

DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

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PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH

DR. BURNEY ELECTED PRESIDENT OF W.H.O.

Dr. Leroy E. Burney, Surgeon General, PHS, was unanimously elected president of the World Health Organization at its 11th annual assembly in Minneapolis May 30.

Dr. Burney, who is 51, began presiding immediately after his election. He is the chief U. S. delegate to WHO.

A commissioned officer in PHS since 1932, Dr. Burney was Deputy Chief of the Bureau of State Services before he became Surgeon General in August 1956.

Science Teachers Gain Research Experience In NIH Laboratories

Seventeen high school science teachers are gaining practical research experience at NIH this summer as part of a work-study institute sponsored by American University.

For the third year, science teachers from all over the U. S. have been assigned to NIH laboratories where they are assisting in phases of research for an eight-week period. Lectures and supervised laboratory studies at American University are also part of the work-study program.

While at NIH, the teachers have an opportunity to observe the latest research techniques and to gain experience that will enable them to stimulate student interest in science.

An orientation program for the science teachers will be held here June 23. Talks and films will introduce them to the organization and functions of NIH and PHS.

The teachers institute is supported by the National Science Foundation. It is administered at NIH by the Clinical and Professional Education Branch, CC.

"OSCAR" AWARDED



Dr. C. J. Van Slyke poses with his surprise award, the "Van Oscar." (See story, page 4.)

NIAMD COLLABORATES IN STUDY OF RARE DISEASE

A clinical study of Reiter's disease, a rare malady often mistaken for rheumatoid arthritis, has been undertaken by NIAMD in cooperation with Walter Reed Army Hospital.

The study will utilize advanced tissue culture techniques in an attempt to isolate the cause of the disease. If this can be done, it may offer important clues about the cause of rheumatoid arthritis.

Reiter's disease is seen most frequently in military personnel and may be infectious. Present evidence suggests that either a bacterial or viral agent may cause the disease.

Intensive bacteriologic and virologic studies are being conducted on selected patients transferred to the CC from Walter Reed Army Hospital.

The cooperative study is being directed by Dr. Joseph Bunim, Clinical Director, NIAMD, and Gen. Thomas Mattingly, Chief of the Department of Medicine, Walter Reed Army Hospital.

NCI COLLECTS RECORDS OF CANCER PATIENTS

Case histories of thousands of cancer patients are being compiled by NCI to provide a statistical basis for evaluating cancer treatments and to learn more about rare forms of the disease.

Reports on 500,000 patients are being submitted to NCI this year by approximately 200 hospitals throughout the country. The Cancer Chemotherapy National Service Center, NCI, is collecting the reports and will receive information on 50,000 new patients a year.

When correlated, the data will provide NCI scientists with a basis for comparing the results of chemotherapy with radiation and surgery in treating cancer.

Contracts totaling \$223,812 have been awarded to 10 large medical institutions and five central registries. The registries are collecting data from 190 hospitals participating in the study.

Dr. Field Honored For Diabetes Work

The 1958 Lilly Award will be presented to Dr. James B. Field, Clinical Endocrinology Branch, NIAMD, at the 18th meeting of the American Diabetes Association June 21-22 in San Francisco, Calif. The annual award, consisting of \$1,000 and a medal, is supported by Eli Lilly and Company to recognize outstanding research in the field of diabetes.

Dr. Field has devoted his energies to diabetes research since he joined the NIH staff in 1954. He is currently engaged in postdoctoral studies at King's College Hospital, London, and will return to NIH in August.

A 1951 graduate of Harvard Medical School, Dr. Field has recently been concerned with the problem of insulin antagonism in diabetic acidosis.

Silver-Staining Technique

No. 207 in a Series



The black particles around this nerve cell are the silvered synaptic substance in the terminal endings.

At long last, after experimentation with 40 or 50 modifications, Dr. Grant L. Rasmussen, Chief, Section on Functional Neuroanatomy, NINDB, has achieved a satisfactory method of demonstrating synaptic endings in the central nervous system.

