

MEDICINE

Six New Antibiotics

Half a dozen antibiotics, mostly still in the laboratory stage, are reported to symposium. One of the antibiotics, Puromycin, has successfully reduced tumor weight in mice.

► HALF A dozen new antibiotics for fighting infectious diseases and one anti-tumor antibiotic were reported at a symposium held in Washington under the sponsorship of the Food and Drug Administration of the U. S. Department of Health, Education and Welfare.

The six new ones are Tetracycline, Hygromycin, Streptogramin, Ruticin, Streptocardin and Methymycin.

The potential anti-tumor antibiotic is Puromycin. Its effect on experimental tumors was reported. It is one of a number of antibiotics being tested for anti-tumor activity in experimental animals by William Troy and associates of Lederle Laboratories, Pearl River, N. Y.

In mice given the largest dose they could stand, this antibiotic reduced the weights of breast cancers up to 70%. Its action against other cancers in mice and rats was relatively weak.

Tetracycline, trademarked Achromycin by its producers, Lederle Laboratories, was made from an older antibiotic, Aureomycin. By a chemical process a chlorine atom was removed from Aureomycin and replaced by a hydrogen atom. This change, although seemingly minor to a layman, took years to accomplish and results in a completely new antibiotic.

Dr. Raymond W. Cunningham of Lederle explained that in literally thousands of laboratory tests on mice, rats and dogs, Achromycin showed a low toxicity. The yellow-colored antibiotic is both more soluble and more stable than Aureomycin in an alkaline solution. Antibiotics are mixed in an alkaline solution for vein injections.

Dr. J. S. Kiser of the Pearl River group said the antibiotic is effective against organisms that cause such diseases as pneumonia, dysentery, typhoid fever, etc. Dr. Maxwell Finland of Harvard Medical School reported that, in clinical trials, the new antibiotic's effects closely paralleled those of Aureomycin, and that Achromycin had even fewer side effects than the older drug.

Hygromycin not only stops bacteria but can kill them, and in animal tests was effective against tuberculosis, Dr. R. C. Pittenger and associates from Lilly Research Laboratories, Indianapolis, reported.

Streptogramin, Ruticin and Streptocardin were developed by researchers at Sharp and Dohme division of Merck and Company, West Point, Pa. Methymycin was reported by scientists from the Squibb Institute for Medical Research, New Brunswick, N. J. These are still in the laboratory testing stage.

Dramatic results in the prevention of rheumatic fever and the treatment of otitis

media, an infection of the middle ear, were reported for a recently introduced long-acting penicillin called Bicillin.

Lts. Robert Chamovitz, Medical Corps, U. S. Air Force, and Francis J. Catanzaro, Medical Corps, U. S. Army, Warren Air Force Base, Wyoming, reported results of a study made with 241 test patients suffering from pharyngitis. A group of 132 was given Bicillin, while the other 109 were treated with other drugs.

Of those receiving Bicillin, only one showed traces of beta hemolytic streptococci in the throat, while 84.8% of those given standard treatment carried the germs.

Although the cause of rheumatic fever is not known, it has been found to follow beta hemolytic streptococcal infection. A single injection of Bicillin, setting up a two-week barrier against that infection, has proved effective in preventing the more serious disease.

Two cases of rheumatic fever developed in the Ft. Warren control group, whereas there were none among the patients who received Bicillin.

Dr. Gene H. Stollerman, medical director of Irvington House, Irvington-on-Hudson, N. Y., reported similar results with Bicillin. The antibiotic is valuable in pre-

venting recurrences of rheumatic fever, which in time usually leads to rheumatic heart disease, he reported.

Dr. Stuart Walker of Johns Hopkins Hospital, Baltimore, reported very favorable results with Bicillin in the ear infection.

Earlier in the year, the same drug was reported to be effective as a one-shot cure of syphilis by venereal disease specialists of the U. S. Public Health Service. Bicillin was developed at the Wyeth Institute of Applied Biochemistry, Philadelphia.

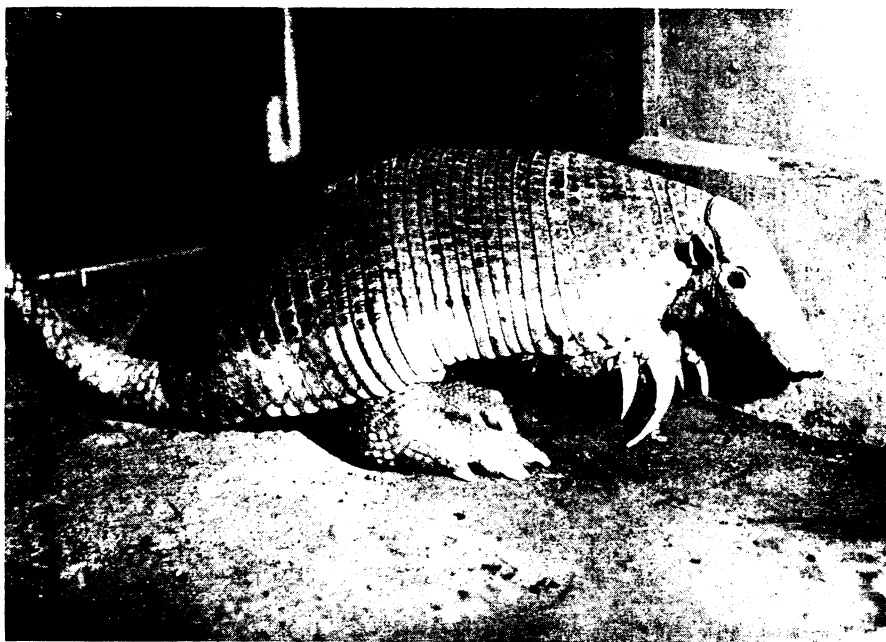
While these new antibiotics, or so-called mold remedies, held the spotlight, results with some of the older ones, best methods of using them and ways of avoiding their disadvantages such as sensitivity of the patient and resistance of the germs were described.

