the NIH Record

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

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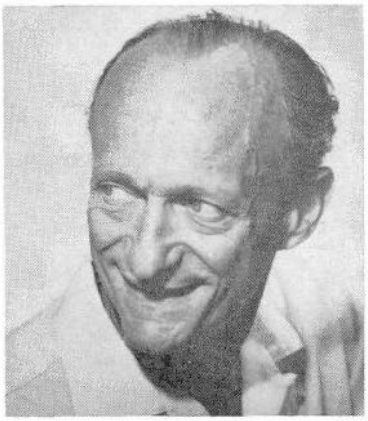
NATIONAL INSTITUTES OF HEALTH

Dr. Stephen W. Kuffler To Deliver NIH Lecture Wednesday, October 21

Dr. Stephen W. Kuffler, an internationally known neurobiologist and leader in the field of neurophysiology, will deliver the NIH Lecture on Wednesday, Oct. 21, at 8:15 p.m. in the Jack Masur Auditorium of the Clinical Center.

Dr. Kuffler, an NINDS grantee for 11 years, has been Robert Winthrop professor of Neurobiology and chairman of the Department of Neurobiology at Harvard Medical School since 1966.



Dr. Kuffler's presentation will center on his research to understand how nerve cells communicate electrically, chemically, and anatomically.

Dr. Henry G. Wagner, NINDS director of Intramural Research, will act as official host and Dr.

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Gorgas Institute Elects Dr. Leavitt to Board

Dr. Milo D. Leavitt, Jr., Director of the John E. Fogarty International Center, was recently elected to the Board of Directors of the Gorgas Memorial Institute of Tropical and Preventive Medicine, Inc.

The Institute, a non-profit, parent organization of the Gorgas Memorial Laboratory in Panama, held elections at its 47th annual meeting last month in Washington.

GML has been conducting biomedical research in Panama since 1929.

Higher Blood Pressures in Supravalvular Aortic Stenosis Explained by Cardiologists

Cardiologists at the National Heart and Lung Institute offer an explanation why patients with supravalvular aortic stenosis frequently have higher blood pressure in the innominate artery than in the aorta upstream or downstream from the innominate origin.

An arterial model confirms their hypothesis for the previously unexplained paradox—that the vessels closer to the blockage have a lower pressure than the vessels further downstream from the occlusion.

The NHLI scientists suggest that this inordinately high pressure in the innominate artery—the largest branch of the aorta—could be caused by the impact of the jet of blood originating at the stenosis and being directed upon the blood in the innominate artery.

Hypothesis Tested

Slowing of this rapidly moving stream of blood would convert kinetic energy to potential energy and thus increase innominate pressures to exceed pressures in the aorta.

To test this hypothesis, the investigators constructed a model of the ascending aorta, innominate artery origin, and the aortic arch which simulated the angiogram of a patient with supravalvular stenosis and increased innominate pressures.

High speed motion pictures of the model showed results consistent with the hypothesis. The fluid of the rapidly moving jet was found to course directly into the innominate artery close to its origin.

Pressure measurements confirmed that no pressure differences were created within the aorta just beyond the stenosis, but that a progressive increase in pressure occurred within the first 5 centimeters of the innominate artery.

When the simulated stenotic orifice was replaced by a fine mesh screen in order to maintain a pressure gradient, but eliminate the jet, innominate pressures were not found to be increased.

In addition, when the simulated stenosis was moved within the aorta to mimic valvular aortic stenosis, increases in innominate artery pressures were abolished.

A report of this work, by Drs. Robert E. Goldstein and Stephen F. Epstein, of the NHLI Cardiology Branch, appeared in a recent issue of *Circulation.*

J. C. Hunter Elected to British Medical Society

Jehu C. Hunter, assistant director for Planning and Evaluation (Biological Sciences) in the National Institute of Child Health and Human Development has been elected an Affiliate Member of the Royal Society of Medicine in London, England.

This organization, is a worldwide society for the cultivation and promotion of medicine and connected branches of science.

A native of the Nation's capital, Mr. Hunter attended the Armstrong High School and received the B.S. degree in Zoology (cum laude) from Howard University in 1943.

Mr. Hunter's election to the Royal Society was for his significant contributions to the biomedical sciences and is a rare honor accorded few individuals not having an M.D.

He subsequently completed a year's postgraduate work in Zoology and Education and was a graduate assistant in Zoology at Howard.

Mr. Hunter joined the Cancer Institute in 1949 as a medical biology technician in the Cytochemistry Section, Laboratory of Biochemistry. In 1951 he received the title of biologist in the same laboratory.

In 1962 he was elevated to the rank of research biologist and 3 years later became a health scientist administrator (Biological Sciences) Extramural Programs when he joined the NICHD.

He held this position for 4 years prior to being named assistant director for Planning and Evaluation.

Mr. Hunter is a member of the American Society for Cell Biology and the American Association for the Advancement of Science.

Manpower Bureau Names 6 Divisions; DRR Is Reassigned

The renamed Bureau of Health Manpower Education—BHME—has been reorganized into six divisions, and the Division of Research Resources has become an independent division within NIH.

The reorganization and change in name of the Bureau of Health Professions Education and Manpower Training was announced by Dr. Robert Q. Marston, NIH Director.

Endicott Names Directors

Dr. Kenneth M. Endicott remains Director of the Bureau and has been delegated the authority to appoint Division Directors and other key personnel and to make changes in the internal structure of the six divisions.

Three divisions remain practically unchanged: the Division of Dental Health, with Dr. John C. Greene (formerly Acting Director) as Director; the Division of Nursing, with Jessie M. Scott as Director, and the Division of Allied Health Manpower, with Thomas D. Hatch as Acting Director and Deputy Director.

Major components of the former Divisions of Physician Manpower and Educational and Research Facilities were merged into a new Division of Physician and Health Professions Education, with Dr. Harry W. Bruce, Jr. designated Acting Director and Deputy Director.

A Division of Grants and Contracts has been established, with Dr. Daniel F. Whiteside, Director. He was Director of the former Di-

(See MANPOWER, Page 9)

the NIH Record

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Housing Registry Needs Listings of All Available Houses and Apartments

Do you have housing for sale or rent? Are you looking for housing?

To assist employees in locating suitable housing, the Employee Relations and Recognition Branch of the Office of Personnel Management maintains a housing registry.

This registry includes houses for sale as well as houses, apartments, and rooms for rent.

To improve service, additional listings are needed—particularly furnished rooms and apartments. Employees who have housing available are requested to list it in the registry.

If friends or neighbors have housing for rent or sale their accommodations may also be listed.

Five 3 x 5 cards should be sent to ERRB, Bldg. 31, Room B2B-39, stating: description of property, whether for rent or sale, how furnished, location in relation to NIH, price, when available, telephone number, and any other pertinent information.

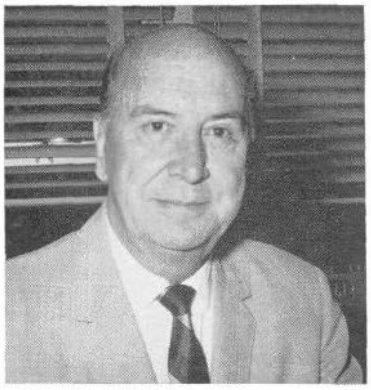
Statement Required

The following signed statement must appear on the back of each card: "This property is available on an open occupancy basis without regard to race, color, creed, or national origin."

One of the cards will be kept on file in ERRB. The other four will be posted on bulletin boards at: Bldg. 31, next to the escalator, first floor, B wing; Bldg. 1, next to the elevators, basement level; Bldg. 13, near the snack bar, ground level, and Westwood Bldg., ground level, outside the snack bar.

Listings may be sent in at any time; however, all are removed at the end of the month.

To continue listings for the next month, a new set of cards must be sent to ERRB.



Theodore A. Dawson recently retired as assistant chief, Research Contracts Branch, OAS. Mr. Dawson, who served nearly 20 years in the Federal government, received a Superior Work Performance Award in 1968. He and his wife will soon move to their new house near Fredericksburg, Va. where he will carry out his plans for golfing and fishing—his home is next to the 15th fairway and near fishing facilities.

Time Off Is Authorized When Needed to Vote

Limited time off for voting in the general elections on Nov. 3 may be authorized under certain conditions. This time should be charged to administrative leave.

If the polls are not open 3 hours before or after an employee's work hours, he may report for work 3 hours after the polls open or leave work 3 hours before the polls close—whichever requires less time.

If a voting place is beyond normal commuting distance and voting by absentee ballot is not permitted, employees may take travel time off if it does not exceed a full day.

Polls will be open at the following times:

Maryland—7 a.m. to 8 p.m.
Virginia—6 a.m. to 7 p.m.
District of Columbia—no elections this year.

NIH Television, Radio Program Schedule

Television

NIH REPORTS

WRC, Channel 4
1 a.m. Wednesday

October 14
Dr. Carl Kupfer, Director, National Eye Institute
Subject: Pre-School Visual Testing

October 21
Dr. Carl Kupfer, Director, National Eye Institute
Subject: Retinal Diseases

Radio

DISCUSSION: NIH

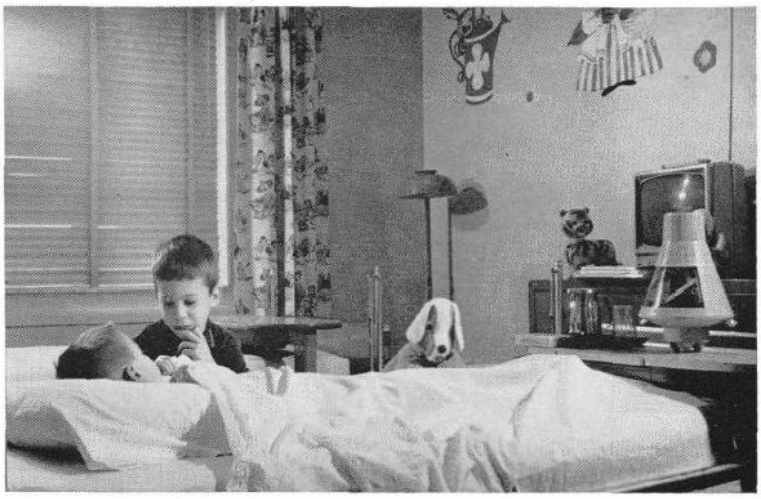
WGMS, AM-570—FM Stereo 103.5—Friday, about 9:15 p.m.

