

cal prospecting for oil, this kind of machine may find use in other industries.

Its application to the Bell Laboratories work will be facilitated by the installation of special teletypes in all the computing rooms. Mathematicians will be able to walk across the room, type their problems and get the answer promptly.

The machine does the average problem in a third of the time taken by present methods using conventional computing machines. It multiplies twice as fast but divides about four times as

fast. Computing work on a long-distance lines problem, for instance, usually requiring six months will be done in six weeks.

Mathematicians will be interested in knowing that part of the design of the machine was worked out by means of Boolean algebra, a newer kind which has also proved useful in symbolic logic.

The machine has not received a nickname as yet. Since it deals with imaginary numbers, it may answer to the name of "Yehudi."

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PUBLIC HEALTH

Mosquitoes Kept Suppressed On South's Eight New Lakes

EIGHT new lakes, formed by the eight great dams of the Tennessee Valley system, have become health and pleasure resorts as well as sources of wealth and power for the nation because the malaria-carrying mosquitoes are not permitted to breed in the shallow waters along their shores. Workers in shallow-draft boats, in low-flying airplanes, trudging along on foot, patrol every spot where the malevolent insects might lay their eggs, and prevent their coming with clouds of poison dust.

When the new lakes are all filled to normal height they lap shorelines totaling some 5,000 miles, or 25 times the shoreline length of the Panama Canal. Not a mile can be neglected, either, for the lakes lie in seven states that have in past times been known as the heart of the malaria belt.

Control of mosquitoes (and hence of malaria) in the Valley is the fruit of painstaking preliminary research, participated in by the U. S. Public Health Service, the Bureau of Entomology and Plant Quarantine of the Department of Agriculture, and the Rockefeller Foundation. Several steps in control were found necessary, and all have been most thoroughly carried out.

First came a complete clearing away of all bushes and other growths along the zone over which the water level fluctuates, as the dams are first closed for filling, then opened to maintain navigation heights in the streams and to develop power. Malaria mosquitoes love to lurk and breed in such sheltered places, and that part of the shoreline had to be shaved clean. It cost money at first, but saved heavily on poison dust expenditures later.

A second element in the new technique was a radical departure in the schedule of pool level fluctuation. The purposes of flood control, power and navigation would not always permit fluctuation of the pools at the times when the variation was most needed for mosquito control. Early in the construction program the Health and Safety Department succeeded in obtaining the addition of one foot (called the "malaria control surcharge") to the heights of the dams.

Starting at the beginning of the mosquito-breeding season, the pool level is varied once every week or ten days—first to the maximum and then down to the minimum, each succeeding time falling slightly short of the preceding maximum.

In this way the pool level is kept always a little ahead of the encroaching vegetation.

Finally comes dusting of mosquito-breeding waters with Paris green, diluted with soapstone, so that only half a pound of the poisonous green powder is spread per acre of water treated. Airplanes are much used: in 1939, pilots flew more than 300 hours to spread more than 100 tons of dust over 82,000 acres of lake shore. Boats with oil sprays are also in use, and men on foot to get at the less accessible places. Lately, copper arsenite has been found quite as effective as Paris green, and only about half as expensive.

Public health officers keep close track of the incidence of malaria in the Valley. Every year they make approximately 20,000 blood examinations, from samplings of the population. In the area as a whole the number of malaria cases has already been reduced.

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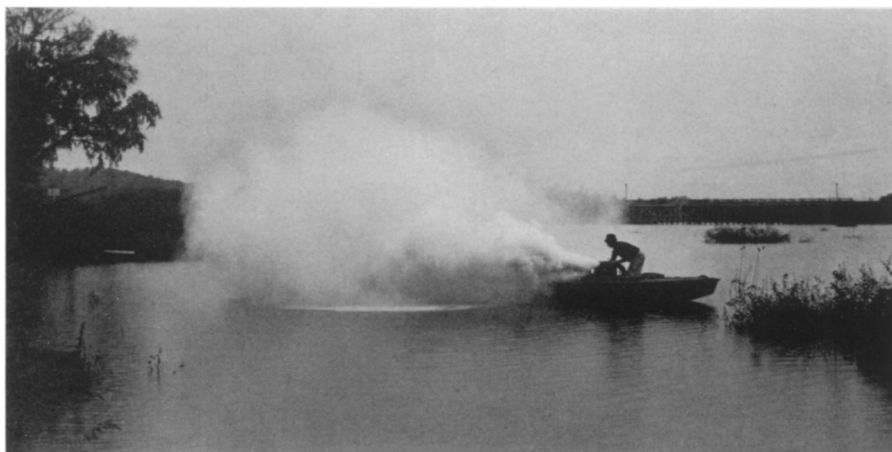
INVENTIONS

Small Centrifugal Pump Efficient in Operation

A SMALL centrifugal pump for light liquids, that handles surprisingly large quantities despite its size, weighs only six pounds. (Eastern Engineering Company.) It is made of monel metal, stainless steel and chromium-plated bronze construction, and will be especially useful where weight and space for the pump must be kept at a minimum.

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Seals are good divers, and can stay under water for 12 to 15 minutes.



THIS IS WAR

But war of a kind that everybody applauds, for the man in the boat is "blitzing" the breeding places of malaria mosquitoes along the shallow lake shore with a cloud of poison dust. More than 5,000 miles of shoreline, along the Tennessee Valley's new lakes, are thus protected for the health and comfort of resorters as well as permanent residents.