

MEDICINE

Chinese Anti-Germ Drugs

Tests of 45 Chinese drugs revealed that eight had antibiotic activity. However, although they check further growth of germs they do not kill them.

➤ EIGHT drugs commonly used in the Chinese practice of medicine have anti-germ activity of the kind that might class them with penicillin, streptomycin and other antibiotic drugs now commonly used in Western practice of medicine.

The antibiotic or anti-germ activity of the eight was found through tests of 45 Chinese drugs. The tests were made by Drs. H. Zanyin Gaw and H. P. Wang at the National Wuhan University, Wuchang, Hupeh, China. Dr. Wang is now teaching at Mount Holyoke College, South Hadley, Mass. Their studies are reported in the journal, *SCIENCE* (July 1).

Chinese drugs, they point out, are actually roots, stems, seeds, leaves or flowers of various higher plants which have been made very dry by a special process. When prepared for use, the dried material is cut in small pieces and boiled very slowly for two or three hours or longer. Drs. Gaw and Wang followed this method in preparing extracts of the drugs for their tests.

While penicillin comes from a mold, some newer antibiotic drugs have been obtained from higher plants, for example, tomatin from the tomato plant. This is what prompted the study of the Chinese drugs from plants.

The eight found to have anti-germ activity check the multiplication of the germs but do not kill them. Tests of the drugs on living human white blood cells show that they are not poisonous, which was to be expected, because prepared medicine is always given by mouth in Chinese practice.

Six of the Chinese drugs showed various degrees of anti-germ activity against *Staphylococcus aureus*, common germ of the family that may cause anything from boils to blood poisoning. The six are: Ta Huang from a leafy plant of the rhubarb family, Huang Lien from an herb, Coptis, sometimes used in garden borders, Hai Tung Pi from a crimson flowering coral tree, Shan Shu Yu from a variety of dogwood, Tsien Tsao from the same family as the dye-plant called madder, and Chi Hsueh Teng from a decorative shrub of eastern Asia.

Two other Chinese drugs showed anti-germ activity of relatively low potency against *Escherichia coli*, a germ normally found in the intestinal tract and often used in tests of the purity of drinking water. These two drugs are: Mao Ken from a buttercup, and Peh Pu from plants allied to the lily family.

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METEOROLOGY-ENGINEERING

New Machine Makes Fog

➤ SCIENTISTS have developed a fog machine, with which any kind of fog can be made.

And now that they can make fog, they hope to be able to learn enough about it to disperse it efficiently, to design fog lights and beacons of better visibility, and possibly even to develop fog screens for military purposes.

The machine was developed in the University of California Institute of Transportation and Traffic Engineering, which is primarily interested in reducing accidents on land, sea and air. In some sections of California, fog is a major hazard of

private, commercial and military transport.

The scientists, headed by Prof. Dan M. Finch, an electrical engineer, first tried to use natural fog in their experiments. When the real thing proved to be too elusive, they set about constructing a machine which would produce the air pressure and temperature changes which give rise to fog in nature.

The machine is a double-walled tank, with windows for observation and photography. Warm or cold air is circulated through the jacket of the tank, depending on the kind of fog needed. Fog is made from cold or warm moist air poured into the inner tank from a connecting vapor tank.

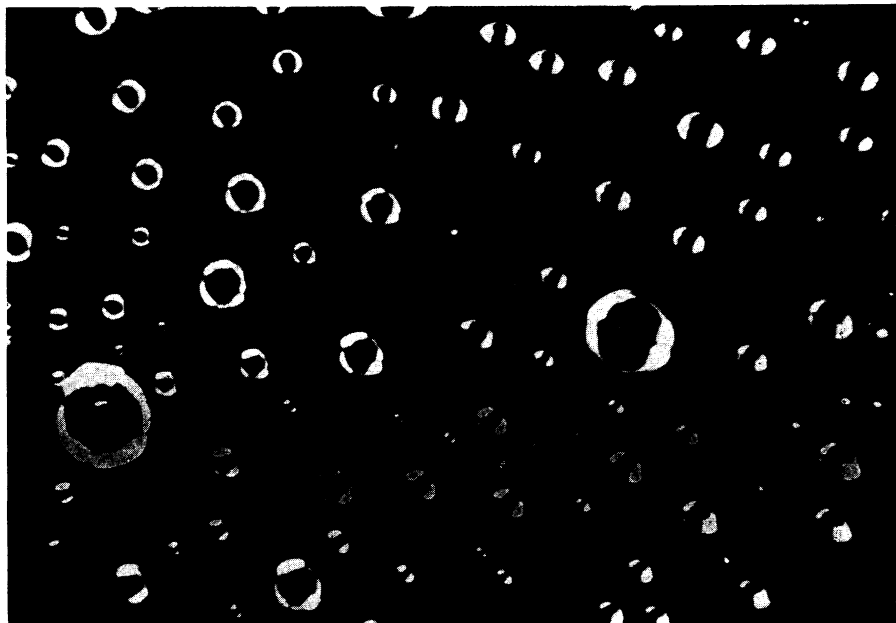
There are three principal types of fog: radiation fog, which occurs in valleys when the loss of heat to the ground through radiation produces vapor condensation; advection fog, which occurs along coastal areas when warm air from the water drifts in and mixes with air over a cold area; and pressure fogs, forming on hill summits when a saturated air mass moves up a hill and the resulting pressure changes cause the air temperature to drop below the dew point.

In the fog machine, for example, advection fog is made by a sudden mixing of warm saturated air from the vapor tank with a cool air mass in the fog tank. Pressure is changed by closing or opening an outlet valve.

Very little is known about the physical characteristics of fog, according to Prof. Finch. By using photomicrographic techniques with man-made fog, data on particle size, water content, temperature, density, dust content and composition of fog can be determined.

Better auto headlights, aircraft and other beacons, rail and highway signals, are the immediate objective.

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FOG DROPLETS—Magnified about 220 times, this photomicrograph of artificial fog droplets showed how they formed on a glass slide in the University of California fog machine.