

the NIH Record

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U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE October 8, 1963 NATIONAL INSTITUTES OF HEALTH PUBLIC HEALTH SERVICE
Vol. XV, No. 20

Quantitative Study Of Genetics Gets NIGMS Support

One of the most comprehensive efforts in the application of mathematical genetics to the study of inheritance of quantitative characteristics will receive grant support from the National Institute of General Medical Sciences.

The Quantitative Genetics Research Program-Project is underway at North Carolina State of the University of North Carolina at Raleigh, under the direction of Dr. C. Clark Cockerham, Professor of Genetics and Experimental Statistics at North Carolina State.

Dr. Cockerham joined the staff of North Carolina State in 1952. Previously he had been working in Animal Science at Iowa State University while obtaining his Ph.D. in Animal Breeding and Genetics, awarded in 1952.

In addition to his own segment of the research program, Dr. Cockerham will coordinate the investigations of 15 senior researchers who are participating in the Pro-

(See GENETICS, Page 8)

Conference Hears Call for Coordinated Attack to Combat Mental Retardation



Participants in the White House Conference on Mental Retardation at Airlie House leave the circle pavilion where the general sessions were held.

In a message relayed by telephone to the 375 persons attending the recent White House Conference on Mental Retardation, President Kennedy said:

"We want to assure the probability that every American child born will be well born—born of a mother who has had good health care, born with increased chances of avoiding the hazards of infancy and childhood that sometimes result in lifelong mental retardation."

The President's message was

heard by 235 delegates representing all 50 States and U. S. Territories at the 2-day conference, September 19-20, at Airlie House in Warrenton, Va.

The President stressed the significance of the conference, aimed at preliminary planning for a coordinated State-Federal attack on mental retardation, and called for the conferees' ideas on how new knowledge and legislation can be put to use in combatting mental retardation on Federal, State and community levels.

He requested an all-out effort by health, education, welfare, vocational rehabilitation, employment, and research personnel, and the cooperation of voluntary groups to

(See RETARDATION, Page 3)

Mme. Albe-Fessard on First U.S. Visit Conducts 4 Seminars Here in 5 Days

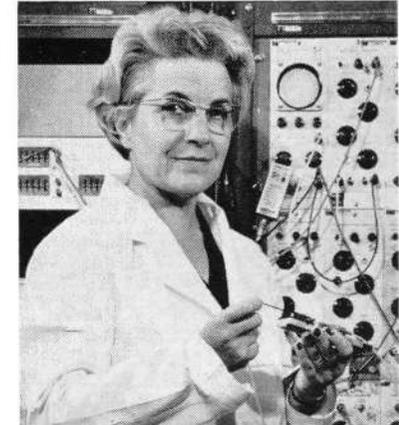
A French scientist who was finally able to accept a long-standing invitation from Dr. Wade Marshall, Chief of the Laboratory of Neurophysiology, NIMH and NINDB, put in five bustling days here, September 23-27, before continuing on to New York, Boston, and Canada.

Madame Denise Albe-Fessard, Professor of Psychophysiology at the University of Paris, conducted four well-attended seminars for NIMH and NINDB, relating to her experiments in central somatic mechanisms in cats and monkeys.

She also consulted with scientists at Walter Reed Army Institute of Research before taking a 2-day holiday break in her first visit to America.

Prof. Albe-Fessard brought with her a butane-cooled probe developed at her laboratory, where sev-

(See ALBE-FESSARD, Page 6)



Prof. Denise Albe-Fessard during her visit here, holds the butane-cooled probe developed in her laboratory at the University of Paris, now used by Dr. Wade Marshall in experiments on localized cooling of the visual system in cats.—Photo by Bob Pumphrey.

UGF Rally Hears Speakers Launch Campaign Here

Dr. James M. Hundley, Assistant Surgeon General of the Public Health Service, helped open the United Givers Fund campaign at the National Institutes of Health Friday, September 27, telling assembled keymen the "causes supported by UGF are essential and worthy of your best efforts in their behalf."

"Most of the agencies helped by the Drive are welfare agencies," he said. "The community will look upon our performance in this campaign as a measure of our belief in the cause of good health. In the Greater Washington area, PHS has 62 percent of the total personnel in Department, and NIH has 66 percent of the total PHS personnel. So you can see where the burden of proof must be.

"A task worth doing is worth doing well. I'm certain NIH will do its part. It always does, but it takes considerable time. Perhaps this year we can reduce the time-lag and simultaneously the burden

(See UGF RALLY, Page 5)

Dr. Nirenberg Is Misquoted

The story on Dr. Marshall Nirenberg's winning of the American Chemical Society's Paul-Lewis Award (*NIH Record*, September 24, 1963) carried statements attributed to him. The statements, as reported to and published by the *Record*, were in error. The *NIH Record* regrets the error.



Surgeon General Luther L. Terry and 4-year-old Jody Howard take a look at a UGF pledge card in Dr. Terry's office. Born with a hearing loss, Jody is learning to talk and read lips through instruction at the Washington Hearing Society, a UGF agency.

the NIH Record

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The NIH Record reserves the right to make corrections, changes or deletions in submitted copy in conformity with the policy of the paper and the Department of Health, Education, and Welfare.

NEWS from PERSONNEL

'OPEN SEASON' REMINDER

There are only seven days remaining in which to take advantage of the "Open Season" under the Federal Employees Health Benefits Program.

Employees who are eligible and plan to enroll or make changes in enrollment must act before October 15.

Names of Institute/Division Registration Assistants are posted on NIH Bulletin Boards and are also available in I/D Personnel Offices.

Sign up today or before October 15th!

EXAM FOR MEDICAL OFFICERS

A new Civil Service Commission examination announcement (No. 312B) for Medical Officers was issued on September 10.

The examination will be administered by the Board of Examiners of the Food and Drug Administration.

Further information is available from I/D Personnel Officers.

NIAID 'Common Cold' Study Needs Additional Volunteers

The Laboratory of Infectious Diseases, NIAID, is seeking paid volunteers with autumn colds for the continuation of its study of the "common cold" group of infections.

Volunteers desiring to take part in the study—preferably those whose colds are within the first three days of infection—may obtain additional information by calling Mrs. Hilda Kennedy, Ext. 65811.

Flu Season Approaching; Vaccinations Urged for High-Risk Groups Now

Although the winter season of 1963-64 is not expected to produce widespread outbreaks of influenza similar to those of last year, the Public Health Service recently warned that certain "high risk" groups of the population should get vaccinated promptly.

Influenza is particularly dangerous to persons suffering from chronic ailments such as cardiovascular, pulmonary, renal, and metabolic disorders, and to pregnant women.

Persons over 45, particularly those over 65, should also be immunized.

"Long experience proves that these groups run the greatest risk of severe illness or death if they contract influenza," Dr. Luther I. Terry, Surgeon General of the Public Health Service, said.

