



DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

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PUBLIC HEALTH SERVICE
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DIRECTOR CITES NIH'S ADVANCES MADE IN '58

Advances in basic medical research made at NIH during the past year were cited recently by Director James A. Shannon in a report to DHEW Secretary Arthur S. Flemming.

Dr. Shannon, in pointing out highlights of research for 1958, listed only a few of the many important developments achieved by NIH scientists. Among these were:

- Progress made by NINDB, together with 16 non-Federal institutions, in seeking to learn the adverse influences during the perinatal period which, on one hand result in reproductive failure, and, on the other, cause neurological and psychological faults of infancy and childhood. Cerebral palsy and mental retardation are receiving close attention in this program.

- Discovery by NCI and DBS researchers of the polyoma virus, an agent that causes certain types of cancer in hamsters and mice. Tumors induced in animals by this virus have been successfully prevented by an immunizing agent prepared from the same source. Though not applicable to human cancer, these preliminary findings have indicated to scientists the value of expanded research in this field.

- Cancer chemotherapy progress, as indicated by 70 potential anti-cancer drugs now in the clinical evaluation stage. In addition, new drugs are being screened for anti-cancer activity at the rate of 40,000 per year. Encouraging also to scientists here is the effect of methotrexate on five women suffering from choriocarcinoma, a rapidly fatal form of cancer. Through treatment with the drug, all have remained alive and well for periods up to 29 months, with no recurrence of the cancer.

(See *Advances*, Page 3)

HEART-LUNG MACHINE STARS IN TELECAST



At the left are Drs. W. H. Muller, J. F. Dammann, W. C. Sealy, and F. C. Spencer, a panel of heart disease specialists. They were being televised as they watched on a monitor screen (lower right) the experimental heart surgery shown in the picture on the right. NHI's surgical team includes (from left) Drs. J. W. Gilbert, A. G. Morrow, and R. D. Bloodwell. Both scenes were telecast to an audience at the recent AAAS Convention.

REGISTRATION SLATED FOR GRADUATE SCHOOL

Spring semester registration for NIH-Department of Agriculture Graduate School evening classes will be held February 9-13, from 11:30 a.m. to 4:30 p.m. On Saturday, February 14, registration will be from 9:00 a.m. to 4 p.m. Place of registration will be announced later.

Classes begin here the week of February 16. Interested persons can obtain more information from Carol Long, ext. 2427.

Recent NINDB Work Exhibited In Lobby

An exhibit entitled "The Effects of Hypothermia on Experimental Brain Lesions" will be on display in the CC Lobby until January 28.

Designed by the staff of the Medical Arts Section, DRS, the exhibit demonstrates recent work done by the Surgical Neurology Branch, NINDB. (See *Science Series*, page 4.)

AAAS MEETING SEES NHI SURGERY TEAM

Experimental heart surgery, demonstrating the use of the NIH artificial heart-lung machine, was telecast from NIH to an audience at the AAAS Convention symposium on congenital heart disease in Washington on December 30.

The closed-circuit color TV program showed the NHI surgical team of Drs. Andrew G. Morrow, Joseph W. Gilbert, and Robert Bloodwell using an experimental animal to demonstrate the manner in which the heart-lung machine is employed in open heart surgery to repair defects within that organ. Dr. John Waldhausen controlled the operation of the heart-lung apparatus.

Simultaneous with this activity, which took place in an 8th floor room of the CC, a panel of heart disease experts in the solarium down the hall observed the operation on a TV monitor screen and commented on the procedure. They, too, were being televised, and were connected by

(See *Surgery*, Page 2)

DR. WINDLE TO EDIT NEW SCIENCE JOURNAL

Dr. William F. Windle, Chief of the Laboratory of Neuroanatomical Sciences, NINDB, has been named editor of "Experimental Neurology," a new scientific journal.

Published by Academic Press, Inc., New York, "Experimental Neurology" is a journal of basic research, international in scope. The first issue will appear early in 1959, and bimonthly thereafter. The journal is not affiliated with Government or with any scientific society.

Dr. Seymour S. Kety, NIMH, is one of the associate editors of the journal. Dr. Sanford L. Palay, NINDB, is among the members of the international editorial board.

Disciplines to be covered by the new journal are neurophysiology, neuropharmacology, neurochemistry, and experimental neuroanatomy, embryology, and pathology.