October 16
Edith Jones, chief Nutrition Department, CC
Subject: Nutrition in a Changing World

October 23
Dr. James F. Kavanagh, Growth and Development Branch, NICHD
Subject: The Development of Early Communication

Interview takes place during intermission of the Library of Congress concerts.

Davis Xmas Plan Encourages Employees To Play 'Santa Claus' for CC Patients



There are times when a fellow needs a visit from his brother. The young CC patient has much to tell about his room, the nurses, and Christmas activities planned. Out-of-town traveling expenses for the patient's brother and parents were paid through the Patient Welfare Fund.

There is one before-Christmas shopping expedition that can be cheerfully eliminated, thanks to James B. Davis, Director, Office of Administrative Services. That is shopping for Christmas cards for NIH colleagues.

Instead, donate that money to the Patient Welfare Fund. This is the idea behind the "Davis Plan," which, every Christmas for the past 10 years, has augmented the Patient Welfare Fund.

Mr. Davis used to send cards to colleagues—over 200 of them—but thought how the money might better be spent; thus evolved the Davis Plan.

R&W Contributes

Now all NIH employees can be a part of a Christmas program to help patients at the Clinical Center. The NIH Recreation & Welfare Association also contributes substantially to the Fund.

Benefits CC patients and their families derive from the Patient Welfare Fund, with the assistance of the Davis Plan, are numerous. For instance, patients are given money for long-distance phone calls to their families and, in some cases, the Fund pays the transportation for the visit of a relative to a CC patient.

At Christmas time these morale boosters—visits and phone calls—may very well be more important than at any other time of the year.

Donate Funds Instead

Instead of buying Christmas cards *say* "Merry Christmas" to your NIH colleagues and donate that sum normally spent on cards to the Patient Welfare Fund.

For further information, contact Jim Davis at Ext. 62315. Checks may be made to the NIH Patient Welfare Fund.

CFC Quotas Announced; Secy. Richardson Urges Generous Drive Support

As the Combined Federal Campaign—now in its fourth week—seeks funds for 164 agencies, a quota of $218,687 for NIH has been announced.

The National Institute of Environmental Health Sciences already has gone over its quota by 128.3 percent, with contributions received thus far from only half of its staff.

In a memo to all Department employees, HEW Secretary Elliot L. Richardson noted:

"In the past, a great majority of Department employees have recognized their obligation to participate in a community effort to aid those in need of assistance.

"When contacted this year, I urge each of you to generously support this non-government effort directed toward the relief of some of the ills of our society."

This year's drive is stressing the advantage of using the payroll deduction plan—the most effective and painless method of making a meaningful contribution to those in need.

Unit Quotas for Annual CFC

Unit	*Goal*
NIEHS	$ 503
NEI	2,209
NICHD	8,988
NINDS	14,368
NCI	32,825
OD/ODA	25,564
DRS	9,797
DRG	10,825
CC	20,863
DBS	5,270
NIGMS	4,243
FIC	1,247
NHLI	14,105
NIDR	7,654
NIAMD	16,926
NIAID	11,984
DCRT	6,801
BHME	13,335
NLM	9,360
DRR	1,820

Any contribution may be designated for a specific participating agency. Undesignated donations will be distributed in accordance with a predetermined percentage to: National Health Agencies, 17.58 percent; United Givers Fund, 75.32 percent, and International Service Agencies, 7.1 percent.

Technical Developments Increase Deaths From Heart Disease

The greater production of electricity in a country, the more deaths there are from heart disease. The same holds true of heart disease in relation to average annual income, number of television sets and telephones, and other indices of technical development.—WHO Facts.

Former Military Corpsmen and Medics Augment CC's Cancer Nursing Service

Four former military corpsmen and medics are working as patient care technicians in the Clinical Center's Cancer Nursing Service. They are pilots in a project to help relieve the CC nursing shortage.

The men are assigned to male patients "requiring the most comprehensive nursing care," according to Louise C. Anderson, chief of the CC Nursing Department.

Mrs. Anderson, who conceived the idea, saw it through to a project that may well become "standard operating procedure" in many hospitals.

Explains Rationale

Explaining the evolution and implementation of her idea, the CC Nursing chief said, "For the past 5 years we have been consistently short of male assistants for the nursing care of men patients.

"We had men with nursing experience on our staff who were obviously very competent. Four men who met the criteria established for patient care were chosen."

A close-working team headed by a group leader to direct activities and plan time was established.

Nursing personnel and the team group participated in a 6-week orientation program to establish procedures.

Evaluating the plan at the end of a 3-month period, Mrs. Anderson found it extremely workable.

"Patients and physicians have been very complimentary on how these men function," she added.

Clarence I. Haywood is leader of the patient care technician team. For 13 months he served as a field medical technician in Viet Nam, where he administered first aid to combat casualties.

Mr. Haywood was trained as a hospital corpsman at the Charleston Naval Hospital. Later, he was assigned to Camp Lejeune as a field medical technician.

"What Mrs. Anderson is doing here is giving us responsibilities and letting us function with limited supervision," Mr. Haywood said. "In this job we work better as team members and have an opportunity to use all our skills."

The other members of the team are Kyle Smith, Melvin Taylor, and Solomon Romero. Mr. Taylor has had combat experience in Korea as a medical corpsman. Mr. Smith and Mr. Romero were army medics before coming to NIH.

As patient care technicians, their duties are diverse. They assist investigators with diagnostic procedures, change sterile dressings, irrigate wounds, and help with special procedures.

The nursing technicians utilize various types of therapy and are especially adept at aiding male patients with ambulatory problems.

This team plan has been so successful that 10 men are training to function the same way.

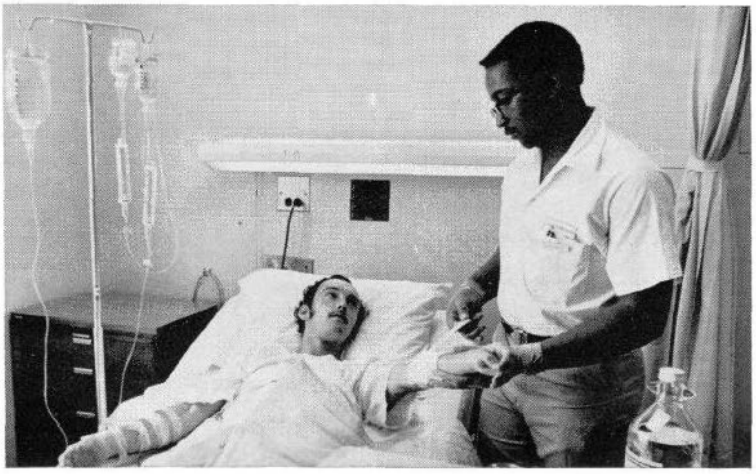
"Our plan," Mrs. Anderson said, "is to develop at least one team of trained technicians for each nursing service."

Major Holland Will Speak At NCI-VA Ward Opening

A program for the opening of the National Cancer Institute-Veterans Administration Medical Oncology Ward in the VA Hospital, Washington, D.C. will be held Thursday, Oct. 15, at 2 p.m. in the Theater of the hospital.

Major James F. Holland, chief of Medicine A, Roswell Park Memorial Hospital, will be the featured speaker.

He is also president of the American Association for Cancer Research.



Clarence I. Haywood, leader of the CC's patient care technician team, changes the dressing on a facsimile patient. Physicians are loud in their praise of the four-man group of former Navy corpsmen and Army medics.

Dr. H. Eagle to Present Jules Freund Seminar

The Tenth Annual Jules Freund Memorial Seminar will be presented by Dr. Harry Eagle, professor of Cell Biology at Albert Einstein College of Medicine, Yeshiva University.

The seminar will be held at noon on Monday, Oct. 19, in the Jack Masur Auditorium of the Clinical Center.

Dr. Eagle's subject will be "Serum pH, and the Contact Inhibition of Normal Human Cells." The scientific community is invited to attend.

Former NIH Researcher

Dr. Eagle has been at Albert Einstein since 1961. Prior to that, he was an investigator in the Public Health Service, including NCI and NIAID. While chief of NIAID's Laboratory of Cell Biology, he was a colleague of Dr. Jules Freund.

Dr. Eagle, whose present research interest is cell and tissue culture, developed the Eagle's medium (a synthetic medium widely used for tissue cultures) and the Eagle test for syphilis.

His span of investigation has included blood coagulation, penicillin, bacterial physiology, and the detoxification of metal poisoning.

Dr. Eagle serves as a scientific advisor to the Sloan-Kettering Institute for Cancer Research and the Helen Hay Whitney Foundation. He is a trustee of the Microbiological Foundation (Wakeman) and the Hebrew University in Jerusalem.

Honors Noted

Among his honors are the Albert Einstein Commemorative Award, the N.Y. Academy of Medicine Award, and an honorary Doctor of Science degree from Wayne University.

The National Institute of Allergy and Infectious Diseases has presented the Jules Freund Memorial Seminar annually since 1961 in honor of the first chief of its Laboratory of Immunology.

Detroit Nurses Conduct Study on Child Caring

Results of a recent study suggest that infants whose families move frequently have particular need for nursing and preventive care.

The Visiting Nurse Association of Detroit, under contract with the Bureau of Health Manpower Education's Division of Nursing, conducted a research project on child caring patterns in the Detroit area.

Data show that one differentiating factor in families whose infants suffer diarrheas and poor weight gain is location instability.

A full report of the study is now being prepared by the Detroit agency.

Willard Vincent Named Chief of OAS Branch

The Office of Administrative Services has announced the appointment of Willard E. Vincent, assistant chief, Plant and Office Services Branch, as chief of the Protection and Safety Management Branch.

Mr. Vincent

Mr. Vincent succeeds George P. Morse, who retired from Federal service.

In his new assignment, Mr. Vincent will be responsible for developing and administering programs concerned with the security and safety of NIH personnel and property.

Mr. Vincent came to NIH from the Department of Commerce in 1957 where he had served as a Security Officer. He served first as the administrative officer and later as assistant to the chief of the Plant Safety Branch.

From 1953 to 1955, he worked as a Security Evaluator in the Security Division, HEW.

For the 2 years prior to joining HEW, he held the position of Special Agent in the Security Division, Department of State.

