# SCIENCE NEWS

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## SOME ADVANCES IN THE SCIENCES DURING 1931

*(Continued from the issue of December 25)*



### *Biology*

BACTERIA, visible under the microscope, were changed to invisible, filterable phases when Dr. Arthur I. Kendall, of the Northwestern University Medical School placed them in a new medium containing protein; he was also able to return them to visible form, and grew filterable viruses in the new medium, and, through the new Rife microscope, saw them as tiny oval blue bodies.

A new weapon to combat the dread disease paresis was made available to medicine when Dr. Frederick Eberson and William G. Mossman, of Mount Zion Hospital in San Francisco, succeeded in growing artificially in the laboratory a harmless germ capable of causing a curative fever without itself producing any disease.

Six generations of the organism causing infantile paralysis were for the first time successfully grown outside the human body at Mt. Zion Hospital, San Francisco, by Dr. Frederick Eberson, director of the clinical laboratories.

The first United States plant patent was issued to Henry F. Bosenberg, of New Brunswick, New Jersey, for an everblooming rose derived from the familiar Van Fleet.

A true "plague of locusts" descended on parts of the West during the summer, in one of the worst "grasshopper years" of recent record; locusts were also troublesome in parts of the Old World.

In an effort to prevent the extinction of the wisent, or European bison, nearly wiped out as a result of the war, all the pure-blood cows of breeding age were removed from scattered zoological parks on the continent and concentrated in a preserve in the Bialowicz Forest in Poland. Surplus males are being bred to American bison cows in another preserve at Springe, Germany, to build up a "reserve" stock of wisent-bison hybrids. The two stocks are to be kept strictly separated.

The extent to which so-called identical twins resemble each other depends upon the stage of development reached by the cell mass of the embryo at the time it separates to form the two distinct individuals, was the theory proposed by Dr. H. H. Newman, of the University of Chicago, who has found that Siamese twins look and act much less alike than do separate identical twins.

A physiological incompatibility was discovered to exist between some male reproductive elements and some female reproductive tissue which might account for childlessness where neither mate is sterile; this finding was made by Dr. Raphael Kurzrok and Professor Charles C. Lieb, of Columbia University.

That a tendency to long life is inherited from long-lived ancestors was confirmed by Dr. Raymond Pearl and his associates in the department of biology of the School of Hygiene and Public Health of the Johns Hopkins University.

### *Medicine*

The U. S. Public Health Service reported that despite the economic depression the health of the country was generally good.

Life insurance statistics for the first eleven months showed the lowest death rate ever recorded for the United States and Canada.

A severe epidemic of infantile paralysis occurred, chiefly in New York, New England, New Jersey, Michigan, Minnesota and Wisconsin.

A sharp outbreak of influenza occurred during the first three months of the year.

Fleas were found to be carriers of typhus fever, previously thought to be carried only by the body louse, as a result of experiments reported by Drs. R. E. Dyer, A. S. Rumreich and L. F. Badger, of the U. S. Public Health Service.

That death may be caused by a lack of magnesium in the diet through a disturbance of the adrenal glands was discovered by Dr. E. V. McCollum and Dr. Elsa Orent, of the Johns Hopkins School of Hygiene and Public Health.

That the formation by the pituitary gland of a hormone governing certain sexual functions is in some way related to the manganese of the diet was discovered by Dr. E. V. McCollum, of the Johns Hopkins School of Hygiene and Public Health.

Discovery that deafness is caused by an unnatural increase or decrease in the rigidity of the tiny bones of the ear known as the ossicles and that pressure on the round window membrane of the ear increases the perception of spoken words and nearly all tones by 50 per cent. was made by Dr. S. J. Crowe, of the Johns Hopkins Hospital and Medical School.

A new type of deafness due to spasm of the bone and muscle apparatus of the middle ear and of the eardrum, and also a method of relieving it, was discovered by Dr. E. M. Josephson, of New York.