R&W Launches Annual Membership Drive

The R&W Association's annual membership drive is under way this month, and membership cards and discount books for 1959 are available now.

The drive for members this year is directed mainly toward new employees. Present members are encouraged to renew their standing in the association. Though employees may join at any time, the current drive is aimed at obtaining maximum membership by the end of February.

Membership in R&W, still costing only one dollar, entitles employees to numerous recreational and entertainment benefits, including a wide variety of discounts from area merchants.

Discount books and membership cards are being distributed by division representatives, whose names are listed on all bulletin boards. Cards and books are also available at the NIH Post Office and at the R&W Film Service Desk.

Dog Training Classes To Begin February 2

The next series of classes in obedience training for dogs is scheduled to begin February 2. The course is priced at \$10 to NIH employees, \$15 to others.

Interested persons are invited to call Wendy Ness, ext. 744.

HEALTH SERVICE AIDS 28,000 IN 1958

Despite the stressing of preventive efforts, a total of 1,539 occupational injuries was treated here during the past year, Employee Health Service announced this month.

During 1958, EHS received 28,014 visits by NIH employees, of which 1,828 represented preemployment physical examinations. Immunizations and other injections were administered in 9,931 visits.

Other services rendered by EHS during the past year included 764 vaginal cytology examinations, tests of 484 throat cultures, health advice and education given in 17,637 visits by employees, and symptomatic care in 12,022 visits.

Seven cases of occupational diseases were proved out of 34 visits made for that purpose by employees.

Of the total number of employee visits, occupational reasons accounted for 7,004 while nonoccupational reasons were the cause of 15,668 visits.

Blanche B. Swann Dies

Blanche B. Swann, 50, housekeeping aide, DBO, died last month at her home in Washington.

A native of the District of Columbia, Mrs. Swann came to NIH in 1955. She was formerly employed by the U. S. Bureau of Engraving and Printing, and later by Family and Child Services of Washington.

SURGERY Contd.

direct telephone hookup to the convention auditorium, where members of the audience were able to question the panel and receive immediate answers by way of the screen. The audience saw alternating scenes of the panel members and the surgery.

The panel members were Drs. Frank C. Spencer, Johns Hopkins University; Will C. Sealy, Duke University; and William H. Muller and J. Francis Dammann of the University of Virginia.

It was pointed out to the audience that the NIH heart-lung machine has now been used for almost 100 patients undergoing heart repair surgery.

On the receiving end of the telecast, the color picture was enlarged to 12 x 16 feet by means of the Eidophor, a new type of projector invented in Switzerland.

Publication Preview

The following manuscripts were received by the SRB Editorial Section between September 17 and October 1.

DBS

Helprin, J. J., and Hiatt, C. W. Photosensitization of T2 coliphage with toluidine blue.

DRG

Allen, E. M., and Lindsay, D. R. Research manpower, research potential and NIH research grants in the medical and related sciences.

Copeland, D. E. Air bladder in fish.

CC

DeBella, I. D. An accurate method for measuring urinary drainage.

Peden, J. C., and McFarland, J. A. Use of the plasma thrombin time to assess the adequacy of *in vivo* neutralization of heparin: Comparative studies following operations employing extracorporeal circulation.

Williams, G. Z. Functions of hospital laboratories.

NCI

Andrews, J. R.; Swarm, R. L.; Schlachter, L.; Brace, K. C.; Rubin, P.; Bergenstal, D. M.; Gump, H.; Siegel, S.; and Swain, R. W. The effects of one curie of sulfur³⁵ administered intravenously as sulfate to a man with advanced chondrosarcoma.

Archer, V. E.; Lawrence, P. A.; and Egan, J. Preliminary report on the health study of uranium miners.

Greenfield, R. E.; Sterling, W. R.; and Price, V. E. Studies on the anemia of tumor-bearing animals. II. The mechanism of erythrocyte destruction.

Heller, J. R. Cancer's danger signals. Shuster, L., and Goldin, A. Some biochemical effects of 2-Ethylamino-1,3,4-thiadiazole.

Tschudy, D. P.; Bacchus, H.; Weissman, S.; Watkin, D. M.; White, J.; and Eubanks, M. Studies on the effect of dietary protein and caloric levels on the kinetics of nitrogen metabolism studied with N¹⁵ L-aspartic acid.

