NIAMD Scientist Develops Hormone From Soybeans

Compound F, also known as hydrocortisone and thought to be the true hormone of the adrenal cortex, has been produced by a newly described enzyme found in the adrenal gland.

Synthesis of the wonder hormone by Dr. Max L. Sweat of the Laboratory of Biochemistry and Nutrition, NIAMD, was reported in the current issue of the Journal of the American Chemical Society.

By means of a high speed centrifuge, Dr. Sweat separated the tissues of the adrenal gland cortex of cattle into several components and tested them for their ability to convert a substance (Compound S) made from a component of soybeans into the hormone itself.

Compound F, the substance he was able to synthesize, is slightly different from cortisone but may be equally potent. Experiments are now being conducted at NIAMD to learn what the compound will accomplish.

The new enzyme isolated in these studies is perhaps the first enzyme described in the biological synthesis of a hormone. It may provide important clues to understanding the mechanism whereby the body manufactures hormones vital to life.

During the last several years, cortisone has been used against a host of chronic diseases, particularly the arthritic disorders. The supply, derived from cattle bile, has been limited.

Two other processes for producing cortisone from chemicals were reported in the same issue of the Journal of American Chemical Society. One was developed by Harvard University scientists, the other by Merck and Company Laboratories. The methods resulted in cortisone from coal tar.

To change the coal tar chemical into cortisone requires a total of 48 steps.

DR. WRIGHT, NMI, IN TAHI FOR FILARIASIS STUDY

A conference of experts on filariasis and elephantiasis was scheduled to get under way this week in Tahiti, with NIH represented by Dr. Willard H. Wright, Chief of NMI's Laboratory of Tropical Diseases.

Sponsored by the South Pacific Commission, with headquarters in New Caledonia, the August 20-31 conference will evaluate laboratory and clinical progress against the two widespread diseases, particularly the developments of the Tahiti filariasis program. Some 20 authorities on tropical medicine are expected to be present. These include, in addition to several American experts, a representative of the World Health Organization and delegates from Australia, New Zealand, Indo-China, and various territorial possessions in the Pacific.

Dr. Wright will officially represent the United States and will present a paper on the chemotherapy of filariasis at the conference. Other authorities will discuss clinical and pathological aspects, control and prophylaxis, parasitology, entomology, and epidemiology.

The filariasis program in Tahiti, a French possession, was organized in 1946 as a cooperative project financed in part by private funds in the United States under the direction of the University of Southern California. Technical assistance has been provided by NIH.

About 60 percent of the Tahitian population is afflicted with filariasis and 10 percent with elephantiasis. A parasitic disease, filariasis occurs in practically all warm countries. During World
In 1910, Dr. Peyton Rous of the Rockefeller Institute for Medical Research made one of the most widely discussed biological discoveries of the century. In a Plymouth Rock hen that appeared to have a tumor of the breast, he discovered a typical sarcoma which was transplantable to other chickens by means of cell-free filtrates. Today, Dr. Rous is still wrestling with the implications of the finding he made in his youth. So is Dr. W. Ray Bryan, head of the Virus Oncology Unit in NCI's Biology Section, who is working on further developments of this problem.

Tumor viruses are related to two broader problems -- virus diseases and neoplasia. But technical difficulties, Dr. Bryan points out, have limited their use in these basic research problems. Under natural conditions tumor viruses are slow in acting, remain latent for long periods, and their activity depends upon a variety of factors -- genetic, hormonal, and others. Hence, experimental work with them is usually time-consuming, tedious, and hard to control.

When Rous discovered the chicken sarcoma virus, it was slow-acting. Now, however, the Rous agent, after being transmitted under laboratory conditions for about 40 years, has become so highly virulent that it "takes" in all breeds of chickens, and under certain conditions will even act in other species.

More important, Dr. Bryan explains, is the fact that the virus in strong doses changes normal cells to cancer cells quickly -- within five or six days. This represents only about one-tenth of the time required with the most rapidly acting chemical carcinogens, such as methylcholanthrene. The rapidity of action not only reduces the time needed to complete an experiment, but also, by increasing the turnover of test animals, allows ten times as many experiments with the same animal-room facilities.

