

**How Mind, Emotions May Cause Disease Is Subject of NIMH-Supported Study**

How the mind and emotions may contribute to the development of physical illness is the subject of a major study recently awarded a Public Health Service grant.

The award entails an initial grant of $132,549 for the first year, plus additional support for the following six years from the National Institute of Mental Health.

Dr. George L. Engel, Professor of Medicine and Psychiatry at Rochester University, Rochester, N.Y., is the principal investigator. The study is based on clinicale evidence that seems to indicate that psychological factors frequently influence the onset of physical illness.

A variety of studies are planned to identify the kinds of stress, both environmental and psychological, that bring about disease.

The research may ultimately yield information on how and under what conditions people get diseases, and point the way toward ways of predicting—and intervening—in the onset of disease.

For example, a means may be found to minimize the psychological

(See MIND-EMOTIONS, Page 4)

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**Wild Baboons to Aid Study of Blood Pressure and Rate Flow**

*By Gary Goldsmith*

Not many medical research groups shoot leopards to retrieve their laboratory equipment, but then, not many scientists need an entire African wildlife preserve as their laboratory. A recent expedition to Kenya required all that space for a most unusual project: studying blood circulation in completely unrestricted wild primates.

Supported by a $22,000 grant from the National Heart Institute, this research marked perhaps the first time that blood pressure and flow have been studied in any animal in its natural habitat.

It was especially important as part of the overall research effort to correlate activity and behavior with heart response—to understand how and why the heart performs differently under stress. For these studies the baboon was chosen because its cardiovascular responses under laboratory conditions are remarkably similar to man's.

**Expedition Organized**

The expedition was organized by Dr. Robert L. Van Citters, a Cardiovascular Physiologist and Associate Professor at the University of Washington, Seattle. Also from the University were Dr. Orville Smith Jr., Assistant Director of the Regional Primate Research Center, and Nolan W. Watson, an electronics technician.

Dean L. Franklin, Chief of Biomedical Engineering, and William Masland, Director (see BABAONS, Page 4)

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**1st Grants Issued Under '64 Nurse Training Act**

The first grants—totaling almost $2.75 million—to improve nursing education under the Nurse Training Act of 1964 were announced recently by the Department of Health, Education, and Welfare.

Available through the Public Health Service, the grants are for assistance under two provisions of the legislation:

1. Project grants to improve, strengthen, or expand nursing education programs; and
2. Payments to reimburse diploma (hospital) schools of nursing for some of the cost of increased enrollment resulting from other provisions of the Nurse Training Act.

**$2 Million Awarded**

Nearly $2 million for 39 project grants was awarded to 35 diploma and collegiate schools of nursing located in 21 States, the District of Columbia, and Puerto Rico.

The awards were made on the recommendation of the National Advisory Council on Nurse Training which was created by the legislation. As required, each of the 35 schools receiving project grant funds is accredited by the National League for Nursing or has reasonable assurance of accreditation.
awards, one must have performed
of Dec. 31, 1965. All periods of
these awards should call Ext. 64851,
cluded in the computation, and the
in the cloakroom off the main lobby
issue of the Record in conformity with the policy of the paper
and on bulletin boards. Tax forms will be available in the Institute/Division personnel
on Jan. 24 also. It is suggested that individuals who plan on asking for help begin now to collect the necessary data, such as receipted medical bills, tax receipts, and proof of contributions.

HEALTH BENEFITS
A desk-to-desk distribution has been made of the pamphlet "Information about Plan Changes Effective January 1966" (BRI 41-854), If by some chance an employee did not receive this pamphlet, he may obtain one from his personnel office. Employees are advised to keep it with the brochure relating to their particular plan, since there will be no desk-to-desk distribution of brochures.

LENGTH OF SERVICE AWARDS
PMB is compiling lists of employees eligible for 10-, 20-, 30-, and 40-year length of service awards. To be eligible for these awards, one must have performed the service prior to the cut-off date of Dec. 31, 1965. All periods of military and civilian service are included in the computation, and the service need not have been continuous.

Employees who believe they have been overlooked in the past for these awards should call Ext. 64851, Employee Relations and Services.

List of Latest Arrivals Of Visiting Scientists
11/30—Dr. Yasuhiro Anraku, Japan, Research training in the Laboratory of Biochemistry and Metabolism. Sponsor: Dr. L. A. Heppel, NIAMD, Bldg. 10, Rm. 9N111.
12/6—Dr. James W. Gibb, Canada, Research training in the Laboratory of Clinical Biochemistry. Sponsor: Dr. S. Udenfriend, NIH, Bldg. 10, Rm. 7D20.
12/13—Dr. Peter L. Cook, England, Research in the Diagnostic and X-ray Department. Sponsor: Dr. B. E. Hathaway, CC, Bldg. 10, Rm. 6S211.
12/15—Dr. Laura C. Shen, Taiwan, Research training in the Section on Biochemistry. Sponsor: Dr. V. e. Ginsburg, NIAMD, Bldg. 10, Rm. 9N216.e
12/22—Dr. Pavel Albrecht, Stateless, Research in Collaborative and Field Research. Sponsor: Dr. D. C. Gajdusek, NINDB, Bldg. 8, Rm. 100.
12/27—Dr. Uriel Zor, Israel, Research training in the Laboratory of Chemical Pharmacology. Sponsor: Dr. B. B. Brodie, NIH, Bldg. 10, Rm. 7N117.
12/28—Dr. Takashi Tokuyama, Japan, Research in the Laboratory of Chemistry. Sponsor: Dr. B. Witkop, NIMH, Bldg. 4, Rm. 309.