That persons may be rendered immune to diseases without developing a hypersensitiveness to the particular germ against which they are immunized has been found by Dr. Arnold R. Rich, of the Johns Hopkins Medical School.

A new secondary, or portal, system of blood circulation conveying blood directly from the pituitary gland to the mid-brain was discovered by Dr. Gregor Popa and Una Fielding, of University College, London.

A forward step in the battle against leprosy was reported when Dr. Earl B. McKinley, of the George Washington University Medical School, and Dr. Malcolm H. Soule, of the University of Michigan, announced that they had isolated the organism which presumably causes this disease and had succeeded in growing it outside the human body.

Discovery of the hitherto unknown germ of smallpox was announced by Professor J. C. G. Ledingham, director of the Lister Institute of London.

A new hormone, sympathin, similar to the powerful

adrenalin, was discovered by Professor Walter B. Cannon, of the Harvard Medical School, and is believed by him to be formed in the muscle cells by the action of an impulse from the nerves.

A serum was developed by Dr. W. C. Hueper, assisted by Miss Mary Russell, both of the Cancer Research Laboratory of the University of Pennsylvania, which may lead to the conquest of the fatal disease, leukemia, in which the white blood cells multiply riotously.

A reeinforced attack on drug addiction was made by the U. S. Bureau of Narcotics, the U. S. Public Health Service, the American Medical Association and a special committee of the National Research Council, in the course of which two research laboratories were established, one at the University of Virginia for chemical analyses and syntheses of alkaloid substances and the other at the University of Michigan for the biological testing of narcotics and their substitutes.

A new cascade 1,000,000 volt x-ray tube was made by the General Electric Company and installed at the New York Memorial Hospital to provide more intense radiation for cancer treatment than could be produced by all the world's available radium.

Evidence that Rocky Mountain spotted fever occurs on the eastern seaboard as well as in several Western states was reported by Drs. R. E. Dyer, L. F. Badger and A. C. Rumreich, of the U. S. Public Health Service.

The wood tick which causes tularemia, Rocky Mountain spotted fever and Colorado tick fever was found to be the cause of a strange type of paralysis in men, dogs, sheep, foxes and to some extent in cattle by investigators of the U. S. Public Health Service.

A remedy for ringworm of the feet, popularly known as athlete's foot, was found in sodium thiosulphate, by Dr. William L. Gould, of Albany, New York.

The successful use of digestive ferments to prevent the formation of adhesions was reported by Dr. Alton Ochsner and Dr. Earl Garside, of Tulane University.

The discovery that an extract of the parathyroid gland of cattle will restrict growth without injury to the health was made by a young English biochemist, J. H. Thompson, and may be of great value in the treatment of cancer.

Diet was found to be definitely not responsible for the development of cancer, as a result of experiments on mice conducted by Sir Leonard Hill, of England.

Efforts to find a diagnostic test for early cancer continued; Dr. S. G. T. Bendien, of Zeist, Holland, and Dr. Hans Jacques Fuchs, of Berlin, each announced one based on examination of the blood.

Two new anesthetics were announced: one, related to the well-known drug veronal, which puts the patient to sleep quicker and yet allows him to recover sooner, was produced by Dr. H. A. Shonle, of the Lilly Research Laboratories, from alcohol, barbituric acid and amyl; the other, a general anesthetic related to ether and ethylene, but more rapid and efficient than ether, chloroform or the anesthetic gases, was discovered, in accordance with his own prediction, by Dr. C. D. Leake, at the University of California Medical School.

A method of treating pellagra was reported by Dr. Ibrahim Sabry, of the Government Hospital, Alexandria, Egypt, who believes the disease to be caused by a poison found chiefly in beans instead of by a dietary deficiency, as has been supposed.

Viosterol, or irradiated ergosterol, often given to children in place of cod liver oil, was found to be a new and effective treatment for radium poisoning, such as that developed by workers on radium-dial watches, it was reported by Dr. Frederick B. Flinn, of Columbia University.

