PUBLIC HEALTH

Smallpox Cases on West Coast Not an Epidemic

➤ THE SCORE of smallpox cases with seven deaths from the disease in Seattle and the additional seven or eight cases in San Francisco, recently, are not enough to constitute an epidemic, authorities at the U. S. Public Health Service state.

Twice as many cases were reported during an outbreak in Pennsylvania three years ago. At that time health authorities warned against panic over the situation. Prompt subsidence of the outbreak after vaccination of exposed population groups bore out their opinion that there was no cause for alarm.

The occurrence of sporadic cases among troops returning from the Orient is "very disquieting" and cause of considerable unhappiness in the Office of the Surgeon General of the Army. The fact that a case or two occurs on a returning troop ship, in spite of the fact that the entire Army has been vaccinated against smallpox, is explained by medical authorities at the War Department as the result of occasional failures that might well be unavoidable in vaccination of eight or 10 million persons.

Smallpox is caused by a virus. It is very readily spread through the secretions of the nose and throat even before the spots come out on the skin and later through particles from the skin of the patient. The incubation period of the disease is usually between eight and 16 days, so that unprotected persons are not out of danger until at least 16 days following exposure to the disease.

Smallpox varies in severity. Mild strains of the virus have a fatality rate of only 1% but severe strains may kill as many as 30 out of 100 patients. The cases among returning troops and on the West Coast, so far as is known, are not particularly severe.

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METEOROLOGY

Weather to Be Studied At Extreme Heights

➤ THE U. S. NAVY is planning to study the weather at extreme heights from 100,000 to 500,000 feet, by means of rockets bearing automatic recording instruments, which have been given the name "rocketsonde". Plans for this project, which will have the cooperation of this country's leading universities, were outlined before meteorologists at the meeting of the American Association for the Advancement of Science by Lt. Comdr. Daniel F. Rex, of the Navy's Office of Research and Invention.

Data thus obtained are expected to be of especial value in computing the radically new ballistics tables that will be needed in the use of ultra-long-range rocket weapons. They will also probably be useful because of the influence of events in these very high altitudes on the weather down where humanity walks and flies.

The things that conventional weather instruments measure—temperature, humidity, pressure—are of little interest in the vacuum-like atmosphere so far above the earth, Comdr. Rex said. Instead, radar tracking will tell of the deflection of the soaring missile from its calculated line of flight, thus giving an idea of what winds are blowing at altitudes 10 times or more higher than planes have ever flown. Instruments borne by the rockets will tell of the intensity of the sun's radiation.

The first rocketsondes which will be sent up this summer in connection with the planned tests of V-2 rocket-bombs will have a diameter of 15 inches and an over-all length of 24 feet, and will weigh a little over a ton, fully loaded. Of this weight, only 325 pounds will be available for a "pay-load" of instruments.

Comdr. Rex also showed films of V-2 launchings, made by American cameramen in Germany, showing captured weapons being sent up by German technicians.

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CHEMISTRY

Tensile Strength of Cotton Yarn Increased 40%

➤ COTTON YARNS are given additional strength by the application of a new chemical, members of the American Association of Textile Chemists and Colorists were told by Dr. Donald H. Powers of Monsanto Chemical Company. The tensile strength of the yarn may be increased up to 40%, he declared.

The improvement is effected through mill applications of a special sub-microscopic colloidal silica called Syton, he said. This chemical was developed by the company to make sheer stockings run-resistant and to take the shine off serge. When applied to cotton sliver in concentrations of 1% to 3%, the interfiber friction is increased and it was possible to increase the tensile strength as stated, and to decrease the twist as much as 40%, Dr. Powers explained.

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IN SCIEN

MEDICINE

Delay in Malarial Treatments Not Justified

➤ ALTHOUGH delay in giving quinacrine (atabrine) to people suffering from malaria of the type contracted in the Pacific may cut down the number of times the patient is likely to suffer a relapse, such a drastic measure does not seem to be justified. A person would naturally tend to get well even though prompt treatment is given in the case of acute attacks, Lt. Col. Harry A. Gordon, Col. Alexander Marble, Capt. William W. Engstrom, Capt. Henry A. Brunsting and Lt. Col. Stuart W. Lippincott of the Army Service Forces, Eighth Service Command, Harmon General Hospital, Longview, Tex., state. (*Science*, March 29.)

Because so many people had relapsed after apparently recovering from vivax malaria of South and Southwest Pacific origin, it has been suggested that perhaps use of the drug interfered with the body's natural tendency to develop immunity. To test this suggestion, the physicians tried withholding treatment on volunteers at the Army hospital.

A total of 69 soldiers volunteered for the test. They were given the disease by American anopheline mosquitoes infected by 10 volunteer soldiers with malaria acquired in the South or Southwest Pacific.

The drug quinacrine dihydrochloride was not given the malaria patients until they had had from 8 to 15 paroxysms with an average of approximately 40 hours of fever at a temperature of 104 degrees. This was reached on the average in approximately 20 days. The doctors kept tabs on the patients until either a relapse occurred or 60 days had passed without relapse.

It was found that 45, or 65%, of these patients had a relapse. Of the 16 patients observed following quinacrine therapy during the first relapse, 69% had a second relapse. This is little better than would have been expected had these patients been given quinacrine promptly. The Medical Corps officers therefore believe that delaying the treatment can hardly be considered of practical significance.