With the exception of his tenure in the Plant and Office Services Branch, Mr. Vincent's entire career has been devoted to security, protection, and related fields. He is a U.S. Army veteran of World War II where he served in counterintelligence.

He was the recipient of a Sustained Superior Performance Award in 1959.

Two Investigators Join NINDS Collaborative and Field Research Program

Two scientists have been named to the staff of the National Institute of Neurological Diseases and Stroke Collaborative and Field Research Program.

Dr. Bernard H. Fox has been appointed assistant to Dr. Heinz W. Berendes, chief of the Perinatal Research Branch. Otis Turner has been named to the Epidemiology Branch, Office of the Associate Director for C&FR.

Both men were previously with the Neurological and Sensory Disease Control Program, Regional Medical Program Service, Health Sciences and Mental Health Administration.

Dr. Fox will coordinate the various task forces of the Branch and will serve as liaison between it and the Perinatal Research Committee.

Mr. Turner, who has co-authored 10 papers on epidemiology, will coordinate data from all of the Epidemiology Branch's programs.

4-Drug Treatment for Hodgkin's Disease May Double Survival Time of Patients

A 4-drug treatment developed in 1964 for advanced Hodgkin's disease is more than doubling the survival time of patients who respond to treatment, according to scientists of the National Cancer Institute.

Drs. Vincent T. DeVita, Arthur Serpick, and Paul Carbone of NCI reported their findings to the International Society of Hematology in Munich, Germany, last month.

Last year Dr. DeVita and his colleagues reported that 35 to 43 patients (81 percent) treated with the four drugs—vincristine, procarbazine, prednisone and an alkylating agent—responded with a complete remission or temporary disappearance of all evidence of disease.

This is 4 times the rate of complete remissions usually achieved in advanced Hodgkin's disease.

The median duration of these complete remissions is now between 29+ and 42+ months after the end of therapy. At present, the longest continuing complete remission is lasting 52+ months.

The researchers noted that 17 patients among the 35 complete responders (48 percent) remain free of all evidence of cancer.

65 Percent Surviving

Twenty-eight of the entire group of 43 patients (65 percent) are surviving, at the very least 32 months after the end of therapy. The median survival time of the entire group and the complete responders is not yet known, but in the latter case it will exceed 42 months.

This is more than double the duration of survival of 20 months usually reported in medical literature for patients with this advanced cancer treated with single-drug therapy.

Patients were given six 2-week cycles of drug therapy, each followed by a rest period of about 14 days.

During each cycle, procarbazine was given daily, and vincristine and an alkylating agent (either nitrogen mustard or cyclophosphamide) were given on the first and eighth day.

Most Are Outpatients

Prednisone was given daily during cycles 1 and 4 only. The average duration of therapy was 5.8 months and, although all patients had advanced disease, most were able to receive almost all of their treatment as outpatients.

Twenty-three of the patients were males; twenty were females. At the start of treatment, their mean age was 31 years. There was no difference in survival with regard to sex.

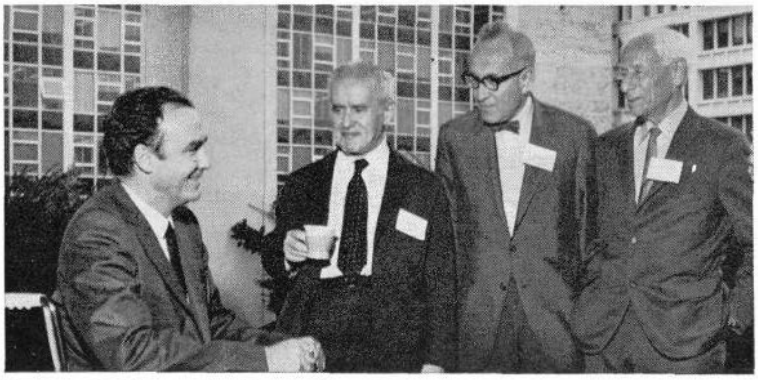
None of the patients were considered resistant to any form of therapy, although nine patients had received prior local radiotherapy and two had received a single prior exposure to one of the drugs.

Immediate side-effects consisted mainly of nausea and vomiting in the first two days of each cycle.

The major limiting toxicity was damage to the bone marrow, believed to be a factor in the deaths from infection of two patients.

Older patients frequently had some loss of reflexes and constipation, but this disappeared when vincristine treatment was stopped. In most patients toxicity was well tolerated and disappeared after the cessation of treatment.

Dr. DeVita and his colleagues conclude that combinations of drugs in full doses, each with independent anticancer activities and somewhat different toxicities, produce a higher percentage of complete remissions and longer survival time for patients than any available drug used alone.



"Polysaccharide vaccines" was the subject of a recent 3-day meeting here. During a break, Dr. Daniel I. Mullally (left), chief of the Infectious Diseases Branch, NIAID, chats with three authorities in the field: Drs. Maxwell Finland, Boston City Hospital; Dr. Elvin Kabat, College of Physicians and Surgeons, Columbia University, and Dr. Michael Heidelberger, New York University School of Medicine. Dr. Heidelberger spoke on "Immunology of Polysaccharides." He and others discussed vaccines against meningococcus, gonococcus, H. influenzae-B, pneumococcus and pseudomonas organisms.

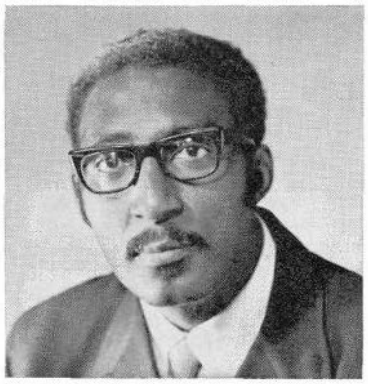
Dr. George Willis Joins Grants Asso. Program

Dr. George M. Willis, a native of Alto, Tex., has joined the Grants Associates Program for a year of training in grants administration.

Dr. Willis, a 1952 graduate of Prairie View A & M College, received his M.S. degree (1959) and his Ph.D. degree (1962) in Plant Pathology from Ohio State University.

From 1955 to 1959, he was a graduate assistant in Plant Pathology at this university.

He was with the Ohio Agricultural Development Center in Wooster, Ohio as a research assistant from 1959 to 1962.



Dr. Willis directed the Biology Audiotutorial Program at Central State University, Ohio, prior to joining NIH.

Later Dr. Willis became a plant pathologist at the Center, devoting more time to experimental testing and scientific writing.

From 1962 to 1968, he was a research plant pathologist with the Plant Sciences Laboratory, Ft. Detrick, Md.

In 1968, he became professor of Botany and director of the Biology Audiotutorial Program, Central State University, Wilberforce, Ohio, a position he held until he accepted his present appointment.

Dr. Willis is a member of the American Association for the Advancement of Science, the Research Society of America, Sigma Xi, the Sigma Gamma Delta Society, the Society of Sigma Xi, and the Gamma Alpha Scientific Professional Fraternity.

Dr. James Whittico Is Appointed To Advisory Manpower Council

Dr. James M. Whittico, Jr., a surgeon and assistant clinical professor at the St. Louis University School of Medicine, Mo., has been named to the National Advisory Council on Education for Health Professions for a term ending February 1973.

A diplomate of the American Board of Surgery (1951) and a fellow of the American College of Surgeons (1952), Dr. Whittico is a member of the National Medical Association, in which he held various offices, and the AMA.

National Institute of Neurological Diseases and Stroke

Twentieth Anniversary Feature

Deadly Shark May Hold Key to Unlocking Secret Of Blood-Brain Barrier

NINDS scientists are approaching brain research in many new ways, including a study of the blood-brain barrier (BBB) of the shark to learn the secret of its resistance to injury.

The BBB regulates and limits the exchange of substances between the blood and the central nervous system of all vertebrates.

Guards Brain

As a guardian of the brain, allowing certain agents in the blood ready access and denying or restricting entry to others, the BBB is largely responsible for the health and proper functioning of the central nervous system.

According to Dr. Igor Klatzo, chief of the NINDS Laboratory of Neuropathology and Neuroanatomical Sciences, the shark is particularly significant to BBB research because of its amazing resistance to brain damage.

In experiments at the Lerner Marine Laboratory on the Bahamian island of Bimini, one of the world's foremost marine biological research centers, sharks have been subjected to brain damage that no human or other mammal could endure.

(See BRAIN, Page 6)

'Goals ... Progress ... Problems' Reviewed As Institute Contemplates New Horizons

Twenty years ago, the National Institute of Neurological Diseases and Blindness was born. It was created to guide and direct the national research effort in the neurological, sensory, communicative, and neuromuscular disorders.

Two years ago, one of its original functions, research on blindness, was largely removed by the creation of a new National Eye Institute.

Dr. MacNichol

Shortly thereafter, the word "Stroke" was incorporated in a revised title to reflect an increased Institute responsibility in this area of research.

Clearly the old, yet new, National Institute of Neurological Diseases and Stroke is undergoing change. Has organizational change been accompanied by progress in other areas?

As the NINDS celebrates its 20th anniversary, it seems a good time to look at its history, goals, progress, and problems.

The Institute's first Director, Dr. Pearce Bailey, worked with a budget of little more than $1 million—and virtually no staff.

He soon developed a program for the support of extramural research, particularly in the universities, through research grants. Training programs were then established in neurology, ophthalmology, neurosurgery, otolaryngology, speech pathology, and in basic neurological research.

After the NINDB program was underway, it became apparent that research could be speeded through cooperative arrangements to consolidate program activities on institutional, geographic, and disciplinary levels.

The first example of a cooperative project on the institutional level was on retrolental fibroplasia (RLF) in 1952.

Eighteen hospitals participated in this project to determine the role played by the administration of oxygen to prematures in the production of RLF.

Preventative Found

The study found the disorder could be prevented by reducing the concentration of oxygen administered to prematures.

In April 1957, NINDB launched the Nation's first cooperative research attack against cerebrovascular diseases. These diseases collectively known to the layman as "stroke" constitute the Nation's third-ranking killer.

During late 1956 and early 1957, the Institute, working in conjunction with the University of Puerto Rico, acquired and modernized a monkey colony on an island in Puerto Rico along with various laboratory facilities.

The colony and laboratory were set up with a view to playing a key role in the broad perinatal period study.

