

MEDICINE

Drug Prevents Recurrences Of Acute Rheumatic Fever

➤ **EVEN IF ACTH** and cortisone prove disappointing as medicines for acute rheumatic fever, a new medicine that may prevent recurrences of the disease after the first attack is now available.

This medicine is a new form of penicillin. Its scientific name is N,N'-dibenzylethylene-diamine Dipenicillin G. The trade name given it by Wyeth Incorporated, who make it, is Bicillin. It is given by injection into the muscles and because it is the repository type of penicillin, remaining in the blood stream as long as a month after a single injection, it need only be given once a week or once in two weeks.

It banished Group A streptococcus germs from the throats of 12 out of 13 children who had been carrying these germs in their throats. Drs. Gene H. Stollerman and Jerome H. Rusoff of Irvington House, Irvington, N. Y., reported at a meeting of the American Rheumatism Association in Chicago.

Acute streptococcus throat infections precede attacks of rheumatic fever. Because each attack of this disease may damage the heart, doctors try to prevent further attacks after the first one. The new penicillin was given to 138 children from six to 14 years old convalescing at Irvington House from rheumatic fever. All but one of them remained free of streptococci as shown by weekly throat cultures for the 10-month period of the study. None of the treated group had a recurrence of rheumatic fever.

Science News Letter, June 21, 1952

MEDICINE

Radioactive Iodine May Give Heart Patients Longer Lives

➤ **HOPE THAT** radioactive iodine treatment may lengthen the lives of heart disease patients appeared in a report by Drs. Henry L. Jaffe, Maurice H. Rosenfeld, Frederick W. Pobirs and Laurence J. Stuppy of the Cedars of Lebanon Hospital, Los Angeles, at a meeting of the American Medical Association in Chicago.

They gave this treatment to 100 patients who were chronically ill and seriously incapacitated by one or another form of heart disease. The theory behind the treatment is that by reducing activity of the thyroid gland the total metabolism of the body will be lowered and the body's requirements can be reduced to within the limit of the heart reserve.

Of the 100 patients treated two years ago, 53 got good results as shown by relief of symptoms and reduced need for drugs such as nitroglycerin or mercurials. Fair results were obtained in 20 and poor results in 27 including 24 who died during the two-year period since the treatment. None of the

deaths was attributable to the radioactive iodine treatment.

The physicians' impression was that the average life expectancy for the entire group may have been increased as a result of the treatments. However, they also pointed out that a longer period of observation of a larger number of patients is necessary before this can be established.

They stressed that since this is a rather formidable treatment, it should be limited to those severe cardiac patients who have failed to respond to all other types of medical management.

The radioactive iodine, produced in the Oak Ridge Laboratories of the Atomic Energy Commission, was given as a drink in distilled water once a week for five weeks.

Science News Letter, June 21, 1952

ENGINEERING

Improved Microtome Mounts Tissue Slices Automatically

➤ **DR. VANNEVAR BUSH**, president of the Carnegie Institution of Washington and head of U. S. wartime scientific research, has turned his talents to improving a machine used in every hospital laboratory that does cancer diagnostic work as well as in countless medical research laboratories.

The machine is a microtome for slicing bits of body tissue thinner than most tissue paper so that the cells of these tissues can be examined under the microscope.

Ordinary microtomes look, roughly, like the machines butchers use to slice ham or other meat. They are hand operated and the very tedious job of putting the super-thin, fragile slices onto a glass microscope slide is also done by hand.

Dr. Bush's machine, announced in the journal *SCIENCE* (June 13), does the whole thing automatically. The bit of tissue from operating room, autopsy room or research laboratory is, as usual, put into liquid paraffin. When this has hardened it is ready for the microtome. But with Dr. Bush's automatic machine, moving picture film is pressed onto the block and the slices, or sections as they are called, of tissue come off mounted on the movie film.

Besides the time and trouble saved by the new machine, there is the further advantage that the sections are accurately and automatically registered. If a dozen sections of tissue are wanted, for example, there can be no doubt about the order in which they come. For research and sometimes diagnostic work, this is important.

