

## MEDICINE

# Fear Man-Made Epidemics

Modern, "miracle" drugs are causing forced selection of the most resistant races of germs, whose development may be a serious disease threat.

► THE SPECTER of man-made epidemics of disease haunted some of the medical scientists at the American Medical Association meeting in New York.

It is not bacteriological, or germ, warfare by an enemy power they talked about. It is the peril of new races of germs coming to the fore through a man-made instead of a natural process of selection.

Our modern, so-called miracle drugs, from penicillin to isoniazid, are doing this selection. As they save lives from mastoid infection, pneumonia and tuberculosis, to name only a few, they are creating new disease threats. Already the staphylococcus population in the United States has changed.

Since 1943 when penicillin first was used to fight these germ causes of boils, some pneumonias and blood poisonings, they have mutated into a race almost entirely resistant to penicillin.

Resistance of germs to antibiotics and the new TB remedy, isoniazid, does not come from contact with the drugs, Dr. Vernon Bryson of the Biological Laboratory, Cold Spring Harbor, N. Y., declared.

Some germs are genetically constituted to resist antibiotics, just as some people are genetically constituted to have blue eyes or curly hair. The gene responsible for drug resistance can be located in the bacterial cell. The drugs come into the picture because when they kill the non-resistant germs, the ones with resistance bred in them by natural processes can persist and breed more of their kind.

Drug manufacturers realize that they cannot keep up with the resistant germs by making new and yet newer antibiotics.

Two answers to the problems, one of them with a possible answer to the cancer problem as well, were given by Dr. Bryson and Dr. Edward J. Grace, chest surgeon and TB specialist of the Grace Clinic, Brooklyn, N. Y.

One answer Dr. Grace has already been using successfully. It is to wage total war on TB or any other infection by giving the patient at the beginning large doses of antibiotics and giving them by every possible route.

For tuberculosis patients this means giving streptomycin, PAS and isoniazid together. The three are injected, PAS is given by mouth and, most important in lung infections, the drugs are given dissolved in a detergent by inhalation.

When the patient breathes this drug-filled vapor deeply into his lungs, the drugs get at the seat of the infection. After all, Dr. Grace pointed out, the TB germs are in the lungs, not the buttocks, the place where

streptomycin is usually injected. And when the patient breathes the antibiotic mist deeply enough, the drugs get through the lungs and into the blood stream in amounts large enough to be remedial.

Of 14 patients given this all-out treatment in the office, without having to be in hospitals, 12 were cured within eight to 12 months.

Second answer to the problem will come when scientists can develop a new kind of antibiotic, which Dr. Bryson called an antimutagenic. Such chemicals, Dr. Bryson said, will tend to decrease the hereditary variability of microorganisms, stopping their tendency to mutate into drug resistant forms. Antimutagenics might also, theoretically, reduce the tendency of human body cells to mutate into cancer cells.

One such antimutagenic chemical has been found by Drs. L. Szilard and A. Novick of the University of Chicago, Dr. Bryson said. It is adenosine, a constituent of the nuclear protein of cells and will decrease hereditary mutation of cells to some extent.

Meanwhile Dr. Grace urged fellow physi-

cians to use antibiotics intelligently and in combination to postpone the origin of resistant germs.

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## SURGERY

## New Surgery Technique For Cancer of the Larynx

► NORMAL BREATHING and near-normal speaking is promised for many who suffer from cancer of the larynx by a new surgical technique developed at the University of California at Los Angeles Medical School.

Heretofore the entire larynx has been removed in the process of getting rid of malignant tissue.

This has made it necessary in the past to cut a hole in the throat for breathing. It has also involved a loss of voice except through the learning of so-called "stomach speech," in which air is swallowed and then forced up into the throat to vibrate vocal chords enough for speech.

The new technique, developed by Dr. Joel Pressman, consists of rebuilding the larynx with healthy cartilage after removing all cancerous matter. The patient's own cartilage may be used or that from a cartilage bank.

The rebuilt larynx provides a near-normal voice in most cases and permits normal breathing, the U.C.L.A. doctor says.

Science News Letter, June 20, 1953



**RESEARCH ON HEART ILLS** — Using fractionating equipment, Julius Axelrod of the National Heart Institute of the Department of Health, Education and Welfare, Bethesda, Md., is isolating the transformation products of drugs and biological materials to study the action of various drugs on certain heart diseases.