The collaborative and field research program has been maintained and supplements the extramural grants program and intramural research. These three research approaches make up the broad NINDS research attack on neurological problems.

Masland Named Director

Dr. Richard L. Masland became the second NINDB Director in 1959. He had joined the Institute 2 years earlier to head the newly organized Collaborative Perinatal Research Project.

Dr. Masland took a special interest in the causes of mental retardation, promoting further research in such conditions as phenylketonuria

(See HORIZONS, Page 6)

Institute Growth, Scope Mirrored in Expanded Extramural Programs

An accurate indicator of NINDS growth over the past 20 years can be found in its Extramural Program. In 1951, when the Institute undertook the support of qualified scientists conducting research in the Nation's medical schools, universities, hospitals, laboratories, and other nonprofit institutions, awards totaled only $212,451.

$60 Million Program

This year, the Extramural Program is making grants and awards of $60.4 million to support a broad program of basic and clinical research and to train the specialists needed to expand the scope of investigations in neurological and communicative disorders and to apply the new knowledge to the treatment of disease.

It is the task of Dr. Murray Goldstein, associate director for the Extramural Program, and his staff to manage 1277 research grants and 219 training programs currently active, to develop new programs and to work closely with non-Government scientific review groups who assess the hundreds of new and renewal applications that are submitted yearly to NINDS.

Much of the material considered by the initial review committees and later by the National Advisory

(See EXTRAMURAL, Page 7)

Broad Institute Support Seen as Opening New Age of Research in Speech, Hearing

Now that a rubella vaccine has been successfully developed, thousands of infants who might otherwise have suffered severe hearing loss as a result of maternal rubella infection will have normal hearing.

In numbers this has great significance, since it was estimated that a high percentage of the 20,000-30,000 children born with congenital rubella during the 1964 epidemic may suffer some degree of hearing loss.

Communications Gap

But in a time when communication networks are developed to such a sophisticated degree that we can hear—as they are spoken—the words of the first men on the moon, it seems inconsistent and tragic that many Americans still suffer from disorders of speech, hearing, or language (the ability to assign meaning to words and sentences).

A recent report by an NINDS advisory committee estimates that one in every 10 Americans suffers from a communication problem of noteworthy magnitude.

"Hearing research," according to Dr. Eldon L. Eagles, assistant director of NINDS, "is a field which is truly in its infancy."

In recognizing a growing need for more sophisticated research, the Institute has in the last 10 years increased ten-fold its expenditures for training and investigation.

A neuro-otology laboratory will be developed here to supplement research conducted throughout the country with NINDS grants and contracts.

Much of the new laboratory's research will stem from a pioneer discovery by Dr. Grant L. Rasmussen, Laboratory of Neuropathology and Neuroanatomical Sciences.

Scientists already knew that certain nerves (afferent) relay messages from the ear to the brain. But Dr. Rasmussen found that a "feedback" system was also oper-

(See NEW AGE, Page 8)

Clues to Riddle of MS, Other Disorders Sought Among Known Viruses

While several scientists are looking for the answer to the MS riddle through the discovery of a "slow" virus, others hope to find clues to this disease among the known viruses.

There is a strong possibility, many researchers believe, that MS represents an atypical response to a common viral disease such as measles.

Early in 1969, NINDS and Institute-supported scientists reported the discovery that a common virus is associated with a progressive, chronic nervous system disease in humans.

Their demonstration that measles virus is associated with a rare brain disorder, subacute sclerosing panencephalitis (SSPE), may help in developing the theory that viruses may cause multiple sclerosis, Parkinson's disease, and other more common neurological diseases.

HORIZONS

(Continued from Page 5)

(PKU) and rubella.

The joint basic research extramural program of NINDB and the NIMH was divided and organized as two separate programs in 1960.

The primary objective of the new basic research program of NINDB was to understand the anatomical basis on which the varied activities of the nervous system depend, and to discover the electrical, physical, and chemical changes which accompany alterations in them.

In 1961, the first program-projects and clinical research centers were supported. The next year funds were appropriated for professional and technical information assistance, and neurosurgery and neuroradiology training grants were established.

A program of developmental graduate training grants was started in 1963. Other programs began during this period were the Section on Head Injury in 1965, the Neurological Information Network in 1966, and the vision outpatient research centers in 1967.

In 1968, Dr. Edward F. MacNichol, Jr. became the third Director of the Neurology Institute. The same year the blindness program of the Institute became the nucleus of the new National Eye Institute.

Dr. Bailey

Dr. Masland

A special laboratory building shared jointly with NIMH was completed and dedicated in 1969. The new 40,000-square foot building has allowed for considerable expansion of the intramural research program.

The Institute's intramural research program is now organized around 11 laboratories and branches—eight for basic research, and three for clinical studies.

The clinical research program is housed in the NIH Clinical Center where 52 beds are divided between surgical and medical neurology.

Relatively New Field

Today, neurology is a relatively new branch of medicine—barely a century old. Only in the 19th century did neurology start to develop as one of the medical sciences.

Advancing knowledge of anatomy and physiology provided the basis for development of scientific methods for treatment of neurological disorders.

Yet neurology is still, in many ways, the stepchild of medicine. It is bristling with unsolved problems of which doctors and related scientists are too painfully aware.

In contrast, medical developments of the last 20 years, particularly antibiotics and immunological techniques, have brought an almost incredible reduction in infant mortality from acute infectious diseases. Epidemics have been controlled.

The control of chronic disease, of which diseases of the brain and nervous system are a large proportion, however, has not kept pace.

It is not at all surprising. The brain is the most complex structural organization known to man. It comprises more than 4 billion cells, each with a separate role in the processes of thinking, moving, seeing, hearing, and even digestion.

Recent advances point to a much more hopeful future. This past year, long-term research efforts undertaken and supported by NINDS, have been paying off in several important areas described in some detail elsewhere in this issue.

NINDS Support Advances L-DOPA Use, Exploits New Investigations and Therapy

"Their work is an exciting development in the application of biochemistry to the treatment of a chronic neurologic condition and the most important contribution to medical therapy of a neurologic disease in the past 50 years . . ."

Thus spoke the prestigious *New England Journal of Medicine* in an editorial in its issue of February 13, 1969.

The reference was to the development of L-DOPA (levodihydroxyphenylalanine) for treatment of Parkinson's disease, an ailment estimated to affect between 500,000 and 1,000,000 Americans.

Role Cited

Although the Institute cannot claim major credit for the discovery, it has played an important role in bringing L-DOPA into widespread use, and is increasing its effort to exploit all new research opportunities the development has created.

L-DOPA therapy illustrates the important interrelation of basic research and clinical studies.

Fundamental research at NIH in the late 1950's, performed in the main in NHI laboratories by Dr. Bernard B. Brodie and colleagues, produced a wealth of new information on neurochemical transmitter substances, known as catecholamines.

Then in 1960, scientists at the University of Vienna reported that they had found a marked depletion of the amine, dopamine, in the basal ganglia of Parkinson patients at autopsy. This clearly pointed to the possibility of replacement therapy.

Early efforts to replace dopamine directly were unsuccessful. It was found that it would not cross the blood-brain barrier.

Then scientists in several countries suggested that dopamine's metabolic precursors—preceding links in the chain of chemical reactions leading to its production—might cross the barrier.

The suggestions were correct but early trials with DOPA, dopamines immediate precursor, were inconclusive.

As it subsequently became clear, DOPA was not at first given in such a way that an effective concentration could be built up slowly to minimize side effects.

It remained for two PHS grantees to open up this new "biochemical engineering" approach. The first, Dr. George C. Cotzias of the AEC's Brookhaven National Laboratory, began preliminary trials of DOPA in 1966 and settled many of the controversial interpretations of previous results by using high doses and prolonged administration.

Findings Confirmed

His work was confirmed and extended by a number of clinical groups, the largest headed by Dr. Melvin Yahr, Director of the NINDS-supported Parkinson's Disease Research Center at Columbia University.

Trials were launched by two drug companies, Hoffman-LaRoche and Eaton Labs, and L-DOPA was licensed for general prescription use by the FDA on June 4, 1970.

In addition to funding the Columbia Center, NINDS supports a number of projects in which the mode of action of L-DOPA is being studied, and also sponsors scientific meetings aimed at stimulating research in the field.

Although L-DOPA is now in the stage of commercial production and is helping thousands of severely disabled Parkinson patients, a number of urgent questions remain.

Unclear How It Works

First, scientists are not yet completely clear on how it works, and they have yet to discover the cause of the underlying error in brain cell metabolism that seems to be the cause of parkinsonism.

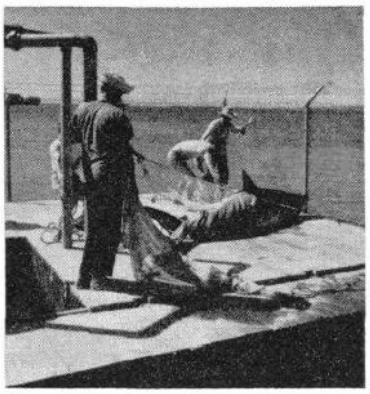
Another question is whether L-DOPA therapy slows down the progress of Parkinson's disease. Opinions among the most experienced investigators differ, and not enough time has passed to tell.

One of the problems with L-DOPA therapy is that the drug has a large number of possible side effects.

Scientists in Canada and Switzerland are combining L-DOPA with enzyme inhibitors which make possible dosage reductions and substantially reduce side effects.

However, there are many unanswered questions about the enzyme inhibitors. Metabolic disturbances in animals given inhibitors have been noted, and it has also been pointed out that the inhibitors may cause chromosome damage.

Still poorly understood are the not uncommon psychiatric aspects of L-DOPA therapy. Some patients experience impaired judgment, anxiety, depression, hallucinations, and other mental disturbances.



The trickiest part of the whole operation, according to Dr. Klatzo, is preparing the shark for anesthesia. This 10-11 foot shark is unusually big—most sharks used are only about 2-3 feet long.

BRAIN

(Continued from Page 5)

Such damage in other mammals would be fatal, causing brain swelling, hemorrhage, and edema. In the shark, there is a complete lack of tissue reaction surrounding the injury, no swelling, no edema, and recovery is rapid.

The secret of this strength perplexes NINDS scientists. In mammals, they note, the barrier is decidedly more vulnerable to damage.

