

MEDICINE

Synthetic Female Hormone Helps Men with Mumps

➤ A SYNTHETIC chemical with an effect like that of a female sex hormone is good medicine for men who get mumps, three Chicago physicians find.

The inflammation of the male sex glands which affects about one out of every five men who get mumps can be both prevented and relieved if it develops by this drug.

The drug is diethylstilbestrol. Its use at the Cook County Contagious Disease Hospital is reported by Drs. Archibald L. Hoyne, Jerome H. Diamond and Joseph R. Christian in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* (June 25).

The fact that the sex gland inflammation, which is the severest complication of mumps, is almost never seen in children suggested that temporarily suppressing normal sex gland functioning in men might be helpful in mumps. The female hormone-like action of the synthetic drug, the doctors reasoned, might therefore be useful.

They gave the drug as a preventive to 20 men who had had mumps for from one to four days without symptoms of sex gland inflammation, called orchitis. Among the first 13 given this treatment, mild orchitis developed in two and moderately severe orchitis in one. The next seven patients were then given twice as much of the drug each day. None of them developed orchitis.

Larger doses were given to 19 men who had already developed orchitis. The results were in some cases "dramatic" with decided decrease in pain and tenderness within 24 hours. Every patient made "an uneventful recovery." The average patient was treated for about four days and was able to leave the hospital in about five days.

The drug is given by mouth in a capsule which, the doctors point out, makes it easy to take and it has no toxic effects. Preventive treatment is continued until the jaw-swelling of mumps has subsided.

Similar good results with this treatment, the Chicago doctors found, had been reported earlier by another physician.

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AERONAUTICS

Thrust Power in Jet Engine Double That of Weight

➤ TWO and a half pounds of thrust for every pound of engine weight is the rated power for a new Westinghouse jet engine released from former Navy secrecy. It is already in use in the Navy's McDonnell Banshee, a fast-climbing shipboard fighter for fleet operational units.

The Banshee is equipped with two of these engines. A pair of them also provide jet power for the Air Force's newest plane, the Lockheed F-90 penetration fighter, de-

signed to operate deep in enemy territory against enemy aircraft and ground targets. The F-90 is a speedy plane, with 35 degrees of wing sweep-back.

This so-called J-34 is 10 feet in length and weighs about 1,200 pounds. Airplanes equipped with two of these jet engines will have more than 10,000 horsepower at command, because at modern flight speeds the engine's thrust is equivalent to better than 5,000 horsepower.

At a standstill, the slim engine sucks in air in the front end at 250 miles an hour, and spits it out the jet nozzle at the rate of 1,200 miles an hour. The compressor and the turbine of the engine whirl 12,500 times a minute to pack the 100 tons of air the engine "breathes" every hour.

Science News Letter, July 9, 1949

MEDICINE

Gamma Globulin Checks Animal Virus Disease

➤ THE blood's germ-fighting gamma globulin saved a woman who was dangerously sick with a brain disease when other treatments, including penicillin, had failed.

The patient had Western equine encephalomyelitis, popularly known as horse sleeping-sickness. This virus disease affects the brain and central nervous system of horses, and is transmitted to humans by mosquitoes and other insects. Besides horses, chickens and birds are believed to harbor the virus.

The patient was extremely ill with headaches, chills and fever, Drs. William Saphir and Albert Milzer of Chicago report in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* (July 2).

Trial treatment with quinine was unsuccessful. Penicillin also had no effect, and the patient became worse.

Research by other scientists showed hyperimmune rabbit serum to be good in this disease. Since this serum was not available, the physicians hopefully administered gamma globulin from human blood. It was injected into the muscles daily for seven days in large dosages. The doctors noted that gradual and distinct improvement followed with eventual recovery.

They tested the gamma globulin administered to this patient and discovered that it contained neutralizing antibodies against the disease. However, since different batches of gamma globulin will have varying virus-killing properties, depending on the source of the blood, they feel that a special preparation of gamma globulin fraction of hyperimmune rabbit serum would be more suitable for use in human patients.

It was impossible to discover how the patient had contracted the disease since she lived in Chicago and had not left the city for several years. As far as was known, she had not come in contact with any sick animals.

