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Equine Influenza Virus Shown to Infect Humans

National Institute of Allergy and Infectious Diseases scientists have shown that equine influenza virus can infect humans and that there is an antigenic relationship between equine and human influenza viruses.

Although lower animals have been considered extrahuman sources of influenza viruses, there has been no direct evidence that animal influenza viruses can infect man.

No Prior Evidence

Conversely, there has been no evidence to clarify the role of human influenza viruses in animal disease.

In a recent study conducted with prisoner volunteers, NIAID scientists showed that a strain of A/Equine-2 virus obtained from a naturally infected horse could infect man.

All of five previously antibody-negative volunteers were infected and one actually became clinically ill.

Inoculation, moreover, produced

(See INFLUENZA, Page 8)

Fete Develops New Concepts of Design For Community Mental Health Centers

Top professionals in the fields of hospital architecture and psychiatry recently completed a 2-week Design Fete sponsored by the National Institute of Mental Health at the Rice University School of Architecture, Houston, Tex., where they developed designs for a new kind of building complex—the community mental health center.

The community mental health centers concept, which every State is currently applying to its network of community-based services for the mentally ill, demands a departure from traditional architectural styles.

Cooperative Effort

The Design Fete was organized to provide examples of how psychiatry and architecture can blend together to produce a workable, pleasant environment for treatment.

Led by Clyde Dorsett, NIMH architectural consultant, planners

Live Animal Heart Study Here Holds Hope for Saving Lives



At left, Dr. Peter Mansfield, PHS surgeon in the National Heart Institute, switches a dial to stop momentarily the small, beating animal heart in the center foreground. The monitoring equipment is used to record and study a variety of physiological functions of the heart. At right, an oxygen electrode is inserted into the tube that drains the special perfusion fluid passing through the heart. The short tube at lower tip of the heart keeps the main pumping chamber empty during metabolic studies.—Photos by Jerry Hecht.

By Tony Anastasi

The tiny animal heart, suspended alone in mid-air, was beating normally. Only a transparent plastic tube passed into it, bringing life-giving oxygen. The young U. S. Public Health Service surgeon probed the heart and used an array of complex electronic gadgetry to study, record, and analyze results of his experiment.

"We're trying to find out what

the precise triggering process is in excitable tissue during electronic stimulation," said the National Heart Institute's Dr. Peter Mansfield.

Dr. Mansfield's efforts are uncovering answers concerning the effects of electrical stimulation on the whole heart and on individual heart cells.

"In this study," he said, "we can measure a variety of physiological functions such as potassium, sodium and calcium fluxes, temperature effects, pressures and fluid movement through the heart."

Responses Studied

The suspended heart preparation is perfused through the coronary arteries but does not pump fluid through its chambers. When electronic stimulation patterns are varied, basic metabolic and dynamic responses can be studied unimpeded by the extra work of pumping.

In addition, intracellular micro-electrodes are used to study the electrical responses in cells immediately adjacent to the stimulating electrodes.

(See HEART STUDY, Page 4)

Shannon Appoints Dr. Kennedy Head Of DRFR July 1

Dr. Thomas J. Kennedy Jr. has been named Chief of the Division of Research Facilities and Resources, effective July 1, Dr. James A. Shannon, NIH Director, announced recently.

Dr. Kennedy has been Special Assistant to the Director, NIH, for Scientific Communications since 1962.

DRFR provides a focal point for the administration and management of some of the major NIH activities and programs intended to supply a wide institutional base of support for health-related research.



Dr. Kennedy

Programs Listed

It is responsible for the Health Research Facilities program, the program of support for Primate Research Centers program, the Special Resource Centers program, and the General Research Support Grant program.

Dr. Kennedy, a Public Health Service Commissioned Officer, joined the staff of the National Heart Institute in 1950. He was en-

(See DR. KENNEDY, Page 8)

New Members Named to Advisory Health Council

Three appointments to the National Advisory Child Health and Human Development Council were announced today by Surgeon General Luther L. Terry of the Public Health Service. The new Council members begin 4-year terms on July 1.