Air Force Band to Play
The United States Air Force Band will present a concert for Clinical Center patients tomorrow, Thursday, Jan. 15, at 7:30 p.m., in the Clinical Center auditorium.

Shakespearean Classic To Be Shown Jan. 15
"A Midsummer Night's Dream" will be the next film presentation in the classic sound series sponsored by the Recreation and Welfare Association of NIH. It will be shown Saturday, Jan. 15, at 8 p.m., in the Clinical Center auditorium.

Admission is free.

15 Gray Ladies Honored For Devoted Service to Clinical Center Patients
Fifteen Gray Ladies were commended for their devoted service recently by Dr. Robert M. Farrier, Associate Director of the Clinical Center. Each of the 15 had devoted more than 300 hours to service with CC patients during 1965, according to Mrs. Betty Taylor, CC Gray Serv­ ice Chairman.

Because their work is voluntary, Dr. Farrier said, they bring to patients here "a personal tie with life outside the hospital walls."

Many Hours Given
Gray Lady with the longest serv­ ice in 1965 was Mrs. Freda Couch, with 433 hours. Another Gray Lady, Mrs. Polly Uts, is now in her 28th year of Red Cross service.

There are now 100 volunteers in the Gray Service here, Mrs. Popof said. In terms of service she is in the top 15 with 355 hours last year.

Mrs. Lillian Montague and Mrs. Mary Donahue chalked up 386 hours each. Others who gave more than 300 hours include Mrs. Mae Purcell, Mrs. Mary Pope, Miss Hilda Moore, Mrs. Sonia Shockey, Mrs. Gracee Clarvoe, Mrs. Katharine Lewis, Mrs. Irene Dietrich, Mrs. Betty Taylore and Mrs. Mary Schwartz.

Mrs. Polly Uts, CC Gray Lady, helps patient add finishing touches to the knitted cap made during occupational therapy sessions in the CC Rehabilitation Department. Mrs. Uts is now in her 28th year of continuous Red Cross service.—Photo by Jerry Hecht.

Bookstore for Graduate School Program of NIH Relocates in Bldg. 12A
In addition to such employee services as the film desk, Credit Union, bank and barber shop, NIH employees may be surprised to know that there is also a bookstore on the reservation.

Operated by the Foundation for Advanced Education in the Sci-
ences, which is responsible for the NIH Graduate School Program, the bookstore was established in 1961 as a convenience to registrants in the Graduate School courses. Recently relocated in new quarters in Rm. 3033 of Building 12A, the bookstore is open from 9 a.m. to 3 p.m. during regular working days.

Although its main function is to handle textbooks for the Graduate School courses, the bookstore has gradually broadened its services. As a member of the National Association of College Stores, it receives from publishers a variety of new books likely to be of professional interest to NIH researchers.

Books Ordered
The bookstore also offers an ordering service which is not restricted to technical books. A book order may be placed by phoning Mrs. Elaine Lessenco on Ext. 66572, giving the author, title and publisher. Within two weeks the book, together with a statement, is delivered to the purchaser.

A committee composed of Drs. H. G. Fletcher Jr. (Chairman), L. a. Cohen, and G. H. Weiss, is responsible for the general policies of the bookstore. Suggestions for improving this employee service may be addressed to Dr. Fletcher (Ext. 62771, Bldg. 4, Rm. 231).

Two hundred years ago—November 1765—the first medical school in the United States began holding classes in Philadelphia at what is known today as the University of Pennsylvania Medical School—Today's Health.
Baboons

(Continued from Page 1)

S. Kemper, Electronics Engineer, Scripps Clinics and Research Foundation, La Jolla, Calif., completed the group.

Blood pressure and flow rate were measured in selected baboons, such as the dominant male of a pack, by sensors implanted in the heart and circulatory system. By applying space-age miniaturization of electronic components, the scientists had designed and built small, light-weight radio transmitters which could be fitted on the backs of the baboons.

When the animals were returned to their natural environment, the "back packs" transmitted the measurements made by the cardiovascular sensors as they went about their daily routine.

The researchers left Nairobi, Kenya, in Jan. 1965 with two trucks carrying nearly a ton of electronic and medical equipment. Their safari outfitter took them to a remote area on the northern slope of Kilimanjaro Mountain, at the edge of Kimana Wildlife Sanctuary.