Improvement in the hitherto hopeless condition known as multiple sclerosis, or creeping paralysis, through use of high frequency electric currents, was reported by Drs. William H. Schmidt and Benjamin Weiss, of Jefferson Medical College.

That calcium chloride relieves the intense pain of lead colic, gallstone colic and ureteral colic was discovered by Drs. Walter Bauer, William T. Salter and Joseph C. Aub, of the Massachusetts General Hospital, Boston.

Ergot, an important drug, which naturally grows only as a parasite on living plants, was successfully raised in a laboratory flask by Adelia McCrea, of the University of Michigan.

The danger of burns during x-ray treatments has been greatly lessened by the completion of apparatus designed by Dr. Lauriston Taylor, of the National Bureau of Standards, to measure the intensity of x-ray doses.

A new method for saving the lives of those who have swallowed the poison bichloride of mercury was developed by Dr. Samuel Berger, of Cleveland; it consists of an opening into the cecum and a flushing with water through this opening.

A safe and apparently certain treatment for hookworm was found in the synthetic antiseptic hexylresorcinol by Dr. Veader Leonard, of the Johns Hopkins University.

That an emotional and mental condition resembling the effects of alcohol or temporary insanity results from a lack of oxygen such as that experienced at high altitudes was found from experiments conducted at Columbia University by Dr. Ross A. McFarland.

A deficiency of iron in the brain cells of those who have died with the mental disorder dementia praecox was discovered by Dr. Walter Freeman, of St. Elizabeth's Hospital, Washington, D. C. This is believed by him to be a possible explanation of the symptoms of that disease.

A new theory that insanity depends upon the state of coagulation of the brain colloids was advanced by Dr. Wilder D. Bancroft and Dr. G. Holmes Richter, of Cornell University.

A new use for small doses of the anesthetic sodium amytal was found by Dr. Erich Lindemann, of the Psychopathic Hospital of the State University of Iowa, who discovered that it would make reserved persons, both normal and insane, talk freely.

More than a tenth of patients with the mental disease dementia praecox suffer from thyroid deficiency, it was estimated by Drs. R. G. Hoskins and Francis H. Sleeper, of the Memorial Foundation for Neuro-Endocrine Research, who reported success with the thyroid treatment for this disease.

*Recognitions and Awards*

The Nobel Prize in chemistry was divided between Dr. Friedrich C. R. Bergius, of Heidelberg, and Dr. Carl Bosch, head of the German I. G. Farbenindustrie, for their development of the hydrogenation process of "liquefying" coal to obtain motor fuels, lubricating oils, methanol and other chemical substances.

The Nobel Prize in medicine for 1931 was awarded to Professor Otto Warburg, of the Kaiser Wilhelm Institute for Biology, Berlin, for his important contributions in the fields of cancer, biological physics and the respiratory function of the tissues.

Dr. William Wallace Campbell, director emeritus of the Lick Observatory and president emeritus of the University of California, was elected president of the National Academy of Sciences.

Dr. Franz Boas, of Columbia University, anthropologist, was elected president of the American Association for the Advancement of Science.

The Perkin Medal was awarded by the American section of the Society of Chemical Industry to Dr. Charles F. Burgess, of the Burgess Laboratories, Madison, Wis.

The Rumford Medal was awarded by the American Academy of Arts and Sciences to Professor Karl T. Compton, president of the Massachusetts Institute of Technology.

For his researches on plant cultivation, including the taming of the wild blueberry, Dr. Frederick V. Coville, of the U. S. Department of Agriculture, was awarded the George Robert White Gold Medal of honor by the Massachusetts Horticultural Society.

The 1931 Catherine Wolfe Bruce Gold Medal of the Astronomical Society of the Pacific, for "distinguished services to astronomy," was awarded to Dr. Willem de Sitter, Dutch astronomer. The Royal Astronomical Society's Gold Medal was given to Dr. de Sitter.

