

## PUBLIC HEALTH

# Typhoid Rate in U.S. Low

The number of cases of typhoid in the United States is low among the general population as well as in the armed services. All military recruits are given typhoid vaccination.

➤ ONLY 155 CASES of typhoid fever have been reported in the United States through May 30 this year, which is within six cases of the lowest number ever recorded during this period.

There were 149 cases reported in the same period last year. No case has been reported as a result of the Scotland outbreak as of May 30, health officials in Washington, D.C., said. (See SNL 85:375, June 13, 1964).

These figures are from the U.S. Public Health Service's Morbidity and Mortality Weekly Report.

Although there were 11 typhoid cases in the country during the week ending May 30, they were in eight different states, with no epidemic indicated.

The U.S. Army chief of medical statistics, E. L. Hamilton, told SCIENCE SERVICE that in the period from 1959 to 1963 only seven sporadic cases of typhoid fever had been reported in all parts of the world where Army men were located. There were no deaths.

Similar figures in other services are comparable with those of the Army. The U.S. Navy's Bureau of Medicine and Surgery reports less than two cases of typhoid for the past several years.

All military recruits are given typhoid vaccinations but in the face of heavy contamination of food and water or contacts with human typhoid carriers, vaccination does not always give protection.

World Health Organization figures on reported typhoid cases in the Americas show 32,858 for 1961 in South America, as opposed to 1,080 for the U.S., Canada, Bermuda and St. Pierre, listed as North America. Middle America, which includes Mexico and the Caribbean, reported 11,332 typhoid cases in the same year.

Infection of man by typhoid invariably occurs from eating or drinking of fecally contaminated material. Modern cities with pasteurized milk and proper water supply and sewage disposal have nearly eliminated the epidemics that formerly occurred, especially in summer.

Direct contamination of uncooked foods such as salads and raw milk by the soiled hands of a typhoid carrier, however, can still cause outbreaks. Chloramphenicol, the antibiotic now used most successfully to treat typhoid, has no effect on carriers.

Vaccination is usually satisfactory for six to 12 months except with massive exposure. The vaccine usually contains one billion heat-killed organisms per milliliter. In some parts of the world, paratyphoid bacilli also are included.

The course of immunization usually consists of three injections under the skin, given at weekly intervals, the doses being 0.5, 1.0 and 1.0 milliliters.

The British Medical Journal, June 6, 1964, said typhoid fever has never been a major killing disease in the history of Britain, and deaths from it have always been less than those from measles and whooping cough. Between 1951 and 1962, an average of 134 cases annually was reported in England and Wales.

The present outbreak in Scotland is being closely watched, both in this country and in Britain. With proper vaccination tourists drawn to England for the 400th birthday celebration of Shakespeare need have no fear of traveling in the country.

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## SPACE MEDICINE

## Gemini Medical Tests In Space Outlined

➤ NINE MEDICAL EXPERIMENTS will be carried out during two-man orbital flights in the National Aeronautics and Space Administration's Gemini program.

Dr. George E. Mueller, associate administrator for Manned Space Flight at NASA, said at the annual meeting of the Aviation/Space Writers Association in Miami, Fla., that based on the experience of the Mercury program there is no reason to believe that flights of two weeks or less will be harmful to man. He took issue with recent suggestions that even relatively short duration space flights are harmful to man.

"Since crew safety is the first consideration in the U.S. manned space flight program," Dr. Mueller pointed out, "the build-up in flight duration in the Gemini program will be gradual—from the three-orbit manned flight late this year to a flight of up to two weeks duration on the seventh mission."

Dr. Mueller described the nine medical experiments to be carried out on Gemini flights three through nine:

1. A cardiovascular reflex experiment to attempt to develop countermeasures for deterioration of blood distribution in the body caused by prolonged weightlessness.
2. A study of the effects of weightlessness on the blood system.
3. A study to determine possible deterioration of the heart muscle during weightlessness.
4. Hormone analyses of the urine to determine reaction to stress requirements and cardiovascular response mechanisms during space flight.
5. A study to check occurrence and degrees of bone demineralization from prolonged weightlessness.
6. Body waste analyses for calcium content to establish rate and amount of calcium lost during weightlessness.

7. Recordings to note the levels of consciousness and depth of sleep during flight.

8. Vestibular effects experiment to determine orientation capability in the dark during long periods of weightlessness.

9. Exercises to determine astronauts' capability to perform physical work during weightlessness.

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Bell Telephone Laboratories

**GROWING OXIDE FILMS**—Joseph R. Ligenza, Bell Telephone Laboratories, New York, "ignites" oxygen gas in the tube with energy from a coil in demonstrating his new technique for growing oxide films on silicon.

## MEDICINE

## Migraine Headache Seen Caused by Heredity

➤ MIGRAINE HEADACHE is the result of a hereditary deficiency, Dr. John R. Graham of the Harvard Medical School said in New York.

The genetic deficiency makes it impossible for circulation in the brain to adjust to certain stimuli, and the result is the sudden, violent pain of migraine, Dr. Graham theorized at a Montefiore Hospital symposium.

A different approach to the migraine problem was taken by Prof. T. Dalsgaard-Nielsen of the Frederiksberg Hospital, Copenhagen, who said a third of his migraine patients are victims of "psychic mechanisms."

Another group, 36% of the migraine sufferers who seek his help, are sensitive, delicate, emotional, vulnerable, depressive, self-centered, over-correct, perfectionist, enterprising, misunderstood, bitter and inclined to retain offenses. But this explains why they come to a specialist for help, he said, not why they have migraine headaches.

"The mystery of migraine is not solved," Prof. Nielsen said. "It resembles the Chinese box puzzle. Inside each box one succeeds in opening, another closed box is found."

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