Animals Shore Camp

A base camp, set up on a site originally used by Ernest Hemingway, was shared with lions, rhinoceros, elephants and other wild animals. Most important of all were the many packs, or troops, of baboons.

The scientists assumed that trapping them would be simple since baboons are easily lured into baited cages. The first night the cages were put out, however, not one was trapped, though the next morning hundreds of footprints were found around each cage.

On closer examination, the scientists discovered why: the prints were human. During the night local Masai tribesmen had been milling around, admiring the extraordinary cages.

Baboons from three different troops were finally captured. A regular surgical facility was set up outdoors and sensors to measure blood flow and pressure were implanted in the main artery (aorta) and one or more arteries of the leg, kidney, and intestine of each test animal.

Facility Well Equipped

Although the surroundings were primitive, the facility was modern and completely equipped. Surgery was carried out in the open or under a tent, often attracting bystanders from nearby Masai villages.

After recovering from surgery, the animals were fitted with back packs and released to rejoin their wild troops. As they made their way through the forest, their blood pressure and flow rate was measured and continuously recorded by in-

Masai natives watch Dr. R. L. Von Citters complete a procedure on an anesthetized baboon. Despite the primitive surroundings, this surgical facility is equipped with every modern device, enabling the staff to carry out a wide range of procedures.

The baboons in the cage are being returned to their troops, or packs, following the implanting of sensors in their arteries to measure blood flow and blood pressure by means of connected, light-weight radio transmitters fitted to their backs. At left is Dr. R. L. Von Citters. Next to him is Dr. D. A. Smith Jr. Nolan Watson, electronics technician, is for right.

D. L. Franklin, one of the engineers of the Scripps Clinic and Research Foundation, examines the "back pack," containing a light-weight radio transmitter, just attached to still-sedated baboon prior to its release.

analyzed by the scientists at the University of Washington.

Altogether, 12 instrumented animals were released for periods lasting as long as 15 days. Each back pack contained a radio-controlled syringe loaded with a powerful tranquilizing drug.

By sending the appropriate signal, the scientists could immobilize the animals, even at considerable distances, and insure return of the gear. The scientists were especially anxious to retrieve the back packs. Each was worth over $5,000.

Recovery Challenging

Recovery was not always simple, however. For example, one day while observations were being made on a baboon troop, there was a sudden flurry of activity.

As the researchers watched, they realized what was happening—leopard was attacking one of the test animals! Accompanied by their professional hunter-guide, they rushed to the scene, arriving too late to save the baboon but in time to recover the equipment.

With other test animals they had better luck and after several months returned to the United States with all of their equipment intact. With them they also brought extensive notes, tape recordings and graphs.

From these raw materials of research, they have come to a better understanding of the human heart and its interactions with the pattern of life.

James A. King Dies in CC December 29, Was Computer Authority

James A. King, 51, Associate Chief of the Division of Computer Research and Technology, died in the Clinical Center as a result of cancer on Dec. 29.

Since September 1963, Mr. King had played a leading role in formulating, reviewing and developing programs for the Division of Computer Research and Technology. It was under his direction that the nucleus of the DCRT professional staff came into being.

He was appointed Special Assistant to the Pointing Director of Public Health, the committee appointed by Dr. James A. Shannon, Director of NIH, to evaluate manufacturers' proposals for a new computer system for the National Institutes of Health.

Born in Dyersburg, Tenn., Mr. King received a B.S. degree from the Tennessee Polytechnic Institute in 1936 and a Master of Public Health degree from the University of Michigan in 1950. From 1939 to 1944 he was a Sanitarian with the Tennessee Health Department.

With PHS Since 1944

He was commissioned as a Sanitarian in the Public Health Service in 1944, and from that time until 1948 participated in PHS sanitation programs in Colorado.

During World War II he served in the PHS service in 1948 and 1949, he served successively as Director of General Sanitation, Colorado State Health Department, and Education Director of the National Sanitation Foundation in Ann Arbor, Mich.

In 1953 he was a lecturer on sanitation problems associated with milk and food at the University of Mississippi.

Mr. King joined the Communicable Disease Center in 1953 as Training Officer for the Public Health Methods Unit. He was appointed Special Assistant to the Chief, CDC, in 1957, a position which he held at the time of his transfer to NIH.

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Research on Sleep and Dream Patterns May Hold Clues to Body, Brain Activity

The extraordinary recent growth in sleep and dream research is indicated by a substantial new volume published recently by the Public Health Service.

In “Current Research on Sleep and Dreams,” reports of the latest studies have been woven into an ump~l~ that accounts of the state of knowledge today regarding the mental and physical aspects of sleep and dreaming.

Within hardly more than a decade, scientists have found that the exploration of sleep may hold important clues to basic questions about the chemistry and timing mechanisms of the body, brain activity, and even development of the human personality. Much of the research being undertaken is toward penetrating problems of mental health and illness.