For their contributions to science in finding methods of accurately counting the years back many uncalendared centuries, Dr. A. E. Douglass, of the University of Arizona, and Dr. Ernst Antevs, of the University of Stockholm, were given the Research Corporation plaque and prize of $2,500.

Dr. Phillip Drinker and L. A. Shaw, inventors of the Drinker Respirator, which has proved invaluable in the treatment of infantile paralysis, asphyxiation and diseases of the lungs, were awarded the John Scott Medal by the City of Philadelphia.

The Gold Medal of the American Medical Association was awarded this year to Dr. Jacob Furth, of the Henry Phipps Institute of the University of Pennsylvania, for his original investigative work on experimental leukemia, a fatal disease characterized by an increase of white blood corpuscles in the blood.

The Capper Award, founded by Senator Arthur Capper, of Kansas, consisting of a gold medal and five thousand dollars cash, was given to Dr. L. O. Howard, former chief of the Bureau of Entomology, for his distinguished service in leading the army of science against the armies of insects that threaten man's crops, his forests, his house and his health.

Franklin Medals were presented to Sir James Jeans, British astronomer, and Dr. W. R. Whitney, director of the research laboratories of the General Electric Company.

The Willard Gibbs Medal was given to Dr. P. A. Levene, of the Rockefeller Institute for Medical Research, for his application of organic chemistry to biologic problems, especially in nucleic acids, amino sugars and lecithins.

The Frederick Ives Medal of the Optical Society of America was awarded this year to Professor Theodore Lyman, of Harvard University, for his pioneer work in the ultra-violet spectrum of glowing hydrogen gas.

Dr. Henry Fairfield Osborn, president of the American Museum of Natural History, New York, was given the Daniel Giraud Elliot Medal for 1929 awarded this year by the National Academy of Sciences in recognition of his monograph: "The Titanotheres of Ancient Wyoming, Dakota and Nebraska."

Linus Pauling, of the California Institute of Technology, who has made important applications of the quantum theory to chemistry, was the first recipient of a new award given by the American Chemical Society for research in pure chemistry conducted by persons under 31 years of age.

The 1931 Edison Medal of the American Institute of Electrical Engineers was awarded to Dr. Edwin Wilbur Rice, Jr., of the General Electric Company, pioneer in electrical engineering.

The first annual award given as a memorial to Dr. Thomas W. Salmon went to Dr. Adolph Meyer, psychiatrist of the Johns Hopkins Hospital, who delivered the Salmon Memorial lectures for the year and received an honorarium of $2,500.

Dr. Harlow Shapley, astronomer and director of the Harvard Observatory, and Dr. William Crocker, botanist and director of the Boyce Thompson Institute for Plant Research at Yonkers, were the recipients of the 1931 medals for outstanding scientific achievement given by the Society of Arts and Sciences.

C. W. Tombaugh, young assistant at the Lowell Observatory who first observed the trans-Neptunian planet, Pluto, was honored by the award of the Royal Astronomical Society's Hannah Jackson gift and medal.

For their paper on high voltage tubes, Dr. M. A. Tuve, Dr. L. R. Hafstad and Odd Dahl, of the Department of Terrestrial Magnetism of the Carnegie Institution of Washington, were awarded the $1,000 prize at the Cleveland meeting of the American Association for the Advancement of Science.

The National Academy of Sciences awarded the Mary Clark Thompson Medal to Dr. Edward Oscar Ulrich, of the U. S. Geological Survey, for his outstanding contributions to geology and paleontology.

The first annual prize of $10,000 to be given by the *Popular Science Monthly* was divided between Dr. George H. Whipple, of the University of Rochester School of Medicine and Dentistry, and Dr. George R. Minot, of the Harvard University Medical School, for their development of the liver treatment of anemia.

The American Chemical Society's Nichols Medal was presented to John Arthur Wilson, industrial chemist of Milwaukee, Wisconsin, for his outstanding achievements in colloid chemistry.