Science News Letter, July 9, 1949

IN SCIENCE

BIOCHEMISTRY

Radioactive Silk Spun From "Tagged" Compounds

➤ RADIOACTIVE silk has been spun by two moth larvae, in experiments reported to the journal, *Science* (June 24), by a four-person research team.

Interest centered not in silk as a fiber or fabric but in silk as a chemical compound, it is explained. Silk consists largely of a protein called fibroin, which can be used in research as typical of all protein, which may be considered the chemical basis of life itself. Hence the interest in getting a radioactive "tag" attached to it, for purposes of identification in various stages of its chemical life-history.

The silk was spun by the caterpillars of the big *Cecropia* moth, one of the first natural-history objects collected by most children. Small amounts of two amino acids, glycine and alanine, "tagged" with radioactive carbon 14, were injected into the two fat larvae. About 24 hours later they started to spin their cocoons.

Radioactivity of the silk in these cocoons was proved in three ways: by the ticking of a Geiger-Muller counter, by photographic "autographs" left by fibers and clipped bits of silk placed in contact with camera film, and by elaborate chemical analysis.

The silk-spinning glands were dissected out of two other caterpillars and kept for several hours in a solution containing the radioactive carbon. Subsequent analysis of their proteins also showed the presence of radioactive silk substance.

These experiments were performed by Drs. Paul C. Zamecnik, Robert B. Loftfield, Mary L. Stephenson and Carroll M. Williams, of the Collis P. Huntington Memorial Hospital and Harvard University.

Science News Letter, July 9, 1949

GEOLOGY

Radioactive Carbon May Help Set Ice Age Dates

➤ RADIOACTIVE carbon in bones, shells and wood left behind by animals and plants that died during the latter part of the Pleistocene ice age may help materially in dating geologic events of 35,000 years ago. In the journal, *Science* (June 24) Prof. Richard Foster Flint, Yale University geologist, invites colleagues who have materials of this kind to send him exact descriptions, with a view to later analysis to determine their age.

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E FIELDS

MEDICINE

Strange Blood Cells Found In Atom-Smasher Workers

➤ TWO unusual kinds of white blood cells have been found in the blood of persons working with the 130-inch cyclotron in Rochester, N. Y.

Whether they are the result of exposure to atomic rays from the atom-smasher has not yet been determined. If so, they might serve as indicators of radiation damage. Further studies of the cells are being pushed by Drs. M. Ingram and S. W. Barnes, working at the University of Rochester under a joint program of the Atomic Energy Commission and the Office of Naval Research.

One of the unusual white blood cells is a very early, or young, cell of the kind called mononuclear, meaning it has only one nucleus. The other is a white blood cell which seems to have a bi-lobed or double nucleus.

Both kinds of cells, the scientists report to the scientific journal, *PHYSICAL REVIEW* (June 1), have been found in persons not associated with cyclotrons but who were suffering from sore throats or other infections. The cyclotron workers, however, had no infections. And the bi-lobed or double nucleus cells have not, so far as the Rochester scientists could find, been previously seen in normal blood.

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NUCLEAR PHYSICS

Navy Ship Is Balloon Base For Cosmic Ray Studies

➤ GEIGER counter "telescopes" and other scientific equipment, held aloft by balloons and controlled from aboard a Navy ship, will be used in a new series of cosmic ray experiments during July and part of August.

Two groups of Princeton University scientists will conduct the experiments aboard the U. S. S. *Norton Sound*, which sailed from the West Coast around July 1.

The cosmic ray "telescopes" are Geiger counters which detect cosmic rays as they strike them from narrow angles in the direction which the counters are pointed. Sent high overhead by balloons, the counting "telescopes" will be pointed by remote control from the ship and data received by radio.

Scientists conducting the experiments are Dr. John R. Winckler, George Neilson Whyte, Thomas Howard Stix, Kirby Dwight, Jr., Robert Price and W. E. Rapp, all of Princeton, and Robert J. Sabin, on leave from the University of New Mexico,

and Dr. Ira Meyers of the Department of the Army Signal Corps.