Sleep Study Helpful

While the study of sleep is new in its present dimensions, it has already contributed to the clinical diagnosis and treatment of narco- lepsy, behavioral predictions in several mental disorders, understanding of the effects of drugs and drug therapy, and understanding of infant development.

The new publication, prepared by the National Institute of Mental Health, also points out several implications of sleep research for general medicine.

While sleep disorders are characteristic of many mental illnesses, there are many physical ailments that manifest symptoms frequently during sleep, such as epilepsy, enuresis, asthma, and heart failure.

Coronary attacks, often fatal, tend to occur during the early morning hours when people are closest to a particular phase of sleep, attended by certain distinct physiological changes.

MIND-EMOTIONS

(Continued from Page 1)

Dr. Stanley J. Sarnoff, NHI Laboratory Chief, Retires on Disability

Dr. Stanley J. Sarnoff, Chief of the National Heart Institute’s Laboratory of Cardiovascular Physiology, retired recently due to disability from illness.

During his Public Health Service career as a research scientist, Dr. Sarnoff accomplished outstanding physiologic studies and gained worldwide recognition for a redefinition of the relationship between cardiac work and oxygen consumption, which challenged classic concepts of heart action.

This accomplishment made use of an experimental isolated heart preparation to determine that the heart muscle’s requirement for oxygen per minute does not depend on the amount of work it performs, but rather on the amount of tension which it develops with each beat.

Nervous Influences Studied

Thus the amount of blood which the heart puts out, does not in itself, determine its requirement for oxygen. His studies describing the relationship between the central nervous system in the control of heart action have provided a more complete understanding of the extent to which nervous influences contribute to cardiac adaptation under varying conditions.

For this work, Dr. Sarnoff received the Princeton University Class of 1938 Distinguished Service Award in 1956 and the Leslie L. and Helen F. Jacobs Foundation Award for meritorious investigations in the field of cardiovascular disease in 1957.

Other awards bestowed upon him include the Porter prize of the American Physiological Society; the 1961 Malcolm Rogers Memorial Award; and the 1961-62 award of the Kansas City (Mo.) Heart Association for “outstanding contributions in the field of cardiovascular basic research.”

Receives Gairdner Award

He also received the 1962 Gairdner Foundation Award for discoveries “clarifying the roles played by the involuntary nervous system and hormones in controlling heart function in both the normal and diseased states.”

A native of Brooklyn, N.Y., and a graduate of the Peddie School and of Princeton and Johns Hopkins Universities, Dr. Sarnoff was a Fellow and Resident in Surgery at several eastern hospitals and medical schools before turning his attention to physiological problems of heart disease.

He became a Research Fellow in the Department of Physiology at Harvard School of Public Health at Boston in 1948, advanced to Assistant Professor and Associate Professor, before becoming Chief of the NHI Cardiovascular Physiology Laboratory in 1954.

There are about two dozen laboratories in the United States, in universities and hospitals, designed for the study of human sleep, and in many more the sleep of animals in various stages of their development is under study.

The 125-page publication includes findings about body cycles and life rhythms, sleep deprivation, sleep disorders, the chemistry of sleep, control over sleep and other states of consciousness, the dream state and meaning of dreams, and the development of infant sleep.

It also discusses significance of the research in treatment and understanding of mental and physical disorders.

Single copies of “Current Research on Sleep and Dreams,” PHS Publication No. 1389, are available without charge from the Public Information Section, NIMH, Bethesda, Md. 20014.

Multiple copies may be purchased from the Government Printing Office, Washington, D.C. 20402.

Dr. Moloney to Present Martin Rehfuss Lecture

Dr. John B. Moloney of the Laboratory of Viral Oncology, National Cancer Institute, has been selected to give the Third Annual Martin Rehfuss Lecture at Jefferson Medical College in Philadelphia next Saturday, Jan. 10.

In the lecture, entitled “Virus Etiology of Neoplasia,” Dr. Moloney will review investigations in the animal model tumor virus systems including selected studies in the field of avian leucosis, murine leukemias and murine sarcomas.

He will describe efforts to detect and relate viruses as etiological agents of human disease.

Tumors, Viruses Unrelated

Dr. Moloney notes that to date no tumor viruses have been described to be causally related to viruses but concludes that continued studies with established animal tumor virus systems will lead to increased understanding of the nature and cause of human cancer.

Dr. Moloney received world-wide recognition for his discovery of the mouse leukemia virus, now referred to as the Moloney virus.

His work, in collaboration with Dr. Albert J. Dalton, Chief, Laboratory of Viral Carcinogenesis, NCI, led to virus purification by simple differential centrifugation, making it possible to detect virus infection by electron microscopic examination of ultracentrifugal fractions of plasma.
NCI Scientist Presents Data on Virus-Induced Murine Sarcoma Study

A National Cancer Institute investigator has observed particles morphologically indistinguishable from those of murine leukemia viruses in materials from mice bearing sarcomas induced by Moloney leukemia virus.

The study of the ultrastructure of the sarcoma was undertaken to clarify the nature of this tumor, which was observed earlier this year by Dr. John B. Moloney, NCI, in mice inoculated at birth with the Moloney virus.

