



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE August 13, 1956 - Vol. VIII, No. 15

PUBLIC HEALTH SERVICE NATIONAL INSTITUTES OF HEALTH

## AWARDS FOR SUPERIOR PERFORMANCE



Dr. James Watt, Director, NHI, center, presents award check to Lealon E. Martin as Dr. J. Franklin Yeager looks on. Dr. Yeager also received an award for superior performance.

## TWO MORE EMPLOYEES RECEIVE AWARDS

In ceremonies held August 1, two more NIH employees received superior performance awards in the amount of \$850.

Dr. J. Franklin Yeager, Chief, Grants and Training Branch, received \$500 for his part in the development of a nationwide program of research in cardiovascular diseases through grants and awards. Dr. Yeager helped formulate administrative policies and operational procedures which are now being used for continuous development of the grant and award programs.

An award in the amount of \$350 went to Lealon E. Martin, Chief, Heart Information, for his contributions to public relations and for creating the Information Center of the National Heart Institute. It was through his efforts that NHI has better been able to meet scientific requests from the lay and professional public.

## \$30 MILLION GRANTED FOR PHS RESEARCH

The Health Research Facilities Act of 1956, authorizing an appropriation to PHS in the amount of \$30 million for each of three years, was signed on July 30 by the President. Thirty million has been appropriated under the bill for fiscal 1957.

These funds are to be used in the sciences related to health. These include medicine, osteopathy, dentistry, public health, and related fundamental and applied sciences.

The assistance will be in the form of grants which will aid public and nonprofit institutions on a basis of not more than 50 percent for the Federal share.

Under the new law, a National Advisory Council on Health Research Facilities will be set up to establish policies and to provide for administration of the program. In addition, a Health Research Facilities Branch, to be headed by Francis L. Schmehl, has been established in DRG.

## NEW BUILDINGS AND ADDITIONS NOW UNDER WAY

A long-range construction program is now under way at NIH. As currently planned, this includes four new buildings, additions to three, and the remodeling of several others.

The largest project is for a new office building, which will have 200,000 square feet of floor space. The estimated cost is \$5,300,000. Congress has approved \$300,000 for the plans and specifications, but the location has not been decided.

Another new building, T-4, will be used for NIMH's research work with children. It will be located about 400 feet east of Old Georgetown Road, south of the Convent property. Estimated cost is \$105,500.

The National Institute of Dental Research will be housed in a new building south of Building 10 on the Glenbrook golf course. An appropriation of \$200,000 for the plans and specifications has been granted and the structure has been authorized for a total of \$4 million.

The Division of Biologies Standards will be located in a new building on Service Road West, behind Building 10. \$3,190,000 has been appropriated for construction.

Two new wings will be built adjacent to the animal house, Building 14. The appropriation for these wings, F and G, is \$1,371,000. Initially, these additions will be used for office space; then converted back to animal space when the new office building is completed. Plans and specifications are under way.

Two additional wings to house NCI laboratories and new kennels will be added to the animal surgery facilities, Building 28. Bids will be accepted early in December, with an estimated cost of \$416,000. Plans

(See Buildings, Page 4)

# Ultrasonics in Dentistry

## No. 167 in a Series

Ultrasonics in dentistry--friend or foe? Posing this question to a group of U. S. dental practitioners today results in a pronounced division of opinion.

A number of ultrasonic dental drills have been sold on the open market, and have been used on a substantial number of patients. According to one manufacturer, no ill effects from the use of this equipment have been reported.

Ultrasonics in dentistry is so new, however, that the question of the effect of these forces on human tissues has generated much discussion in scientific circles.

An answer to the opening question has not yet been established to the satisfaction of the NIDR Clinical Investigations Branch. The ultrasound wave is a physical force with certain intricate properties and problems, and until much more extensive investigation into the effects of using ultrasonic devices is completed, NIDR will continue to classify them as experimental.

For the past year, research in the biological effects of ultrasound on human tissues other than teeth has been under way in the NIDR Clinical Investigations Branch, headed by Dr. James J. Kennedy. Particularly to be determined by this staff is the kind of radiation set up by ultrasonic equipment. As yet, there is no answer.

Another factor under investigation is the question of the dissipation of the energy created by these devices. The ultrasonic vibrating dental drill floats abrasive (aluminum oxide) in liquid. Sound waves transmitted through this fluid throw the abrasive against the tooth surface at a tremendously high rate of speed. Many thousands of gravitational units of force are developed at the drill's working tip. As Dr. Kennedy explains, the extent of this energy's transmission in the tissues is also unknown. It may be dissipated in the tissues, in heat, or possibly in



Dr. James J. Kennedy, left, NIDR Clinical Investigations Branch Chief, and Captain Arne G. Nielsen, DC, USN.

mechanical vibration. This is an important question to be resolved, before the end result can be approved.

NIDR clinical studies over the past twelve months have followed two procedures: In one group, the cavity is prepared, and the tooth extracted for microscopic examination. In the second group, the prepared tooth remains in the mouth in order to study the biological effects of radiation on the supporting soft tissues, and other tissues of the body.