The defenses can be weakened by a blow on the head, by a brain tumor or infection, or by a toxic substance circulating in the blood that the BBB—which is not always able to distinguish between friend and foe—allows to pass through.

Edema Deadly

Brain edema—the swelling of brain tissue caused by fluid accumulation—is for humans a dread complication of head injuries, brain tumors, and inflammation.

It occurs when the barrier loses some of its ability to select the proper materials out of the blood and permits the wrong substances to pass through.

"There is no brain edema in sharks," Dr. Klatzo says. "You can't even induce it. Something in shark brain tissue prevents weakening in the barrier."

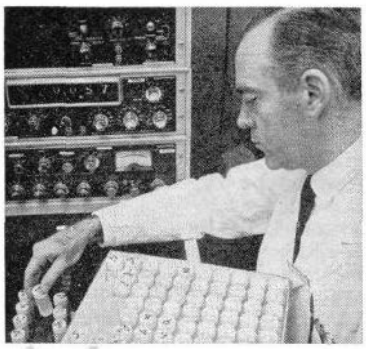
If the secret of this becomes known, the shark, which is considered a deadly enemy of swimmers, may well make a major contribution to mankind.

Rare Metabolic Defects Being Uncovered With New Diagnostic Tool

Amniocentesis—a way to diagnose disease before birth by tapping amniotic fluid and then studying the fetal cells harvested and grown from it—is still in its infancy.

But the list of diseases surrendering their biochemical secrets grows, promising to mature amniocentesis into one of the most valuable diagnostic techniques available.

Tapping amniotic fluid from pregnant women, usually in their 14th-18th weeks, is a relatively simple and painless procedure.



Dr. Roscoe O. Brady, NINDS Laboratory of Neurochemistry, places vials of labeled biological specimens in the scintillation counter for analysis of enzyme activity.

The key to diagnosis, however, lies in knowing what to look for in the cells of fetal origin drawn out of the fluid surrounding the fetus.

If a biochemical or structural (chromosomal) defect exists in the fetal cells, the abnormality also exists in the fetus.

The metabolic defect responsible for most genetic disorders—which cause about one in five childhood deaths—is the absence of a specific enzyme.

The specific missing enzyme must be identified as the culprit in order for amniocentesis to be used to diagnose these genetic disorders.

Over the past 4 years, NINDS scientists and scientists elsewhere have forced six rare hereditary diseases to give up their biochemical secrets by discovering the exact missing enzyme in each.

Taken as a group, these diseases are known as sphingolipidoses because in each, the missing enzyme allows the build-up of a fatty material called sphingolipid in tissues.

Now that the enzymes have been identified, these six may soon be added to the list of disorders discernible by amniocentesis.

Dr. Roscoe O. Brady and Dr. Edwin Kolodny, NINDS Laboratory of Neurochemistry, along with Dr. Bruno W. Volk, Issac Albert Research Institute, confirmed that the absence of hexosaminidase produces the symptoms of Tay-Sachs disease—the most prevalent of the sphinogolipidoses.

Children with this presently incurable disorder suffer from mental retardation and blindness and usually die by age 3.

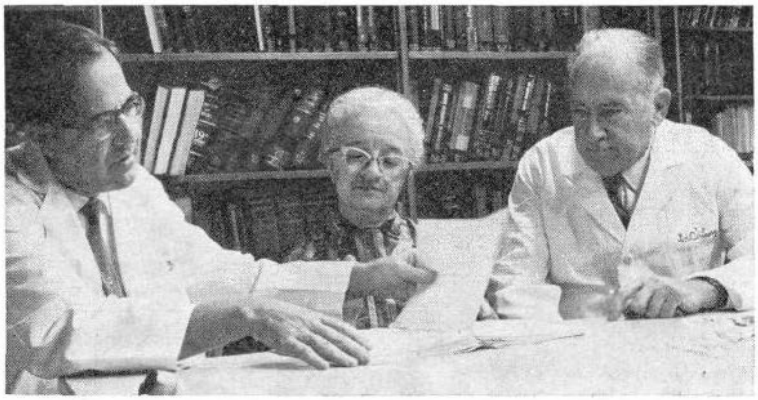
Their finding confirmed other studies done by Drs. John S. O'Brien and Shintaro Okada, NINDS grantees at the University of California at San Diego.

Head-Joined Siamese Twins Successfully Separated by NINDS Surgeons in 1956

A unique accomplishment by neurosurgeons in the Clinical Center was the separation of the Bunton twins, Virginia and Theresa.

The girls, now 14 years old, are the only head-joined Siamese twins in the United States, and perhaps in the world, to survive surgery and recover completely.

Surgery to separate the twins, which required dividing the shared bone and the two brains, was performed in 1956 by the late Dr. Maitland Baldwin, NINDS neurosurgeon.



During a recent site visit to Washington University School of Medicine, St. Louis, Mo., Dr. Mathilde Solowey, chief, Section on Program Projects and Clinical Centers, conferred with Dr. James L. O'Leary (right) and Dr. William M. Landau, past and present Program Director, respectively, of the school's NINDS-supported "Coordinated Basic and Clinical Brain Research Program."

Invitation to Observe Kuru in New Guinea Stimulates NINDS 'Slow Virus' Research

Thirteen years ago, an NINDS scientist accepted an invitation from a young Australian health officer to observe a disease among the Stone Age Fore tribe in the eastern highlands of New Guinea.

The strange new disease was kuru, the first chronic, progressive, neurological disease discovered in recent years.

It was soon noted that kuru had some similarities to scrapie, a neurological, degenerative, fatal disease of sheep. Nerve-cell damage in kuru is exactly like that in scrapie, and the two diseases follow a similar course.

Scrapie is but one of several diseases, characterized by a long incubation period and a protracted clinical course, which have been described during the past 15 years.

Brain tissue of affected animals contains an infectious agent that induces the illness after an incubation period of usually 2 to 4 years, and never less than 6 to 8 months.

Six children, all victims of kuru, assembled at the Okapa research center (New Guinea) in 1957. All died of the disease within 6 months after the picture was taken.

Arouses Interest

The discovery of kuru, a human neurological disease similar to scrapie, known to be caused by a transmissible agent, aroused considerable interest.

After noting their similarity, NINDS scientists decided to test the slow virus theory by putting kuru-infected tissue into as many kinds of laboratory animals as possible.

This research approach was considered so promising, the Institute established in 1962 a special slow virus laboratory. The program was planned to include the inoculation of many species of primates, including the chimpanzee, and long-term observation of these animals for at least 5 years after inoculation.

This approach led to the successful transmission of kuru to chimpanzees after long incubation periods varying from 14 to 38 months.

A second passage of brain tissue from afflicted chimpanzees to chimpanzees reduced the incubation period to about one year.

Kuru thus became the first chronic disease of human brain shown to be caused by an infectious agent.

NINDS scientists later transmitted kuru to a second, smaller primate—the spider monkey—raising hope that the agent may be made to grow in the laboratory, where it will be easier to study and isolate.

Other Studies Launched

Institute investigators then launched into studies of other chronic, central nervous system diseases. The disease bearing the closest resemblance to kuru in America and elsewhere throughout the world is Jakob-Creutzfeldt.

A number of animals were inoculated with brain tissue taken from Jakob-Creutzfeldt patients. These injections induced disease in eight chimpanzees after incubation periods of only 12 to 14 months.

Since the discovery that kuru and Jakob-Creutzfeldt are caused by some transmissible agent, scientists in the slow virus program have extended their search to viruses which might be involved in the etiology of more prevalent neurological disorders such as multiple sclerosis, Parkinson's disease and amyotrophic lateral sclerosis.

EXTRAMURAL

(Continued from Page 5)

Neurological Diseases and Stroke Council is obtained on site visits to institutions seeking support.

Each site visitor team—composed of non-Government scientists—is accompanied by the NINDS scientist-administrator responsible for managing the program area into which the application falls.

On a site visit, detailed consideration is given to the scientific merit of the proposal, the ability of the investigator, the adequacy of available facilities, the relationship of budgetary estimates to the proposed work, and the overall significance of the project in relation to the need for knowledge in the scientific areas involved.

Findings of the site visitor team are summarized and transmitted to the NANDS. Composed of 12 leaders in medical science, education, and public affairs, the Council reviews each application from the standpoint of policy, program needs, and availability of funds, as well as scientific merit.

Finally, the Council sends its recommendations to the NIH Director who makes the formal awards according to these recommendations and as funds permit.

NINDS Clinicians Probe Complex Illnesses at CC

An awareness of how many "things" can go wrong with the brain and nervous system came to millions of TV viewers who weekly faced the complexities of neurosurgery with Ben Casey. The show fizzled out—the complexities have not.

They are being dealt with continuously by clinicians in the Institute's Medical and Surgical Neurology Branches. The Surgical Neurology Branch has 22 in-patients at the Clinical Center and 12-16 outpatients a week.

The decision to admit a patient, based on the patient's medical history and applicability to current studies, is made by Drs. John M. Van Buren and Ayub Ommaya.

Through studying these patients doctors are trying to find answers to a number of perplexing problems from pain to epilepsy.

In addition to those two, neurosurgeons are also currently studying: head injury, diseases precipitating involuntary movements such as parkinsonism and dystonia, and brain tumor.

Engel Heads Branch

The Medical Neurology Branch headed by Dr. W. King Engel, with Dr. John R. Warmolts, associate neurologist, is studying a variety of patients with neurological and muscular problems.

Eleven clinical staff doctors see patients with muscular dystrophy, myotonia, periodic paralysis, metabolic and endocrinologic muscle disease, myasthenia gravis, neuritis, and neurological disease accompanied by protein abnormalities.

Diagnostic and basic research studies are being conducted on patients with amyotrophic lateral sclerosis and ataxia.

Babies with muscular weakness as well as their parents who are "carriers" (pass on hereditary diseases without having the disease themselves) are also seen.

Diagnostic evaluations, electromyography, and clinical biochemistry tests are helping doctors understand the processes involved.

Dr. R. A. Pieter Kark performs spinal tap on patient with Julie Tedford, CC Nurse, assisting.

Long-Term Perinatal Study Yielding New Knowledge About Maternity, Infant Care

The causes of certain disorders affecting children—cerebral palsy, epilepsy, mental retardation, and many communication disorders are for the most part unknown.

It is clear, however, that their origins lie in events that occur between conception and the early months of life.