BALB/c mice developed localized sarcomas following either subcutaneous or intraperitoneal inoculation of cell-free extracts of previous generation tumors.

**Electron Microscope Used**

Samples of tumor, plasma pellets, and tissues of these mice were studied with the electron microscope.

Particles indistinguishable from murine leukemia viruses were observed budding from the sarcoma cells and lying in the spaces between them.

These particles averaged 100 μm in diameter and resembled both immature and mature murine leukemia virus particles.

The fact that these particles were produced by malignant cells, and the absence of other agents, suggest that they are etiologically related to the sarcoma.

Similar particles were also found in the plasma pellets, in very small lymph node, thymus, or spleen in mice with the virus-induced sarcoma but free of clinical signs of leukemia.

**Different Particles Found**

In only the first specimens of material from a subcutaneous tumor were different particles found in a subcutaneous or intraperitoneal inoculation of cell-free extracts of previous generation tumors.

**British Steroid Collection Is Available to U.S. Scientists Under NIAMD Contract**

Milligram quantities of more than 300 steroid compounds, most of which are unavailable commercially, are now available without cost to qualified American scientists engaged in biomedical research.

The new service, announced by Dr. G. Donald Whedon, Director of the National Institute of Arthritis and Metabolic Diseases, is the result of a recent contractual agreement between NIAMD and the Medical Research Council (M.R.C.) of Great Britain, which permits ready access by United States scientists to the M. R. C.'s Steroid Reference Collection.

The reader can obtain unlimited free supplies of this collection by writing to Dr. Whedon, 6900 Rockville Pike, Bethesda, Maryland 20014.

**Health Film Emphasizes Cigarette Smoking Risk**

The Employee Health Service will present "Who Me?" as its January health education movie. The film which emphasizes the risk of cigarette smoking, was made for the American Cancer Society.

The two-fold rise that occurred when they smoked rose—stressed—the danger to their own health and the encouragement their example gives to youth.

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**Showings are Scheduled**

Showings are scheduled in the Westwood Building, Conference Room A, Tuesday, Jan. 18 at 1:30 and 2:30 p.m.; Clinical Center auditorium, Wednesday, Jan. 19 at 11:30 a.m. and 1:30 p.m.; and North Bethesda Office Center No. 2, Conference Room No. 113, Thursday, Jan. 20 at 1:30 and 2:30 p.m.

Requests to Dr. Alford

Requests for samples or further information should be addressed to Dr. W. C. Alford, Rm. 225, Bldg. 4, National Institutes of Health, Bethesda, Md. 20014.

In general, requests for steroid compounds should state briefly the intended use and indicate the minimum quantity (in milligrams) necessary to accomplish the proposed research work.

Requests will be filled as promptly as possible following review of individual applications, and samples will be mailed from England direct to the requestor.

**Average Man, 168 Lbs., Woman Averages 142**

According to a recent National Health Survey on the physical dimensions of adult Americans, men average 168 pounds in weight, 5 feet 8.2 inches in height; 90 percent of women average 142 pounds, 5 feet, 3 inches in height—*Vital and Health Statistics, USPHS.*
After 17 Years' Service

Mr. Brown served with three NIAID directors—Dr. Victor Haas, Dr. Justin M. Andrews, and Dr. Dorland J. Davis, the present director. During his tenure, the NIAID budget rose from $7 million in 1948 to $69.8 million in 1965.

Helps Found Program

Mr. Brown was one of the founders of the NIH management intern program in 1957. Except for a short period, he was a member of the NIH Administrative Training Committee from its beginning, and was its chairman for three years. His vital interest in the program resulted in the recruitment of many young and talented administrators.

Under Mr. Brown's administrative supervision, the Middle America Research Unit was established in the Panama Canal Zone in 1957 as a joint research effort of Walter Reed Army Institute of Research and NIAID.

In 1962, a year after MARU was made a permanent field station, Mr. Brown drew up an interagency agreement for the construction of family living units for NIAID (MARU) employees at Cardenas Village, Canal Zone.

In 1963 Mr. Brown worked out the plans for a $750,000 renovation program at NIAID's Rocky Mountain Laboratory at Hamilton, Mont. This program included the construction of a new animal building, an insectary, and a new shop building.

Background Cited

Born in 1907 in Petoskey, Mich., Mr. Brown received his B.S. degree from North Carolina State College. After teaching for five years in the public schools of Rocky Mount, N.C., he joined the U.S. Department of Agriculture in Washington, D.C.

When the U.S. entered World War II, he was appointed administrator of the Foreign Economic Administration's London office. After the war, he served with the War Assets Administration until hearing from NIIH in 1948.

Mr. Brown has many hobbies and talents that will enrich his retirement years. He is an unusually skillful square-dancer, an amateur painter of water-colors, and a musician.

Mr. and Mrs. Brown—"Miss Ava Lee," whom he met while both were public school teachers—recently bought their first house, a small NIH bungalow. "Prairie Schooner," in which they expect to travel across the United States to renew contacts with their many friends.