The council appointees are Dr. Richard Blandau, Professor of Biological Structure, University of Washington School of Medicine; Dr. Philip M. Hauser, Professor and Chairman, Department of Sociology, University of Chicago; and Dr. John W. McConnell, President, University of New Hampshire.

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NEWS from PERSONNEL

JURY DUTY FEES

No fees for jury duty in any Federal court, including courts in the District of Columbia, may be paid to employees of the Federal Government. If offered by mistake they should be refused.

Fees are paid to Federal employees for jury service in a state, county, or municipal court (excluding D. C. municipal courts).

Such fees, however, must be turned over to the employee's time-keeper, or the employee's salary will be reduced by the total amount of the fee.

Regulations governing court leave may be found in the DHEW Personnel Guides for Supervisors, pages 22-24, of Chapter IV, Guide 5, Supplement 1.

PERSONNEL COUNCIL MEETING

On June 10 John M. Sangster, Chief of the NIH Personnel Management Branch, was host to the Public Health Service Personnel Council and represented NIH in discussions concerning personnel programs and policies for the Service as a whole.

The Council is comprised of Bureau personnel officers and key members of the SG Office of Personnel. Meetings are held periodically to discuss and consider possible avenues of improvement directed toward a totally effective personnel program.

MANY DISCIPLINES HERE

The physical, biological, and medical sciences account for approximately 60 percent of the total NIH professional staff, a recent count shows.

The behavioral sciences, statistics, engineering, mathematics, and science administration make up an-

Interest in NIH Library Intern Program, Ending 1st Year, Is Nation-Wide

The Medical Library Internship Program conducted by the NIH Library—one of three of its kind in the Nation—is nearing the end of its first year.

This program is designed to provide library school graduates an opportunity to become acquainted with all aspects of librarianship in a biomedical organization.

It affords the NIH Library an excellent recruiting media for superior library school graduates



Miss Fuge



Miss Spangler

from all parts of the country, and the Interns make significant contributions to the Library's research support effort.

The program started last August with two Interns, Carol Fuge and Kathleen Spangler. Two recent library school graduates already have been selected for the 1965-66 Internship Program, which begins next August 30.

During the 40-week training program the Interns receive a series of rotating work assignments in each section of the Library. The training also includes course work

other 37 percent. The remaining 3 percent include a historian, an economist, a legal assistant, a librarian, an audiologist, and several architects.

Deafness Leads to Rewarding Career as Dental Technician for Frances Cannon

By Bob Callahan

From nutrition and dietetics to histopathology in the span of little over a year is the unusual career story of Frances Cannon.

The unplanned turn of events that led Mrs. Cannon to a position as histotechnician in NIDR's Oral Medicine and Surgery Branch has been mutually rewarding to her and the Dental Institute.



Frances Cannon holds teeth, suspended by strings, in one stage of a decalcification process conducted in the Oral Medicine and Surgery Branch of the NIDR.—Photo by Bob Pumphrey.

Referred to by her co-workers as "a remarkable person," Frances exhibits a charm and responsiveness that belie the fact she "hears" others only by lip-reading. She became totally deaf at the age of six as a result of meningitis.

A 1960 graduate of Seton Hill College (Greensburg, Pa.) with a B.S. degree in nutrition and dietetics, Frances searched for a job in her native Washington for seven months. But fate held other plans. Her handicap prevented her from finding employment in that specialty field.

Training Offered

Dr. Harold R. Stanley, Chief of the OMS Branch, in an interview with Frances, was so impressed by her determination and personality that he hired her for training in histopathologic procedures.

To become better oriented in the position, she took a course in histology in the NIH Graduate Training Program. The 22 minor credits in chemistry and seven in biochemistry that she had crammed into two years at Seton Hill now served her well.

This knowledge, plus her faculty for deep concentration, enabled her to master the new job in outstanding time. She has progressed steadily, becoming more expert in the work, and has received several promotions as well as a quality step increase.