Despite many difficulties, Dr. Rasmussen has arrived at a silver impregnation method that stains the synaptic substance surrounding the neuron without staining the cell's fiberlike components and likewise without coloring the mitochondria known to populate the cell itself as well as its terminals.

Dr. Rasmussen's highly selective, and extremely reliable, silver-staining formula avoids the density of color that in the past has tended to emphasize cell body and cell fibers and to complicate study of the synapse by obscuring the presence of the synaptic terminals.

Like all silver-staining techniques, the new one must be handled with care.

Many neurological difficulties, ranging from malfunction of the brain to the explosive reactions that accompany strychnine poisoning, occur when the nervous impulse fails to cross the synapse properly.

Traditional staining methods accentuated the fibrillar network stemming from the cell, but unfortunately produced only faintly visible outlines of the synapse. As a result,

histological study of normal and degenerative changes was generally disappointing.

Dr. Rasmussen's method, which was developed with the patient assistance of research technician Edna P. McCrane, has certain advantages that make it unique among staining processes. The synaptic substance in the terminal endings can be seen for the first time. The nonneurofibrillar components of the synapse are far more voluminous than formerly suspected. Almost the entire surface of the nerve cell is thickly encrusted with the tiny buttons.

Though the physical chemistry of silvering of nervous tissue is still poorly understood, it is known that the site of silver deposition is greatly influenced by pretreatment of the tissue with a suitable fixative and an effective mordant. The mordant, in this stain, is the substance that makes the fixed tissue receptive to silver.

The chief ingredient of Rasmussen's formula, and the most essential, is a solution of potassium dichromate. The other ingredients are solutions of chloral hydrate and silver combined with a solution of sodium thiosulfate. The high degree of silver selectivity achieved with the new stain, as depicted above, is obtained by the use of protargol, which is silver combined with protein.

A section of treated tissue is developed in a silver gelatin as if it were a photographic negative. When the proper stage of development is reached, the areas where the synapses are found are seen as dark regions against a yellowish background of fibers and cells. The synaptic endings are darkest of all. If more background detail is desired, the tissue is gold toned and slightly warmed overnight. For some unknown reason, the heat seems to change the background hue to rose and the color of the terminals to deep blue or purple.

Already applied to hearing and sight research in NINDB and to widely diversified investigations of the synapse in the United States and elsewhere in the world, the use of Rasmussen's stain will further knowledge of the interneural connections in the central and peripheral nervous systems. Hopefully, it may lead to a better understanding of how the brain functions.

Publication Preview

The following manuscripts were received by the SRB Editorial Section between March 26 and April 10.

OD

Dublin, T. D. Looking ahead in epidemiology.

DBS

Eddy, B. E.; Stewart, S. E.; and Berkeley, W. Cytotoxicity in tissue cultures by a tumor virus from mice.

DRG

Hill, R. T. Paradoxical effects of ovarian secretions.

CC

Severinghaus, J. W., and Bradley, A. F. Electrodes for blood O_2 and CO_2 determination.

NCI

Birnbaum, S. M.; Greenstein, M. E.; Winitz, M.; and Greenstein, J. P. Quantitative nutritional studies with water-soluble, chemically defined diets. VI. Growth studies on mice.

Cook, J. S., and Blum, H. F. Dose relationships and oxygen dependence in ultraviolet and photodynamic hemolysis.

Elkind, M. M., and Sutton, H. Sites of action of lethal irradiation overlap in sites for x-ray, ultraviolet, photoreactivation and ultraviolet protection and reactivation in dividing yeast cells.

Gamble, D. F. Chemical activities and publications of the Public Health Service.

Heller, J. R. Cancer and the outlook. Landau, B. R.; Levine, H. J.; and Hertz, R. Prolonged glucagon administration in a case of hyperinsulinism due to disseminated islet cell carcinoma.

Milmore, B. K. Influence of calendar years of observation and age distribution upon survival of patients with chronic diseases. A methodological note.