Vector of Both Human, Simian Malaria Found in Northern Malay States

A mosquito that transmits both human and simian malaria in nature has been found in the monsoon forests of the northern Malay States.

Dr. McWilson Warren of the Laboratory of Parasite Chemotherapy, National Institute of Allergy and Infectious Diseases, and co-workers of the Institute for Medical Research, Kuala Lumpur, Malaysia, issued the first report of the malaria vector discovered during field studies there.

Mosquitoes Dissected

Anopheles mosquitoes attracted to man and monkeys were caught and dissected. When found, the sporozoites (the organisms in the infective stage of malaria) were inoculated into uninfected rhesus monkeys.

As a result, the Anopheles balabacensis balabacensis mosquito was found to be a natural vector of Plasmodium cynomolgi and Plasmodium knowlesi, two simian malarials.

The A. b. balabacensis mosquito is a serious vector of human malaria in Vietnam, Cambodia, Thailand, and northern Malay. This finding is therefore highly significant. It may point to a new barrier to worldwide eradication of malaria.

W. H. Cheong, A. H. Omar, and S. Mahadevan, of the Institute for Medical Research, and Dr. Warren, NIAID, reported their findings in Science.

Gertrude Misel Retires; Career Spans 30 Years

Gertrude Misel, a statistical clerk in the Special Cancer Studies Section, Epidemiology Branch, National Cancer Institute, retired Dec. 30, completing 30 years of Federal service.

Miss Misel joined NCI in October 1956. Before coming to NCI she worked for a number of other agencies, including the FHA, W.P.A., Department of Agriculture Forest Service (CCC camps), RFC, NPA, and the Navy Department.

At a luncheon in her honor, Miss Misel received a money tree and a scroll inscribed with the names and best wishes of friends and co-workers.

Dr. Mullally Named to NIAID Posts

Drs. Kayhoe and Mullally Named to NIAID Posts

Dr. Dorland J. Davis, Director of the National Institute of Allergy and Infectious Diseases, recently announced two appointments to the Institute staff.

Dr. Donald E. Kayhoe was named Special Assistant to the Associate Director for Collaborative Research, and Dr. Daniel I. Mullally was appointed Chief of the Vaccine Development Branch.

In his newly created position, Dr. Kayhoe will be responsible for managing tissue transplantation immunology programs of the Institute. He will coordinate the activities of various contractors who are trying to develop fast, simple blood tests to match tissue donors to recipients.

Dr. Mullally, who succeeds Dr. Henry H. Bloom, will direct NIAID's collaborative project to develop prototype experimental vaccines against acute respiratory diseases and rubella.

Since 1959 Dr. Kayhoe has served as a scientist and administrator at NIH and as a clinical instructor in medicine at Georgetown University.

A native Washingtonian, Dr. Kayhoe received his A.B. and M.D. degrees from George Washington University. He is a member of the American Society of Tropical Medicine and Hygiene, American Medical Association, American Academy for the Advancement of Science, and the American Society of Clinical Oncology.

Experience Noted

Dr. Mullally was medical officer in the Bureau of State Services (Environmental Health), before joining NIAID. From 1958 to 1964 he served in various posts at the St. Louis University School of Medicine, including instructor in microbiology, assistant to the dean, and assistant dean.

Born in Boston, Dr. Mullally received his A.B. degree from Boston College and the M.D. from Harvard Medical School. He interned and completed residency requirements in internal medicine at various hospitals in St. Louis.

He is a member of the Association of American Medical Colleges and the American Society for Microbiology.

Study Indicates Modified Bovine Growth Hormone May Be Active in Man

Recent investigation has shown that bovine growth hormone (BGH), modified by digestion with trypsin, elicits in man many of the characteristic metabolic responses elicited by human growth hormone (HGH).

Human growth hormone research, particularly in the treatment of hypopituitary dwarfism, is severely restricted by a scarcity of HGH, which is obtainable only post mortem from human pituitary glands.

Researchers thus have attempted to modify bovine growth hormone in order to make it biologically effective in man. Such attempts, however, have met with little success to date.

Growth Measured

Purified BGH was subjected to digestion by trypsin for varying periods of time (5 to 120 mins.) and the relative growth-promoting activity of the digests was determined in hypophysectomized rats.

Under conditions of complete metabolic balance, 10 studies then were performed in 10 hypophysectomized patients (including six with diabetes) and one hypopituitary patient, who were treated with cryptic digests of BGH, with undigested BGH, or with HGH.

The 10-minute BGH digests produced maximal growth-promoting activities in the rat, while further digestion progressively lessened this effect.

In diabetic patients the digests aggravated hyperglycemia and glycosuria, insulin and carbohydrate tolerance, produced ketonuria and increased insulin resistance.

Other Studies Reported

In other studies, the digests promoted retention of nitrogen, phosphorus, sodium, and potassium; increased urinary calcium; and caused depression of thyroid activity.