"Ten years ago penicillin was the only antibiotic known to medical practice, and its use was confined to battlefield casualties," Dr. Henry Welch, chief of the Food and Drug Administration's antibiotic division, pointed out.

"There was none available for civilian patients. Today there are numerous antibiotics, accounting for more than one-half of all prescriptions written in this country.

"The past ten years may well go down in medical history as the 'Antibiotic Era,' based upon what these drugs have done to minimize human suffering and extend the life span.

"Primary syphilis has been markedly reduced throughout the United States, to the point where it has become very difficult to find cases for clinical study. Marked progress is being made in the eradication of spirochetal diseases in tropical countries where these diseases are endemic. Mass



GIANT ARMADILLO—A recent arrival at the National Zoological Park in Washington is this giant armadillo, *Priodontes giganteus*. It usually measures more than four feet from head to the end of its tail, and is found in South America from the Guianas to Argentina.

therapy measures under the auspices of the WHO should eventually wipe them out.

"The fatality rate for pneumococcal pneumonia has been cut to an all-time low of less than 5%. Prior to the introduction of serums it ran from 20% to 30%. The serums cut it to 15%, the sulfonamides to around 10%, and penicillin to less than 5%.

"Subacute bacterial endocarditis was practically 100% fatal before antibiotics, but today over 50% are saved.

"Operations for acute mastoiditis are almost a thing of the past. A few dollars' worth of antibiotic usually prevents or cures these troublesome infections.

"These are only a few outstanding examples of the contributions to health made by the antibiotic drugs. Today we are seeing the development of an important economic contribution through the use of antibiotics for promoting healthy, rapid growth of swine and poultry. In the feeding of chickens the time from hatching to marketing may be cut as much as four weeks by use of antibiotic-treated feedstuffs. This saving is increased by reduction of losses from disease as well as more rapid growth, savings in feed, and more rapid marketing.

"It would be unrealistic to say that the antibiotics have not also brought their problems.

"The answers to these problems lie in continued research by competent investigators and in the proper use of these drugs under supervision of the medical profession."

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MEDICINE

Sulfa Drugs for Children

► IN SPITE of all the antibiotics or so-called mold remedies available today and being developed for use tomorrow, the sulfa drugs still hold top priority for treatment of infections in children, Dr. Sidney Ross of Children's Hospital, Washington, declared at the same symposium on antibiotics.

The sulfas, Dr. Ross pointed out, check the infections, they are inexpensive and they are easy to give.

They are definitely the drug of choice for treating meningococcus infections. In the ear infection, otitis media, which bulks very large among children, a sulfa drug and penicillin may be given, he said.

Sudden deaths following use of antibiotic drugs may number several hundred, Dr. Ethan Allen Brown of Boston declared at the symposium. He and Dr. Perrin H. Long of the State University of New York pointed out that many of these deaths go unreported in medical literature.

Most such deaths, Dr. Long said, have followed the use of penicillin, with a few following use of streptomycin. He has not heard of any reports of these deaths after use of the other antibiotics. Dr. Brown, however, said that it may be too early after developments of the newer antibiotics for such reactions to have occurred.

MEDICINE

Frozen Sperm Pregnancies

► THREE WOMEN are pregnant by artificial insemination with frozen human spermatozoa in what is believed to be the first successful clinical application to human beings of the method used widely in animal breeding.

Drs. R. G. Bunge and J. K. Sherman of the department of urology of the State University of Iowa Medical School report in *Nature* (Oct. 24) that three women have been successfully inseminated with frozen semen. At the time the report was made, they were approximately six, five and three months pregnant.

General clinical application of use of frozen semen "must wait until normal embryonic development has been observed and the progeny are declared normal."

As long ago as 1866 an Italian scientist, Dr. P. Montegazza, observed the survival of human spermatozoa after exposure to temperature of 15 degrees below zero Centigrade (5 degrees Fahrenheit).

The Italian scientist even then speculated that in the future frozen semen might be used in animal husbandry, which is now the case. He also proposed that a man dying on the battlefield might, by his wife, beget a legitimate child after his own death.

Later work in England showing that glycerol protected frozen human spermato-

zoa and increased survival encouraged the Iowa scientists to conduct experiments. When their work indicated that treatment with 10% glycerol prior to freezing with dry ice produced an average 67% survival in human spermatozoa obtained from five young healthy men, they began clinical tests with the cooperation of Drs. W. C. Keettel and J. T. Bradbury of Iowa's department of obstetrics and gynecology.

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These sudden deaths are the kind due to anaphylactic shock from unusual sensitivity to foreign material. The sensitivity is different from the kind that causes skin rashes.

The deaths can be prevented, Dr. Long said, if the doctor, before giving an antibiotic, finds out whether the patient has had a reaction to a previous dose of antibiotic, whether he has asthma or some other allergy, and whether he has had procaine before. This last is because penicillin is often given in the form of procaine penicillin. If the answer is yes to any of these conditions, the antibiotic should not be given.

Besides making the usual safety tests of new antibiotics, manufacturers should, Dr. Brown advised, run tests on animals to see whether repeated small doses over long periods will induce allergic reactions.

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Ascorbic acid is used to prevent the darkening of peaches when they are frozen or canned.

A sugar-bearing ration for weaning pigs has been created; when fed to the animals it produces greater pork yields at lower cost.