In addition, the rapidity of action -- five days for a palpable tumor to develop -- suggests strongly that the Rous sarcoma virus may enter directly into the intracellular physiological mechanisms involved in the malignant transformation.

The Virus Oncology Unit has developed methods for assaying the strength of the virus and for stabilizing its activity in a fairly high state of purification. This permits essential quantitative studies on its biologic nature and mode of action. In addition, studies on further purification are now possible, looking eventually to chemical identification. Dr. Bryan believes that such final chemical purification, if achieved, will furnish cancer research material as valuable to science as other purified biological substances, such as vitamins, hormones, and enzymes.

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NIH Spotlight

When Mrs. Helen Grimes (then Miss Helen Armon) was about to be graduated from Englewood High School, Chicago, in 1943, she had almost concluded a four-year science course, but had no intention of doing anything about it. "I wasn't especially interested in science," she says. "I thought I'd probably wind up doing secretarial work."

It was approximately a week before graduation that Helen was offered a job doing blood counts at Chicago's St. Luke's Hospital and began a career which has led to work at NIAMD's Section on Comparative Pathology and Hematology, where she works as laboratory technician for Dr. George Brecher.

Mrs. Grimes left St. Luke's in 1943 to work at the Argonne National Laboratories (doing blood counts on personnel exposed to radiation). Argonne transferred her here on loan to Dr. Egon Lorenz of NCI to work on a cooperative program on radiation injury. It was in Dr. Lorenz's laboratory that she met the sister of her husband-to-be, Edward Grimes, who works in NIH Supply. She left Dr. Lorenz's laboratory in May 1946, to have a baby, and came back in 1948 to work at NIAMD.

Her contributions to the Section on Comparative Pathology and Hematology are considerable. Mrs. Grimes still does blood counts -- chiefly on animals -- but a good deal more as well. This includes delicate and accurate work in phase microscopy, involving the examination of living, motile cells and the enumeration of blood platelets; the maintenance of an extensive cross-file on the results of tissue examinations of all experimental animals exposed to radiation; and on occasion, small animal surgery.

Mrs. Grimes's chief preoccupation at present is in the work they are doing on parabiosis, where Dr. Brecher has found that rats can frequently survive large doses of radiation if the circulatory system of the irradiated animal is joined to that of an animal who has not been radiated.

NIH GROUP GIVES $50 TO LOCAL RESCUE GROUP

The NIH Recreation and Welfare Association has contributed $50 to further the voluntary work of the Bethesda-Chevy Chase Rescue Squad.

In a letter forwarding the contribution to Mr. Donald Dunnington, Chief of the Rescue Squad, Dr. W. H. Sebrell, Jr., Director of NIH, expressed the appreciation of the organization for the many occasions on which the group has come to the aid of NIH employees in times of emergency.

"This check from our Recreation and Welfare Association," Dr. Sebrell stated, "comes as a voluntary contribution from its members and is their way of sending best wishes for the Rescue Squad's continued success..."

The squad is now conducting its annual door-to-door drive for funds. Its work is financed entirely by voluntary contributions. No financial aid is supplied by Montgomery County or the State of Maryland.

Organized in 1945 by a group of returning veterans to meet the need for organized ambulance and rescue service in the Bethesda area, the Rescue Squad now has over $85,000 worth of equipment and is regarded as one of the best equipped units of its kind.

Service includes all types of emergencies -- road accidents, sickness, falls, and burns, as well as routine transport service for patients to and from hospitals in this area. During 1949, the Rescue Squad responded to 1,864 calls for service. Road accidents, transportation requests, falls, and heart attacks headed the list.

NIH Record

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NIAMD TECHNICIAN, 42 YEARS IN PHS, RETIRES

A Public Health Service career that began in 1909, a few months after William Howard Taft was inaugurated as President of the United States, came to a close this month with the retirement of Mr. Vivian R. Loving, research technician in NIAMD’s Section on Endocrinology. The veteran employee, now 63, had spent his entire working life in the Public Health Service. In point of service, he was currently NIH’s oldest employee.