Smith, R. R. Alteration of growth and spread of experimental and human cancer.

Vilar, O., and Hertz, R. The postnatal histogenesis and endocrine function of abnormal testes associated with urinary tract anomaly in the AXC rat.

Weisburger, J. H.; Weisburger, E. K.; and Morris, H. P. Differences in the metabolism of N-2-fluorenylacetylamine in the guinea pig and the rat.

Westfall, B. S.; Evans, V. J.; Peppers, E. V.; Hawkins, N. M.; Bryant, J. C.; Schilling, E. L.; and Earle, W. R. Observations on the metabolic behavior of a clone of mouse liver cells grown in agitated fluid suspension.

NHI

Bragdon, J. H. On the composition of chyle chylomicrons.

Chen, P. S., Jr. Liquid scintillation counting of C^{14} and H^3 in plasma and serum.

Dayton, P. G.; Eisenberg, F., Jr.; and Burns, J. J. Studies on intermediary metabolism of L-ascorbic acid in guinea pigs.

Dethier, V. G., and Bodenstein, D. Hunger in the blowfly.

Maling, H. M., and Highman, B. Exaggerated ventricular arrhythmias and myocardial fatty changes after large doses of norepinephrine and epinephrine in unanesthetized dogs.

Ross, J., Jr. Transseptal left heart catheterization: A new method of left atrial puncture.

Sanders, R. J., and Morrow, A. G. The localization of circulatory shunts with inhaled krypton⁸⁵. A preliminary clinical report.

Udenfriend, S., and Waalkes, T. P. On the role of serotonin in anaphylaxis.

NIAID

Burch, T. A.; Rees, C. W.; and Kayhoe, D. B. Laboratory and clinical studies on vaginal trichomoniasis.

Enmons, C. W. Saprophytic reservoirs of histoplasma.

NIAMD

Alland, P. D., and Thompson, E. C. Some factors affecting blood formation in turtles.

Federman, D.; Robbins, J.; and Rall, J. E. Some observations on cretinism and its treatment.

Kirkman, H. N., and Kalckar, H. M. Enzymological studies on congenital galactosemia.

Lerner, E. M. II, and Haas, V. H. Histopathology of lymphocytic choriomeningitis in mice spared by amphotericin.

Sokoloff, L. Designated discussion: The role of mycobacteria in allergic manifestations.

Tobie, E. M., and Highman, B. Failure to demonstrate cerebral lesions in rabbits infected with *Trypanosoma gambiense*.

Yielding, K. L., and Tomkins, G. M. Effects of adrenal steroids on glucose oxidation by rat liver homogenates.

NIDR

Paer, P. N.; Goldman, H. M.; and Scigliano, J. Studies on a bacitracin periodontal dressing.

Geever, E. F.; Leone, N. C.; Geiser, P.; and Lieberman, J. Pathologic studies in man following prolonged ingestion of fluoride in drinking water.

Russell, A. L., and White, C. L. Fluorides and periodontal health.

NIMH

Alvord, E. C., Jr., and Kies, M. W. Experimental "allergic" encephalomyelitis.

Brinley, F. J., Jr.; Kandel, E. R.; and Marshall, W. H. The effect of intravenous D-tubocurarine on the electrical activity of the cat cerebral cortex.

Calhoun, J. E.; Cosby, J. U.; and Brant, D. The calculation of home range and density of small mammals.

Cole, J. O. The clinical research program of the Psychopharmacology Service Center.

Deasy, L. C. Some problems in conducting research with families of psychiatric patients.

Fraser, H. F., and Isbell, H. Human pharmacology and addiction liability of certain compounds related to morphine or codeine.

Goodrich, D. W. The choice of situation for observational studies of children.

Isbell, H. Clinical research on addiction in the United States.

Marshall, W. H. Temporal periodicities in the primary projection system.

Szara, S.; Axelrod, J.; and Perlin, S. Is adrenochrome present in the blood?

Wikler, A. Opiates and opiate antagonists.

