MEDICINE

Hope for Attack on Viruses

Search for chemical of penicillin-streptomycin type, effective against influenza and other virus-caused diseases, gets new hope.

➤ HOPE FOR a chemical of the penicillin-streptomycin type that would be effective aginst influenza and other virus-caused diseases appears in the announcement of two new anti-virus substances.

Called "antivirotics" instead of antibiotics which is the general name for the penicillin kind of remedies, these two new ones are viscosin and ehrlichin. They were discovered by streptomycin's discoverer, Dr. Selman A. Waksman, and his associates at Rutgers University, and reported to the Society of American Bacteriologists meeting in Chicago.

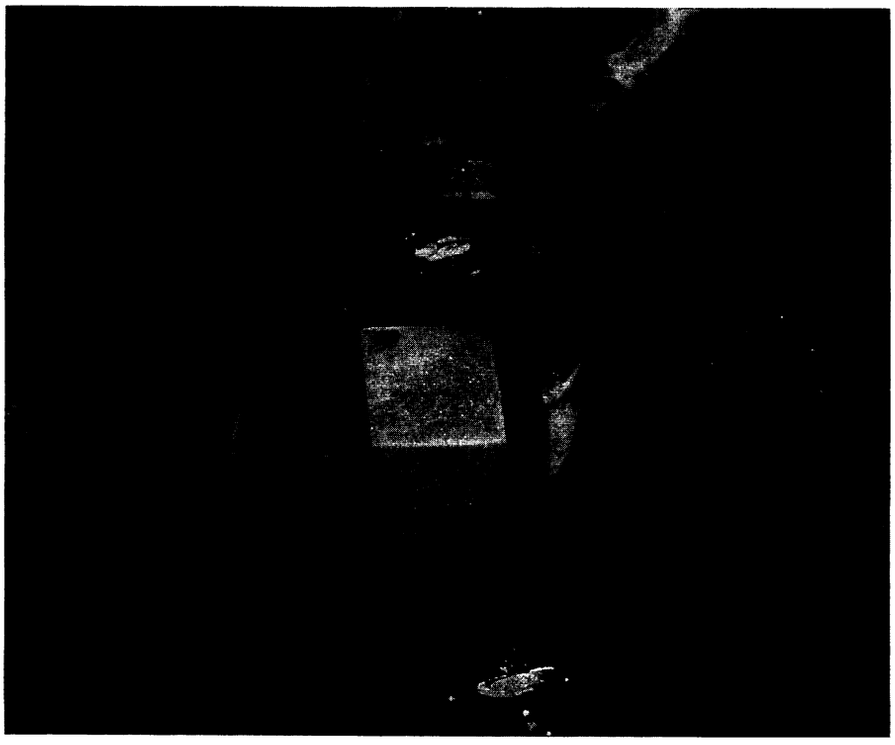
Viscosin comes from a bacterium, *Pseudomonas viscosa,* which was isolated by Dr. Mutsuyuki Kochi from a soil in Japan. It is effective in the treatment of experimental tuberculosis in animals, Dr. Kochi and Drs. David Weiss, Leonora Pugh and Vincent Groupe reported. However, it is much less effective against tuberculosis than streptomycin and offers little practical promise in that direction. It does have slight but definite activity against the viruses of influenza and infectious bronchitis of chickens. No experiments in higher animals have been carried out yet.

Ehrlichin was reported by Drs. Groupe, Jack Frankel, Mary P. Lechevalier and Dr. Waksman. It is produced by a culture of *Streptomyces lavendulae* which was isolated from soil on the grounds of the New Jersey Agriculutral Experiment Station.

Crude preparations of ehrlichin exert a suppressive effect on experimental influenza virus infections in chick embryos and in mice. Daily doses injected under the skin of mice infected with the Lee influenza virus, or influenza B, reduced the degree of lung consolidation seen when the mice were sacrificed and examined four days after the infection.

No further large scale experiments with ehrlichin have been made yet. Speaking for his entire staff, Dr. Waksman stressed the point that these new antibiotics, or antivirotics, do not seem to have any immediate potential or practical value in the treatment of diseases caused by viruses, but are rather forward steps along a long road. They point to the possibility of isolating antibiotics which are effective against true viruses.

Science News Letter, June 9, 1951



OIL QUENCH—A hot bar of steel is quenched in oil. What happens is action-stopped in this picture taken with an exposure of one ten-thousandth of a second.

BACTERIOLOGY

Meat Spoils in Spite Of Antibiotic Treatment

➤ HOPE OF preserving foods with subtilin, one of the so-called antibiotic remedies like streptomycin, was dimmed by a report to the Society of American Bacteriologists meeting in Chicago.

Chopped beef with spores of a putrefying germ in it spoiled even when as much as one thousand parts per million of subtilin was used as preservative, Drs. A. T. Adams, John C. Ayres and R. G. Tischer of Iowa State College, Ames, Ia., found.

Smaller amounts of subtilin failed to stop spoilage. Larger amounts extended the time before the meat spoiled, but even the one thousand parts per million concentration of subtilin "did not necessarily prevent eventual spoilage," the Iowa scientists reported.

The failure of subtilin, the product of a common bacterium, hailed a year ago as a potential food preservative, may be due to one of two reasons, further tests suggested: 1. Subtilin itself may break down during storage; 2. subtilin's effect may be to stop germination of spores but not to destroy them.

