Dr. Elkind Honored By AEC for Work In Radiobiology

Dr. Mortimer M. Elkind, of the Laboratory of Physiology, National Cancer Institute, has been awarded an Atomic Energy Commission Ernest Orlando Lawrence Memorial Award for 1967.

One of five scientists to receive this award, Dr. Elkind was selected “for his outstanding contributions to radiobiology, the understanding of cellular recovery from radiation injury.”

Each winner received a $5,000 honorarium. (See DR. ELKIND, Page 6)

Intramural Research Activities Reorganized Within the NIAID

Reorganization of intramural research activities within the National Institute of Allergy and Infectious Diseases—including creation of a new laboratory, renaming of a second, and abolition of a third—has been announced by Dr. Dorland J. Davis, Institute Director.

Blood Bank at CC Sets Record for Utilization

For every 100 pints of blood received by the Clinical Center Blood Bank, more than 140 transfusions can be made. This is a new record in CC utilization of blood. It was made possible by separating blood into its components and using the components at specific ailments, according to Dr. Paul J. Schmidt, Blood Bank chief.

Record Praised

The Blood Bank’s new record was praised by Dr. James M. Stengle, Chief of the National Heart Institute’s National Blood Resources Program. One of Dr. Stengle’s aims is to help blood banks and physicians throughout the country stretch the national supply of blood.

“If we can promote the use of components and make it more feasible for blood banks to exchange surplus components, much blood that is now lost through outdated components can be saved,” Dr. Stengle said.

The CC Blood Bank is one of the leaders in more efficient use of blood and its components. From a pint of blood, the staff may extract surplus components, much blood can be saved, Dr. Stengle said.

Heart Assist Device Produced at the NIH Shows Promise in First Implants in Calves

A cooperative effort between medical investigators from the National Heart Institute and engineers from produced a new implantable left ventricle heart assist device to sustain a failing circulatory system for extended periods of time.

The principal medical investigator is Dr. William S. Pierce, who was assisted by Dr. Stanton P. Nolan, both from the Surgery Branch, NIH, headed by Dr. Andrew G. Morrow.

Dr. Pierce provided the impetus to reactivate the adoption of the roller pump principle, used for years in heart-lung bypass machines, for utilization in an implantable heart assist. Several earlier attempts in this direction by other investigators have not met with success.

Dr. Lester Goodman, Chief of the Biomedical Engineering and (See HEART DEVICES, Page 8)

1967 Bond Drive Opens Here Friday; LaVeck Chairman

This Friday (May 5) marks the official opening of the 1967 U. S. Savings Bond Campaign. “Share in Freedom” is the keynote of this year’s drive which introduces a new savings bond—the Freedom Share.

Freedom Shares are special bonds available only with the purchase of regular Series E bonds on the payroll savings or bond-a-month plan. They are being offered with new subscriptions only. These notes mature in 4½ years, paying 4.74% interest yearly when held to maturity. They are redeemable one year from purchase date. (Series E bonds take seven years to mature at a 4.15% interest rate, and may be cashed two months from purchase date.) Freedom Shares come in $25, $50, (See BOND DRIVE, Page 7)

Under Sec. Cohen to Speak At the Mitchell Foundation Awards Luncheon on May 5

Wilbur J. Cohen, Under Secretary for Health, Education, and Welfare, will be principal speaker at an awards luncheon to be given by the James F. Mitchell Foundation for Medical Research and Education.

The luncheon will be held May 5 at the Statler Hilton Hotel to honor recipients of the Foundation’s 1967 International Award for Heart and Vascular Research, Dr. Paul A. Owen of Oslo, Norway, and Dr. Armand J. Quick of Milwaukee, Wis.

Many from NIH, including Dr. Donald S. Fredrickson, Director of the National Heart Institute, have been invited to attend the luncheon and the symposium on “Blood Coagulation, Thrombosis and Female Hormones,” which will follow.