Time Element Important

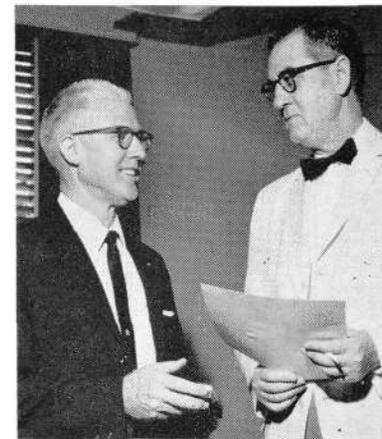
Immunization should begin right away and be completed by mid-December, according to Dr. Terry. There is a 2-week delay in the development of antibodies which give the protection, so it is important that the individual be vaccinated well before exposure to the virus.

The Surgeon General said the flu vaccine for this coming winter has been modified to give greater protection against the changing strains of both A₂ (Asian) and B types.

There were widespread outbreaks of influenza A₂ last winter, with the exception of the West Coast, and there was a nationwide epidemic of influenza B in 1961-62.

Because the two types commonly occur in several-year cycles, health authorities do not anticipate large scale attacks this winter.

Dr. Dale Lindsay, Former DRG Chief, Receives Meritorious Service Award



Dr. Dale R. Lindsay receives the Meritorious Service Award from Dr. Shannon.—Photo by Sam Silverman.

Dr. Dale R. Lindsay, former Chief of the Division of Research Grants, received the Meritorious Service Award September 20 at an informal ceremony in the office of Dr. James A. Shannon, Director of NIH.

The award, presented by Dr. Shannon in the presence of his immediate staff, was in acknowledgment of Dr. Lindsay's "outstanding leadership and direction" of the Division of Research Grants. Dr. Lindsay did not know he was to receive the award prior to the ceremony.

Dr. Lindsay retired from the PHS Commissioned Corps last July to accept a position at the Massachusetts General Hospital in Boston.

Joins DRG in 1953

He joined DRG in 1953 and was successively Chief of the Program Analysis Section, Scientific Director, Assistant Chief, and, since 1960, Division Chief.

Highlights of his tenure as DRG Chief include the launching of the annual Research Grants Index, establishment of the Grants Associates Program, chairmanship of the Interbureau Advisory Committee for Extramural Programs, and production of the Manual to Facilitate Administration of Research and Training Grants.

DRG Names McCarthy Study Section Secretary

Dr. Thomas McCarthy was recently appointed Executive Secretary of the Health Services Research Study Section of the Division of Research Grants.



Dr. McCarthy

The study section, one of 46 scientific panels advising the Public Health Service on the merits of research grant applications, has been served since 1960 by Glenn G. Lamson, Jr., who has left the post to undertake a year of training at the University of Pittsburgh.

Dr. McCarthy, who has been a member of the NIH Grants Associates Program for the past year, was formerly an assistant professor at the State University of Iowa School of Medicine. He was a hospital administrative consultant for the Illinois State Department of Public Health from 1955 until 1958.

A native of Boston, Mass., Dr. McCarthy is an alumnus of Boston College and Northwestern University. He received the Ph.D. degree in hospital administration from the State University of Iowa in 1960.

EHS Schedules Flu Shots Starting Week of Oct. 14

The NIH Employee Health Service announced today that influenza immunizations will again be available this year to all employees.

Employees immunized since 1957 need only one booster inoculation. Others will require two inoculations, approximately two months apart.

The vaccine, the announcement said, contains two new virus strains to afford broader protection throughout the coming year.

Details on scheduling will be sent to each employee. The program will begin in the Clinical Center Health Unit during the week of October 14, to be followed by clinics in selected outlying office buildings. The schedules for these areas will also be included in the memo to employees.

An innovation of considerable interest this year will be the use of the Jet Injector which eliminates the use of needles. The inoculation is virtually painless and at least six times faster than with the use of the syringe and needle.

Area Orchestra Seeks Students, Adults With Musical Talent

The Kensington-Wheaton Community Symphony Orchestra is now accepting applications from talented musical students of area secondary schools and colleges. Adults with musical ability are also encouraged to apply.

Prospective members will be selected by an auditioning committee.

Applications and inquiries should be addressed to the Musical Director of the orchestra, 12805 Connecticut Ave., Wheaton, Md.

RETARDATION

(Continued from Page 1)

make proposed legislative weapons effective.

Anthony J. Celebrezze, Secretary of Health, Education, and Welfare, in his welcoming remarks at the opening session, warned that unless this Nation soon makes some major breakthroughs leading to effective prevention of mental retardation, the number of retarded will climb from the present figure of more than 5.4 million to over 6 million by 1970. At least half of those affected, he said, would be children.

Dr. Warren Cites Aims

Mr. Celebrezze said he had high hopes that the President's mental retardation program will soon become a reality.

Dr. Stafford L. Warren, Special Assistant to the President on Mental Retardation, said that the main target of the conference was to prevent some 65,000 Americans each year from joining the ranks of the mentally retarded.

This number, about one-half of those developing mental retardation symptoms annually, can be helped, he said.

Speaking of those who develop retardation despite preventive efforts, he said, "We want them to be able to lead lives as normal as the full development of their capabilities will allow."

Dr. Aldrich Discusses Approach

Dr. Robert A. Aldrich, Director of the National Institute of Child Health and Human Development, spoke on approach to the problem of mental retardation through training and research. He said two major goals of the conference were (1) to provide for the needs and capabilities of the mentally retarded, and (2) to build the means of preventing mental retardation into both State and Federal programs.

Dr. Aldrich said, "It is my persuasion that a comprehensive plan for combatting mental retardation should have its base on a statewide program utilizing fully (all) the services, administrative mechanisms and research training facilities . . . available."

Urges Planning Cooperation

He also told the conferees it was particularly crucial that all resources for research and training, whether of universities, research hospitals or other resources, be involved in mental retardation planning.

"The returns from research and research training," he said, "are our best guarantee that we will eventually have the means to liquidate the problem of mental retardation."



Engaged in an informal discussion on the steps of Airlie House, site of the White House Conference on Mental Retardation, are, left to right: Jack Pickering of Hearst Headline Service, New York; Nancy Gregoric of the Detroit News, Dr. Stafford L. Warren, Special Assistant to the President on Mental Retardation, and Dr. Murdock Head, Airlie Conference Center Director.

RML Develops Purified CTF Vaccine; Method May Apply to Other Vaccines

Scientists at the Rocky Mountain Laboratory of the National Institute of Allergy and Infectious Diseases have reported on the preparation of a vaccine by a method that may be applicable to the preparation of vaccines of related viruses.

Colorado Tick Fever (CTF), a relatively benign disease acquired by tick bite, is a frequent cause of morbidity among people engaged in outdoor activities in certain western areas of the United States during the tick season.

A satisfactory vaccine could be of value to such persons.

A purified CTF vaccine has now been developed by scientists at the

Rocky Mountain Laboratory.

