

MEDICINE

New Antibiotic Is Potent

Polymyxin, now undergoing trial, may replace streptomycin in the treatment of some diseases. Found 1000 times more effective against Friedlander's germs.

➤ A NEW anti-germ chemical from a bacillus commonly found in soil and water that appears better than streptomycin and may replace it in treatment of some serious diseases is under trial at the Johns Hopkins Hospital, Baltimore, Md.

Results in the first seven patients who got this new remedy were reported by Drs. Emanuel B. Schoenbach, Morton S. Bryer, Elinor A. Bliss and Perrin Long of the Johns Hopkins School of Medicine at the Johns Hopkins Medical Society meeting.

Polymyxin is the name of the new, "uniquely effective" antibiotic. It was discovered less than a year ago by two research teams working independently, Drs. R. G. Benedict and A. F. Langlykke of the U. S. Department of Agriculture's northern regional research laboratory at Peoria, Ill., and Dr. Harold White and associates at the American Cyanamid Company.

Whooping Cough

A six-weeks-old baby and his 13-months-old brother who were seriously ill with whooping cough are among the seven patients helped by polymyxin in its first trials. The little baby's temperature had reached 103 degrees Fahrenheit. Within one day after polymyxin was started, his temperature was normal. While the Hopkins doctors are too cautious to say the new remedy saved the baby's life, they and other doctors know that whooping cough in so young an infant is always serious, often fatal.

An 11-months-old baby with a severe burn that became infected with the blue pus-forming germ, *Bacillus pyocyaneus*, had been given every other kind of treatment without effect. Within six days, polymyxin had cleared up the infection so the baby could have skin grafting done to replace the tissue destroyed by the burn.

Two units of polymyxin, the Hopkins scientists found, would stop the growth of a germ that 50 units of streptomycin did not stop. This finding was made when they tested the new drug in the laboratory against the germ cause of a severe skin infection in another little boy. When the laboratory

tests showed the polymyxin would be effective, it was given to the boy and his infection cleared up.

Polymyxin is not, as far as is known, effective against tuberculosis germs against which streptomycin is powerful. But it is more effective than streptomycin against most gram negative germs. These germs do not cause serious illness as often as, for example, the streptococci against which penicillin is so effective. But when the gram negative germs do cause serious illness, it is worse than the illnesses caused by gram positive germs such as streptococci.

Plague, undulant fever, tularemia (rabbit fever), certain types of meningitis and of blood poisoning and wound infections, bacillary dysentery, typhoid and paratyphoid fevers and many types of urinary tract infection may be remedied by polymyxin, if it comes up to present expectations. The Hopkins scientists are continuing their studies and hope to try it on more patients with different ailments.

Good results have already been obtained in two cases of undulant fever, though with a disease characterized by frequent relapses as this one is, it is too soon to know whether polymyxin is a real cure.

Undulant Fever

One patient was a 39-year-old housewife who had an acute attack of undulant fever. Within eight days after polymyxin was started, her temperature had dropped from 106 degrees Fahrenheit to normal. The drug was given for five more days, and her temperature remained at normal. The drug was then stopped and one week later she could be discharged from the hospital as "well."

The drug brought the temperature to normal in another undulant fever patient who had the disease in chronic form and had been sick for two years off and on. Both these patients will be watched for possible relapses. If there are none, polymyxin will have done what no other treatment has so far.

Only death among the seven patients was that of a 58-year-old man who had been ill since last October. He had meningitis due to a germ called Fried-

lander's bacillus. He was sick for three months before he came to the hospital, and polymyxin had not been tried until after nothing else helped.

He began to get better with polymyxin treatment. His temperature was down to normal in four days, and cultures of his blood had no more of the Friedlander's germs. Then, suddenly, an unsuspected abscess behind his appendix opened between two vertebrae and pus from it spread into his spinal canal. The man got very sick again and within a day was dead. The reason the abscess had not been suspected was that the man was so sick when he reached the hospital the doctors could not examine him thoroughly enough to make the diagnosis. All they could do was treat the infection which they knew was present because of the fever and blood tests.

Friedlander's Bacillus

Polymyxin's power against this extremely dangerous Friedlander's bacillus, however, was shown both in the patient's response at first and in laboratory tests. These tests showed that polymyxin was more than 1000 times more effective than streptomycin against the germs making the patient sick. The growth of these germs in the test tube was stopped by an amount of polymyxin that weighed only one-thousandth of an amount of streptomycin which the germs were still able to resist.