The first model of the machine was built by W. R. Horsfield, now of Bermuda. Working with Dr. Bush in its development were also Osborne O. Heard of the Carnegie Institution's department of embryology in Baltimore and W. F. Steiner and L. A. Horton of the Institution's department of terrestrial magnetism.

Science News Letter, June 21, 1952

IN SCIENCE

ECOLOGY

Scientists to Study Life In Pacific Archipelago

➤ **A SEVEN-MAN** scientific research team has left Honolulu for the Tuamotus Archipelago where it will spend about three months studying the inter-relationship of environment and animal and plant life of the Raroia atoll.

Now in its third year, the ecological project is sponsored by the Pacific Science Board of the National Academy of Sciences-National Research Council with financial aid from the Office of Naval Research. The group is being led by Dr. Norman D. Newell, geologist and curator of the geology branch of the American Museum of Natural History. He is assisted by J. V. Byrne of Columbia University.

The men will study the problems affecting the economy of the atoll's population of 300. In addition, they will gather specimens for the U. S. National Museum, the American Museum of Natural History, the Bishop Museum in Honolulu, the Academy of Natural Sciences in Philadelphia and the California Academy of Sciences.

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MEDICINE

Continuous Pain Relief By Tube Near Spine

➤ **CONTINUOUS RELIEF** of severe pain without having shots in the arm or nerves every three or four hours is possible by a method reported by Drs. Albert M. Betcher, George Bean and Daniel F. Casten of the Hospital for Joint Diseases, New York, at a meeting in Chicago of the American Medical Association.

They insert a narrow rubber tube, called a catheter, into the back near the spinal column and fix it to the skin with adhesive tape. Procaine, an anesthetic, is injected into the tube and allowed to infiltrate the chain of sympathetic nerves which originate in the spinal cord. These nerves have, among other functions, the transmission of pain impulses.

The anesthetic is injected through the catheter every four hours. The catheters can be left in place for days or weeks and the patient can be up and about. Injections can be given by a nurse.

Permanent denervation, to stop the pain, is best done by an operation in which the nerve is cut, the doctors said. But for many cases the temporary blocking of the nerve is sufficient.

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CE FIELDS

AERONAUTICS

Improved Radio Aids To Land Pilots Soon

► IMPROVED RADIO-BEAM landing aids, a few of them installed already, will provide pilots with a better radio highway to their landing strips in about 18 months, the Civil Aeronautics Administration has predicted.

The dual-unit landings aids will replace war-surplus single units now used in about 100 locations. They also are to be installed at 75 fields now scheduled to get the Instrument Landing System.

The range of the new very-high-frequency radio units has been increased from 10 to 30 miles. Also, they yield more precise on- and off-course pilot guidance. The war-surplus units often are affected by snow or changes in the level of the water table, but the new ones overcome these difficulties.

The CAA said the new landing aids would be installed as quickly as they could be obtained, but described the electronics delivery picture as "utterly fantastic," due to military requirements for electronic gear. About 18 months will be required to get all the new units installed.

Costing \$7,500 each, the units continuously will send two radio signals to pilots. As in the present system, one of the beams gives right and left guidance. The other tells him the angle at which he should fly down to the field.

A monitor, not used with present landing aids, will ring bells and flash lights in the control tower the instant something goes haywire with the landing signals being transmitted to the pilot. The control tower then will switch over to the stand-by transmitter until the trouble is fixed.

Science News Letter, June 21, 1952

NUTRITION

Do Not Blame Hen For Poor Summer Eggs

► DO NOT BLAME the hen for poor quality of eggs in summer. "Hot weather eggs" with thin whites and flat, weak yolks owe their poor quality to poor handling.

When laid, eggs have plenty of fine quality for both nourishment and appetite appeal. But to conserve this quality, eggs must be given cool, careful handling all the way from the nest to the breakfast table, U. S. Department of Agriculture specialists point out.

"Be wary," they advise, "of buying eggs from counter displays or cartons stacked in grocery aisles instead of from clean cold

refrigerators. Every hour that eggs are left at high temperatures such as 80 to 90 degrees Fahrenheit, not unusual in many stores and kitchens in summer, they drop rapidly in quality.