Science News Letter, June 9, 1951

MEDICINE

Polio Virus Found Most Dangerous When Moist

➤ THE VIRUS of infantile paralysis is most dangerous and is spread most readily while it is in the moist state.

Drs. Harold K. Faber, Luther Dong and Rosalie J. Silverberg of Stanford University department of pediatrics give the following examples of this most dangerous and readily spread state of the virus: inhalation at close quarters of large, wet droplets; direct physical contact such as the hands and lips; taking contaminated food and drink; and use of contaminated eating and drinking utensils before they are dry.

Their conclusions come from a study of the effects of drying on the polio virus. About 40 years ago, they point out, it was suggested that the virus might be spread in house dust. Since then there has been one report of the virus being found in sweepings from the sickroom of a patient.

Dr. Faber and his associates collected dust from 118 homes in San Francisco and in other cities in the bay area in which acute polio cases had occurred within two months

of the collection. The dust was collected by sweeping or dusting in the sickroom or from the household vacuum cleaner.

No poliomyelitis virus was detected in any of the dust samples.

Next the scientists tried drying polio virus in various ways. The results show that all forms of drying have a marked inactivating effect on the virus, whether it is in water, nose and throat washings or stool specimens. Inactivation, meaning the virus becomes non-infectious, seems to go on swiftly and becomes complete with total drying of the infected material.

The drying experiments, the scientists state, show that with adequate drying, such as might be expected with airborne infected particles under ordinary indoor conditions of temperature and humidity leading to dust formation, the period in which the virus remains active is much less than two weeks.

Details of the experiments, aided by a grant from the National Foundation for Infantile Paralysis, are reported in the JOURNAL OF INFECTIOUS DISEASES (March-April).

Science News Letter, June 9, 1951

AERONAUTICS

Airless Flight Duplicated

➤ SCIENTISTS NOW can make their first laboratory studies of supersonic flight conditions in the region from 50 to 70 miles above the earth, where the big rockets zoom.

A group of University of California engineers in Berkeley have just completed a unique wind tunnel which has no wind in it, in the usual sense of the word.

Conventional wind tunnels have big blowers which generate howling gales that beat against small aerodynamic models. The new wind tunnel at Berkeley is actually a vacuum chamber, with an atmospheric pressure about one ten-millionth that found at sea level. In other words it duplicates the atmospheric conditions—more accurately, the vacuum—found from 50 to 70 miles above the earth.

Supersonic speed is simulated by a molecular beam similar to the type used for atomic and nuclear research. This beam is fired from a "gun" with a bore only one ten-thousandth of an inch in diameter —too small to be seen by the naked eye.

The molecules fired are generated in a small furnace, the temperature of which determines the speed with which they emerge. At 1,000 degrees Centigrade the speed is 1,800 miles per hour.

Focused and controlled by a system of slits, the beam strikes varied model surfaces mounted in the evacuated chamber. This roughly duplicates the fluid mechanics of supersonic speeds at extreme altitude.

To measure these unique effects, the scientists have had to develop methods of measuring infinitely minute differences in pressure. One electronic gauge they have developed can detect pressure changes of one ten-billionth of the atmospheric pressure existing at sea level.

So far it has simulated speeds up to 950 miles per hour, one-fourth more than the speed of sound. It has already demonstrated that it can go to 1,800 miles per hour, and its upper range is limited only by the heat that can be generated in the furnace.

The purpose of the instrument is to develop information on superaerodynamics in the relatively unexplored area high above the earth. Conventional areodynamic concepts break down at about 50 miles, and experimental data on flight in the near-vacuum are practically non-existent.

The scientists hope to provide a body of experimental data of vital importance in the unknown region which may be a well-traveled route of rockets in the future.

The scientists are R. G. Folsom, S. A. Schaaf, G. J. Maslach, and F. C. Hurlbut.

Science News Letter, June 9, 1951

Crabgrass is seldom found in shady places on the lawn.

Question Box

AERONAUTICS

How are supersonic speeds at very high altitudes simulated? p. 356.

AGRICULTURE

How is the escalator principle applied to planting peanuts? p. 358.

In what way will better grass contribute to America's defense needs? p. 360.

CONCHOLOGY

Is it necessary to go to the seashore to pick up shells? p. 365.

ENGINEERING

How can power be obtained from snow? p. 358.

GENERAL SCIENCE

What is the situation with regard to civil defense? p. 357.

MEDICINE

What advances are being made in the fight against polio? p. 364.

What is an "antivirotic"? p. 355.

When is the infantile paralysis virus most dangerous? p. 355.

ORNITHOLOGY

What is killing the mourning dove? p. 360.

PUBLIC HEALTH

What is the major enemy to health in Korea? p. 359.

Photographs: Cover, General Electric; p. 355, United States Steel; p. 357, Cerebral Palsy Society; p. 359, National Geographic Soc.; p. 363, Lad J. Erzen; p. 365, Yale University.

SCIENCE NEWS LETTER
VOL. 59 JUNE 9, 1951 No. 23

44,400 copies of this issue printed

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N. W., Washington 6, D. C., NOrth 2255. Edited by WATSON DAVIS.

Subscription rates: 1 yr., $5.50; 2 yrs., $10.00; 3 yrs., $14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C. under the act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for by Sec. 34.40, P. L. and R., 1948 Edition, paragraph (d) (act of February 28, 1925; 39 U. S. Code 283), authorized February 28, 1950. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to periodical Literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., PEnnsylvania 6-5566 and 360 N. Michigan Ave., Chicago. STAte 2-4822.