Introductory remarks at the symposium will be made by Dr. Philip Corfman, Assistant to the Director for Population Research, NICHD.
Tony Anastasi, DRS; Robert Avery, NCI; Bowen Hosford, CC; Mary Anne Gates, NIMHD; Marie Norris, NIDCR; Art McIntyre, NIMH; Bari Attis, NINDS; George Bragaw, NIH; Faye Peterson, DBS; Wanda Wardell, NIGMS; Beverly Warran, DRPR; Hugh J. Lee, DRG; Martha Mader, NIAID; Loretta Navarroll, OAM; Dan Rogers, NICHD; Betty Kuster, DCRT; Dale Carter, DRMP; Dorothy Lee, DEHS.

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Potential of Bioengineering in Dentistry Outlined at Recent NIDR Seminar Here

By Hilah B. Thomas

Dr. Sidney Lees of the Forsyth Dental Center in Boston discussed the potential of bioengineering in dentistry at a recent seminar sponsored by the NIDR. Although dentistry has admittedly attracted few engineers thus far, he believes there is a great future in this field.

Observing that only a small segment of the population of the United States receives dental care—for which it spends approximately three billion dollars annually—he reported that the probable cost to meet all needs is estimated to be about that of the space effort—about twenty to twenty-five billions of dollars for the first year.

Engineering Help Needed

In view of the fact that the total number of dentists, some 100,000, cannot begin to accommodate this potential need, he believes that help from engineers is economically practical and badly needed to explore and define the physical basis of oral problems.

In addition to the fields of dental materials and measurement of muscle forces, which are already being studied to some extent, there are several dental areas in which engineering research could be expected to make valuable contributions.

Dr. Lees identified one area as the adaptation of ultrasound as a diagnostic aid to show differences in dentistry and elasticity in hard or soft tissues. Eventually, through ultrasound, a dentist will be able to determine where diseased tissue ends and sound tissue begins, before he begins to drill, and without exposing patients to X-rays.

Another need awaiting the skill of the engineer is the development of a contour plotter to measure drug metabolism studies cur-

Wives of Presidential Aides Visit NIH

Mrs. Richard L. Masland, wife of the Director, NINDB, and Mrs. Willard Wirtz, wife of the Secretary of Labor, were hostesses to 14 wives of Presidential Aides on their visit to NIH, Apr. 6.

The women, many of whom are interested in the Gray Lady volunteer program at the Clinical Center visited the National Institute of Neurological Diseases and Blindness, and toured the Clinical Center with Dr. Robert Farrier, CC Associate Director.

Presidential Aides are a specially selected group of young men and women who come to Washington for one or two year assignments in the Office of the President, Office of the Vice-President, or with a Cabinet Officer.

Mrs. Willard Wirtz, left, and Mrs. Richard Masland at the Clinical Center.—Photo by Ralph Fernandez.

Dr. Hayward Joins OIR; Serves on Secretariat Of U.S.-Japan Program

Dr. John G. Hayward has recently been appointed to the Special International Programs Section of the N.I.H.'s Office of International Research.

In his new position Dr. Hayward will serve on the U. S. Secretariat of the U.S.-Japan Cooperative

Hayward was employed in the Department of State's Agency for International Development from 1960 to 1965. While working for AID, he served as veterinary advisor in Haiti, the Dominican Republic, Cuba, Mali and Tunisia.

From 1945 to 1959 Dr. Hayward was in private practice as a veterinarian in Russellville, Ark. During this period he conducted animal research and developed surgical techniques. He also assumed a role of leadership in city and county public health activities.

Dr. Hayward received the D.V.M. degree from Texas A. and M. University. He also completed basic and advance courses in the U. S. Army Officers Medical School, Fort Sam Houston, Tex., and the Army's Command and General Staff College, Fort Leavenworth, Kans.
familiar faces and places appear in an altogether different light as

SCREENED BY FORSYTHIA and drenched in spring sunshine, Building 1 at the NIH seems to take on a golden splendor.