The handicap has not deterred
(See FRANCES CANNON, Page 6)

Army Band to Present Concert Here July 8

The second in this season's series of outdoor band concerts for Clinical Center patients will be presented Thursday, July 8, at 7:30 p.m. by the United States Second Army Band, on the patio adjoining the Clinical Center auditorium. In the event of rain, the concert will be held in the auditorium.

NIH employees, their families and friends are invited. Patients will have priority in seating. Arrangements for this concert were made by the CC Patient Activities Section through the courtesy of the U.S. Second Army Band.

Stamp Club to Meet

The NIH Stamp Club will hold its next meeting on July 8 in Conference Room 6 of Building 31 at 7:30 p.m.

Carl Scheele, Curator of Stamps, Smithsonian Institution, will be the guest speaker. Mr. Scheele will speak on the Reference Library on Stamps in his section at the Smithsonian.

All interested NIH employees are invited to attend the meeting.

in the NIH Graduate Training Program, visits to area libraries, workshops in information storage and retrieval, and attendance at seminars, lectures, and professional library meetings.

Interest in the NIH Library Internship Program has been nationwide. Inquiries have been received from graduates of more than a dozen library schools. The program also has received the recognition of the Medical Library Association.



This picture was taken at the spring rendezvous of the NIH Sailing Club on the Rhode River, adjacent to Chesapeake Bay. Oarsman in the foreground is Dr. Gerald M. Shean of NIAMD. The sloop in mid-distance, carrying club guests, is owned by Howard W. Spence of the Clinical Center. Over 60 NIH Sailing Club members recently completed a course in piloting and small-boat handling conducted by the U.S. Power Squadron.—Photo by Elizabeth Warner.

1st Statewide Register For Psychiatric Cases Established in Maryland

The first Statewide Psychiatric Case Register in the Nation is ticking off counts of Maryland's mentally ill and where they get treated.



Dr. Yolles

The Register is counting individual patients, recording information on their age, sex, and other characteristics, following the sequence of their hospital and clinic care, and reporting changes in their diagnosis. This kind of information has never before been available on such a wide, systematic scale.

A joint project of the National Institute of Mental Health and the State of Maryland, its significance was emphasized by Dr. Stanley F. Yolles, NIMH Director.

Dr. Yolles Quoted

"In the attack on mental illness as a serious national problem of public health," said Dr. Yolles, "we have for years desired to have data which can trace the services provided to a citizen when he becomes mentally ill.

"The Maryland Case Register counts individual patients as well as their admissions to psychiatric facilities, and shows the sequence of their care. In other words, the register shows how many times a patient is rehospitalized and whether he receives outpatient treatment.

"It charts the movement of patients from one facility to another and any changes that may occur in diagnosis. For the first time it provides a picture of the combined hospital and clinic care a patient receives.

Aids Community Planning

"This is the kind of information we need," Dr. Yolles added, "in planning the new community mental health services that will be part of every community's health protection within the next few years."

How many people in a State are treated during a year for psychiatric illness? How many are "repeaters" at the hospital and how many are maintained solely as outpatients? How many received aftercare in a clinic?

These questions are being answered by the Maryland Psychiatric Case Register, which was several years in the making. It requires an automatic computer system and the cooperation of 120 public and private inpatient and outpatient facilities in Maryland and the adjacent District of Co-

PHS Officials Will Address New Commissioned Officers

Top staff of the Public Health Service will address the new Commissioned Officers at an orientation meeting in the Clinical Center auditorium at 1 p.m., July 15.

The speakers will be Dr. Luther L. Terry, the Surgeon General; Dr. G. Burroughs Mider, NIH Director of Laboratories and Clinics; and Dr. Murray A. Diamond, Assistant Surgeon General for Personnel.

They will discuss the mission of the Public Health Service, the Commissioned Corps' part in achievement of this mission, and the evolving intramural research programs at the NIH.

The orientation meeting will be followed by special meetings for Clinical, Research, and Staff Associates.

NINDB Forms Advisory Subcommittees on Vision, Human Communications

Rapid expansion of medical research activities in vision and human communications has led the National Institute of Neurological Diseases and Blindness to establish special advisory subcommittees in these two fields.

