

## PUBLIC HEALTH

**Endemic Typhus Fever Reported in Ohio**

**F**OR the first time, cases of endemic typhus fever have been reported in Ohio. Dr. George W. Stober, health officer of East Cleveland, reports one case in the Ohio State Medical Journal, and the U. S. Public Health Service, which sent a representative from Washington to investigate, states that two other cases have been reported elsewhere in the state.

Endemic typhus fever, which is spread by rat fleas, has been creeping slowly and steadily northward, federal health officials state. Cases have previously been reported in central Tennessee.

It is believed the Cleveland patient was bitten by a flea from a rat that had come from the South on a food truck or railroad car. Improved transportation facilities and increased movement of goods caused by the defense program will bring added health hazards of this nature, the Ohio State Medical Association warns.

European typhus fever, which occurs in epidemics, is transmitted by the human body louse.

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## PHYSIOLOGY

**Life Is Lived in Water, Not in the Atmosphere**

**N**OW that hot weather is here again, most of us are thirstier and drink more water, and also try to keep cool and comfortable by more frequent immersions in water, whether in the tub, swimming pool or ocean. But even while doing our best to become amphibians again, we probably fail to realize that life, which started in the water, "is still lived in the water, not as we fondly imagine, in the air."

This fact is pointed out by Prof. William Boyd, of the University of Toronto, in the latest edition of a textbook for nurses, *An Introduction to Medical Science*. (Reviewed, SNL, this issue.)

"Of course, the air is all around us, but," explains Prof. Boyd, "the surface of the body in contact with the air is either dead (the horny layers of the skin) or is separated from the air by a layer of water (eyes, nose and mouth)."

All the tissue of the body, bones and muscles and glands and nerves, are made up of cells and these cells are all living, eating, drinking units of life. They are

bathed in a salty fluid, called tissue fluid, without which they cannot live. This tissue fluid is a lake, not a stream, Prof. Boyd points out. The blood also contains fluid, the plasma and serum, but the blood and its fluid move like a stream through the body, propelled by the force of the heart's contractions.

The fluid of the blood stream passes through the thin walls of the tiniest blood vessels, called capillaries, into the tissue fluid lake, bringing into it food and oxygen for the cells. The blood goes back to the heart and lungs via the veins, but the tissue fluid, which is continually being added to, drains its excess with waste products from the living cells into the lymph fluid. The latter, like the blood, travels through vessels or pipes, called lymphatics, and after passing through several filters (the lymphatic glands or lymph nodes) which strain out and generally destroy injurious substances, gets into the veins.

In certain diseases like cholera or others associated with severe vomiting and diarrhea, and even after a night of hard alcoholic drinking, the tissue fluid lake may be drained so fast that a condition like drought occurs. Doctors call this drought in the body dehydration. Just as plants die when there is a drought in the land, body cells die during severe dehydration. To relieve the body's drought, doctors generally inject salt solution.

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## ENTOMOLOGY

**"Death Ray" for Roaches; Not Ready for Home Use**

**S**CIENTISTS have demonstrated a death ray that may prove a blessing to sanitation. Infra-red rays produced by a special incandescent lamp were turned on adult cockroaches. Those within eighteen inches of the invisible rays were pronounced dead by the executioner four minutes later.

Dr. Guy F. MacLeod, lecturer in entomology in the University of California College of Agriculture, reported these results of laboratory experiments on cockroaches, but could offer no practical method, so far, of using the rays on the pests in household or restaurant kitchens.

Infra-red rays were also tried on various plant pests which are not only an annoyance to agriculturalists but destroy millions of dollars worth of crops annually. Unfortunately, the plants were injured or killed by the rays before the infesting insects were killed.

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## HERPETOLOGY

**Despite His "Jug-o'-Rum" Bullfrog Prefers Water**

See Front Cover

**S**UMMER nights echo with the calls of frogs, with the diapason of the bullfrog's largely fanciful demand for "jug-o'-rum" loudest of all. Actually, this interpretation on the part of frivolous human beings is a libel; the bullfrog is more completely addicted to water than even the most austere temperance advocate. Keep him away from it too long, when the sun is shining on his green back, and he will surely die. Like most of his batrachian brethren, he is exceedingly thin-skinned, and rapid evaporation with no opportunity to check it by frequent and total immersion is a source of discomfort and danger to him.

The photograph on the front cover is by George A. Smith of Quarryville, Pa.

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## MILITARY SCIENCE

**Medal Awarded to Garand, Inventor of Army's Rifle**

**J**OHAN C. GARAND, inventor of U. S. Army's new semi-automatic rifle, has been awarded the Brig. Gen. John H. Rice Medal for meritorious service to armament engineering, by the Army Ordnance Association. First tested in 1931, this weapon is now in mass production to meet the needs of the rapidly expanding armed forces of this country.

Two other medals have also been awarded by the Army Ordnance Association. The Col. Frank A. Scott Medal goes to Col. Herbert W. Alden, chairman of the Ordnance Automotive Advisory Committee, in recognition of pioneer work in the development of tanks and other combat vehicles. The Maj. Gen. William Crozier Medal is designated for Col. James L. Walsh of New York, founder and first editor of the Association's Journal, *Army Ordnance*.