Some 2.3 million Federal employees or 95 percent of those eligible have group life insurance.
Hardier Genetic Strains Help Reaction to Stress, NIMH Grantee Reports

Although psychoanalytic theory holds that adult reaction to stress is determined by childhood experience, those of a hardier genetic strain may not be affected at all by early crises, according to findings of a study by Dr. William C. Mohler, National Institute of Mental Health research grant.

The investigator, Dr. Benson E. Ginsburg, Professor of Biology at the University of Chicago, found in his work with mice a strong relationship between heredity and certain facets of behavior, including some abnormal behavior under stress. He believes the same relationships may well hold true in people.

Mice Subjected to Stress

In Dr. Ginsburg’s work he subjected carefully bred mice to certain types of stress during infancy. Some of them, as adults became significantly more aggressive than usual; others became less aggressive; others showed no effect. The results depended upon the strain to which the mice belonged—that is, upon heredity.

In other words, says Dr. Ginsburg, “all mice are not created equal.”

The Ginsburg project and 19 others selected NIMH research studies in mental health are described in a new publication titled “Research Project Summaries, No. 2,” recently issued by the NIMH.

Copies in bulk may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, for 80 cents each.

These two children patients arranging furniture in a doll house in the NIH Clinical Center are among the many aided by the Patients' Welfare Fund. Contributions during this year’s Christmas season as a result of the “Davis Plan” totaled $1,131.42. This exceeded the total of last year’s contributions by approximately $1,000. Dr. Jack Masur, CC Director, said he knew that “the patients and their families who will be aided by the fund will want me to convey to the donors their thanks.” The Davis Plan, which enables NIH employees to give money to the Patients’ Welfare Fund in lieu of sending Christmas cards, will build a “cushion” for meeting emergency situations in 1966, Dr. Masur said. —Photo by Bob Pumphrey.

New Ways to Measure Cell Movement May Help in Search for Key Molecule

By Hilah B. Thomas

Ways to see, measure, and record movement as it appears in living cells were discussed by Dr. Robert D. Allen of Princeton University at a recent seminar sponsored by the National Institute of General Medical Sciences.

Dr. Allen is interested primarily in subcellular movements such as cytoplasm streaming, chloroplasts adjusting to light changes or chromosomes dividing.

Although scientists have searched for a key molecule—perhaps akin to myosin—to account for movement, Dr. Allen said that no consensus has been reached on this aspect of life shared by all cells.

Motion requires work, and sometimes the energy is spent very rapidly. Eventually, he said, molecular biology is expected to provide explanations for cell movement, but meanwhile understanding must first come from direct observation.

Research Called Significant

Biological research on movement, Dr. Allen noted, has considerable significance for medicine—for example, in attempting to solve the old problem of the movement of leukocytes, and in the new field of movement in nervous tissue. Recent observations indicate that the growth of neurons is similar to the type of movement found in the pseudopodia of single-celled marine animals called Foraminifera, whereas, within an axon, material sometimes moves with extreme rapidity by an entirely unknown process.

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In other words, Dr. Ginsburg’s study has found in his work with mice a strong relationship between heredity and certain facets of behavior, including some abnormal behavior under stress. He believes the same relationships may well hold true in people.

For the observation of living material, some of the physicists’ particle track analysers combined with computers are helpful. Dr. Allen said they can distinguish salutary movement, in which particles are displaced over considerable distances, from Brownian movement, in which particles constantly move short distances at random when bumped by atoms. These instruments can also simultaneously distinguish and record viscosity differences in various parts of a cell.

Of all the instruments presently available, those based on the interference of two light waves are most useful. A beam of light is split, half going directly through the microscope to the eye, while the other half goes through the cell and then to the eye.

When the cell contents transmit light differently from the liquid in which the cell is mounted, the two beams will not arrive at the same time, and a contrasting area is seen. From this contrast, differences in depth, surface, changes in shape, and rate of motion can be determined.

Dr. Allen spoke of the qualities and limitations of all types of light microscopes, mentioning that normal interference types can weight visually by means of differences in color, as small as one-quadrillionth (10⁻¹⁵) of a gram.

He gave highest praise to a new differential interference microscope developed in France and requiring special training for operate. He considers this the best instrument devised in 25 years for observing surfaces. With it one can make a micron-by-micron study along the edge of a slice of a cell, for example, or see the microtubules in the spindle fibers of a living cell.

Measurement Accurate

Dr. Allen is developing phase modulation microscopy, in which measurements of birefringence (double refraction) permit the accurate measurement of minute differences.

He has contrived to combine in one experimental instrument devices for studying motion through techniques of spectroscopy, adsorption, and ultrastromicrofluorometry. He is now trying to combine this microscope with an electronic scanning microscope.

Because some investigators with knowledge of optical physics and electronics are interested in biological research, there are only two laboratories in the United States specializing in the techniques of light microscopy.

Dr. Allen feels that some type of career instruction will be required to attract such people into this area.