One of the first actions of the newly organized staff of the Institute in 1952 was to plan a long-range program to study the nature of these prenatal and early neonatal causes of neurosensory deficit.

Thus was conceived the project which was eventually to involve thousands of medical researchers, workers, and patients.

14 Institutions Involved

It is the Collaborative Perinatal Research Project, a national program being conducted by NINDS in collaboration with 14 medical institutions.

Experiments with guinea pigs and monkeys had demonstrated that mental retardation could result from prenatal asphyxia, but data on the perinatal injuries in children was rare.

Research generally consisted of tracing the causative factors of mental retardation or cerebral palsy, usually years after the victim's birth.

Such retrospective research seemed painfully inadequate to the challenge of discovering the causes of these and other disorders.

By 1954, plans were underway to launch a *prospective* project for perinatal studies. This collaborative project was the first attempt to collect data early in pregnancy from women whose children would be closely checked until the age of seven.

Began in 1959

The project began in 1959, and since then data have been gathered on 58,000 women and their offspring. Every possible detail of the deliveries of these infants was observed and recorded. Further tests followed, and each child is regularly checked thereafter until his seventh year.

Investigators are attempting to associate the results of pregnancy with specific maternal characteristics. The mothers have been carefully checked for weight, height, weight gain during pregnancy and menstrual history, and the importance of these factors is being tested.

Other studies consider the possible influences of such factors as race, sex, birthweight and gestational age on the development of the child.

In the near future, timetables will be developed for processing the voluminous data from this project.

Reports are expected to focus on:

"The identification of prenatal factors operative 1) in neurological problems identified in one-year-old children, 2) in neurological and developmental problems that are identified in children at 4 years and at 7 years, and 3) as precursors of deficiencies in speech, language and hearing performance."

Response to a red ring is one of the mental development tests given to 8-month-olds in the Collaborative Perinatal Research Project.

NEW AGE

(Continued from Page 5)

ating—that certain other nerves (efferent) carried messages from the brain to the ear.

This discovery has opened a whole new area of research, and Institute scientists are planning research on both the normal and abnormal behavior of efferent and sensory central nerves.

Institute grantees at the Central Institute for the Deaf in St. Louis a few years ago developed a computerized method for diagnosing the degree of hearing loss in young children. The technique—diagnostic audiometry—eliminates possible errors brought on by distractions or the child's inability to concentrate or follow instructions, which was a problem with conventional tests.

In many hearing disorders, early diagnosis makes a difference for hearing loss can best be treated early.

However, scientists have yet to find a succesful treatment or cure for sensori-neural deafness (often called VIIIth nerve disorder).

Work on this disorder is being expanded at the Institute-supported Northwestern University's Communications Out-Patient Clinic where a special test unit has been established for clinical studies.

Several grantees, currently studying noise-induced hearing loss, have already established that even a 2-hour exposure to steady rock and roll music can produce some hearing loss in some individuals.

Studies on the basic level are having direct practical implications for determining safe levels of noise in industry, transportation, and other factors in the human environment.

Training Programs Help Overcome Shortage of Neurological Scientists

The sharp rise in the number of neurological scientists in this country in the past 20 years has come about largely as a result of NINDS training programs.

When the Institute was founded, it was evident that medical ability to prevent, treat, or cure neurological and sensory disorders was seriously impaired by a lack of trained manpower.

Thus, the recruitment and training of laboratory and clinical scientists for careers in research and teaching became a matter of first importance.

Adapts to Needs

Through the Training Grants and Awards Branch, Extramural Programs, the NINDS initiated programs to train these needed specialists in neurology, ophthalmology—then an Institute responsibility—and otolaryngology.

Over the years Institute programs have been adapted to new training requirements as they developed and have been extended to institutions and to individual scientists throughout the Nation.

An example of the impact of the NINDS training efforts is in the field of child neurology. The first two organized child neurology training grant programs were undertaken with NINDS support in 1957.

Today, the Institute supports 12 child neurology training grant programs. In addition, more than a third of the neurology training grant programs include a child neurologist on the training staff.

Approximately 80 child neurologists have completed training within this period and are now themselves teacher-investigators providing clinical care to neurologically disordered children in academic institutional settings.

219 Programs Supported

In fiscal year 1970, NINDS supported a total of 219 training programs at a cost of $11.5 million. In addition to the 12 child neurology programs, these included 62 in neurology; 46 in otolaryngology; 23 in neurosurgery; 14 in neuropathology; 13 in neurophysiology, and 10 in neuroradiology.

Also, six in the communicative disorders; five each in medical audiology, neuroanatomy, and neurological basic sciences; four each in neuropharmacology and speech pathology; three in sensory physiology; two each in cerebrovascular disorders, neurobiology, and neurochemistry and one in neurovirology.

NHLI Plans for Centers To Solve High Priority, Specific Area Problems

The National Heart and Lung Institute intends to establish, on a competitive basis, a limited number of specialized research centers devoted to the solution of specific problems identified by the Institute as of high priority, and in one of four disease areas.

These are: arteriosclerosis, thrombosis, pulmonary disease, and hypertension.

Program Aims Cited

The program will focus resources, facilities, and manpower on particular problems and expedite the development and application of new knowledge essential for improved diagnosis, treatment, and prevention of these diseases.

The support mechanism for the centers will be grants-in-aid but it will differ from other research grants both in its goal orientation and in the degree of NHLI participation.

In this sense, the award of a center grant will connote a special relationship between the Institute and the grantee institution.

The deadline for receipt of application is Jan. 1, 1971. Applicants may expect to be advised of action on their proposals about June 1971.

An orientation meeting concerning this Specialized Research Center Program will be held by the Institute on Oct. 15, in Washington, D.C.

Copies of a detailed program announcement, describing the Specialized Centers of Research, and information concerning the orientazide Centers of Research, may be obtained by writing to:

Dr. Jerome G. Green, associate director for Extramural Research and Training, National Heart and Lung Institute, Bethesda, Md. 20014.

Science Academy Invites Russian, European Study

The National Academy of Sciences is inviting applications from scientists who wish to visit the Soviet Union or other Eastern European countries.

Researchers may study in Yugoslavia, Romania, Poland, Czechoslovakia, Bulgaria, and Russia in the academic year 1971-72 under the provisions of exchange agreements between the U.S. National Academy of Sciences and counterpart academies in these countries.

Any American scientist who possesses the doctoral degree, or its equivalent, in the natural sciences, or who is now a candidate for the doctorate and will receive it prior to the time he would like to make an exchange visit, is eligible for consideration in the program.

A knowledge of Russian language is essential for scientists wishing to visit the Soviet Union. Research visits may be made to Russia from 3 to 10 months.

For other Eastern European countries, applications will be accepted for periods ranging from one-month lecture tours to long-term research visits up to one year.

Salary Loss Provision

Provision is made to compensate for a scientist's loss of salary up to $1,500 a month during his research visit.

Researchers remaining longer than 5 months will be reimbursed for the transportation of members of their immediate family.

Applications should be received by the National Academy of Sciences before Nov. 23. Candidates will be notified of final selections in February 1971.

For further information and application forms, write to: Office of the Foreign Secretary (USSR/EE), National Academy of Sciences, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

The NIDR Information Office, under the supervision of Tula Brocard, was recently presented a group award for superior work performance. Dr. Seymour J. Kreshover, Dental Institute Director, cited the staff for their outstanding work. L to r are: Edward Bronson, Hilah Thomas, Mrs. Brocard, Dr. Kreshover, Sue Hannon, Anne Atlee, Hedy Shpritz, and Sally Wilberding. Marie Norris was not present for the picture.

Progress In Regulation of Reproduction Counterbalanced by Areas of Ignorance

Reproduction is an area in which "tremendous progress has been made on the one hand" with "vast areas of ignorance" still remaining on the other, said Dr. M. G. Candau, Director-General of the World Health Organization when delivering the keynote address at a 5-day conference here.

The need to intensify fundamental research is urgent since reproduction receives such a small share of total research expenditures around the world, he told participants in the conference on "The Regulation of Mammalian Reproducton," held Sept. 27-Oct. 1 at NIH.

Dr. Candau stresses the need to intensify fundamental research in reproduction in keynote address.

It was sponsored by the Center for Population Research, National Institute of Child Health and Human Development, and the Fogarty International Center.

The threefold purpose of the conference was: to summarize current knowledge; clarify interrelationships of reproductive processes and their relevance to each other, and to reveal knowledge gaps that require research.

More Than 130 Attend

More than 130 scientists from 24 countries attended the first conference since 1959 to cover all of the major areas of reproductive physiology. They heard leading health officials from HEW and WHO discuss population problems.

Dr. Roger O. Egeberg, HEW Assistant Secretary for Health and Scientific Affairs, told conferees he considered population the most important problem to our country and the world. He called the conference a "landmark in progress in this field."

Deputy Assistant Secretary for Population Affairs, Dr. Louis Hellman, told the group, "the means to control population satisfactorily are not now at hand."

He added that these means would be developed only if basic research in reproduction is successful.

Major sessions of the conference, each chaired by an expert in the field under discussion, covered six areas vital to regulation of mammalian reproduction.

These areas—the reproductive activities of the pituitary, sperm, ovum, oviducts, corpus luteum, and transport of gametes—are the basis of the reproductive biology program of the Center for Population Research.

Press Conference Held

At a press conference following the meeting, Dr. Philip Corfman, Director of the Center; Dr. Sheldon Segal, conference chairman and Director of the Biomedical Division of the Population Council; Dr. Egon Diczfalusy of the Karolinska Institute in Stockholm, and the session chairman told reporters of progress made in reproduction research in the past decade.

They also discussed promising new approaches to fertility control suggested by the research summarized at the conference. These included hormonal implants for the male and methods which would alter the consistency of the cervical mucus, making it impenetrable to sperm.

MANPOWER

(Continued from Page 1)

vision of Health Manpower Educational Services.

The Division of Manpower Intelligence is also new. Dr. Eugene Confrey will hold the post of Acting Director in addition to his regular duties as Associate Bureau Director for Program Planning and Evaluation.

Dr. Thomas G. Bowery remains DRR Director.

