

MEDICINE

Aureomycin Is Promising In Syphilis Treatment

➤ AUREOMYCIN is showing some success in the treatment of early syphilis in trial tests reported by Drs. Jack Rodriguez, Frederick Plotke, and Seymour Weinstein of the Chicago Intensive Treatment Center and Dr. William W. Harris of the U. S. Public Health Service in Chicago.

About 39 hours on the average after the antibiotic is taken in pill form syphilis sores are rid of the spirochetes, the germs causing the disease, the physicians report in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Nov. 12).

Twenty-seven patients received this treatment but the effect was studied in only 16. These showed that open syphilis sores healed completely in every case but it took longer to do the job than when using arsenical compounds or penicillin, the physicians found.

Also, each patient had to be given a multi-vitamin capsule daily during treatment because aureomycin kills the bacteria of the intestinal tract needed for the synthesis and absorption of essential nourishing substances.

Other undesirable effects from the antibiotic were fever and nausea which was often accompanied by vomiting. The physicians pointed out that because of the high dosage of the antibiotic necessary for treatment there was a mild or moderate degree of stomach upset in almost all of the patients. They countered some of this type of reaction by giving aluminum hydroxide gel before each dose of aureomycin.

The antibiotic is given every four hours for about two weeks. It has definite anti-syphilitic effect but they caution that it is too early to say more.

Science News Letter, November 19, 1949

CHEMISTRY

Better Fruit Flavors Ahead with Repeal of Tax

➤ THE public will now get a chance to taste government-developed fresh fruit flavors, with the removal of prohibitive taxing under alcohol laws that kept them out of quantity production.

The apple and grape flavors are produced by a process of rapid vaporization of the fresh fruit juices in special equipment developed for the purpose at the Department of Agriculture's Eastern Regional Research Laboratory in Philadelphia.

Portable equipment which can extract essence right in the orchard has also been developed. The volatile vapors are then condensed into a natural-flavor fruit essence which can be used in candy and food flavoring.

The method is an improvement over previous steam distillation processes because it captures the highly volatile elements which make up the natural flavor of the

fruit. These elements are mainly forms of alcohol. Until last September an alcohol tax of \$9 per gallon was levied on the fruit essence.

It was this tax which discouraged the wide commercial use of the new method, even though it has been available since 1944 when the process was first announced.

Interested companies pointed out that the essence is very sirupy and sweet and quite unsuitable for beverage use. As a result Congress directed revision of the Internal Revenue Code exempting fruit concentrates from the tax. However, if the concentrate is to be transported, it must be denatured with acetic acid. When the concentrate is made and used in the same plant, denaturing is unnecessary.

The Department of Agriculture believes that between 16 and 30 companies are set up to make fruit essence by the new method.

Science News Letter, November 19, 1949

AGRICULTURE

World Milk Production Now 90% of Prewar Peak

➤ DESPITE a slight sag in American production, world milk production in 1948 rose to about 90% of the prewar output, the U. N. Food and Agriculture Organization in Washington reports.

The United States, the world's largest milk-producing country, fell behind her 1947 total by 3%. The number of cows was lower than at any time since 1930, but yield per cow was higher.

Although worldwide data are scarce for some important regions, the FAO finds that increases in Europe, resulting from the improved feed situation, seem to have been matched by rises in South America and Africa. In India, where much of the milk comes from buffaloes, figures are very scanty, but from estimates the FAO ranks India as the third largest producing area, after the United States and Europe.

Further details appear in a recently published FAO commodity study.

Science News Letter, November 19, 1949

CHEMISTRY

All-Synthetic Fiber Will Compete with Other Yarns

➤ COMPETING next year with such familiar fibers as silk, wool, cotton and nylon, for shirts, curtains, men's suits and blankets will be an all-synthetic fiber, dynel, announced by Carbide and Carbon Chemicals Corporation, New York.

A short staple form of the 12-year-old synthetic fiber vinyon, it can be easily handled on spinning and weaving mills now using the conventional fibers. It is claimed that fabrics made of this acrylonitrile-vinyl chloride fiber will not burn, are not attacked by moths, will dry quickly and stand up well under exposure tests.