The vision subcommittee will be concerned with basic mechanisms of sight as well as the many eye disorders. The human communications subcommittee will be concerned with research on hearing, language, and speech.

Members of the two subcommittees will analyze the Nation's research accomplishments and professional manpower needs in these fields. They will report their findings to the Institute's National Advisory Council.

The Subcommittee on Vision and Its Disorders will be chaired by Dr. Bernard Becker, Professor of Ophthalmology, Washington University, St. Louis.

The Subcommittee on Human Communication and Its Disorders will be chaired by Dr. Francis A. Sooy, Professor and Chairman, Division of Otolaryngology, University of California Medical Center, San Francisco.

A staff of trained statisticians and other professionals collects, processes, and analyzes the data.

The register required special State legislation to ensure the confidentiality of the records it keeps. Under the Maryland law, no information on any individual patient can be released. The records are kept on electronic tape, filed under register numbers rather than names, and are accessible to proj-



Neil Crane, M.D., of Washington University School of Medicine, was one of a large number of applicants for the NIH Associate Training Program invited here for interviews recently. He completes the preference sheet to accompany his application for an assignment in July 1967. Mrs. Rachael Peabody, Program Assistant, CC Clinical and Professional Education Branch, is ready to answer questions. —Photo by Ralph Fernandez.

230 New COs Report For Duty Here July 1

On Thursday, July 1, about 230 new commissioned officers will report for duty at the National Institutes of Health.

Two-thirds of these young physicians will spend at least two years in training here as Clinical Associates, Research Associates, Staff Associates, or Residents.

Five officers will be assigned to research projects and programs overseas which are being conducted by the Public Health Service or are of special interest to the Service.

Another group of eight physicians will serve in other Federal installations in the United States and will participate in programs of concern to the National Institute of Child Health and Human Development.

The new Associates come from major universities throughout the country.

Visiting Program for Mentally Ill Proves Beneficial to Patients and Volunteers

For the past seven years student volunteers from Connecticut Wesleyan University have been visiting chronically ill mental patients each week at the Connecticut Valley Hospital, under a "Companion Program" sponsored by the National Institute of Mental Health.

Anecdotal data show that the patients gain from this interaction. More systematic data indicate that the students enlarge their conceptions of mental illness, become more self-accepting and show a tendency toward increasing self-awareness and self-examination.

Objectives Cited

The program has three major objectives:

1. To provide a rewarding educational experience for the students, both emotionally and intellectually, with a hope of attracting college students to careers in the field of mental health, and to create a better understanding of the problems of mental illness.
2. To rehabilitate patients who had withdrawn from social relationship.
3. To affect positively the morale of the institution by bringing in young people whose social idealism is at its height and whose vigor would not permit attitudes of help-

lessness and despair.

lessness and despair. Compared with a control group of students who did not volunteer as "companions," the companion group at the beginning of their participation differed very little in psychological soundness or intellectual abilities.

They were, however, somewhat more sensitive to others, more altruistic in their concerns, and less involved with worldly success.

Changes Noted

After a year of weekly visits with patients, the companions showed a substantial increase in self-acceptance, whereas the control group exhibited an opposite tendency of almost the same magnitude.

Moral attitudes of the companions grew more tolerant, while the control group showed a slight tendency in the other direction.

The investigators believe that the experience of the companions may have profound and meaningful importance to the individual and constitute a kind of "non-intellectual" education of genuine importance.

These findings were reported by Drs. Jules D. Holzberg and Robert Knapp, NIMH grantees at the Connecticut Valley Hospital and Wesleyan University, in the American Journal of Orthopsychiatry.

Maryland State Department of Mental Hygiene; and Dr. Gerald Klee of the University of Maryland Psychiatric Institute in the May issue of Public Health Reports.

You know what happens to fellows who fail their drivers' tests? They become parking lot attendants!—The Washington Post.

Esther Garrison, NIMH, Wins Honorary Degree

Esther Garrison, Chief of the Nursing Section, Training and Manpower Resources Branch, NIMH, has been awarded an Honorary Doctor of Laws degree by Saint Xavier College in Chicago.