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CE FIELDS

MEDICINE

Pernicious Anemia Helped by Thymine

➤ STRIKING anti-anemia properties of a synthetic chemical called thymine were reported by Dr. Tom D. Spies of the University of Cincinnati at the annual meeting in New York of representatives of foundations and philanthropists aiding in financial support of the university's nutrition studies at Hillman Hospital, Birmingham, Ala.

When thymine is given in pernicious anemia, "the patient who had so long been pale, listless and weak then experiences a sudden and dramatic increase in his strength, appetite and vigor," Dr. Spies reported. "He now sits up in bed and insists he is strong enough to go home and to work."

Red blood cells which have been arrested in their development in the bone marrow of pernicious anemia patients "form huge islands of regeneration and within three or four days after treatment is begun, new cells begin pouring into the blood."

Thymine is not to be confused with thiamin, which is also called vitamin B_1. Thymine is a part of nucleic acid, Dr. Spies explained, and gets its name from the fact that it was first isolated from the thymus gland.

Good results in pernicious anemia have also been obtained with a vitamin, folic acid, Dr. Spies reported. While the two chemicals have a similar effect, doses of synthetic thymine must be several thousand times as large as those of synthetic folic acid.

Pernicious anemia patients heretofore have been treated with liver, discovered in 1926 to be effective in this ailment, and with liver extract, brewer's yeast and ventriculin.

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CHEMISTRY-BIOLOGY

Keeping Tissues Alive With Unknowns Criticized

➤ BIOLOGICAL research workers who grow bits of chick heart or other animal tissue in nutrient fluids containing blood serum, meat juice and similar liquids were criticized before an audience of biologists at the meeting of the American Association for the Advancement of Science by Dr. Philip R. White, of the Research Institute of the Lankenau Hospital, Philadelphia. These fluids of animal origin are mixtures whose chemical composition is still very much in the dark, Dr. White pointed out; consequently results of experiments conducted with them must inevitably contain unknown factors—they are at best incomplete answers.

Dr. White won international notice some years ago as the first scientist to make detached pieces of plant tissue grow in a solution of completely known chemical makeup, containing sugar, mineral salts and vitamins. He undertook to work up a solution containing no "unknowns" suitable for animal tissue cultures. Using sugar, mineral salts, vitamins and amino acids, he succeeded in keeping a culture of chick-embryo heart alive and beating for six weeks. He also scored similar partial successes with other animal tissue cultures. He regards this work as only the beginning, and hopes eventually to keep animal tissue alive indefinitely in chemically known culture fluids, as he has already done with plant material.

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ENGINEERING

Amphibious Vehicle Is Neither Car nor Boat

➤ AN AMPHIBIOUS vehicle, that is neither a boat on wheels nor a waterproofed truck but was designed from the ground up for its special job, is covered by U. S. patents 2,397,791 and 2,397,792, issued to two Detroit inventors, C. F. Kramer and F. G. Kerby, assignors to the Ford Motor Company. While it was avowedly developed for military purposes, it should be useful to ranchers, foresters, engineers and others who have to traverse wild country where bridges are scarce.

The vehicle has a body (or hull) shaped like a square-ended, flat-bottomed boat, with sides recessed for the four wheels. The engine compartment, forward, is accessible through a double hatch; forward of this is a smaller hatch that admits air to the radiator during land operation but is shut when the vehicle enters the water. Cooling air is then drawn through ducts opening into the cockpit. A propeller and rudder make navigation possible.

Since the vehicle has some resemblance to the Army's famous "duck", except that it is smaller and more compact, it might well be nicknamed the "duckling."

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CHEMISTRY

Lightweight Plastic To Find Many Uses

➤ LIGHTER than cork but stronger and a better insulator is the report of Du Pont chemists on the latest plastic, cellular cellulose acetate or "CCA" for short.

Uses as the strong, lightweight cores in airplane floor panels, tail assemblies and wing structures, and in refrigerators, luggage and sections of prefabricated houses are predicted for "CCA."

Uniform in density and capable of being tooled or shaped with woodworking tools, the new plastic may also be used in airplane instrument cases, furniture, lockers for frozen food and as core material for such diverse items as refrigerated truck bodies, boats or light toys, according to the chemists who developed it.

Bonded between two panels of metal, wood or another plastic, the new lightweight material will not be compressed except under extreme pressure. As an insulator, it has the properties of cork, balsa wood and other rigid insulating materials with less weight.

Du Pont chemists say the idea for "CCA" was an accident. When a cold slug of cellulose acetate clogged a molding machine, it was heated to help dislodge it. The result was the first cellular cellulose acetate.

"CCA" is now produced by heating a mixture of cellulose acetate with other materials under pressure. It comes out as a mass of pin-point size bubbles that become hard and rigid when chilled.

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ICHTHYOLOGY

"Elephant Fish" Among Peruvian Species Collected

➤ STRANGEST fish discovered by an expedition from the U. S. Fish and Wildlife Service in the waters of Peru is one called the elephant fish.

The name comes from a long proboscis with a leaf-shaped flexible appendage that hangs over the fish's mouth. Ichthyologists say it belongs to the same group as a fish previously found off the coast of South Africa.

The Latin name for the unusual sea creature is *Callorynchus callorynchus*, but its unique trunk will probably perpetuate the name elephant fish.

More important to scientific knowledge is the discovery of 51 new species of fish by the scientists, who spent nearly a year studying Peruvian marine life.

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