Since there is a great danger of inducing allergic encephalomyelitis with vaccines prepared from adult mouse brain, the group succeeded in preparing a purified vaccine that was antigenic and had a greatly reduced capacity to produce allergic encephalomyelitis by using suckling mice.

This procedure can serve as a prototype in developing vaccines against other arthropod-borne viruses of medical importance.

Before testing the efficacy of the vaccine in humans, the immunogenicity of the vaccine was tested in mice, and significant protection was demonstrated in all test animals.

Volunteers Tested

Thirty human volunteers were tested at the Montana State Prison, Deer Lodge, Mont. The basic schedule of vaccination consisted of two doses of either 0.5 or 1.0 ml of undiluted vaccine given subcutaneously a month apart.

Two months following the second vaccination 24 of 26 sera had significant antibody titers, but only eight of 19 sera had significant titers after six months.

Twelve individuals received a third vaccination and all had significant titers one month later.

Intradermal skin tests gave evidence of specific sensitization to the viral antigen and not to brain material.

A report of the development of the vaccine by Dr. Leo A. Thomas, Dr. Carl M. Eklund, Dr. Robert N. Philip, and Mary Casey appeared in the American Journal of Tropical Medicine and Hygiene.



In a conversational huddle between conference sessions at Airlie House are, left to right: Dr. Robert Cooke, Pediatrician-in-Chief, Johns Hopkins Hospital; Mrs. Eunice Kennedy Shriver, Executive Vice President of the Joseph P. Kennedy, Jr., Foundation; David Ray, Legislative Consultant to Dr. Stafford L. Warren, and Dr. Gunnar Dybwad, Executive Director of the National Association for Retarded Children.

New Intensive Treatment Program for Delinquents Centered in Community

As a substitute for institutionalization of delinquents committed by the juvenile courts in two urban areas—Sacramento and Stockton—the California Youth Authority is investigating a new approach to rehabilitation of habitual delinquents through an intensive treatment-control program.

The project seeks to compare the effectiveness of a period of intensive treatment in the community with a period of confinement for similar groups of committed delinquents, and to develop the most effective treatment-control programs for the various types of delinquents.

Project Found Feasible

After two years' experience, the investigators report that the Community Treatment Project, supported in part by the National Institute of Mental Health, appears feasible from the point of view of the community and the delinquent youth.

Seventy-five boys and girls have entered the community program and 144 comparable youths from the same geographical areas have gone into regular programs of the Youth Authority.

Each youth entering the community program is classified and a treatment schedule is developed for his particular delinquency pattern. Community agents work with case-loads of eight, utilizing such techniques as individual, group, and family therapy; school, work, and activity programs; foster and group homes; surveillance and temporary detention.

Program Is 3-Stage

The program is divided into three stages, each providing a different level of service, proceeding from intensive treatment to a more routine parole program. The average length of time cases have been carried in the community program is 10 months. Serious assaultive cases are excluded from the study.

According to Marguerite Q. Grant, principal research investigator of the project grant, the cost of the Community Treatment Project, when compared with a field operation such as probation or parole, is high.

However, when compared with the usual institutional program, the community program costs considerably less.

By now, she reports, the community realizes that tight controls are exerted over cases and efforts are made to bring about permanent changes in the youths and their families. As a result, there is increasing acceptance of the project.

Authorities From 3 Nations Participate In NIAID Seminar on Schistosomiasis

Means of eradicating schistosomiasis, a disease afflicting an estimated 150 million people in the tropics and subtropics, was the subject of a recent seminar here in which schistosomiasis authorities from Egypt, Tanganyika and England participated.

The seminar, sponsored by the Laboratory of Parasitic Diseases of the National Institute of Allergy and Infectious Diseases, was moderated by Dr. William B. DeWitt and Dr. Theodor von Brand of LPD.

The program participants were Dr. Naguib Ayad, Director-General of the Bilharziasis and Endemic Diseases Department of the United Arab Republic Ministry of Health, Cairo, Egypt; Dr. A. F. Sherif, Professor of Parasitology, High Institute of Public Health, Alexandria, Egypt; Dr. S. R. Smithers, of the scientific staff, National Institute of Medical Research, Mill Hill, London; Dr. Peter Jordan, Director, East African Institute for Medical Research, Mwanza, Tanganyika; and G. Webbe, medical biologist, East African Institute for Medical Research.

Problem Is Age-Old

Noting that the disease has been a health problem since antiquity, Dr. Ayad pointed out that schistosoma eggs have been found in mummified viscera and that the disease is mentioned in early Egyptian papyri.

Their government's approach to schistosomiasis eradication, Drs. Ayad and Sherif said, is manifold and diverse. Educational programs, including subtle and subliminal presentations, are conducted for all age groups.

In addition to conventional control methods such as the use of molluscicides, sanitation programs, improved irrigation and agricultural practices, they said, the UAR applies moral persuasion on the population.

Currently, Dr. DeWitt is collaborating with Dr. Sherif on a project being conducted near Alexandria on the use of the drug Asti-

ban for the suppressive control of the disease.

Dr. Jordan stressed the quantitative aspects of the evaluation of treatment rather than definite cure rates.

Mr. Webbe cited the importance of climatic factors in determining a plan of action against the snail population that serve as intermediate hosts, since the snail population is determined by climate. Snails can survive through dry spells for as long as eight months, he said.

Discusses Acquired Resistance

Dr. Smithers discussed his research concerning the possibility of acquired resistance and other forms of immunization. Acquired resistance has been achieved in the laboratory with rats and rhesus monkeys.

Schistosomiasis, also known as bilharziasis, is widespread across tropical Africa, along the Mediterranean coast, in the Nile Valley, in certain areas of China and the Philippines, and in Japan. Its occurrence in the Western Hemisphere is centered mainly in Puerto Rico, Venezuela, and Brazil.

The disease is transmitted to humans through snails that serve as intermediate hosts. The larval forms of the worms are able to penetrate the skins of people who enter contaminated waters, and the disease is then perpetuated by human reservoirs through the passage of eggs in the urine and feces.

Heavy infestation of the schistosoma worms most often causes emaciation, weakness, increased susceptibility to other diseases, and may result in death.

NIMH Exhibit on Display In Clinical Center Lobby

A National Institute of Mental Health exhibit, entitled "A Comprehensive Psychiatric Center," was placed on display yesterday (October 7) in the lobby of the Clinical Center.

The exhibit, which will be on view there until October 16, is based on a clinical research project, "Concept of a Model Psychiatric Clinic," published in the September issue of the American Journal of Psychiatry.

Co-authors of both the research project and exhibit are Dr. Fritz A. Freyhan, Director of Clinical Studies, Clinical Neuropharmacology Research Center, NIMH, and Dr. Julia A. Mayo, Chief of Clinical Social Work and Psychosocial Research, Clinical Neuropharmacology Research Center, NIMH.