Photographer Roy Perry Captures the Many Mood

DISCOVERED THIS APRIL . . . a new view of the CC that seems to embody all the hopes and expectations for its clinical studies.

LOOKS LIKE A RINGER. The first warm spring days bring out the lunch hour athletes, with horseshoes one of the best active—and spectator—sports.

SPRING IS NOT ALL PLAY. In fact, for employes of the Grounds Maintenance and Landscaping Section, DRS, it is the busiest time of the entire year.
Doctor, workman, secretary, chief—all seem to have succumbed to the wiles of Lady Spring. Picnicking is "in." Between-building trips are enjoyed as never before. Horse-shoes and baseball take precedence over food during the lunch period. And in every corner of the campus—"if eyes were made for seeing—beauty is its own excuse for being."
DR. ELKIND

(Continued from Page 1)

orarium, a gold medal, and a citation.

The award, made annually by the Commission upon recommendation of its General Advisory Committee and with the approval of the President, was presented April 27 at the Carnegie Institute Auditorium, in Washington.

Authorized by the 1954 Atomic Energy Act, the award was established by the late Dr. Ernest O. Lawrence, inventor of the cyclotron and Director of the Radiation Laboratory at Berkeley and Livermore, Calif. It is presented each spring to "not more than five" young scientists who have made recent meritorious contributions to the field of atomic energy.

Began Study in ’53

Dr. Elkind has been concerned with radiation biology since 1953 when he began a 6-year study of the different responses of yeast cells exposed to various types of radiation. During this period he made extensive observations concerned with the sites within a cell that are damaged by exposure to radiation.

In a series of more recent studies he has demonstrated the capability of mammalian cells to recover in large measure from the effects of radiation. Dr. Elkind’s research has not only contributed greatly to the understanding of cellular responses to radiation, but has established the basis for further improvements in the radiation therapy of cancer.

Dr. Elkind has been with NCI since 1949 when he was assigned to do research and further study as an NIH Fellow at the Massachusetts Institute of Technology.

While there he earned an M.S. degree in Electrical Engineering, and a Ph.D. degree in Physics. He also holds a B.M.E. from Cooper Union and an M.M.E. from Brooklyn Polytechnic Institute. After his 4-year stay at M.I.T., Dr. Elkind was detailed to the Donner Laboratory, University of California, Berkeley, for a year.

His career before joining NCI includes 2 years as a naval officer, a year as a project engineer with the Safe Flight Instrument Company, and 2 years as Head of Biophysical Instrumentation for the Sloan-Kettering Institute for Cancer Research. He served as Head of the Radiation Biology Section of the NCI Laboratory of Physiology, from 1964 to 1965.

Dr. Elkind’s research has been Anacostia-bound. With them went a white Sprague-Dawley rat and her 10-day old family of 13. Also a colorful assortment of hamsters, inbred laboratory mice, and a pair of handsome guinea pigs.

At 1:30 p.m. the truck crossed the South Capitol Street Bridge, turned into the Naval Station, cut across the air strip, and unloaded in front of the air hangar where the Widening Horizons Job Fair was about to open.

Quicker than it can be told, Miss Bolte and Mr. Cureton set up the exhibit, erected homes for their little charges, and were in place ready to answer questions of the first young visitors who just then streamed through the door.

The purpose of the Job Fair was to acquaint students with the nature and variety of jobs and careers predictably available in both government and industry to those who meet the educational requirements.

Aim Given

A major aim of the exhibit was to demonstrate the relevance of job opportunities within the DRS to the science and laboratory courses offered in the D.C. Public Schools.

To this end students were furnished information and literature about animal health services, quarantine and conditioning of dogs, cats and primates, maintenance of farm animals, and the production of rodents and rabbits.

Undoubtedly the high point of the exhibit came when Miss Bolte and Mr. Cureton demonstrated to the students the correct way to handle the little laboratory animals—then permitted the more adventurous in the group to get the feel of it for themselves.