Science News Letter, November 19, 1949

IN SCIENCE

ENGINEERING

New Non-Brittle Cast Iron Can Be Bent or Twisted

➤ NOW protected by patents just issued, details of a new cast iron that can be bent or twisted were presented to the Gray Iron Founders' Society in Chicago by Don Reese, International Nickel, Bayonne, N. J. Because it is not brittle like ordinary cast iron, the new product will have many applications.

This new ductile cast iron combines processing advantages of cast iron, such as fluidity, castability and machinability, with many of the product advantages of steel, he stated. The essential feature of the invention is the introduction into and retention by the molten iron under treatment of a small but effective amount of magnesium.

The presence of the magnesium produces a new graphite structure which is in the form of spheroids or compacted particles. Due to the elimination of a substantial amount of the usual weakening flake graphite, the new product possesses high tensile strength, elasticity, toughness and ductility.

Science News Letter, November 19, 1949

ENGINEERING

New Electronic Torch Can Melt Tungsten

➤ HEAT hot enough to melt tungsten, which melts at 3,370 degrees Centigrade and has the highest melting point of all the metals, is obtained with a new "electronic torch" revealed by the General Electric Research Laboratory. It utilizes extremely high-frequency radio waves with such gases as nitrogen or carbon dioxide fed past the discharge arc.

As described by Dr. J. D. Cobine, G-E scientist, the heart of the torch is a tube known as a magnetron which produces radio waves of 1,000,000,000 cycles per second. Leading from the tube is an antenna made of two short metal cylinders, one within the other. A high-frequency arc can be made to form on the end of the antenna. If certain gases are fed past the arc, the electronic torch results. It resembles a jet of flame about nine inches long.

The high temperatures produced on any surface placed in the jet are caused almost entirely by the heat generated by atoms joining together to form molecules, according to Dr. Cobine. The molecules of certain gases are broken up into atoms by the high-frequency arc. These atoms join together again on surfaces placed in the torch. The jet itself is not necessarily hot.

Science News Letter, November 19, 1949

E FIELDS

NUCLEAR PHYSICS-METEOROLOGY

Atomic Energy Plants Will Send Poisons into Air

► THE development of atomic energy for peacetime industrial uses will make "stack meteorology" an important science of the future.

Norman R. Beers, editor of *NUCLEONICS MAGAZINE*, at the National Air Symposium, Pasadena, Calif., predicted that large atomic energy plants will put in the air materials that are either unusually toxic for chemical reasons or measurably radioactive.

Mr. Beers defined "stack meteorology" as "the entire problem of air pollution from stacks of chimneys as the meteorologist sees it."

The fogging of photographic plates occurred a thousand miles from the first atomic bomb explosion in New Mexico, Mr. Beers recalled. Dust from the great Krakatoa volcano has traveled around the world. Industrial smoke and fumes are likewise carried greater distances than is generally realized.

"Aviators have seen smoke from large cities adequate to dirty their windshields and to decrease visibility up to 300 miles away from the smoke source," he said.

Science News Letter, November 19, 1949

NUCLEAR PHYSICS

Beryllium Keeps Form Up to 1,800 Degrees

► BERYLLIUM, the light metallic element that can be used as a moderator and reflector of neutrons in an atomic energy pile, does not change even when subjected to temperatures as high as 1,800 degrees Fahrenheit.

Contrary to several reports published in scientific journals, Paul Gordon of the Illinois Institute of Technology, Chicago, reported that the same form of beryllium that exists at room temperature is found at much higher temperatures.

Using a specially designed high temperature precision X-ray camera, Mr. Gordon examined very thin disks of beryllium to obtain the results he reports in the *JOURNAL OF APPLIED PHYSICS* (Oct.).

Science News Letter, November 19, 1949

ENGINEERING

Extra Light Auto Oil Best For Sub-Zero Climates

► AN extra light crankcase oil for the automobile, designated as 5-W by the oilmen, is satisfactory to use in areas of sub-zero winter weather, the Society of Automotive Engineers was told in St. Louis, by V. G.

Raviolo, Ford Motor Company, Dearborn, Mich. He presented a committee report giving the results of a special study.