Wolff, G. L., and Hill, B. F. Effects of the National Cancer Chemotherapy screening program on laboratory mouse production and small rodent genetics.

NHI

Berliner, R. W. Membrane transport. Fredrickson, D. S., and Gordon, R. S., Jr. The metabolism of albumin bound C¹⁴-labeled unesterified fatty acids in normal human subjects.

Hucker, H. B.; Gillette, J. R.; and Bradie, B. B. Cotinine, an oxidation product of nicotine formed by rabbit liver.

Miles, H. T.; Smyrniotis, P. Z.; and Stadtman, E. R. Bacterial degradation products of riboflavin. III¹. Isolation, structure determination, and biological transformations of 1-ribityl-2,3-diketo-1,2,3,4-tetrahydro-6,7-dimethylquinoxaline.

Sjaerdsma, A.; Davidson, J. D.; Udenfriend, S.; and Mitoma, C. Elevated excretion of hydroxyproline in Marfan's syndrome.

Vagelos, P. R.; Earl, J. M.; and Stadtman, E. R. Propionic acid metabolism. II. Enzymatic synthesis of lactyl pantetheine.

NIAID

Gerloff, R. K., and Eklund, C. M. A tissue culture neutralization test for Colorado tick fever antibody and use of the test for serologic surveys.

Hopps, H. E.; Jackson, E. B.; Danauskas, J. X.; and Smadel, J. E. Study on the growth of rickettsiae. III. Influence of extra-cellular environment

on the growth of *Rickettsia tsutsugamushi* in tissue culture cells.

Hopps, H. E.; Jackson, E. B.; Danauskas, J. X.; and Smadel, J. E. Study on the growth of *Rickettsia*. IV. Effects of chloramphenicol and several metabolic inhibitors on the multiplication of *Rickettsia tsutsugamushi* in tissue culture cells.

Kasel, J. A.; Cramblett, H. G.; and Utz, J. P. Agents resembling the enteroviruses isolated in HeLa cell cultures from fecal specimens.

Rowe, W. P.; Hartley, J. W.; Law, L. W.; Brodsky, I.; and Huebner, R. J. Observations on the spread of mouse polyoma virus infection.

Thomas, L. A.; Eklund, C. M.; and Rush, W. A. Susceptibility of garter snakes (*Thamnophis* Spp.) to western equine encephalomyelitis virus.

NIAMD

Blumberg, B. S. Joint lubrication.

Chang, Y. T. Evolution of murine leprosy.

Jakoby, W. B., and Scott, E. M. Aldehyde oxidation. III. Succinic semialdehyde dehydrogenase.

Peterson, R. E. The miscible pool and turnover rate of adrenocortical steroids in man.

Shanes, A. M. The kinetics of depression of potassium outflux by cocaine in toad sciatic nerve.

Wheat, R. W., and Pittman, M. Metabolism of "V" factor (DPN) and other nucleotides in the genus *Haemophilus*.

Windmueller, H. G.; Ackerman, C. J.; Bakerman, H.; and Mickelsen, O. Reaction of ethylene oxide with nicotinamide and nicotinic acid.

Wyckoff, R. W. G., and Labaw, L. W. Observations at high resolution on several indanthrene dyes.

NIDR

Baer, P. N. Periodontal concepts of theory and practice.

Fitzgerald, R. J.; Parramore, M. L.; and MacKintosh, M. E. Antibiotic sensitivity of oral strains of *Veillonella*.

Fullmer, H. M. The peracetic-orcein-Halmi stain: A stain for connective tissues.

Kreshover, S. J. Dental research at the National Institutes of Health.

Kreshover, S. J. Research opportunities in dental practice.

Litkins, R. C.; Scow, R. O.; Zipkin, I.; and Steere, A. C. The deposition and retention of fluoride and radiocalcium in the growing rat.

Russell, A. L., and Ayers, P. Periodontal disease and socioeconomic status in Birmingham, Alabama.

NIMH

de la Haba, G., and Cantoni, G. L. The enzymatic synthesis of S-adenosyl-L-homocysteine from adenosine and homocysteine.

Jacobson, S., and Redl, F. "The Emotionally Disturbed Child" and the classroom teacher.