Polymyxin is given by hypodermic injection into the muscles every three hours at present. But further studies may show that it can be given less often. It is safe and so far there have been no unpleasant side-effects in the patients with one exception. This was the development of fever after 10 days of polymyxin treatment in the man who had had undulant fever for two years. This was probably an allergic reaction, and may not occur often.

Science News Letter, March 20, 1948

ASTRONOMY

New Moon Discovered For Planet Uranus

➤ A NEW moon has been discovered, but it will be no help to romance or songwriters.

The moon, or satellite, is closer to the distant planet, Uranus, than to the earth. Even astronomers peering through the 82-inch telescope of the McDonald Observatory of the Universities of Texas and Chicago at Fort Davis, Texas, cannot see it.

Uranus' newly-discovered moon was found on photographic plates. It shows up on a photograph after two or three minutes exposure, reports Dr. Gerard Kuiper, director of the observatory.

The newest moon found in our solar system was spotted, via photographs, during the period when the observatory was making studies of possible life on Mars. It was first located on Feb. 15, and the discovery has since been con-

firmed by more recent photographs.

Tiny compared with the earth's moon, the new satellite of Uranus is probably not over 300 miles in diameter, Dr. Kuiper estimates. It is well within the orbit of four previously-known moons of Uranus and is an estimated 75,000 miles from the planet. The moon completes its path around Uranus in about 30 hours.

Science News Letter, March 20, 1948

MEDICINE

Mass Detection of Cancer

A new simple and quick blood test for this disease has been discovered which may be used as a mass screening agent such as X-rays are for unsuspected tuberculosis.

➤ A NEW blood test for detecting unsuspected cancer was announced by Drs. Maurice M. Black, Herman Bolker and Israel S. Kleiner of the Brooklyn Cancer Institute and New York Hospital at the Atlantic City meeting of the American Association for Cancer Research.

The test is so simple and quick that, if further study confirms its value, it could be used as a mass screening agent to detect cancer in the population something as X-rays are now used in large population groups to detect unsuspected tuberculosis.

The test is made by putting a small amount of the person's blood plasma in a glass tube, diluting it with distilled water and taking a reading of the light transmitted through the plasma with a photoelectric colorimeter. The tube of diluted plasma is then put in vigorously boiling water for 10 seconds and a second light transmission reading is made. The heat coagulates the plasma and the difference between heated and unheated plasma is measured in terms of heat coagulation.

Blood plasma from cancer patients coagulates much faster when heated than blood plasma from healthy persons or from persons sick with diseases other than cancer. The coagulation measure, Dr. Black and associates believe, can therefore be used to detect the presence of cancer.

The test developed from studies the scientists were making with another blood test for cancer reported at the International Cancer Congress last fall. (See *SNL*, Sept. 13.) In this earlier test, it was found that blood plasma from cancer patients quickly decolorized a dye, methylene blue.

Both tests have now been tried on several hundred persons, some healthy, some cancer patients and some sick with other diseases. The two tests can be made in 15 minutes and when combined have an accuracy of more than 95% in showing the presence of cancer.

The new test depends on the presence in the blood of fibrinogen, chemical which is involved in blood clotting. But some other as yet unknown factors are believed also to be involved in the changes in heat coagulation of plasma from cancer patients.

The new test, Dr. Black said, is "particularly interesting from the prognostic standpoint." It gives an objective means of following the effects of treatment.

Inhibit Enzymes in Cancer

➤ A CHEMICAL adaptation treatment that has been helping patients with leukemia, Hodgkin's disease and cancer was reported by the same group. Its chief importance lies in the clues it gives to possible chemical solution of the cancer problem (See *SNL*, Sept. 20). The chemicals used are enzyme inhibitors. They interfere with or block enzyme chemicals needed by the cancer cells. But the cancer cells soon adapt themselves to life without one of these enzymes. At this point, the doctors do some adapting. They adapt the treatment by giving different chemicals, which stop a different set of enzymes needed by the cancer cells. When the cancer cells, in turn, adapt to this situation, the doctors switch chemicals again.

Science News Letter, March 20, 1948

INVENTION

New Flaming Method Rids Cottonseed of Lint

➤ PRICE C. McLemore of Montgomery, Ala., already well known as the originator of the flame-cultivation method for killing weeds, offers a new flaming method for ridding cottonseed of lint. It consists essentially of wetting the seed with a highly flammable liquid like gasoline or alcohol, then setting fire to it. The resulting flash flame effectively removes the lint, yet does not affect the germination of the seed. Patent 2,437,397 has been issued on this invention.

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