

MEDICINE

War on Polio

Scientists fight on five fronts against the child-crippling disease, infantile paralysis. In chemical warfare division, curing drug is sought.

By JANE STAFFORD

► MEDICAL SCIENTISTS have opened five fronts in the war against infantile paralysis, dreaded crippling disease of children and young adults, known also as poliomyelitis or polio.

On one front the war is being pushed by what might be called the chemical warfare division. These are the men and women who laboriously test chemical remedies, one after another, in the hope of finding one that will destroy the disabling virus of polio after it has entered the body. This is one of many lines of research sponsored by the National Foundation for Infantile Paralysis, funds for which are being collected through the President's Birthday Celebrations.

The search for a chemical cure for polio was enormously helped by the discovery of one strain of the poliomyelitis virus which would grow in the cotton rat. Previously, the only animals that could help the polio fighters in this search were monkeys, which are expensive and could not be obtained by the hundreds that were needed. But even with the cotton rats, there were difficulties to be surmounted. Dr. Don W. Gudakunst, medical director of the National Foundation, describes these as follows:

Would Not Mate

"These animals had to be trapped alive and shipped to the laboratory. This was anything but satisfactory. The wild animals had many diseases of their own which interfered with the infantile paralysis studies. The first problem was one of breeding them in captivity free from disease. But when pairs of the wild rats were placed in a cage, almost invariably morning found but one survivor. They would not mate; instead they fought to the death.

"In the laboratory there were scientists with a knowledge of animal psychology and the difficulty was solved by the simple expedient of dipping both male and female in a creosote bath. Once their odors were alike, they mated."

With plenty of rats finally available, the scientists started testing existing

drugs which had proved effective in fighting pneumonia, streptococcus infections and other diseases.

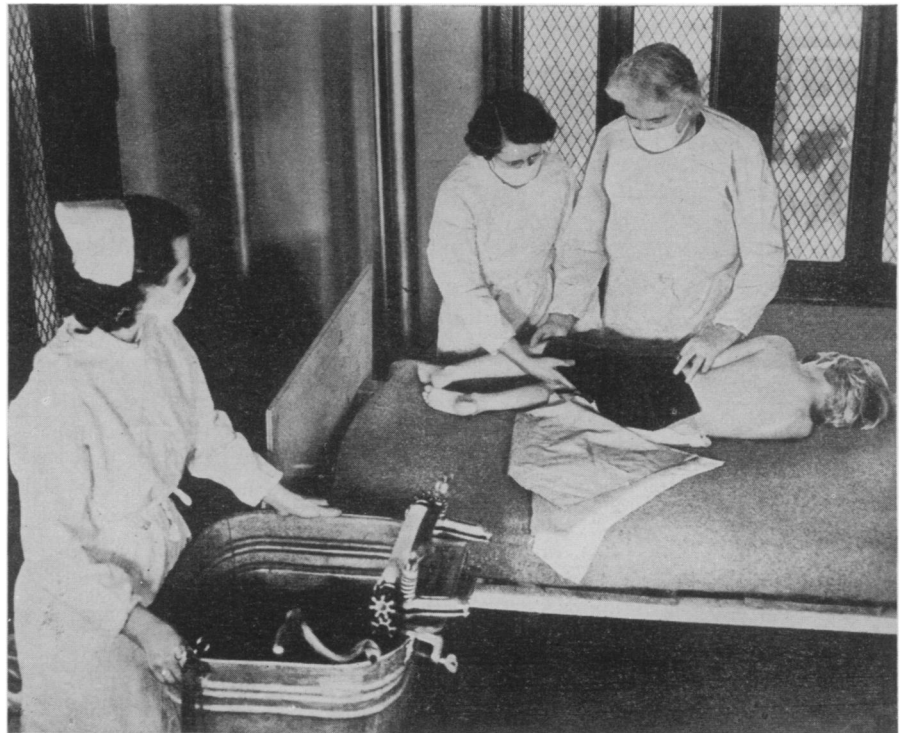
Unfortunately, four years of such painstaking research has not yet yielded a cure for infantile paralysis. None of the known drugs and none of the many modifications of existing sulfa compounds made for this chemical war on polio has proved effective. But the search goes on. Tonight more animals will be infected, more drugs given, for tomorrow might be the historic day on which a chemical remedy for polio is to be found.

Chemical warfare is directed toward curing polio. Prevention is another front on which this disease war is waged. On this front, fight the epidemiologists, the "detectives of medicine."