Primate or Rodent?

As a bit of both, the tree shrew (above) is an ideal animal for cancer drug research, and is now at home at the NCI.—Photo by Tom Joy.

This fierce little animal is a tree shrew, a relative newcomer to the National Cancer Institute’s Laboratory of Pharmacology family of experimental animals.

Considered a primate on the basis of chemical and physical characteristics, the tree shrew is still closely related to the rodents.

This dual relationship to the two species in which extensive cancer investigation has been carried out makes the tree shrew an ideal animal for studying the differences in drug response which seem to exist between the two groups.

Using the shrew, investigators hope to determine whether a basic difference exists between rodents and primates, or whether differences exist only between the higher primates, such as man, and rodents.

Natives of Southeast Asia, tree shrews are small and extremely fast, and, in spite of their names, usually live on the ground.
Dr. Robert J. Huebner, Chief of NIAID's Laboratory of Viral Diseases.

REORGANIZATION
(Continued from Page 1)

$75, $100 denominations, selling at 81% of face value. Subscribers may buy Freedom Shares on an approximately one-to-one basis with Series E bonds, limited to $46.50 each two-week pay period. At an interdisciplinary kickoff rally last month, Postmaster General Lawrence F. O'Brien, Chairman of the 1967 Bond Drive, emphasized that U. S. Savings Bonds are a safe, easy and practical investment. Many people do not miss a bi-weekly paycheck deduction—as little as $1.25 for a $25 Series E Bond, or $3.75 for a bond plus Freedom Share—but this provides a secure resource for future needs.

Dr. Gerald D. LaVeck, Director of the National Institute of Child Health and Human Development has been appointed NIH Bond Drive Chairman. He has announced that keymen will contact each NIH employe personally during the next few weeks.

First Issue of R&W 'Pulse' Published May 1

The first issue of the "R&W Pulse," a monthly tabloid providing in-depth coverage of Association activities and general interest photo features, appeared here yesterday.

Marc Stern, Editor of the new publication, works out of the R&W office, Rdg. 31, Rm. 1A-18, and copy and requests for photo coverage should be submitted to him there. Mr. Stern may be reached by phone at Ext. 65680.

As a special service to NIH employes, the "Pulse" will carry classified advertising at a minimum rate.

Free to members, the "Pulse" is on sale to non-members at 10¢ a copy at honor stands in NIH buildings on and off the reservation.

The "Pulse" will be published the first week of each month, with copy deadline, the 20th of the preceding month.

Dr. Bernard B. Brodie Honored by the Univ. of Barcelona for Drug Research

Dr. Bernard B. Brodie, Chief of the National Heart Institute's Laboratory of Chemical Pharmacology, received the degree of Doctor Honoris Causa from the University of Barcelona on March 29.

It was conferred in recognition of scientific achievement in a field that he himself helped to develop from a fledging science into one of the most important and rapidly growing areas of biomedical research.

Dr. Brodie joined the research staff of NIH in 1950 to head its new Laboratory of Chemical Pharmacology. During the past 17 years, he has directed a vigorous, highly productive program of research that has led to improved techniques for screening and evaluating new drugs, to more effective approaches to drug therapy, and to the development of new or improved therapeutic agents.

The influence of this wide-ranging research program has been felt, not only in the field of pharmacology, but also in such diverse fields as clinical medicine, physiology, psychiatry and biochemistry.

The Laboratory of Chemical Pharmacology has also been the training ground for well over 300 scientists, many of them guest workers who came from all over the world to study there.

A considerable number of these are now full professors or the equivalent. Some have gone on to become section or laboratory chiefs at NIH; others have achieved high positions with pharmaceutical firms, and still others are teaching or conducting research at universities in this country or abroad.

Preferred Questioned

The current preference for inbred strains of experimental animals in biomedical research is based on an assumption that the inbred strains respond more narrowly to environmental alterations than do outbred strains. More recent genetic theory, however, challenges this assumption. Thus, resolution of this argument would have widespread genetic implications.