Katz, M. M. The psychological effects of psychochemical compounds.

NINDB

Ortiz-Galvan, A.; Baldwin, M.; Miquel, J.; and Lewis, S. Effects of hallucinogenic mushrooms on the chimpanzees.

NIH RECORD

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NIH Spotlight



Mrs. Blanche H. Featherstonhough

Breakfast for 125 and dinner for 400 might alarm the average homemaker, but "Mrs. Feathers" is far from being the average homemaker.

"Mrs. Feathers" is Mrs. Blanche H. Featherstonhough, who, as manager of the GSI cafeteria in Building 1, has served more than 600 meals a day to NIH employees for the past 20 years.

When Mrs. Feathers opened her cafeteria for business on January 12, 1939, NIH consisted merely of Buildings 1, 2, and 3, with Building 6 only partially completed. "We started our operation as a snack bar," she recalls, "because at first we didn't have all of our equipment here. But within the year we were serving complete meals to everyone at NIH."

In addition to supervising her staff of nine, Mrs. Featherstonhough orders supplies daily from the GSI commissary, completes all her own forms, records, and reports, and even lends a hand in cooking and serving when necessary.

A tour of Mrs. Feathers' cafeteria reveals a surprisingly small kitchen and storage area, spotless equipment, and a smooth-running staff. "We're tightly organized here," she explains. "Each person is capable of handling several different jobs."

Nourishing an early ambition to be a teacher, Mrs. Feathers went South from her native Iowa to get an accent on education at Vanderbilt University, in Nashville, Tenn. After receiving her A.B. there, she moved on to graduate work in nutrition and

ADVANCES Contd.

• Opening of the Clinical Neuropharmacology Research Center, at St. Elizabeths Hospital, a joint project of the hospital and NIMH. Researchers there are studying the effects of energizing and tranquilizing drugs in the treatment of mental disorders.

• New knowledge of the functions of brain hormones, such as serotonin and norepinephrine, and of the enzymes that make and destroy these chemicals in the human body. In connection with this, NHI has been testing the effects of JB-516, an impressive new drug for the lowering of blood pressure.

• The establishment of DGMS to administer project grants and training awards in the sciences basic to medicine and in the field of health problems which are not covered by the seven institutes. The NIH Highlights of Research Progress, 1958, is scheduled for publication in the near future.

foods at the University of Chicago.

In 1930 Mrs. Feathers came to Washington and served as a nutritionist in the District of Columbia public school system before Government Services, Inc., assigned her to NIH.

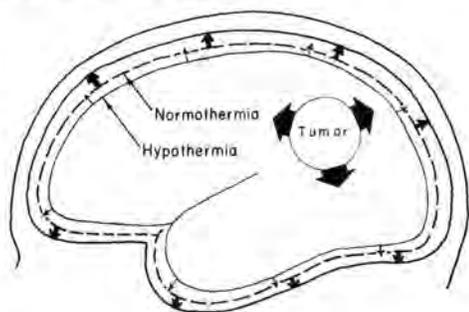
One of the earlier residents of this area, she still lives in the Glenbrook Village section of Bethesda. Her daughter, Marcia, is a teacher at Parkwood School, and her son, Arthur, is a graduate student at the University of Chicago.

Mrs. Feathers' home life is full to overflowing--she devotes much of her spare time to a new puppy and two Persian cats. She likes to attend concerts in Washington; on weekends she roams the Montgomery County countryside, searching auctions for possible additions to her expansive collection of old glassware. In addition, she remains active in the local chapter of the Business and Professional Women's Association.

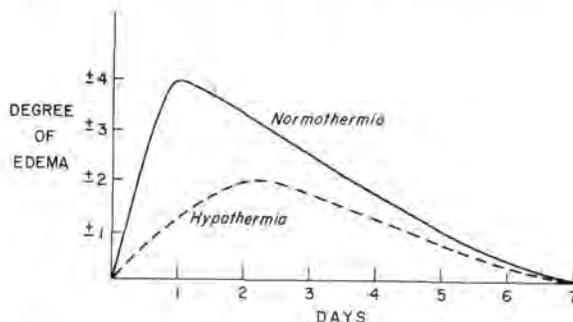
Long a familiar figure to NIH employees, Mrs. Feathers is retiring this month, on the twentieth anniversary of the opening of her cafeteria. No globetrotter, but with no intention of becoming indolent, she plans to keep busy at her Bethesda home. "But," she adds, with a twinkle in her eye, "I want to visit NIH from time to time, just to keep up with the changes."