The purpose of the exhibit is to present a conceptual scheme for



Dr. Fritz Freyhan and Dr. Julia Mayo study a scale model of their exhibit now on display in the CC lobby.—Photo by Thomas Joy.

comprehensive psychiatric treatment and to demonstrate the organization and function of an actual comprehensive treatment center.

The setting for the study is the William A. White Building at St. Elizabeths Hospital, Washington, D.C., which functions as a clinical research center and is sponsored jointly by NIMH and St. Elizabeths Hospital.

A comprehensive treatment center established there is shown in the exhibit.

Prepared by the Medical Arts and Photography Branch of the Division of Research Services, the exhibit already has been shown at the 4-day meeting of the Mental Hospitals Institute, held September 23-26 in Cincinnati, Ohio.

Following its 10-day showing in the Clinical Center, the exhibit will be displayed at the divisional meeting of the American Psychiatric Association, November 8-9, at the New York Hilton Hotel, New York City.

Joseph A. Staton Joins PMB as Exec. Sec't. of NIH Grants Associates

John M. Sangster, Chief of the Personnel Management Branch, OAM, has announced the appointment of Joseph A. Staton to the PMB staff, effective October 1.

Mr. Staton, who has been Deputy Chief of the Clinical and Professional Education Branch of the Clinical Center, will serve as Executive Secretary of the NIH Grants Associates Program. He replaces Mr. Dwight C. Monnier, recently appointed Assistant Chief for Training of the Career Development Review Branch, Division of Research Grants.

As time permits, Mr. Staton will later assist the PMB in the accomplishment of other professional objectives.

Experience Cited

Mr. Staton joined the PHS Commissioned Corps in 1953 and was assigned to the United States Operations Mission to Lebanon as a Public Health Education Consultant.

While in Lebanon, Mr. Staton also served on the faculty of the American University at Beirut as a lecturer on public health education. In this capacity he introduced to student nurses and sanitarians the concept of group dynamics as applied in the solving of public health problems.

On completion of the Lebanon assignment, Mr. Staton joined the Clinical and Professional Education Branch as Assistant to the Chief in 1955. He was made Deputy Chief in 1959.

Has M.P.H. Degree

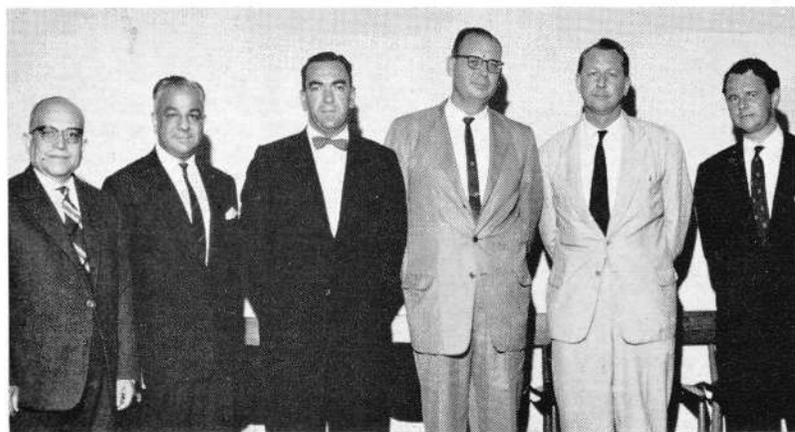
A native of Greenville, N.C., Mr. Staton received the A.B. and B.S. degrees from East Carolina College in Greenville. Following duty as a Marine Corps Officer during World War II, he obtained the M.P.H. degree from the University of North Carolina.

From 1947 to 1949 Mr. Staton was Director of Health Education for the North Carolina Tuberculosis Association. He also served as Director of Health Education for the Denver Tuberculosis Society, Denver, Colo., from 1949 to 1953.

A sure sign you're getting older is when the kids come home from school and tell you about their history lesson and you realize that when you went to school the same items were called "current events." —The Washington Post.



Mr. Staton



Specialists on schistosomiasis who participated in the NIAID seminar on means of eradicating the disease are, left to right: Drs. Naguib Ayad and A. F. Sherif of Egypt, Dr. S. R. Smithers of England, Dr. William B. DeWitt of the NIAID Laboratory of Parasitic Diseases, and Dr. Peter Jordan and Mr. G. Webbe of Tanganyika.—Photo by Sam Silverman.

UGF RALLY

(Continued from Page 1)

on us all. I urge you, in your soliciting, to give it the personal touch, not just for a few fellow workers, but for all."

Dr. Stuart M. Sessoms, Deputy Director of NIH, brought greetings from Dr. James A. Shannon, NIH Director, who was unable to be present.

"We take great pride in the fact that we work for NIH," he said, "but we also consider it important to be 'a part of the community.' We usually do our part in drives such as this one, but we do drag it out. I want to urge you all to make up your minds early. Make your pledges now."

Principal speaker for the occasion was Ralph Henry Smith, Executive Director of the United Givers Fund, who drew upon many personal experiences with UGF agencies to show "what a grand job they are doing with the funds and facilities made available to them to help those with twisted minds or bodies."

Praises UGF Workers

"These are dedicated people," he said, "many of whom were originally helped so much by the very agency they now work for, that they refuse lucrative positions elsewhere and continue to serve their fellowmen where they are."

He mentioned specifically a former missionary to India who received help for cataracts in both eyes, and a former alcoholic, now a dedicated worker for the Harbor Light Program of the Salvation Army.

To illustrate his talk, Mr. Smith showed the UGF motion picture for 1963 entitled, "To Have a Friend." This 19-minute film was produced locally and features a UGF agency for mental health, the Barney Neighborhood House; St. Joseph's Home and School for Boys, the Salvation Army, Red Cross, Big Brothers, family and child services, and help for retarded children.

Dr. Stone Directs Program

Directing the program was Dr. Frederick L. Stone, Chief of the Division of Research Facilities and Resources and NIH-UGF Campaign Chairman for 1963.

Although the meeting on Friday was in preparation for the official start of the campaign on October 1, Dr. Stone was able to report not only the figures specified as quotas for the Government unit, Department, PHS and NIH, but to announce that pre-campaign pledges and collections already amount to 10 percent of the NIH goal of \$93,380, with one Division reporting 100 percent participation and better than 100 percent of quota. He also urged keymen to do their

Arnold Urges Research For Disease Prevention In Science of Dentistry

"The dental profession has a responsibility not only to care for teeth that have been affected by disease but to advance the knowledge that will treat and prevent such disease," Dr. Francis A. Arnold, Jr., Director of the National Institute of Dental Research, said in accepting the 1963 Callahan Award presented by the Ohio State Dental Association in Cleveland.

The award is the highest honor granted by the Association. It is presented at the Association's annual meeting to "a person who has made a contribution of exceptional value to dental science."

