

The menu started with orange juice from an orange juice powder that may be stored without refrigeration and ended with salted pecans from the new Barton variety that are high-yielding, thin-shelled, with superior keeping qualities.

Along with such solid food as prime ribs of beef, cold sliced baked ham, glazed sweet potatoes, peas, mushrooms, asparagus, potato salad and strawberry pie (all from research-developed varieties) the menu offered the following unusual tidbits:

Whole-wheat rolls made more nourishing by adding protein and iron in the form of non-fat milk and molasses.

Whey cheese spread from proteins recovered from whey after cheese manufacture, developed to give a new use for milk proteins now largely wasted or fed to animals.

Swiss cheese from pasteurized milk which yields a safer product.

Honey-fruit spread, now being made commercially by a process developed by Department researchers, which combines fruit juice and honey; special comb honey from improved honeybees; and crystallized honey, the result of controlled granulation which gives fine, smooth crystals.

The hot-weather candy on the menu did not melt on the warm day because it contains a high-melting fat which Department researchers found would make candies that withstand high tropical temperatures without softening.

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