NINDS

Greenfield, J. G.; Cornman, T.; and Shy, G. M. The prognostic value of the muscle biopsy in the floppy infant.

Kaufman, H. E. Primary familial amyloidosis.

Li, C. Effect of sensory nerve stimulation on the activity of pyramidal neurons in the motor cortex.

NIH RECORD

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NIH Spotlight



Alexander McInnes

"Ask the man who owns one" -- or owns two or three, or even six. Alexander McInnes is the man who believes in the old Packard slogan. Ten years ago he owned six antique Packards at one time. Now he makes do with a mere two, plus a pre-war Mercedes Benz and a new Austin Healey.

Alex, who is a laboratory general mechanic in the Laboratory of Technical Development, NHI, was bitten by the automobile bug in 1937. He lived in London then, and spent a year of spare time restoring a well-worn MG. From there he went on to old Rolls Royces and Bentleys.

The six-Packard phase came after the war, when Alex moved to the United States. By that time he was thoroughly infected with the antique car virus. His present possessions -- a 1932 Packard convertible roadster, a 1937 Packard victoria, and a classic 1936 Mercedes Benz -- are housed in two garages in the District, where Alex restores them to perfect running condition, and lovingly polishes them to looking-glass luster.

Alex is one of a dedicated horde of Americans who have the same enthusiasm. He's a member of the Antique Auto Club of America, for owners of cars over 25 years old; the Classic Car Club, whose members own the one-of-a-kind or custom-built models; the Mercedes Benz Club; and for a spot of variety, the Sports Car Club.

Over the Memorial Day weekend, Alex traveled through Maryland and Pennsylvania attending sports-car and antique-car rallies, and brought home two trophies to add to the six previously awarded for his restorations.

NEWS BRIEFS

Mrs. Luke I. Wilson was recently named "Outstanding Senior Citizen of the Year in Montgomery County" by the Woman's Club of Bethesda. At a ceremony in her honor, Mrs. Wilson was presented with a scroll by PHS Surgeon General Leroy E. Burney, in appreciation of her donation of land to NIH.

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Dr. Norman Topping, former Associate Director of NIH, was recently named president of the University of Southern California. Dr. Topping, who was commissioned in PHS in 1936, was a key member of the NIH staff for 12 years. He received his A.B. and M.D. degrees from the University of Southern California.

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A military pay bill authorizing a \$576 million pay increase for the uniformed services, including PHS Commissioned Officers, was signed by President Eisenhower last month. The pay increases became effective June 1 and will be reflected in the June 30 pay checks.

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Dr. Harry Eagle, Chief of the Section on Experimental Therapeutics, NIAID, recently presented the 11th annual Jack H. Tritt Memorial Lecture at Jewish Hospital, St. Louis, Mo. He spoke on "Amino Acid Metabolism in Tissue Culture."

NIH Families Eligible For Red Cross Blood

NIH employees and members of their immediate families who need blood may arrange for it directly through the Montgomery County Chapter of the Red Cross.

If blood is needed, call JUNiper 8-2515 and give the name of the proposed recipient and of the hospital in which he is a patient. The Red Cross will then complete the arrangements, according to the Laboratory of Blood and Blood Products, NIH.

Alex feels that the work he does on the cars is closely allied and beneficial to the work he does at NIH, where his technical engineering skill has contributed to the construction of such prosthetic devices as the heart-lung oxygenator and the heart valve.

But don't look on the parking lot for cars with the classic styling of the 1930's -- Alex comes to work the modern way, in his Austin Healey.

"CO-STEP" PROGRAM UNDER WAY AT NIH

Students from accredited professional schools all over the U. S. are arriving at NIH to begin a tour of "training duty" as reserve officers in the PHS Commissioned Corps.

This year, 57 promising students with advanced medical, dental, or scientific training have been selected to participate in the Commissioned Officer Student Training and Extern Program, known as CO-STEP. While furthering their professional knowledge by working with NIH scientists, they will become familiar with research activities and opportunities in Government health agencies.