Space Age Relationship

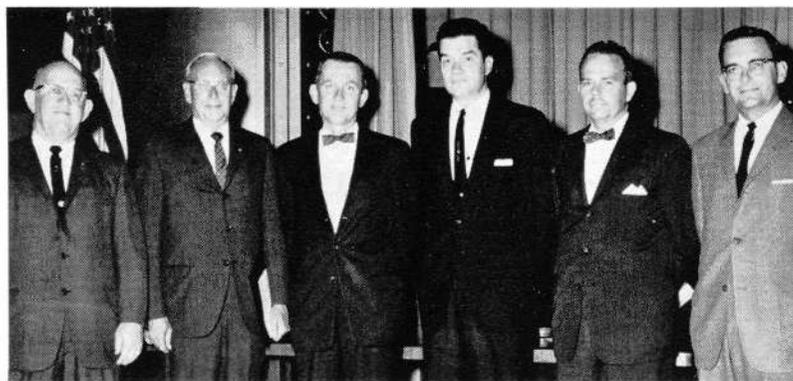
Speaking to the Ohio dentists on the theme of this year's meeting—The Space Age and Dentistry—Dr. Arnold said, "You are thinking not only of the speed of the space age but of its implications for behavior, relationships, activities and professional direction in today's world. The applications of space disciplines to medicine and dentistry are part of this picture."

Dr. Arnold told his audience that dentistry is part of the total health research effort, seeking answers to the causes and prevention of disease and the answers to the fundamental factors in the life processes themselves.

Alluding to trends in dental research he said, "The dental research scientist takes his place in the total stream of biomedical research, working in the same fields and toward the same ends as his colleagues in any of the research

canvassing on a personal basis and to skip no one.

Dr. Eugene Confrey, Acting Chief of DRG and NIH Campaign Vice Chairman, served as master of ceremonies.



Participants in the kickoff meeting of the UGF campaign at NIH are, left to right: Ralph Henry Smith, Executive Director of the UGF; Austin Thompson, in charge of the Government Unit of UGF; Dr. James M. Hundley, Assistant Surgeon General, PHS; Dr. Stuart M. Sessoms, Deputy Director of NIH; Dr. Frederick L. Stone, Chief of DRFR and NIH Campaign Chairman, and Dr. Eugene A. Confrey, Acting Chief of DRG and NIH Campaign Vice Chairman.—Photo by Bob Pumphrey.

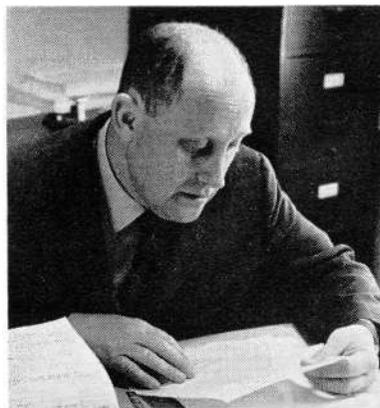
Qualitative Disturbances in Patterns of Sleep Seen as Suicide Prediction Aid

By Bonnie Gregory

Qualitative disturbances in sleep patterns may be used in predicting suicide, according to a theory advanced by Dr. Edwin S. Shneidman of the Suicide Prevention Center, Los Angeles, Calif., at the 17th International Congress of Psychology.

Sleep, said Dr. Shneidman, may represent a temporary cessation of the conscious being, a chance to escape the stress and strain of everyday living. When a severely troubled person cannot achieve this temporary escape, he may react by taking his own life.

Observations at the Suicide Prevention Center indicate that a per-



Dr. Shneidman at work at his desk in the Suicide Prevention Center.

fields of the life sciences."

Dr. Arnold, who for the past 10 years has directed the dental research component of the National Institutes of Health, is internationally recognized for his work in dental research and research administration.

He was a pioneer in the study of fluorides and their effect on teeth and has reported extensively on oral bacteriology, oral pathology and epidemiology of dental caries.

His reports on the production of carious teeth in hamsters led the way to extensive use of these animals in dental research.

son contemplating suicide very often does not intentionally wish to die, nor does he usually run out and jump off the nearest bridge when rejected by his lady love. He may, however, go home and brood about his problems.

The emotionally healthy individual can find relief from the crises of life in sound and peaceful sleep. When sleep does not come, Dr. Shneidman theorized, another crisis occurs which can cause a troubled person to seek the "only way out," suicide.

Discusses Suicidal Crisis

In speaking of the suicidal crisis, Dr. Shneidman likened it to the feeling of panic of a public speaker who suddenly forgets the punchline of the joke he is telling. In such a situation there is an impulse to react, to run from the stage, to "drop through a crack in the floor."

This reaction, Dr. Shneidman believes, may be caused, not by forgetting the line but rather by a second or in-between crisis (called a "meta-crisis"), the fear of appearing foolish before a large number of people.

Dr. Shneidman places insomnia in the category of a second crisis, in between the original critical situation and the ultimate reaction to it. In the suicidal person, these in-between crises—insomnia, psychosomatic disease and so on—tend to compound the original crisis, setting up a vicious cycle. The individual cannot help reacting, often by suicide.

Sleep Form Devised

Because of the many similarities between sleep and death, the Suicide Prevention Center has developed a Sleep Form to record the number of hours of sleep, quality of sleep, feeling upon awakening and retiring, etc., in an attempt to relate an individual's sleep behaviors to daily fluctuations in his behavior regarding suicide.

Dr. Shneidman expressed the hope that sleep studies would result in some valid research findings.

"If definite correlations can be drawn between sleep habits and suicide patterns," he said, "we will be more successful in dealing with suicidal patients in a truly scientific manner."

The Suicide Prevention Center is supported in part by grants from the National Institute of Mental Health, administered through the University of Southern California School of Medicine.

ALBE-FESSARD

(Continued from Page 1)

eral NIH scientists have worked and where three Americans are currently working under NIH fellowship grants. Dr. Marshall is now using the probe in his experiments on localized cooling of the visual system in cats.

The comely scientist, who combines family and marriage names to avoid confusion when she and her husband publish, is the wife of Alfred Fessard, Professor of Neurophysiology at College de France and a member of the French Academie.

Dr. Karl Frank, Acting Associate Director, Intramural Research, NINDB, worked for one year in the laboratory of the Institute of Maret, of which Prof. Alfred Fessard is director.

Reports on Other Work

While here, Madame Albe-Fessard reported some success in work done jointly with Dr. Girard Guiot, neurologist at Foch Hospital, Paris. The pair have been employing electrophysiological means to pinpoint disturbed areas of the brain in amelioration of Parkinson's Disease.

After seeing the sights of New York, Madame Albe-Fessard will spend 10 days working with Dr. Walter Rosenblith at the Massachusetts Institute of Technology. She had earlier air-freighted to him cats in which electric neurological probes had been implanted. Then she will go on to Montreal for a French exposition of scientific work, before flying home on October 18.

One of Prof. Albe-Fessard's chief interests is charting possible nerve impulse pathways from the skin to the brain, other than those already established. While here she learned that a 2-year grant from NIH for pursuing this work had been approved.