In the presentation Miss Garrison was cited as a "pioneer in the development, improvement, and extension of education for nursing of the mentally ill."

Her citation continued:

"In 1947, her conviction, perseverance, and zeal began to lead the field of psychiatric nursing to the highest academic levels.

"Her efforts are represented in the existence of five programs at the doctoral level, forty-one at the master's, and 124 at the undergraduate level.

Training Provided

"These programs provide training for psychiatric nursing of adults, child psychiatry, psychiatric research and public health. Her inspiration guided Saint Xavier College School of Nursing to the level of achievement represented here today in the awarding of its first Master of Science degrees in psychiatric nursing."

Born in Middletown, Ill., Miss Garrison received her basic nursing education from St. Louis City Hospital Training School for Nurses, and her B.S. and M.A. degrees from the University of Minnesota. She continued with post-master's study at Teachers College, Columbia University.

A Nurse Director in the Commissioned Corps of the Public Health Service, she has been with the Institute since 1947. Prior to that time she held various supervisory nursing positions and taught at both the University of Minnesota and St. Louis City Hospital Training School for Nurses.



Miss Garrison

Parental Interest, Even 'Fault-Finding,' A 'Must' for Well Being of Adolescent

Parental interest, even if reflected in fault-finding, is a "must" for the adolescent's well-being. Without it, he may be headed for unhappiness and failure, according to Dr. Morris Rosenberg, a National Institute of Mental Health research scientist.

Dr. Rosenberg surveyed 5,000 students in New York State high schools, and several hundred in the Washington, D.C. area, for his study.

He measured parental interest by asking the children three questions: 1) How well do your parents know your friends? 2) How do your parents react to your report cards? 3) How often do you take part in conversations at the family meals?

Dr. Rosenberg found that parents who knew all or most of their children's friends, who took a strong interest in their report cards, and who permitted the children to engage in conversation at the table had happy, self-confident youngsters.

Children low in self-confidence had parents who ignored them. Even negative interest such as sharp criticism and punishment at report card time, and criticisms of friends, did less damage to the child than indifference, Dr. Rosenberg said.

Self-Esteem Measured

The Institute sociologist used test scores for self-esteem as the measuring stick for the child's well-being. He learned that children from upper-class families had higher self-esteem than those from lower economic groups.

The reason, he explained, lies not in the class which the child happened to inherit, but in the amount of time and interest the parents, especially the father, showed him.

The report noted that "upper-class boys are 37 percent more likely than lower-class boys to have close relationships with their fathers . . . Adolescents who report close relationships with fathers are considerably more likely to have high self-esteem and stable self-images . . ."

According to the questionnaires, divorce cuts into the self-confidence of the child. The younger the child was at the time of the divorce, the more it affected him. Children whose father or mother died also suffered, but not so deeply.

The hazard to self-esteem is particularly great for the child whose very young mother bore him soon after marriage and then quickly got a divorce.

The study also reported that the self-esteem of the child is lower if the mother or father remarries.

Remarriage Increases Anxiety

"It is surprising to find that parental remarriage, rather than helping the adjustment of the child," Dr. Rosenberg commented, "is associated with lower self-esteem and greater anxiety . . ."

"It is surprising because the new father can lend moral and psychological support. On the other hand, the mother and child (without a father) may 'huddle together for warmth.' A common problem strengthens the bond."

Dr. Rosenberg summed up the low-esteem child as "a gloomy, unhappy and discouraged" youngster with little confidence in himself or in other people.

He does not participate fully in class, makes poor grades, avoids joining school clubs or groups, and in general "does not stir up much of a breeze in high school."

He expects his future to be dark and, Dr. Rosenberg said, "there are powerful reasons for expecting his dire predictions about his future to come true. His low esteem makes him anticipate failure and very likely helps produce it."

Attributes of Self-Esteem

In contrast, the high self-esteem child thinks of himself as successful and popular with many different kinds of people. He likes competition, makes good grades, has a variety of interests, is not afraid of criticism, joins a number of high school groups and frequently leads them.