Effectiveness Of Hypothermia In Neurosurgery Proven

No. 222 in a Series



Pressure of brain on skull under normothermia and hypothermia.



Degree of brain edema under normothermia and hypothermia.

Baron Larry, Napoleon's physician, who must have gone along on many campaigns, observed that men who were injured in cold weather had a smoother course of convalescence than their comrades who were wounded in the summer. Though he didn't pursue his observation further, he was not the first to recognize the advantages of reduced body temperature in the treatment of wounds. Experimental work in this field had been done as far back as the 12th century.

Whole body hypothermia was pioneered in the U. S. by Drs. Temple Fay and L. W. Smith in 1939, primarily for the relief of intense pain. In the ensuing decade Swedish physicians employed air-cooled chamber methods to lower body temperature, in contrast to the water-ice methods of American investigators.

Over the past few years, hypothermia has become an accepted practice in anesthesia, mainly in cardiac and neurological surgery. However, it is a time-consuming and painstaking procedure, requiring the constant attendance of two or three anesthetists and a good-sized supporting staff. An hour or more is required to place the necessary tubes, thermocouples, and thermometers on the patient, and a similar period to cool his body by air, ice, or water. The surgical procedure for which this preparation is made is usually a long one, and afterward the patient's body heat is brought gradually back to normal.

There is a difference of opinion as to how far to lower body temperature. Some physicians stabilize it at 30-32 degrees C., which reduces the metabolic rate 25 percent; others

prefer between 26-28 degrees C., which slows body processes by 50 percent. The lower the metabolic rate and temperature, the more susceptibility there is to irregularities of heart action.

Hypothermia is employed most effectively in selected cases of brain injury and in removal of solid or vascular brain tumors. Swelling, or edema, occurs when the brain is injured or a tumor develops. Since the skull encloses a cavity of fixed size, any swelling of the brain will cause it to press against the skull, not only at the point of injury or growth but in all areas in equal amounts. It is possible, however, to reduce brain size by reducing the volume of blood and cerebrospinal fluid within the organ by hypothermia. This provides the surgeon with greater working space within the cranium and the patient with a less difficult post-operative period. In addition, systemic blood pressures may be reduced with greater apparent safety because of the reduced oxygen needs.

NINDB's Surgical Neurology Branch has been conducting controlled laboratory studies in the use of hypothermia in treating brain lesions. Its use results in areas of lesser size and intensity of edema, and a less intense reaction of the astrocytes, which are the supporting cells of the brain tissue.

Under conditions of normal body temperature (called normothermia), the greatest amount of edema occurs within 24 hours after injury; under hypothermia the peak of swelling is not reached until two days after injury, and this peak is considerably lower than the normothermic control. These findings concur with clinical observations. The greatest benefit from hypothermia comes at

the time of operation and within the next 72 hours. Following this period, no apparent clinical or pathological differences can be demonstrated.

According to Dr. Edward J. Laskowski, who conducted these experiments, this represents the first controlled series in which the pathological and histochemical effects of acute edema are related to alterations of permeability of the blood-brain-barrier.

As indicated in the diagram above, maximum benefit will be obtained from the use of hypothermia in treatment of acute head injuries if the body is cooled as soon as possible following the injury. This will minimize the resulting edema.

The Surgical Neurology Branch, using hypothermia as an instrument for further study, plans research on the mysterious physicochemical qualities of the blood vessel wall called the blood-brain-barrier. Whether these qualities are chemical in nature, whether they are influenced by the physical structure of the astrocyte and other cellular elements, or a combination of these, is the answer being sought.

INCOME TAX ASSISTANCE TO BE AVAILABLE HERE

Assistance in the preparation of Federal, Maryland, and District of Columbia income tax forms will be available to NIH employees from January 19 through April 15.

Barbara White may be consulted from 8:30 a.m. to 5 p.m. in Building 10, Room 1S-228. In Building 1, Room 21-A, Dorothy Wipf will assist employees from 10 a.m. to 3 p.m.