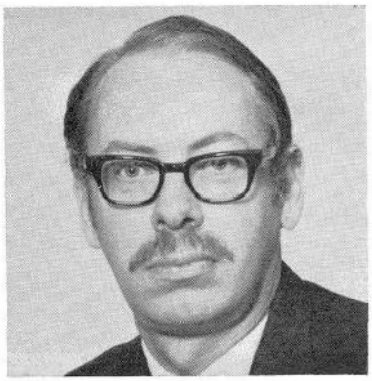
The Division of Research Resources—transferred to the health manpower bureau through a reorganization in January 1969—now returns to independent status as one of NIH's research divisions.

The Division administers and manages grants for general research support and research resources. Included are grant programs for general clinical research centers, primate research centers, laboratory animal resources, special research resources, and general research support.

Last year, the Division's four branches gave awards to over 450 institutions throughout the U.S.

Awards went to health professional schools (medicine, dentistry, veterinary medicine, public health, and pharmacy), to hospitals, and to research organizations.

Dr. Johns Heads NCI's Newly-Created Section Of Drug Metabolism



Dr. Johns was presented a 5-year Faculty Research Award by the American Cancer Society in 1968.

Dr. David G. Johns, associate professor of Pharmacology and Medicine at Yale University, has been named head of the National Cancer Institutes recently-established Section of Drug Metabolism.

The new section is a unit of NCI's Laboratory of Chemical Pharmacology.

Created to study the metabolic activity of anti-cancer drugs and related compounds, the section is concrened with the application and development of pharmacologic, physiologic, and biochemical techniques.

Seeks Safer Usage

Beginning with the basics of molecular biology, the investigations will evolve into the complexity of whole animal physiology.

The section's studies are part of a continuing effort to establish the safest and most effective way to use cancer chemotherapeutic drugs in man.

Dr. Johns, an experienced clinical investigator and pharmacologist, received his M.D. and Ph.D. degrees from McGill University in Montreal, Canada.

The author of over 40 publications in his field, Dr. Johns is currently the associate U.S. editor for the professional journal, *Biochemical Pharmacology*.

Booklet Discloses Nature Of Viruses and Effects

Viruses can attack plants, animals, and humans. Yet, in spite of their aggressive nature, they must rely on living cells for reproduction.

How they fight their way into our systems and multiply is described in a new booklet released by the National Institute of Allergy and Infectious Diseases entitled *Viruses: On the Border of life*.

Single copies of the publication may be obtained by writing to the NIAID Information Office, Bethesda, Md. 20014.

'Brilliant, Warm, Generous, Gentle'—Colleagues Eulogize Ernest Cotlove at Memorial Service

A memorial service honoring the late Dr. Ernest Cotlove was held at the Washington Hebrew Congregation on Sept. 27.

Dr. Cotlove was acting chief of the Clinical Pathology Department, Clinical Center, at the time of his death on Sept. 13 (See *NIH Record*, Sept. 29).

Following are excerpts from eulogies delivered at the service as well as other tributes to Dr. Cotlove:

We who were privileged to be closely associated with Ernest Cotlove during his decade in the National Heart Institute were impressed by his absolutely first-rate mind.

His brilliance and meticulousness showed in his fundamental investigations into the distribution of electrolytes in tissues, in his studies on the heterogeneity of inulin, and in the fact that he was the first to label inulin radioactively.

These same personal qualities also reflect in the method that he co-developed for chloride determination and in his contribution to laboratory medicine. His innovative accomplishments are going to remain in use for a long time.

We are all fortunate that Ernest Cotlove was available at the time when a man of his capacities was needed.

Dr. Robert W. Berliner
Deputy Director for Science, NIH

It is given to only a few to make a lasting impact on society. Ernest Cotlove was among these. Under his expert guidance, the most advanced computer processing application to laboratory automation was developed and remains today the model for all other such systems.

But his greatest and lasting contribution was a remarkable native skill in teaching. By a career thus dedicated, Ernest Cotlove's profound impact on his associates and former residents will influence laboratory medicine long into the future.

For this and for the personal privilege and benefit of knowing and learning from Ernest Cotlove, we are all deeply grateful.

Dr. George Z. Williams, Director
Research Institute of Laboratory Medicine
Pacific Medical Center
(formerly chief, Clinical Pathology Department, CC)

To know Ernest Cotlove was to feel a deep sense of warmth. It was not his concern for patients alone; his calm, open look at the world around him; his fecund sense of humor which saw a bright side to things in the midst of all their seriousness, or his concern with social issues which transcended concentration on real but smaller problems.

It was most of all his interest in people as individuals, his wonderful warmth as a human being.

Dr. Herbert L. Abrams
Professor of Radiology
Harvard Medical School

Ernest Cotlove was my ideal as a scientist. His contributions to science and medicine extend far beyond the publications that bear the signature of his authorship, and the techniques that are marked with the stamp of his inventiveness.

His contributions extend also to the influence that he had on other scientists who admire his work, his ideals, and his impeccable standards.

Few of us are capable of leading the same sort of life that he did, but by emulating his, we could significantly enhance our own.

Dr. Solomon A. Berson
Professor of Medicine
Mount Sinai School of Medicine

I speak most knowingly of Ernest Cotlove during the decade from 1950 to 1960 when we both participated in the beginning of the intramural research program of the National Heart Institute.

The qualities that he brought to his colleagues there were both intellectual and emotional—an enormous erudition, an unflagging generosity in spirit, a warm friendliness.

However long he is remembered as a scientist, those of us whose lives were touched by his will, as long as we live, carry the memory of this fine and generous and gentle friend.

Dr. Thomas J. Kennedy, Jr.
Associate Director for Program Planning and Evaluation, NIH

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NIAID's Abinanti Returns To 'Bench' in One-Year Assignment at Scripps

Research scientists often move from the laboratory to the administrative office, but Dr. Francis R. Abinanti, associate director for Extramural Programs of the National Institute of Allergy and Infectious Diseases, who made that switch in 1964, is now moving back into the laboratory.

Dr. Abinanti will be on the NIAID intramural laboratory staff while on special assignment for one year at the Scripps Research Foundation in LaJolla, Calif.

Although his main research interest is animal models used in the study of chronic and degenerative diseases of man, he will be involved in his second area of interest—virology—at Scripps.

Studies Sarcoma Virus

Specifically, he will study certain biochemical events that may occur during replication of the Moloney sarcoma virus.

To mark his move, many of Dr. Abinanti's friends and associates gathered recently for a farewell reception. Besides wishes for success in his "new" career, Dr. Abinanti received a 35 mm slide projector, a silver ice bucket and tongs, and four silver cocktail glasses.

Dr. Abinanti returned here just in time for the occasion after spending 19 days in Switzerland, England, Scotland, and Iceland.

In Switzerland he attended the

Dr. Abinanti's career with NIAID has included both laboratory research and scientific administration.

Sixth International Congress of Immunopathology, and in the other countries he visited research institutions discussing with other scientists their work on immunology and virology.

Many were studying natural or artificially-produced viral infections in animals, work which Dr. Abinanti believes may show "that there is a genetic predisposition of people to certain infectious diseases."

DR. KUFFLER

(Continued from Page 1)

Robert Q. Marston, NIH Director, will introduce the guest lecturer.

Dr. Kuffler's presentation is titled "Viewing Living Synapses and Exploration of the Chemosensitivity of the Neuronal Surface."

His fundamental studies, termed "energetic and imaginative," have potential application to ophthalmology, neuromuscular disorders, and epilepsy.

Certain neurological disorders, for example, are due to the blockage of the flow of impulses from one nerve cell to the next or from a nerve cell to a muscle cell.

Other nerve diseases are caused by the conversion of a single impulse to repetitive impulses.

Describes New Preparation

In his lecture, Dr. Kuffler will describe the new preparation he and his colleagues have developed to study synaptic transmission via chemical substances. He will discuss some of the discoveries in neurobiology this method has allowed.

Viewing a preparation made from the tissue separating the atria of the frog's heart, Dr. Kuffler can see parasympathetic nerve cells in great detail.

With special optics, he has been able to directly observe neuronal cell bodies, presynaptic and postsynaptic axons, and the glial cells (supportive non-excitatory cells) which surround the assembly.

In this model, Dr. Kuffler has also been able to observe cellular entities within the living nerve cells and obtain cells in which the outlines of synaptic boutons can be seen scattered on neuronal surfaces.

Study of Mechanism Possible

His ability to identify a synapse—the junction between one neuron and the next—has greatly increased his opportunity to study the mechanisms by which the synaptic bouton excites the body of the nerve cell which lies across the synapse.

The moderator of all the impulses sent across synapses in the parasympathetic nervous system and in at least some parts of the central nervous system is an excitatory chemical, acetylcholine.

During his presentation, Dr. Kuffler will describe in detail his finding that synaptic areas of the living nerve cell are more sensitive to acetylcholine than extra-synaptic regions of the cell body surface.

He will also discuss his interesting discovery in the denervated heart—the heart in which the vagus nerve, the heart's parasympathetic or inhibitory influence, has been cut.

Dr. Kuffler has found that new chemoreceptive areas will form in a heart deprived of its inhibitory influence.

Born in Tap, Hungary, Dr. Kuffler received his M.D. in physiology from the University of Vienna in 1937.

In 1947 he became associated professor of Ophthalmology at Johns Hopkins School of Medicine where he remained until 1964 when he was named professor of Neurophysiology and Neuropharmacology at Harvard Medical School.

Blood Bank at CC Reports More Blood Donors Needed

The Clinical Center Blood Bank reports that seven donors have attained a special status. Judith L. Bergmann, NIMH, achieved the 2-gallon mark.

New Gallon Donor members are: Moizelle Johns and James W. Wright, ODA; Wendell E. Pugh and Lois Renfer, NIAID; Donald A. Nutt, DRS, and Lucille O. Moore, NIMH.

More blood is needed. Call the Blood Bank, Ext. 64508, to make an appointment to donate.

DN Pamphlet Designed To Help Older People And Diabetic Patients

Feet First, a colorful, illustrated question-and-answer booklet to help older people and diabetic patients of all ages avoid the consequences of foot infection has been published by the Division of Nursing, Bureau of Health Manpower Education.

This self-instructional course of basic information is presented in large, easy-to-read type.

The pamphlet also serves as a tool for teaching nursing and home health aides the rudiments of foot care for elderly and diabetic patients.

Feet First may be purchased in quantity at 60 cents a copy from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

A single copy may be obtained from the Division of Nursing, 9000 Rockville Pike, Bethesda, Md. 20014.