Formal presentation of the medals will be made in the autumn.

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# CE FIELDS

## GENETICS

## Sulfanilamide Acts Like Colchicine in Plant Study

**S**ULFANILAMIDE, medical science's newest germ-killer, has appeared in an entirely different role in experiments on plants at the Beltsville, Md., laboratories of the U. S. Department of Agriculture. There, Dr. H. P. Traub of the Bureau of Plant Industry has found that solutions of sulfanilamide and related sulfa drugs act like colchicine in speeding up evolutionary changes in plants.

The effects, both macroscopic and microscopic, seem to parallel quite closely those of colchicine. There was a great increase in size of plant parts, all the way from leaves to pollen grains. Under the microscope, cells in root tips were seen to have double the normal number of chromosomes.

Whether these results of sulfanilamide treatment establish themselves permanently in the plants' heredity is not yet established. Further investigations are in progress.

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## ARCHAEOLOGY

## Surveys Ancient Ruins While Nazis Blast Others

**R**EVEALED in the British journal *Antiquity* (June) is a new story of the famed British morale. In the thick of the Battle of Britain last September, flying archaeologist O. G. S. Crawford, by arrangement with the Air Ministry, undertook an aerial survey of ancient buried ruins of the Roman city of Verulamium near St. Albans.

Rare weather conditions, so favorable for air photography that they may not occur again in years, provided the emergency reason for the scientific flight.

Prolonged drought in August scorched grass now growing over part of the Roman city, causing brown streaks to form with unusual plainness on tennis courts and cricket grounds there. These streaks reveal a chess-board plan of the buried Roman city, its streets and buildings. Photographed from 3,000 feet, the scorched field has added new features

to archaeological knowledge of one of ancient Britain's outstanding cities.

A widening of the ancient east-west road of the city formed what may have been a parking area of the second century A.D., Philip Corder, curator of the Verulamium Museum, reports from study of the air views. The plan of a small Romano-Celtic temple and evidence of many other buildings are disclosed.

Seizing the opportunity to record what the dry weather brought to light, British archaeologists hope to excavate in this part of the site when scientific discovery can be resumed. Prior to the war, excavations at Verulamium had been in progress for about 10 years.

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## HOME ECONOMICS

## Hosiery Design Dictionary To Aid Stocking Makers

**A** DICTIONARY of hosiery designs, first of its kind produced, is the invention of the U. S. Bureau of Home Economics to aid makers of cotton stockings in planning styles.

Mrs. Bess V. Morrison of the Bureau's clothing and textile division described the new stocking dictionary to the American Home Economics Association meeting in Chicago. When complete it will consist of over 200 knitted samples of designs for women's cotton hose, she explained. Copies are to be filed with the Textile Cotton Institute and the Mercerizers' Association of America in New York, where manufacturers can consult them.

Suitable work garments for women on farms and in industry are also being developed by the Bureau's clothing experts, and a style show of these work fashions was presented by models. Farm women, said Mrs. Morrison, have never had garments designed for them, suited to their work of gardening, tending chickens and doing other farm chores.

It has been well known, she said, that unsuitable clothing may be a cause of accidents to women doing farm and factory work. Proper clothing designs will contribute to safety, efficiency, and conservation of energy, she predicted.

Health angles of wearing various types of stockings are also being tested by the Bureau's workers. Testing cotton and silk hosiery, the research workers hope to learn more about their effects on the skin, such as perspiration and the giving off of bodily heat.

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## AERONAUTICS

## Daily Transatlantic Air Service Urged

**D**ECLARING that the "existing Atlantic commercial air services have proved totally inadequate," daily, and even twice-daily, flights are urged in an editorial in the British aviation weekly, *Flight* (June 5).

"The number of people to whom time is all-important is considerable now, and will grow rapidly as our association with the United States increases in volume and closeness," says the writer. "At the very least there should be a daily service, and the time will probably come when a service every 12 hours will be assured of a full load on every trip."

Though disclaiming any desire "to lay down the law" in what our good friends on the other side may well regard as purely family affairs," the writer suggests that common interests may indicate that the United States aid in the matter of transatlantic commercial services "as they have done so splendidly in connection with armaments."

It is also said that the announcement that Air France is to resume its service to South America, presumably from Dakar, "is virtually giving Germany an opportunity which Great Britain cannot view with indifference, and which even the United States, after Mr. Roosevelt's speech, must regard as something of a threat."

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## ENTOMOLOGY

## Two Leading Insect Sprays More Effective as Fumigants

**F**UMIGATION with a smoke or fog of rotenone or pyrethrum, two favorite insect-spray poisons, has proved much more efficient than spraying, W. N. Sullivan and L. D. Goodhue, scientists in the U. S. Department of Agriculture laboratories, have discovered.

Since these two compounds are harmless to man and domestic animals, their use as fumigants offers advantages over fumigants now in use, such as hydrocyanic acid, which are dangerous poisons to human beings as well as to insects. To produce these smokes or "aerosols" of rotenone and pyrethrum it is necessary to use high temperatures, spraying their solutions against an electrically heated plate. Once produced, however, such aerosols are very persistent, hanging in the air for hours.

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