Dr. May Is Ass't Editor And Alumni President

Dr. Everette L. May, Chief of the Section on Medicinal Chemistry of the Laboratory of Chemistry, National Institute of Arthritis and Metabolic Diseases, was recently appointed Assistant Editor of the Journal of Medicinal Chemistry, a publication of the American Chemical Society, and elected President of the Alumni Association of Bridgewater College, Va.

In 1959 Dr. May was given the Alumnus of the Year Award by this association in recognition of outstanding vocational achievement and devotion to college activities.

Dr. May is well known for his part in developing phenazocine, an analgesic more powerful than morphine but less addictive.

Study Indicates Sons Influenced More by Early Maternal-Child Behavior Patterns

Sons are more likely to be influenced in the long run by the way their mothers behaved toward them in early years than are daughters, according to National Institute of Mental Health psychologists.

Findings based on the Berkeley Growth Study which began at the University of California in 1928, indicate that while boys' behavior can frequently be traced back to early maternal-child behavior patterns, girls are more likely to adapt to the current situation—the way their mothers are at the moment.

They do not seem to react as much as do boys to their mothers' attitudes of love or hostility, but tend to remain themselves.

Study Begins in 1928-29

The investigators observed 27 girls and 27 boys and their mothers since the babies' births in 1928 and 1929.

They report that the boy baby who was inactive or slow was more likely to be attentive later on than the active infant. He also tended to make good, systematic efforts to do well at tasks such as tests, and to comprehend swiftly. The comprehending, thorough, methodical boy of three-and-a-half is apt to remain this way through his 12th year.

The most consistent finding about girls in the study is the inconsistency of their behavior over the years. The active, responsive baby girl is likely to be bold, independent, irritable and defiant in adolescence. She is not apt to be particularly courteous or conscientious.

Correlation Change Noted

Although a close correlation was found between the friendly, cooperative and thoughtful behavior in little girls (beginning just under age three) and the characteristics of nine-to-ten-year-old girls, the correlation drops sharply between the ages of 10-and-a-half and 12 years.

Mothers were found more consistent over the years in their loving or hostile behavior than in their authoritarian or democratic attitudes toward their children.

The investigators summarize that girls seem to disrupt whatever stable childhood patterns they may have, earlier than boys do. Then they stabilize at an earlier age in adolescence than boys and behave in ways more consistent with their very early actions.

Drs. Nancy Bayley and Earl S. Schaefer, of the Laboratory of Psychology, NIMH, and associates, presented their paper at a symposium at the American Psychological Association's annual meeting in Philadelphia, August 29.

Two things I've had in life, and ample—good advice and bad example.—Reader's Digest.

Maternal Behavior Found Significant in Predicting Children's Development

Investigators have pinpointed four maternal traits significant in predicting a child's development.

The far-reaching influence of the mother in the child's first three years has been measured and shown to predict aspects of his development, according to two psychologists of the National Institute of Mental Health and the Fels Research Institute, Yellow Springs, Ohio.

Their report was based on recent analyses of data from a long-term study of 36 boys and 35 girls from infancy to adulthood at the Fels Institute.

Study Covers 3 Decades

Children and mothers were intensively observed, tested, and interviewed over a period of 30 years. The researchers selected four maternal traits for study with the following results:

(1) **Protectiveness**—The protective, affectionate mother, one who is interested in making a special effort to help her child, produced boys who excel in intellectual activity.

(2) **Restrictiveness**—A restrictive mother who insists on rigid standards and rules turns out independent, self-reliant sons, possibly in rebellion against the mother's intolerance.

(3) **Hostility**—The carping, critical mother stymies achievement in her sons. Curiously, daughters of these mothers reacted differently and, in contrast to the boys, became independent, intellectually striving adults.

Mothers' Demands Are Met

(4) **Acceleration**—The mother who demands accelerated achievement from her child surprisingly enough often gets what she wants. Both her boys and girls show a high level of achievement and success as adults.

The mother's behavior is the foremost influence on personality and possibly on intelligence as well, the report said.

This influence is so inescapable that while it may not appear in the child for some time, it can be traced six to 10 years later. The authors call this the "sleeper effect."

Dr. Howard A. Moss of the Child Research Branch, NIMH,

Dr. Engel Is Appointed NINDB Branch Chief

Dr. W. King Engel, Acting Chief of the Medical Neurology Branch, National Institutes of Neurological Diseases and Blindness for the past year, has been appointed Chief of the Branch.



Dr. Engel

A native of St. Louis, Mo., Dr. Engel is a graduate of Johns Hopkins University, and the McGill University Faculty of Medicine in Montreal, Canada.

Dr. Engel joined NINDB in 1956 as a Clinical Associate in Clinical Neurology. Since then he has been a Clinical Associate in Experimental Neuropathology, and spent a year at National Hospital, London, England as an extramural trainee.

Wins Research Award

He was Associate Neurologist, Clinical and Experimental Neurology (Histochemistry) prior to appointment as Acting Chief of the Medical Neurology Branch.

Dr. Engel has been honored for his work in neuromuscular disease research.

In 1962 he received the S. Weir Mitchell Award of the American Academy of Neurology for his essay "Essentiality of Histo- and Cytochemical Studies of the Skeletal Muscle in the Investigation of Neuromuscular Disease," which appeared in the November 1962 issue of Neurology.

Science Group Conducts Book Fair October 7-18

The Foundation for Advanced Education in the Sciences, Inc., sponsoring organization of the NIH Graduate Program, yesterday opened its first annual Book Fair in Rm. B1B38 in Building 31.

Publishers have been invited to display publications and books, published since January 1 of this year, of interest to scientists in the broad fields of chemistry, biology, psychology, mathematics, physics, and subjects related to the basic and clinical sciences.

Additionally, they will have on display current titles of their selections in the aforementioned scientific fields.

The 2-week fair is open to all. Interested parties are invited to visit and browse Monday through Friday from 10 a.m. to 4 p.m., up through October 18.

and Dr. Jerome Kagan, Chairman, Department of Psychology, Fels Research Institute, presented their paper at a symposium at the American Psychological Association's annual meeting.

Drs. Isbell, Wikler and Fraser to Retire Soon From Addiction Center

Three key scientists of the National Institute of Mental Health Addiction Research Center, Lexington, Ky., are retiring from the Public Health Service this fall. Their combined PHS service totals 84 years.

They are Dr. Harris Isbell, until recently Director of the Center, with 28 years in the Service; Dr. Abraham Wikler, Associate Director, 25 years; and Dr. Havelock Frank Fraser, Associate Director, 31 years.

Dr. William R. Martin, 42, a pharmacologist, has been Chief of the Addiction Research Center



Dr. Isbell



Dr. Wikler

since July, when he succeeded Dr. Isbell.

A native of Aberdeen, S. Dak., he received his M.D. and M.S. in Pharmacology in 1953 from the University of Illinois College of Medicine. He joined the Public Health Service and the Center staff in 1957.