The CO-STEP program, offered by PHS for about ten years, has been an effective means of recruiting professional personnel for careers in the PHS Commissioned Corps. In past years, many of the accepted students have been employed at NIH. Positions are carefully filled to benefit both students and scientists.

Scientists interested in employing CO-STEP students may contact the Clinical and Professional Education Branch, Bg. 10, Rm. 13N-228, ext. 3381.

DR. HELEN DYER RECEIVES ACHIEVEMENT AWARD

Dr. Helen M. Dyer, Laboratory of Biochemistry, NCI, was one of two persons to receive an alumni achievement award from George Washington University on June 4. Dr. Dyer was honored for her "notable achievement in biochemical research in the field of cancer."

Representative Brooks Hays, of Arkansas, was also honored.

Dr. Dyer has been concerned with the mechanism of action of chemical carcinogens since she came to NIH in 1942. At present she is investigating the compound N-2-fluorenylacetylamide and its derivatives. When administered orally to a rat, this compound induces cancers in body tissues. These studies may indicate the biochemical changes that play a role in the conversion of normal to malignant cells.

Dr. Dyer taught biochemistry at George Washington University, where she received her M.S. and Ph.D. degrees.

SURPRISES HIGHLIGHT NIH AWARDS CEREMONY



Dr. Van Slyke (right) congratulates award-winner Clarence May, but gives the check to Mrs. May.

Surprises were the keynote of NIH's Annual Awards Ceremony, at which 21 employees were honored.

For the first time in NIH's history, bagpipe music echoed through the CC Auditorium, as the "Kilties" of the 2nd Army Pipe and Drum Corps piped Scottish tunes.

Dr. C. J. VanSlyke, NIH Associate Director, who was back at his post as Master of Ceremonies, was the author of one surprise and the recipient of another.

When Dr. Van Slyke presented a deserved superior performance award to Clarence W. May, Special Consultant, DRS, he called Mrs. May to the podium and presented the check to her.

Later in the ceremony the tables were turned when Dr. Van Slyke was presented with a surprise "Van Oscar" award for "sustained valor and superior performances" as master of ceremonies at NIH awards programs.

Another well-kept secret was revealed when Dr. Van Slyke presented a superior performance award to Daniel G. Rice, Information Specialist, DRS, who was unaware he was to receive it.

Dr. Enomoto Dies

Dr. Takayuki Francis Enomoto, an NIH Visiting Scientist, lost his life in a boating accident on the Potomac River on May 30. He had conducted clinical studies in neurophysiology in the Surgical Neurology Branch, NINDB, for the past year.

A native of Japan, Dr. Enomoto came to the U. S. in 1953 and completed four years of resident training in neurosurgery at the Georgetown University Medical Center. He is survived by his parents, brothers, and sisters, who live in Japan.

TWO EMPLOYEES RETIRE AFTER LONG SERVICE

Homer E. Greenfield and Eugene Dernay, both long-time Government employees, retire from service this month.

Mr. Greenfield has been with the Government almost continuously for 44 years, and served with the Army during World War I. A management analyst in the Office Services Branch, DBO, he has held administrative positions at NIH since 1953. Previously he was employed at the War Manpower Commission, the Social Security Board, and the Federal Security Agency.

Mr. Dernay, a native of Hungary, has been a translator in the Scientific Reports Branch, DRS, since 1948. Prior to that time he served as a translator for the Post Office Department. In addition to his native Hungarian, Mr. Dernay translates German and French, and is familiar with most other European languages.

Mr. Kieley To Attend Brussels Congress

James F. Kieley, Information Officer, NCI, has accepted an invitation to attend the First World Congress of Public Relations in Brussels, Belgium, this month. Mr. Kieley, who is chairman of the NIH Information Training Committee, is contributing a paper entitled "In-service Training for Information Specialists in Medical Science and Health."

After the Brussels meeting, Mr. Kieley will attend the Seventh International Cancer Congress, to be held in London July 6 through 12.