NIMH Art Therapy Unit Holds Seminar to Show Techniques With Families

The Art Therapy Unit of the Adult Psychiatry Branch, National Institute of Mental Health, recently held a seminar on "Art Techniques with Families" at the Clinical Center for 16 members of the American Art Therapy Association.

Hanna Y. Kwiatkowska, who heads the unit, demonstrated—by means of video tape—the use of art therapy with families of disturbed patients.

The technique points out some of the problems in the family which contribute to the patient's mental condition. It allows the patient and members of his family to draw pictures related to their life together.

Clues to the nature of problems and suggestions for their solution often develop. Sessions are held at the Clinical Center as a part of NIMH family therapy research.

Attendees Assume Roles

Those attending viewed the tapes on a special television screen and were asked to assume the role of a family member in a simulated art therapy session.

Dr. James K. Dent, a member of the Adult Psychiatry staff, and Dr. Juliana Day Franz, a former staff member, also participated in the seminar.

Mrs. Kwiatkowska is receiving a growing number of requests to conduct seminars on her technique at schools and hospitals in this country and abroad.

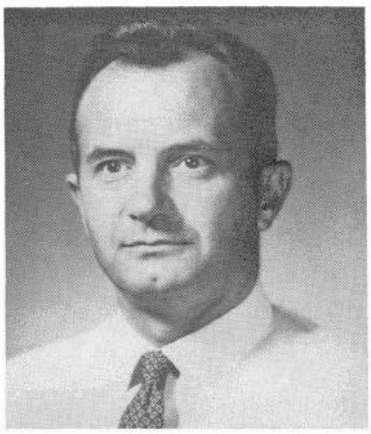
Dr. Lenfant Will Direct Expanded NHLI Program For Pulmonary Research

Dr. Claude J. M. Lenfant has been appointed associate director for Lung Programs of the National Heart and Lung Institute.

Dr. Lenfant will plan and administer an expanded Institute program of research and training activities directed against emphysema and other lung diseases.

He will also coordinate NHLI efforts with those of other Institutes of NIH.

In addition, he will work with other Federal agencies.



Dr. Lenfant serves on the editorial boards of the "American Journal of Physiology" and the "Journal of Applied Physiology."

Dr. Lenfant comes to NHLI from the University of Washington School of Medicine, Seattle, where he had served on the faculty since 1968, with the rank of associate professor of Medicine and associate professor of Physiology and Biophysics.

Dr. Lenfant, a native of Paris, completed his undergraduate training at the University of Rennes. He received his M.D. degree from the University of Paris in 1956, earning a thesis prize for his studies on extracorporeal circulation.

He subsequently served as Director of the Surgical Laboratory, Centre Marie Lannelongue, Paris, until 1957 when he came to the United States for postdoctoral studies at the University of Buffalo and Columbia.

After returning to France, he was appointed assistant professor of Physiology at the University of Lille in 1959.

In 1961, Dr. Lenfant returned to this country as staff physician and then associate director of the Institute of Respiratory Physiology, Firland Sanatorium, Seattle, and as a clinical instructor in Medicine, Physiology, and Biophysics at the University of Washington.

Dr. Lenfant is currently a member of the NIH Physiology Study Section.

COLLEAGUES EULOGIZE DR. ERNEST COTLOVE

(Continued from Page 10)

Ernest Cotlove was a committed and involved member of his community. He gave a great deal of his time, energy, and talent to upgrading the quality of education in the state of Maryland.

By helping to enrich and modernize the school curriculum, he made a substantial investment in the future. Thousands of youngsters in our State will benefit because Dr. Cotlove cared and because he worked so hard to invigorate our schools.

Richard Schifter, Vice President
Maryland State Board
of Education

Dr. Cotlove possessed those twin qualities of the superior scientist—the abilities to ask perceptive, fruitful questions and to conceive and carry out the critical experiment. But beyond this, he had human qualities more rarely found . . . he had an extraordinary kindness and gentleness and an instinctive generosity of deed as well as word.

His death is tragic not only because his scientific work was still incomplete, but even more for the irreplaceable loss of a noble human spirit, one to which I personally am much indebted.

Dr. Eugene K. Harris, chief
Laboratory of Applied Studies
Division of Computer Research
and Technology

The great number of visitors to the Annual Research Equipment Exhibit in Bldg. 22 last week reflects an increasing interest in the significant role new equipment may play in improving medical research techniques.

Conferees to Seek Best Systems for Reporting Adverse Drug Reactions

Methods of detecting, evaluating, and reporting adverse reactions to drugs will be discussed at an International Conference on Adverse Reactions Reporting Systems to be held Oct. 22-23 in the U.S. Department of Commerce Auditorium.

The Drug Research Board of the National Research Council, National Academy of Sciences-National Academy of Engineering, is organizing the conference. NIH is one of several co-sponsors.

Members of the scientific community are welcome. Registration fee for scientists attending is $5. Registration forms may be obtained from the Drug Research Board, by phoning 961-1669.

Data Deficient

The Drug Research Board reports that detection and scientific evaluation of adverse reactions to drugs are deficient in the United States at present.

As a result, the Board concluded that much current data on this subject are of questionable value. Also, information which might be obtained through current programs does not effectively reach concerned investigators.

The Board recommends closer coordination of data from the various programs in order to disseminate this information more quickly.

Speakers from the United States and several countries with well-developed systems for reporting adverse drug reactions will outline ways in which data might be more closely coordinated.

Three NIH scientists will take part in the program. Dr. Thomas C. Chalmers, Director of the Clinical Center, will be chairman of a session, Friday morning, Oct. 23, on "Investigation of Specific Problems."

During that session, Dr. Daniel G. Seigel, Epidemiology and Biometry Branch, NICHD, will speak on "A Multi-Phasic Prospective Study of Women Using Oral Contraceptives."

On Friday afternoon (Oct. 23), Dr. David P. Rall, associate scientific director for Experimental Therapeutics, NCI, will participate in a session entitled "Coordination of Programs."

In addition to the Drug Research Board, other sponsors of the conference are the National Cancer Institute, National Institute of Child Health and Human Development, and National Institute of General Medical Sciences, the Food and Drug Administration, the Pharmaceutical Manufacturers Association Foundation, Inc., and the Registry of Tissue Reactions to Drugs.

'Sailing, Sailing, Over . . .' Registration Deadline For Classes Oct. 20

Registration for the Fall 1970 beginners class instruction in sailing the Flying Scott sloops owned by the NIH Recreation and Welfare Association will continue through Oct. 20.

Forms, instructions and class materials are available at the R&W office, Rm. 1A-18, Bldg. 31.

The course, given by the NIH Sailing Association, requires attendance at two orientation sessions that will be held at NIH preceding the boat instruction and practice sailing near Annapolis early in the evenings on 5 consecutive weekdays —Monday through Friday.

Registration requires a deposit of $30 for instruction and boat rental. The Sailing Association membership fee is $3; course materials cost $2.75. Those completing the course qualify as crew members of the Sailing Association.

Crew members, or those with previous sailing experience and demonstrated competence, may request examination for qualification for skipper.

Skippers are eligible for scheduling boat rentals during the sailing season. Applications for skipper examination also are available at the R&W office. The examination fee is $6.

An additional charge is made for rental of a Flying Scott for half a day, which may be shared with other applicants.

Latest Participants in NIH Visiting Scientists Program Listed Here

9/9—Dr. Gary E. R. Hook, New Zealand, Pharmacology and Toxicology Branch. Sponsor: Dr. Hans L. Falk, NIEHS, Research Triangle Park, N.C.

9/15—Dr. Yoshio Shimada, Japan. Laboratory of Molecular Aging. Sponsor: Dr. Bertram Sacktor, NICHD, Baltimore City Hospitals, Baltimore, Md.

9/15—Dr. John R. Bend, Canada, Pharmacology and Toxicology Branch. Sponsor: Dr. Hans L. Falk, NIEHS, Research Triangle Park, N.C.

9/22—Dr. Satoko Ohinata, Japan, National Center for Prevention and Control of Alcoholism. Sponsor: Dr. Jack Mendelson, NIMH, Barlow Bldg., Rm. 12A03B.

9/28—Dr. Satoshi Mizuno, Japan, Laboratory of Physiology. Sponsor: Dr. Marco Rabinovitz, NCI, Bldg. 10, Rm. 5B54.

9/29—Dr. Kok-Ann Lim, Singapore, Collaborative and Field Research. Sponsor: Dr. D. Carleton Gajdusek, NINDS, Bldg. 36, Rm. 5B16.

9/30—Dr. Israel Schecter, Israel, Laboratory of Biomedical Sciences. Sponsor: Dr. Philip Leder, NICHD, Bldg. 10, Rm. 5B14.

Dr. John Robbins Named NICHD Clinical Director

Dr. John Bennett Robbins has been appointed the first Clinical Director for the National Institute of Child Health and Human Development.

He will direct the Institute's expanding intramural clinical research programs which will investigate normal human development as well as selected problems of intrauterine growth and the neonatal period.

Under his direction, NICHD will focus its clinical research on early development and differentiation in humans, and how infections and genetic metabolic disturbances interfere with these processes.

The development of techniques to measure the processes of early development and differentiation without injury to the developing progeny or mother is one of the long-range goals of this research.

Taught at Albert Einstein

Dr. Robbins held assistant and associate professorships in the Department of Pediatrics at the Albert Einstein College of Medicine before accepting this position.

Dr. Robbins earned his A.B. and M.D. degrees at the New York University.

He held positions at the University of Florida, the Weizmann Institute of Science, Rehovoth, Israel, and the Tel Aviv University.

Dr. Robbins will continue his own research projects which include developing a vaccine for Haemophilus Influenzae type B Meningitis and studies of development of immune mechanisms in the human fetus and infant.

He is a member of Alpha Omega Alpha, the American Association of Immunologists, and the Society for Pediatric Research.

Horace Joyner, nursing assistant, CC Nursing Department's Neurology Nursing Service, receives an award and $50 check for his suggestion to alter a foot board from CC Nursing Department chief Louise C. Anderson (left) and Elizabeth Edwards, chief, Neurology Nursing Service. By adding one stationary stainless steel bolt, swiveling of the board is prevented and the patient is given support to prevent foot drop after surgery. A second removable bolt permits adjustment of the board to fit individual patients.