Collaborating with NIDR in this study is the Naval Dental School, National Naval Medical Center. The Navy is credited with the development of one of the first successful ultrasonic dental drills, designed to operate at 25 kilocycles. Today's models function at upwards of 29 kilocycles, which is 14 kilocycles beyond the range of audible sound.

Using ultrasonic vibration to cut hard tooth tissues is a comparatively recent application. Experimentation in cavity preparation in extracted teeth was initiated in 1952.

Further application in dental research has been the use of lower range sonic vibrations (9,000 cycles per second) to disperse microorganisms in salivary samples.

In medicine, ultrasonic techniques are currently in use in three principal areas of research: for

destructive action in the central nervous system, and for tumors; in physical medicine, especially for treatment of arthritis; and in diagnostic visualization of body structures, particularly soft tissue structures such as tumors. In this latter usage, pulse-echo techniques have been particularly successful in establishing a pattern, or somagram, which gives a three-dimensional picture of the desired area.

Ultimately, ultrasound may prove to be a valuable tool in dental practice. NIDR, however, stresses the need for continuing extensive investigation of the effects of ultrasonic principles. Until such research is completed, NIDR believes that general acceptance of this method of cavity preparation is premature.

## SCIENTISTS' ASSISTANCE NEEDED

The Washington Academy of Sciences has requested the services of scientists to serve as school science contact for Montgomery County schools. This is part of a program to encourage interest in junior high and high school science. For further information, contact Dr. Falconer Smith, Ext. 561.

### NIH RECORD

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## Publication Preview

The following manuscripts were received by SRB Editorial Section between July 20 and July 30.

- Barrett, M. K., et al. The influence of differences between reciprocal hybrids upon tumor transplantation and growth.
- Burtner, H. J., et al. Observations on the reduction and quantitation of neotetrazolium.
- Cantoni, G. L. Enzymatic mechanisms transmethylation.
- Fry, D. L., et al. An electrical device for the instantaneous and continuous computation of the aortic blood velocity.
- Habel, K., et al. Isolation of enteric viruses from cases of aseptic meningitis.
- Heath, E. C., et al. Acetyl phosphate formation from pentose phosphate.
- Hueper, W. C. Medicolegal aspects of cancer.
- Hurwitz, J., et al. On the mechanism of CO<sub>2</sub> fixation leading to phosphoglyceric acid.
- Itano, H. A. Specificity in the interaction of sickle cell hemoglobin molecules.
- Jacobs, L. Ocular toxoplasmosis: laboratory contributions to diagnosis and chemotherapy.
- Kety, S. S. The general metabolism of the brain *in vivo*.
- Kies, M. W., et al. The occurrence of lipemia in experimental allergic encephalomyelitis.
- Knee, R. I. Psychiatric social work.
- Kominz, D. R., et al. Mammalian tropomyosins.
- Latham, H. G., Jr., et al. The isolation of solasodine from *Solanum panduraefolium*.
- Li, C. P., et al. Studies on variation in virulence of poliomyelitis virus.
- Li, M. C., et al. Effect of intensive methotrexate therapy upon choriocarcinoma and related tumors.
- Mark, L. C., et al. The passage of thiopental into brain.
- Marshall, R., et al. Cobalt ion activation of renal acylase I.
- Norris, A. H., et al. Pulmonary function studies: age difference in lung volumes and bellows function.
- Phillips, J. E. An architectonic model having three dimensions for use in planning large structures.
- Shock, N. W. Progress in the field of gerontology.
- Silver, R. T., et al. Role of the mature neutrophil in bacterial infections in acute leukemia.
- Smith, R. L. Recorded and expected mortality among the Japanese of the United States and Hawaii, with special reference to cancer.
- Tasaki, I. Hearing.
- Walter, W. A., et al. Leukemia mortality geographic distribution in the United States for 1949-1951.
- Wildman, W. C. The basic ring system of crinine, powelline, and buphanidrine.
- Williams, G. Z. The use of radioactive isotopes in diagnosis.
- Wake, P. A., et al. Survival of mouse poliomyelitis virus in living invertebrates.
- Workman, W. B., Standardization and control of poliomyelitis vaccine.

## NIH Spotlight



Alfred G. T. Casper

A long and varied career with the ultimate goal of attaining a rounded-out education is just part of the story of Alfred G. T. Casper, biologist in NHI.

Al is a tall, well-groomed man with a sincere interest in science, but the title of Biologist was not easily come by. He spent six years in and out of college before he received his degree, for he often was forced to skip a semester so that he could work and get enough money to continue his schooling. His jobs were varied and included working on a milk route, a railroad, waiting tables, operating an elevator, and, at one time, even washing dishes.

When he finally received his degree in biology from the University of Lincoln, Pennsylvania, he returned to his native town, Pleasantville, New Jersey, and acted as a substitute teacher. After a short time, Al went into Government as an orderly in the Marine Hospital in Baltimore.

During World War II, he transferred to Fort Holabird where he was assigned to a Special Training Unit and taught illiterate inductees to read and write in a 16-week course.