Suggestions Win Awards For DRS Employees

Four cash awards for employee suggestions—all adopted—were recently made in the Division of Research Services. Three of the awards, presented to employees of the Shops Section, Plant Engineering Branch, went to Paul Caverden, William McDonald, and Harry Wease. The other winner was Joseph Federline of the Maintenance Engineering Section, PEB.

A cash award also was made to Norman Gettings and Francis McDonald, both of the Planning and Control Section, PEB.
Leonard V. Phelps Ends 40-Year Health Career, Retires From NINDB

Completing a 40-year career in public health, Leonard V. Phelps, a health statistician with the National Institute of Neurological Diseases and Blindness, retired on Dec. 30.

Mr. Phelps, who was with NINDB's Perinatal Research Branch since 1960 has been associated with several unusual public health programs.

After working on the Public Health Service venereal disease eradication program during World War II, Mr. Phelps spent five years in Japan, developing a national health statistics program. Later, while detailed to the Department of State, he worked for six years in Lebanon planning a similar program.

Mr. Phelps, who has just returned from his fourth trip around the world, plans to spend much of his retirement time traveling.

Anthony Anastasi Named DRS Information Head

Chris A. Hansen, Chief of the Division of Research Services, has announced the appointment of Anthony J. Anastasi III as Information Officer. He succeeds William T. Eklev, who resigned to become sales manager for Miller & Smith Associates, a local home development firm.

Mr. Anastasi will be responsible for planning and conducting the information programs of the Division, which has the primary mission of providing professional and technical support to NIH research programs.

Mr. Anastasi had been Press Officer of the Heart Information Center, National Heart Institute, since 1963. He joined NIH as an Information Specialist in 1962.

Prior to his association with NIH, Mr. Anastasi wrote for the Army Research and Development Newsweekly, after serving as Assistant Director of Public Relations at Vitro Laboratories, Silver Spring, Md., for one year.

From 1958-1960 he studied toxoplasmosis in sheep in New Zealand under Fulbright and Guggenheim fellowships.

Dr. Jacobs (Continued from Page 1)

lar interest in toxoplasmosis, a subject on which he is a world authority.

For his studies on toxoplasmosis, Dr. Jacobs received the Washington Academy of Sciences Award for Scientific Achievement in the Biological Sciences, the Arthur S. Fleming Award, and the Henry Baldwin Ward Medal of the American Society of Parasitologists.

A native of Brooklyn, N.Y., Dr. Jacobs graduated from Brooklyn College in 1935. He received an M.A. degree in 1938 and the Ph.D. in 1947, both from George Washington University.

Positions, Membership Cited

Dr. Jacobs is presently Chairman of the Panel on Parasitic Diseases, U.S.-Japan Cooperative Medical Science Program, and a member of the WHO Expert Panel on Parasitic Diseases. In 1960-61 he studied toxoplasmosis in sheep in New Zealand under Fulbright and Guggenheim fellowships.

Dr. Jacobs is a member of numerous scientific societies, including the American Society of Tropical Medicine and Hygiene, the American Society of Parasitologists and the Association of Immunologists. In addition, he has served as editor of both the Journal of Parasitology and Tropical Medicine and Hygiene News.

It's a good idea to remember that all soft soap has a high percentage of lye in it.—The Washington Post.

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CU Meets for Elections And Reports on Jan. 18

New members for the Board of Directors and the Credit Committee will be elected at the 26th Annual Meeting of the NIH Federal Credit Union on Tuesday, Jan. 18, at 12 Noon in the CC auditorium.

Reports from present Board and Committees will include announcement of the 1965 dividend rate. The Nominating Committee has submitted the following for election to the Board of Directors: Ervin J. Liljegren, Dr. Harold P. Morris, Dr. Heinz Specht, Jeni H. Arliss and Arthur Hilgar.

Nominated for the Credit Committee were: Arthur Broering, Howard M. Biggs, Donald Detzel and Fred Kruhm.

Dr. Burch Is Appointed ETC Special Consultant

Dr. Carruth J. Wagner, newly named Chief of the Bureau of Medical Services, PHS, recently appointed Dr. Thomas A. Burch of the National Institute of Arthritis and Metabolic Diseases as a staff consultant to the Epidemiology Training Center in Phoenix, Ariz.

The Division of Indian Health, BMS, established the training center in 1963 to train its professional staff in the use of epidemiology (the study of the occurrence and distribution of disease) as a tool in providing health services to the American Indian and Alaskan native.

Training courses provide formal instruction combined with field study to groups of 15 to 18 students with varying academic backgrounds.

Dr. Burch, who is Chief of NIAMD's Epidemiology and Field Studies Unit (seated), compiles statistics on the Pima Indian diabetes survey. With him is Roger H. Bennett, also of NIAMD.—Photo by Sam Silberman.

The Public Health Service Commissioned Corps was authorized on January 4, 1889, establishing by law the policy of a mobile corps subject to duty anywhere upon assignment.—NIH Almanac.