Dr. Winckler will direct a study with the "telescopes" of energy distribution of the primary cosmic rays and relative numbers of rays having positive and negative electrical charges. Another group, headed by Mr. Whyte, will investigate the number and size of nuclear explosions due to cosmic rays at different altitudes and the number of slow neutrons in the atmosphere at different altitudes. Ion chambers and special neutron counters will be sent up by the balloons for these experiments.

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ASTRONOMY

Pale Green Sun (Not Moon) Is Observed by Scientist

➤ THE SUN (not the moon) was seen as pale green just before its rim slipped below the horizon on an evening in February. The observer was Dr. E. O. Hulbert, physicist of the Naval Research Laboratory, who specializes in the optics of the atmosphere.

Dr. Hulbert reports the occurrence and also gives his explanation for it in a brief report to the *JOURNAL OF THE OPTICAL SOCIETY OF AMERICA* (May).

He saw the green sun while flying in an airplane at an altitude of about 8,000 feet above a complete cloud cover about 2,000 feet below. The air was very clear, Dr. Hulbert reports, right down to the blanket of clouds. This is important for observing a green sun. If the sun appears red as it begins to sink below the horizon, you can be sure you will not see the disappearing rim as green, because when it looks red it is because the blue and green portions of the spectrum are filtered out by the atmosphere.

On this particular evening, the sun was a pure yellow as it began to dip below the cloud-sky horizon. Just before the last segment slipped from view it turned from yellow to white and finally to a distinct green.

The color lasted very briefly and might easily escape casual observation. It lasted, Dr. Hulbert estimates, not more than three seconds or less than two.

The prismatic dispersion of the normal atmosphere for a ray tangent to the surface of the earth is 22 seconds of arc, and at 6,000 feet altitude where the pressure is about 0.8 atmosphere, it amounts to about 18 seconds of arc. The observed time of about two seconds which elapsed from the appearance of the green segment to its disappearance below the horizon corresponded to an angular motion of the sun of about 23 seconds of arc. This was near enough to the calculated value of 18 seconds of arc, Dr. Hulbert concludes, to indicate that the dispersion of the normal atmosphere was adequate to account for the sun's looking green.

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NUCLEAR PHYSICS

New Kind of Trap Built For Cosmic Ray Studies

➤ A NEW kind of trap for cosmic rays that bombard the earth from outer space was announced to the University of Denver International Cosmic Ray Symposium in Idaho Springs, Colo., by Dr. J. Warren Keuffel of Princeton University. It permits scientists to look inside a large mass of matter and see, by means of spark signals, just when and where the intruding particles explode the hearts of atoms they smack into here on earth.

It gives one more tool for use in puzzling out one of the universe's major mysteries: the structure of atomic particles and the composition of the far-distant parts of the universe that give birth to the most powerful radiation that man has ever detected.

The new parallel plate counter stack is a pile of ten steel plates, each a half-inch thick. Each plate fires a counting device within five-billionths of a second of the impact of the cosmic ray. In addition to electronic counting devices, cameras focused on the spaces between plates can photograph the sparks that mark the passage of the particle. The heavy iron stops and decays many more particles, because it is heavier than air used in conventional cosmic ray counters.

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GENERAL SCIENCE

Awards Go to Scientists For Work with Hormones

➤ THE discoverer of the growth hormone and the scientist whose studies have revealed the effect of a hormone now believed effective against arthritis, were singled out for honors by the Association for the Study of Internal Secretions in New York.

Dr. Herbert M. Evans, director of the Institute of Experimental Biology, University of California, was given the E. R. Squibb and Sons Award for his contributions to knowledge of the trophic hormones of the pituitary gland and his discovery and purification of the growth hormone.

Dr. George Sayers of the University of Utah Medical School received the Ciba Award for studies showing the effect of the adrenocorticotrophic hormone of the pituitary gland on the adrenal glands which are situated above the kidneys.

Selection of Dr. George M. Brown, Jr., as the Ayerst, McKenna and Harrison Fellow, and of Dr. D. Lawrence Wilson, as the first recipient of the newly established Schering Fund Fellowship, was also announced by the association. Dr. Brown will work at the University of Pennsylvania and Dr. Wilson at the Harvard University Medical School.

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