A year and a half later he returned to the Marine Hospital as a laboratory technician, and in 1949 was assigned to a new unit which was part of NHI. At this time Al met Dr. Luther Terry and became interested in the NHI program. In 1953 he transferred to NIH as a laboratory technician in the Heart Institute.

After working hours, Al travels to his home in Baltimore and, two evenings a week, teaches in the

## DR. MOSETTIG BACK FROM EUROPE

Dr. Erich Mosettig, Chief, Section on Steroids, NIAMD, LC, recently returned from Europe, where he visited academic institutions and industrial laboratories.

While there, he surveyed activities in the fields of carcinogenesis, cancer chemotherapy, and steroids. He also investigated possibilities of cooperative projects and the collecting of compounds for the Cancer Chemotherapy Screening Program. Dr. Mosettig presented several lectures, and visited scientists and research institutions in Austria, Italy, Denmark, Sweden, Norway, Germany, Switzerland, France, England and Scotland.

## Three Employee Deaths Reported

Private William O. Hendershot, Guard, died in the hospital at the National Naval Medical Center on July 25 after a prolonged illness. Mr. Hendershot, who joined NIH in 1955, is survived by his wife, who lives at 909 Longfellow Street NW.

Mrs. Ruth Bertram, NCI, died on August 1 at Suburban Hospital in Bethesda after a prolonged illness. She had been with NIH since 1948 and had been in Government since 1930. She lived at 5317 Wakefield Road, Greenacres, Maryland.

Mrs. Edvena W. Brito, kitchen helper in the Clinical Center, who had undergone major surgery on July 1, died on July 27. She lived at 1249 Kearney Street NE.

Adult Education Center in Baltimore. Most of the time he teaches chemistry, but is occasionally called upon to teach physics.

Al's wife is an accomplished musician who was educated at Temple University and, when Al finds time for relaxation, he enjoys listening to her renditions of Bach, Brahms, Beethoven, and occasionally some popular tunes.

Another hobby of this soft-spoken man is the reading of ancient history. In fact, he says, he almost majored in history at one time, but his interest in science won out.

He has many plans for the future, too, one of which is to continue his schooling and work toward his M.A. in biology. He doesn't think he'll ever really retire because there are so many things that interest him.

## NEW APPOINTMENTS MADE IN NIDR

Dr. Seymour J. Kreshover was recently appointed Associate Director and Dr. F. Earle Lyman has been named Chief of the NIDR Extramural Programs.

Dr. Kreshover was graduated from New York University and received his degree in dentistry from the University of Pennsylvania. In addition to his doctor's degree in dentistry, he holds doctorates in two other fields. He obtained his Ph.D. from Yale University in 1942, and his M.D. from New York University in 1949. From 1942-1946, he served with the U. S. Army Dental Corps, and was Chief of Dental Service of the 39th General Hospital.

He comes to his new position from the Medical College of Virginia, Richmond, where he has been Professor of Oral Pathology and Diagnosis, as well as Director of Dental Research and Director of Graduate and Postgraduate Studies.

Dr. Lyman was formerly Executive Secretary of the Morphology and Genetics Study Section and the Para-



Dr. Seymour J. Kreshover

sitology and Tropical Medicine Study Section in DRG. He is a graduate of the University of Michigan and was formerly associated with the Communicable Disease Center, Atlanta, Georgia, as Assistant Chief of the Entomology Branch. He also served as Associate Professor in the Department of Zoology at Southern Illinois University.



Dr. F. Earle Lyman

## Dr. Spicer Returns to NIH

Dr. Samuel S. Spicer, NIAMD, LPH, has resumed his work at NIH after two years' experience in pathologic diagnosis at George Washington University Medical School and

the Armed Forces Institute of Pathology. He is currently working on a project on the localization of phenol oxidases and resolution of the question of their enzymatic nature.

## Garden Beauty



Pretty Mary Sandford, of the Photographic Section, is checking to "see how the garden grows." She is pictured in the NIH gardens which are sponsored by the R & W Garden Club.

## SHANNON AND KIDD VISIT EUROPE

Dr. James A. Shannon, NIH Director, and Charles D. Kidd, Chief, Office of Research Planning, are in Europe for several weeks to attend scientific meetings. They will visit medical research institutions, including several in the USSR.

## NIH Employees Donate Blood

When the Red Cross Bloodmobile visited NIH on August 1, 92 employees turned out to offer blood. Out of that number, 80 were accepted as donors and contributed one pint of blood each.

## BUILDINGS Cont'd.

are being prepared by the Public Building Service.

Surgery facilities for the Clinical Center will be expanded at a cost of \$1,630,000, which has been appropriated. The new operating room site will be constructed on the south side of Building 10 in a position comparable to the cafeteria, but on the opposite side of the auditorium.

Germ-free animal laboratories will be located in Building 8, with an estimated remodeling cost of \$80,000. Bids will be accepted early in October.

Parking facilities, too, are to be expanded at an estimated cost of \$117,000. The new lot will be located in the area north of Building 12.