"Eggs left for a few days at temperatures between 70 and 80 degrees Fahrenheit may lose as much freshness as eggs kept several weeks covered in the refrigerator. The best temperature for holding eggs is above freezing but not higher than 45 degrees Fahrenheit."

Farmers need to gather eggs from nests at least three times a day in hot weather and then cool them promptly in well-ventilated containers. Next, wholesalers and retailers need to give them cool care, away from odors that may penetrate the porous shells and affect egg flavor. Grocers, delivery men, and house-to-house vendors need to keep eggs cool at all times.

Finally, the housewife must remember to put the eggs in the refrigerator as soon as she gets them home from the store.

Science News Letter, June 21, 1952

CHEMISTRY

Strange Synthetics Made In Eastman's "DPI" Labs

► STRANGE SYNTHETIC organic chemicals with names of the tongue-twisting variety are being made in Rochester, N. Y., at Eastman's Distillation Products Industries laboratories out of such strange raw materials as lobster shells and bovine gallstones.

The relatively scarce chemicals are supplied to scientists throughout the world at prices that range up to \$60,000 a pound.

Chitin, a basic raw material for an important compound used in nutrition research, is extracted from lobster shells. Bilirubin has a bright red color useful to medical scientists testing human body functions. It is made from gallstones taken from cattle. Since all cattle do not have gallstones, bilirubin is comparatively scarce.

Farmers like butylmercaptan for its horrible, skunk-like odor. Some farmers used it to drive rats out of their grain storage bins. But the rats fled to grain bins on neighboring farms and the resulting situation created harsh feelings.

Ethylmercaptan smells worse than rotten eggs. The chemical is useful as a sort of olfactory alarm signal in mines when the noise of mining machinery would make warning sirens or bells difficult to hear.

Although the names of the chemicals may sound like they come from a different planet, DPI scientists explained that its name gives research workers an exact picture of a chemical's structure and also it suggests many of the chemical's uses.

Eastman began the DPI laboratories in 1919 when World War I cut off America's chemical trade with Germany, the world's top producer of synthetic chemicals at that time.

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MEDICINE

New Penicillin Attracted to Ill Lungs

► PATIENTS WITH lung infections such as pneumonia and bronchitis should be particularly helped by a new kind of penicillin reported by Dr. J. Ungar and P. W. Muggleton of Glaxo Laboratories Ltd., at Greenford, Middlesex, England.

This new penicillin preparation accumulates particularly in lung tissue, and most particularly in inflamed lung tissue, such as that of patients with bronchitis and the like. The advantage of this is that it brings more of the drug to the place where it is needed, where the germs are. The germs would be stopped more quickly and the patient would not need to have injections of the medicine so often.

For several years scientists have been trying to find a form of penicillin that would stay in the body longer, so the patient would not need to get a "shot" every two or three or four hours. The new penicillin developed from studies with this end in view. The fact that a kind of penicillin would accumulate particularly in one kind of body tissue was an unexpected find.

This particular kind of penicillin that goes especially to inflamed lungs is diethylenedioxyethylbenzyl-penicillinate hydriodide. It has been given the short name estopen.

The hope now is that other penicillin preparations may be made to select other kinds of body tissue for accumulation, thus providing penicillins specially tailored for different parts of the body.

Details of the study of the one that accumulates in lungs are reported in the BRITISH MEDICAL JOURNAL (June 7).

Science News Letter, June 21, 1952

ELECTRONICS

MANIAC Computer Unveiled in Los Alamos

► AN ELECTRONIC digital computer, called "MANIAC," has just been unveiled at the Los Alamos Scientific Laboratory of the University of California.

The MANIAC is able to do in one and a half hours a complicated mathematical problem which took one of its predecessors, the ENIAC, 24 hours to do and which would take one person with an adding machine 24 months to complete. On top of that, it is much smaller in physical bulk than is the ENIAC. The MANIAC is able to do its job with only 3,000 electronic tubes while the ENIAC uses 18,000.

The new calculator will be used to make computations for the Atomic Energy Commission. The machine's builders at Los Alamos have provided the words, Mathematical Analyzer, Numerical Integrator and Computer, to go with the initials MANIAC and to describe the new computer.

Science News Letter, June 21, 1952