Dr. Isbell, 53, the Nation's leading authority on the addicting properties of drugs and the nature of addiction, was born and reared in Horatio, Ark. He was graduated from the Tulane University Medical School in New Orleans in 1934, joined the Public Health Service the next year, and nine years later became Director of the Addiction Research Center.

Receives PHS Award

In a citation for the Meritorious Service Award of the PHS Commissioned Corps which he received in September 1962, he was credited with giving the Center "world-wide recognition, not only for its work in the field of drug addiction, but also as a center for research in experimental psychiatry."

Dr. Isbell's important research contributions include the development of withdrawal from morphine by methadon; the "nalline test" to detect addiction; the discovery of rapid tolerance to the hallucinogenic drug, LSD-25; the way LSD-25 interacts with tranquilizing drugs; and basic studies in the cross-tolerance of drugs. He also has made important findings in the search for new analgesic drugs with low addicting properties.

Dr. Isbell will act as Associate

Federal Hospitals Executives To Be Guests of Dr. Terry

Surgeon General Luther L. Terry will be host for the luncheon of Federal Hospitals Executives during the annual convention of the Tri-State Hospital Association, next Monday (Oct. 14), in Washington.

Dr. F. Ellis Kelsey, Special Assistant to the Surgeon General for Scientific Communications, will speak on "The Hospital—Matrix of Medical Communications."

This is the first major report by Dr. Kelsey on developing patterns of medical communications in hospitals, and the importance of such communications to improvement of the quality of medical care.

Tickets for the luncheon may be obtained from Miss Margaret Badger at the Clinical Center, Ext. 63227.

Director of the Center until his retirement is final, when he will become head of the Department of Clinical Pharmacology, at the University of Kentucky Medical Center, now in its third year.

In addition to teaching, he plans to develop a research program for the University in the problems of tolerance and cross-tolerance to drugs. At the same time, he will continue his association with the Addiction Research Center as a consultant.

Dr. Robert H. Felix, NIMH Director, said, "I deeply regret Dr. Isbell's retirement. He has made major contributions to the research



Dr. Martin



Dr. Fraser

program of the Service in his long and brilliant career."

Dr. Wikler, 53, was born in New York City and received his M.D. from the Long Island College of Medicine in 1935. He joined the Public Health Service in 1938, was assigned to the Addiction Research Center as an experimental psychiatrist in 1942, and became head of its Section on Experimental Neuropsychiatry in 1952.

He is known for his demonstration that addiction to morphine is associated with a definite physiological change in all portions of the nervous system.

Upon retirement he will become a professor in the Department of Psychiatry at the University of

PHS Notes World-Wide Rise in Smallpox Cases

The Public Health Service reports that smallpox is increasing in most areas of the world.

According to preliminary figures for the first eight months of this year, PHS said, 39 countries have reported 51,639 smallpox cases, compared with 44,870 cases in 46 countries for the same period in 1962.

The largest numbers of cases have been reported in India, 31,184; Pakistan, 4,314; the Republic of the Congo, 4,308; and Indonesia, 3,397.

At present North America and Australia are the only continents free of smallpox.

Persons planning trips abroad should make sure they have been successfully vaccinated at least within the past three years. Travelers to smallpox-infected areas should have been vaccinated within the past six months.

Information on infected areas is available from the Division of Foreign Quarantine, Public Health Service, Washington 25, D.C., and from U.S. Quarantine Stations.

Kentucky Medical Center.

Dr. Felix was to present Dr. Wikler with the Meritorious Service Medal in Lexington last Thursday for outstanding research in drug addiction.

Dr. Fraser, 59, a pharmacologist, is a native of Saskatchewan, Canada. After receiving his degree from Cornell University in 1932, he entered the Public Health Service. He has been with the Addiction Research Center since 1949.

He received the Meritorious Service Award from Dr. Felix in 1962 for "his world reputation as a scientist in the field of clinical pharmacology," and for his research in controlling drug and alcohol addiction.

After his retirement November 1, Dr. Fraser will join Eli Lilly Research Laboratories in Cincinnati, Ohio, as a consultant.

Two Fire Prevention Films Added to Oct. 11 Program

The program in observance of Fire Prevention Week, to be held Friday at 8 p.m. in the Clinical Center auditorium, will feature two one-half hour films on fire prevention, in addition to the program announced in the *Record* of September 24.

Prior to the showing of the films, entitled "Science of Fire" and "Why, Daddy?," Fire Marshall Kenneth W. Gettings and his staff will present a brief discussion on fire prevention. A question-and-answer period will follow the movies.

Dr. J. R. Beem Named Associate Director of National Heart Institute

Dr. John R. Beem, Medical Director of Warner-Lambert Research Institute, has been appointed Associate Director for Program Planning and Scientific Information of the National Heart Institute, Dr. Ralph E. Knutti, Director, announced yesterday.



Dr. Beem

Dr. Beem will be responsible for coordinating scientific and technical communication and coordinating the planning, development and analysis of a wide range of programs.

A native of Greeley, Colo., Dr. Beem received his B.S. degree from Northwestern University in 1941 and his M.D. degree from the Medical College of Virginia in 1945.

Professional Experience Listed

Dr. Beem served as intern and resident at the St. Louis City Hospitals from 1946 to 1950. He was a Fellow in Medicine at the Washington University School of Medicine in St. Louis from 1950 to 1951. From 1951 to 1953 he was a Research Fellow in Medicine and Cardiology at the same institution.

He served as Assistant Director for Clinical Investigation at the Merck, Sharp & Dohme Research Laboratories from 1953 to 1959. He joined Warner-Lambert Research Institute, Morris Plains, N. J., in 1959 as Director of Clinical Research.

Research Contributions Noted

Dr. Beem has been Medical Director at Warner-Lambert since 1960. Since 1955 he also served on the faculty of the University of Pennsylvania School of Medicine.

He is the author of many scientific papers, especially in the field of hypertension and cardiovascular dynamics, and has been a consultant in cardiology to a number of hospitals and research institutions.

Dr. Beem is a member of the American Heart Association's research councils on arteriosclerosis, circulation, clinical cardiology, and high blood pressure.

Other Memberships

He is also associated with a number of other health and professional organizations, including the Aerospace Medical Association, American College of Cardiology, American College of Physicians, American College of Chest Physicians, American Geriatrics Society, and American Medical Writers Association.

GENETICS

(Continued from Page 1)

gram-Project. They are affiliated with the Genetics, Experimental Statistics, Forestry, and Animal Science departments.

In announcing the award of \$293,544 for the first year of a 7-year project, Dr. Luther L. Terry, Surgeon General of the Public Health Service, noted that the faculty conducting this research is already internationally known for its program in quantitative genetics.

Study Is Broad

Broadly based, the work ranges from theoretical studies on mathematical models descriptive of the nature of the action of genes to the exploration of these models in a wide range of experimental studies.