This oil, he said, is regarded as a substantial improvement over the winter lubricant now made by diluting 10-W oil with kerosene. Starting with it is about one-third easier, and there is little or no observable increase in wear except under extreme heavy-duty operating conditions. There is a gain in oil consumption of approximately 30%, but compensating benefits are found in the ease of starting and in the stability of the oil.

The conclusions reached by the committee are based on extensive tests in which 26 trucks and 197 passenger cars were used. Eleven automobile and 23 oil companies participated. The report points out that the ability of 5-W oil to maintain its viscosity and stability under operating conditions contributes to its superiority over lubricants made by diluting heavy oil.

Science News Letter, November 19, 1949

MEDICINE

Smallpox-Like Skin Ill Checked by Aureomycin

► AUREOMYCIN is showing promise in saving the lives of children with a virus-caused skin disease, and may turn out to be a remedy for smallpox, Dr. Frederick G. Perry of the Duemling Clinic and Dr. P. C. Martineau of the Lutheran Hospital, Fort Wayne, Ind., reported.

They cited the case of a two-year old boy who had eczema since the age of three weeks. After playing with a little girl who had been vaccinated for smallpox he became acutely ill, his temperature rising to 104.8 degrees Fahrenheit. His eyes were swollen shut and blisters formed over his entire body. Examination revealed the smallpox virus was responsible, the physicians declared in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* (Nov. 5).

The disease is called eczema vaccinatum and usually affects infants and children under five years of age. About a third of those who get the disease die from it.

Boric acid compresses applied locally and penicillin injections failed to help the little boy. So aureomycin was tried the second day he was in the hospital with improvement showing within 24 hours. The blisters began disappearing, others dried up, and his temperature returned to normal. He was apparently well on the 11th hospital day and was discharged. The physicians said that at this time most of the crusts had vanished and there was little scarring.

Although they don't know whether aureomycin checked the secondary infection or had an antibiotic effect on the virus causing the disease, they feel the drug may be of special value in treating cases of eczema vaccinatum and possibly smallpox.

Science News Letter, November 19, 1949

MEDICINE

Army Hospital Staffed With Women for War Study

► A REHEARSAL for war is taking place at the Murphy General Hospital in Waltham, Mass., where the Army is replacing male personnel with female non-professional help.

The experiment which began in June is expected to run for 18 months. Maj. Gen. George E. Armstrong, deputy surgeon general of the U. S. Army, told the Association of Military Surgeons meeting in Washington.

Murphy is the only hospital participating in the experiment and at its conclusion will return to normal. But at present all female Army personnel who are qualified are replacing medical technicians, administrative officers, cooking specialists and other personnel. WACs are replacing hospital corpsmen.

There is also legislation before Congress for a study to enable female doctors and dentists to be commissioned which has not yet been approved.

The study is to provide a measuring stick which will show whether female personnel can take over as many duties as possible in hospitals located in the interior. It will not be applied during peace time.

Science News Letter, November 19, 1949

INVENTION

"Aging" of Liquor in Bottle Now Possible

► A BUNDLE of sticks inside the whiskey bottle continues the "aging" of liquor, it is claimed in a patent just issued. One advantage is that the whiskey will not have to be kept in kegs for aging for so long a period. It can be bottled and shipped to dealers on whose shelves it will acquire additional smoothness and better taste.

The patent, 2,487,594, was issued to Harold A. Rudnick of Boston. The process can be used with other alcoholic liquors as well as whiskey. It can be used with liquors stored in a jug, or in any container the walls of which are chemically inert to the alcoholic beverages.

The sticks may be of any shape, but elongated rods are preferred. For whiskey, oak sticks are recommended, which may or may not be charred. The bundle, after insertion in the bottle, is allowed to spread so that the surfaces are in better contact with the liquid. The sticks should be plentiful enough to have sufficient surface area to permit aging to continue at a reasonably rapid rate.

Most aging of liquor is done in oak or other wood containers. Part of the contents is absorbed by the wood, evaporates and is lost. Such loss is prevented when the aging is done in the bottle. This is another advantage claimed in the patent.

Science News Letter, November 19, 1949