The problem fascinates Mr. Holland and, the local draft-board willing, he hopes to be around to see its resolution.
platelets to give to a child with leukemia, use of blood's clotting factors to help a patient who has hemophilia, and then give the red cells to a third patient with anemia. Or the platelets may go to one patient and the rest of the whole blood to another who is undergoing open-heart surgery.

Dr. Schmidt said the high utilization rate is possible partly because so much of the blood is fresh: it is donated on the spot by NIH employees.

**Fresh Blood Needed**

This means it is rich in components that can be used at once. Platelets and clotting factors can be removed and transfused while still at the peak of effectiveness. If whole blood is brought in from elsewhere, these components may not be usable.

This is the reason that about 90 percent of blood donations by NIH employees are by appointment. The blood type and time are dictated by the needs of specific patients.

For the past three years, the Blood Bank has had more than 100 percent utilization rate—that is, more than one patient helped for each pint collected.

**Statistics Given**

In calendar year 1966 the rate was 117 percent. From 17,312 pints received, 20,342 “units” were transfused. Each unit included all the platelets, all the clotting factors, or all the red cells from a pint. For the first three months of 1967 the rate was 139 percent, and in February it hit 153 percent.

Dr. Schmidt said the figure may rise still higher as more of the CC’s needs are met with blood from NIH employees.

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**HEART DEVICE**

(Continued from Page 1)

Instrumentation Branch, DRS, under whose supervision the technical aspects were performed, singled out Marshall C. Turner, Mechanical Engineering Section, BEIB, as the primary system designer.

Dr. Goodman called attention to the multidisciplinary character of the project by commending Howard Metz and John Fogle for their contributions to mechanical design. Michael Greifner of BEIB’s Electrical and Electronic Engineering Section for his work in electronics, and especially, John Boretos of the Chemical Engineering Section, who innovated a key development in materials required to make the system feasible.

**Device Described**

The new NIH assist device is a totally implantable, valveless, left ventricular bypass incorporating a semi-occlusive roller pump driven by a small DC electric motor. The entire package occupies 200 cc. within the chest and weighs 400 grams. A relatively simple surgical procedure locates the pump between the left atrial inlet and the outlet at the descending aorta. Flow rate, a function of pump speed, can be automatically manipulated by an electronic system which responds to left atrial pressure.

The system, as presently designed, can produce up to seven liters per minute with a power consumption of fifteen watts. This relatively low power demand removes problems of excessive temperature within the body.

Design innovations and new materials have alleviated many of the problems associated with heart prostheses such as power consumption, reliability, hemolysis rate, clots and thrombogenesis. In addition, complexity of ancillary apparatus is minimized; the only things passing through the skin are several electrical wires for measurement and motor power.

The pump tubing and connectors are made from a new pure polyurethane which exhibits excellent endurance and wear resistance. The material is easily fabricated, with uniform dimensions and smooth surfaces in a variety of shapes.

**20 Implants Made**

Twenty implants in calves have been made thus far. Continuous pumping periods up to nine days have been achieved with caged, unrestrained animals.

Usually the calves are able to stand free and exhibit normal body functions within a few hours after surgery. Hemolysis rates are low. Tissue damage due to implantation is not excessive; usually a thin, fibrous layer of viable tissue grows to cover the entire housing. Formation of blood clots has not been observed even after a week’s operation. Animals have remained healthy after surgery for pump removal.

The team acknowledges the prototype nature of the developments to date. A comprehensive program for evaluating the long-term physiological effects of implantation is being planned. Extensive investigations of the physical properties of the materials and their interaction with the body are already begun.

Designs of pumps for human implantation are on the drawing boards. A system that can operate with AC power transmitted across the chest wall, together with implanted sensors that telemeter information remotely, is feasible, thus providing for completely unrestrained operation with no percutaneous leads.