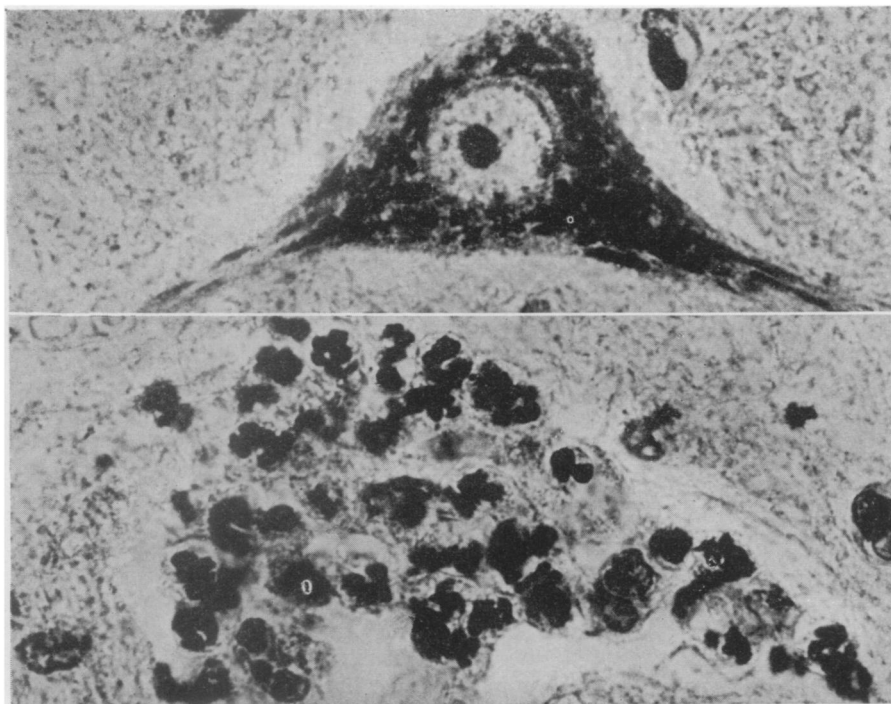
It is known that the virus is excreted

from the body through the bowel discharges of apparently every patient, no matter how mild the disease. It is known that many persons in contact with these patients will also be discharging the virus and many will persist as virus carriers for months. Sewage, privies, rivers polluted with sewage, all yield virus when tested by modern laboratory methods. Flies trapped in infantile paralysis patients' homes and also flies trapped far from these homes during epidemics may be laden with the virus.

These clues suggest that infantile paralysis might be spread through infected food or polluted drinking water, like typhoid fever, and that its spread might be stopped by sanitary measures which stopped the epidemics of typhoid fever we used to have every summer and fall. But the medical detectives are not satisfied that this is the answer. They point out that the pattern of spread of infantile paralysis as it occurs in nature does not suggest that it is usually spread through water supplies. There has not



SISTER KENNY—The new treatment for polio is being demonstrated by its proponent; use of hot applications and other techniques prevent crippling. This photograph is from the *Journal of the American Medical Association*.



POLIO'S DAMAGE—Microscopic view above shows the normal nerve cells, the lower view shows the effect of the disease.

been a single large outbreak reported having the well-known characteristics of a water-borne outbreak of disease.

So the medical detectives search on, confident that some day they will solve the mystery of how the disease spreads and then be able to suggest ways of prevention.

Third, fourth and fifth fronts of the polio war are fought by doctors, nurses, physiotherapists, mental hygienists, teachers, parents and, above all, by the patients themselves. On these fronts are concentrated efforts to help the patient recover from infantile paralysis without crippling or deformity.

On this front is that valiant fighter, Miss Elizabeth Kenny, the Australian nurse whose "inherent mechanical ability" is credited by Dr. Gudakunst with having had much to do with the development of her now widely known and revolutionary method of treating infantile paralysis.

Meanwhile, for those already crippled with a short arm or leg or other deformity, surgeons have found many ways of correcting the trouble, such as alterations in the patients' tendons, bones, muscles and joints.

Science News Letter, January 30, 1943

AGRICULTURE

Need More Food Grown

Annual report of Secretary of Agriculture stresses need for more of all kinds of food except wheat. Steady on cotton and tobacco.

➤ **LESS WHEAT**, more meat; also more vegetables, eggs, dairy products, vegetable oils; steady on cotton and tobacco. This in a nutshell is the array of goals for American farmers in 1943, as summarized in Secretary of Agriculture Claude R. Wickard's annual report, just issued.

It is quite different from the agricultural aims of the last war period, when all the accent was on wheat. Ever since 1918, wheat has been produced in excess in this country, and with the war-caused total eclipse of export markets, it has been piling up. The national carry-over as of July, 1942, was 633,000,000 bushels,

to which the year's huge crop of about 984,000,000 bushels was added. The total is enough to meet all our bread needs for two years, even if no wheat at all should be harvested in the meantime.

In response to Department of Agriculture urgings and the stimulus of reasonably good meat prices, farmers and stock raisers have built up their herds to new highs. The cattle population reached nearly 75,000,000 head a year ago, and despite heavy slaughter is being maintained. Pigs topped the hundred-million mark with five million extra to spare—enough for nearly five-sixths of a whole hog apiece for every person in the country, except that we're sending part of our pork chops and bacon overseas to our armed forces and our fighting allies.

Use Surplus for Feed

Use of some of our surplus wheat for feeding livestock and chickens is recommended by Secretary Wickard, so that we may boost meat, milk and egg supplies, all of which need to be maintained at the highest attainable levels.

An additional outlet for wheat is the international pool set up by the four great wheat-raising countries, the United States, Canada, Australia and Argentina, for the eventual relief of war-ruined countries. This pool now consists of 100,000,000 bushels, and is to be increased as need arises.

With a cotton surplus of more than 11,000,000 bales on hand, and the mills unable to spin it up much faster than they are doing now, increases in cotton production are not being encouraged. Instead, cotton farmers are asked to shift over to peanuts (for oil) as far as possible, and also to substitute long-staple for short-staple varieties. Lower yields of the important co-product, cottonseed oil, are to be offset by increased production of other vegetable oils, notably soybean, flaxseed and peanut.

Tobacco stocks on hand are so large that no increase in acreage in this crop has been held justified, except in two types, flue-cured and Maryland, on which lend-lease requirements call for increases of about 10% over the 1942 figures.

Heaviest possible emphasis is being placed on vegetable production, both by large-scale professional growers and home gardeners. Military and lend-lease shipments call for immense quantities of dehydrated vegetables; and an intensive drive for the 1943 Victory gardens will soon be under way.

Science News Letter, January 30, 1943