The organization he joined 42 years ago as a Virginia farm boy bears little resemblance to today’s Public Health Service. In that year, for example, PHS expenditures totaled only $1,163,000. The Hygienic Laboratory, predecessor of NIH, had a staff of 52, headed by Dr. M. J. Rosenau, who resigned that year to join the faculty of the Harvard Medical School.

The staff consisted of a director, assistant director, a professor of zoology, a professor of pharmacology, nine commissioned medical officers, two pharmacists, eight technical assistants, an artist, an acting librarian, and 27 attendants.

In his annual report that year, the director pointed out the difficulty of retaining the services of certain laboratory attendants because of low salaries. Some of them were engaged in particularly hazardous work, for which they were paid from $40 to $50 a month.

Mr. Loving was one of these employees. His first laboratory work was done under Dr. A. M. Stimson in the Division of Pathology and Bacteriology, where he helped prepare antirabic virus, among other things. At that time the Hygienic Laboratory also supplied treatment for persons exposed to possible infection with rabies.

In the course of his long career, Mr. Loving worked with a number of notable scientists whose work made PHS history -- Dr. Joseph Goldberger on pellagra, Dr. R. R. Spencer on spotted fever, and Dr. William H. Sebrell, Jr., who continued Goldberger’s pioneering work in nutrition. He recalls all of them with a good deal of pride, particularly Dr. Goldberger, who personally selected him to serve in his laboratory.

Vivian R. Loving

"He was a fine man to work with," Mr. Loving said. "Wouldn't ask you to do something unless he had first done it himself. He always worked along with his staff. The same was true of Dr. Sebrell."

Among the former top officials of PHS whom Mr. Loving recalls as young commissioned officers starting their careers, two stand out in his mind: Dr. Parran and Dr. Thompson, both of whom worked in the laboratories, like other beginning officers, learning the ropes. He remembers them because of their sharp and persistent questions about the work going on around them. They took nothing for granted.

For the past several years Mr. Loving has been serving under Dr. Evelyn Anderson, Chief of NIAMD’s Section on Endocrinology. His work here in animal surgery he has enjoyed more than almost any laboratory assignment he has filled in PHS, he said.

Mr. Loving was born on a farm in Louisa County, Va., in 1888, and came to Washington to work for PHS a week before his 21st birthday. It was his first job.

Mr. and Mrs. Loving live at 1233 North Bluemont Drive, Arlington. They have a son who also lives in Arlington, and three grandchildren.

A large group of Mr. Loving’s friends and associates met last Tuesday in Wilson Hall to extend their best wishes and to present him with a gift. On behalf of the organization, Dr. Sebrell presented Mr. Loving with a scroll and a 40-year service lapel pin.

VEHICLE REPAIR SHOP
NOW IN HIGH GEAR

The fleet of cars, trucks, and tractors owned and operated by NIH keeps things humming in the Vehicle Repair Shop. Three mechanics, under the direction of William N. Franklin, service these vehicles, as well as a few visiting cars from PHS field stations.

The new shop, in Building 12, is well equipped: only body and fender work, painting, major engine overhauls, and glasswork are sent out. NIH cars are cared for on a monthly check-up basis, including lubrication, brake adjustment, and safety inspection. The safety inspections are similar to those performed by many States.

Since July 1, a $1,200 stock of parts has been added to the shop. Prior to this, all parts were bought from dealers in the area or delivered through stock orders. This new procedure greatly speeds the repair of minor disorders. In the near future, one of the NIH trucks will be equipped with a boom, so that the shop can also supply its own towing service.

Services of the Vehicle Repair Shop are not limited to maintenance and repair. The shop also removes cars parked in restricted areas on the grounds, if these cars are not registered with the guard force. In winter, it takes care of the snow removal equipment.

At present, the shop shares its quarters in Building 12 with two other units of the Buildings Management Branch.

CANCER HOSPITAL

The Nation’s first free cancer hospital was opened last month at Duarte, Calif., with Dr. Gilcin F. Meadors, Chief of NCI’s Technical Services, representing the Public Health Service at the ceremonies marking completion of the $2,500,000 structure.

Support for the hospital, which will treat both cancer and tuberculosis patients, was made possible by public contributions. The hospital started with a two-tent desert outpost for tuberculosis in 1913.

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