Dr. Cockerham believes that present-day mathematical genetics research offers the best basis available for understanding the inheritance of complex characters, for predicting the characteristics of future generations, and for attempting to modify new generations.

The Program-Project will be concerned with three major areas of scientific inquiry: (1) genetic and environmental effects; (2) population dynamics; and (3) experimental evolution.

Systems Are Varied

The systems being studied in the experimental phase of the program are varied, including plants (both cross-fertilized and self-fertilized), mice, fruit flies and wasps. Each of these systems has been included because of characteristics of special value for genetic exploration.

The study material has been selected for its usefulness to the comprehension of all life processes. The program will emphasize theoretical and experimental aspects of the problems in plant and animal development in both natural and experimental populations.

Specific measures of fitness in animals—fecundity, fertility, and survival at various stages—will add to basic knowledge of these factors in the animals chosen for study.

Co-Director Named

In addition to the Program Director, the Program-Project has as its co-director Dr. H. F. Robinson, Director of the Institute of Biological Sciences, who has been on the staff of North Carolina State since 1945.

Dr. Robinson is also Professor of Genetics, and Assistant Director of Research of the Agricultural Experiment Station. He holds a Ph.D. in Plant Breeding from the University of Nebraska.

Dr. Robert Felix, NIMH, Wins Psychiatry Award

Dr. Robert H. Felix, Director of the National Institute of Mental Health, has received the annual Nolan D. C. Lewis Award for "outstanding contributions to psychiatry."

The award was presented to him last month by the New Jersey Neuro-Psychiatric Institute in Princeton, one of the State's leading research and treatment facilities.

The award was established six years ago by the Board of Managers of the Institute to honor its retiring research director, Dr. Nolan D. C. Lewis, famous analyst, teacher, and researcher in psychiatric diagnosis.

Dr. Arnold M. Kallen, President of the New Jersey Psychiatric Association, presented the award at the 11th Annual Institute Day.

DRS Conducts Oct. 16 Roundtable Discussion

"Medical Engineering Cooperation at The Royal College of Science and Technology, Glasgow, Scotland," will be the topic of an informal roundtable discussion to be conducted Wednesday, October 16, at 2:30 p.m., in Conference Room 6, Building 31, by Dr. Fred Alt, Chief of the Instrument Engineering and Development Branch, DRS.

The subject will be presented by Dr. Robert M. Kenedi, Reader in Mechanical Engineering and Head of the Biological Engineering Unit, Royal College of Science and Technology, Glasgow, and Dr. Thomas Gibson, Consultant Plastic Surgeon of the Scottish Western Regional Hospital Board and Senior Lecturer in Tissue Transplantation at the University of Glasgow.

The speakers will survey their work in skin tensions of the human body, self-locked stresses in human cartilage, dynamic forces and deformations in the human body due to activity, the design of prostheses, certain aspects of hypothermia by surface cooling of patients, and other related subjects.

The discussion is open to the interested public.

Gray Service Volunteers Sought by Clinical Center

Applications are now being taken at the Montgomery County Chapter, American Red Cross, 2020 East-West Highway, for Gray Service Volunteers at the Clinical Center. Each of these volunteers contributes several hours of work to the hospital every week.

For example, some assist the staff librarians in distribution of books and periodicals to patients; others work with arts and crafts in occupational therapy; still oth-



In ceremonies at the Pentagon, Capt. Boris J. Osheroff (left) receives from Maj. Gen. Marshall Stubbs, Director of Chemical, Biological and Radiological Operations, a Certificate of Appreciation for Patriotic Civilian Service from the Department of the Army. The award was for his performance as PHS Liaison Officer to the U. S. Army Materiel Command Biological and Chemical Research and Development Laboratories, 1960-63, while he was attached to NIAID.

Teachers College Alumni Sponsor Meeting Friday On Nursing Research

The Alumni of the Department of Nursing Education, Teachers College, Columbia University of the Washington Metropolitan Area, will sponsor a Nursing Research Meeting next Friday, October 11, at the Sternberg Auditorium, Institute of Research, Walter Reed Medical Center.

The meeting will consider the application of nursing research in community health agencies and nursing education programs and, in general, the application of research findings to professional nursing practice.

Among those participating in the program is Dr. Jane Wilcox, Special Assistant for Nursing Research, CC, who will report on a study in progress on "Exploration in Closed Circuit Television."

Additional information in connection with the meeting and registration fees may be obtained by calling Maj. Phyllis Verhonic at 576-2189 (office) or 588-2466 (home).

The meeting is open to all nurses and others interested in research.

ers shop for patients or help them with their correspondence.

Anyone over twenty-one may apply by telephoning the Red Cross chapter at JU. 8-2515 to request an interview.

Training classes for Gray Service day workers are to be held at the Clinical Center October 21 through 23 from 9:30 a.m. to 4 p.m. A training class for night workers will be scheduled for early November.

Studies Reinforce Prior Conclusion That CI-501 Aids in Malaria Control

In separate investigations two teams of scientists have reported results which reinforce previous conclusions that a new drug, CI-501, may help control malaria, the world's most prevalent disease.

Also known as chlorguanide triazine pamoate, the drug is highly insoluble in both oily and aqueous vehicles. A single injection releases the active ingredient slowly into the blood and tissues.

In studies at Christ Hospital Institute of Medical Research in Cincinnati, Ohio, single, well tolerated doses protected 10 rhesus monkeys against malaria-parasite challenge for a minimum period of 187 to a maximum of 314 days.

Severity Lessened by Drug

When repeated attempts to induce disease were finally effective, the illness was not as severe as it had been in control monkeys who were not protected with the drug.

In addition, the malarial infection was produced by parasites still wholly susceptible to the drug, which suggests that the possibility of promoting drug-resistant malaria with the use of the new compound is greatly reduced.

In studies conducted by scientists from the National Institute of Allergy and Infectious Diseases at the Federal Penitentiary at Atlanta, Ga., CI-501 protected 24 prison volunteers exposed to tertian malaria for periods ranging from 169 to 426 days.

Four other infected control volunteers were treated therapeutically with the drug. Within 24 hours the parasite counts decreased by 80 percent, blood smears were negative for all four within 72 hours, and none relapsed during the observation periods of 181 to 246 days.

Exerts Long-Term Protection

These results indicate that "CI-501 has the capacity to exert long-term protection and is therapeutically effective against human vivax malaria."

The Christ Hospital research was supported in part by a grant from the National Institute of Allergy and Infectious Diseases and was conducted by L. H. Schmidt, Richard N. Rossan, and Kathleen Fisher.

The NIH research was reported by Dr. G. Robert Coatney, Dr. Peter G. Contacos, Dr. Joseph S. Lunn, and John W. Kilpatrick, of the Laboratory of Parasite Chemotherapy, NIAID, and Dr. Harvey A. Elder, formerly with NIAID, now with Boston City Hospital.

The papers were published in the American Journal of Tropical Medicine and Hygiene.