He believes his future will be bright, and according to Dr. Rosenberg, he is probably right. "The young man who is confident of himself," Dr. Rosenberg said, "and is not afraid of failure is likely to throw himself wholeheartedly into his work and to make full use of his creative potential."

Dr. Rosenberg's findings are described in "Society and the Adolescent Self Image," published recently by the Princeton University Press.

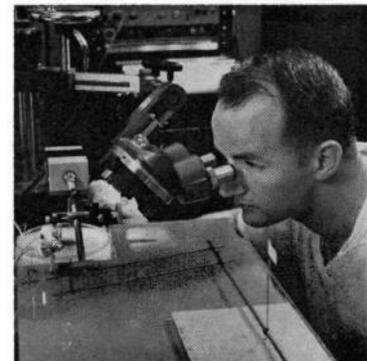
HEART STUDY

(Continued from Page 1)

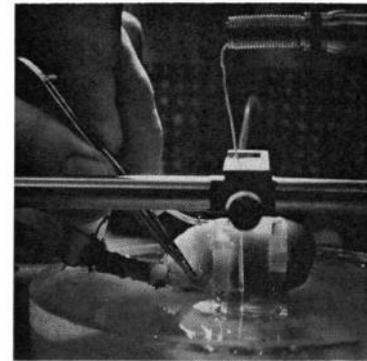
Hopefully, Dr. Mansfield's work may be clinically useful in treating patients with irregular heartbeats and some other forms of heart disease. It may eventually be beneficial in the postoperative care of patients undergoing heart operations.

This is one example of the hundreds of basic medical research projects going on in the NIH Clinical Center. This one, like many others, might someday provide answers to improve and save human lives.

A paper based on the initial investigations of this problem appears in the June issue of the Bulletin of the New York Academy of Medicine.



A microscope is used to position the microelectrode amid the individual heart cells. The distribution of charge in the tissue during stimulation is plotted on the graph in foreground.



A glass microelectrode is used to study individual cells of the intact animal heart. The activity of the cells in response to electrical stimuli are observed. In the suspended heart study, the overall response of the heart to stimulation is noted.

Prints of 'Heartbeat' Film Now Available at PHS

Research progress in combating heart disease through the teamwork of medical scientists around the world is shown in a new motion picture, "Heartbeat," made available last week by the Public Health Service.

The documentary film was produced for the National Heart Institute with the cooperation of the U.S. Information Agency.

Filed in Peru, Lebanon, Uganda, Japan, East Pakistan, and the United States, "Heartbeat" is designed to help fill the need for disseminating health information from medical scientists to the pub-

lic.

Although "Heartbeat" focuses on six areas of the world, depicting research supported by the National Heart Institute, the film shows that the battleground against one of the world's greatest killers is everywhere.

The film (PHS-MIS 896) may be obtained on free short-term loan in either 16 mm. or 35 mm. prints from Public Health Service Audiovisual Facility, Distribution Unit, Atlanta, Ga. 30333. It is also available for purchase. Information on this may be obtained from the same source.

Typical Federal Retiree

The typical Federal career employee retiring in 1964 after age 60 with at last 30 years service was male, married, 65 years old, and entitled to an annuity of \$402 a month based on an average of about 38 years of Federal service.

There were 482,000 employee annuitants and 206,000 survivors on civil service retirement rolls in mid-1964.

Mechanisms Regulating Cell Activity Discussed In Lecture Series Here

Some of the mechanisms which regulate cell activity, turning enzymes off and on as needed, were explained in a lecture here recently by Dr. Bernard L. Horecker, former NIAMD scientist and now Professor and Chairman of the Department of Molecular Biology, Albert Einstein College of Medicine in New York.

This lecture was the fifth in a series sponsored by the National Institute of General Medical Sciences and the Division of Research Facilities and Resources, to acquaint scientist administrators with recent trends and concepts in biomedical science.

Dr. Horecker said that enzyme molecules have evolved over the ages, just as life has, from simple to more complex forms. It is thought that the atoms in primitive enzymes were linked in a single chain-like arrangement called a monomer.

Enzymes Complex

Later the chains became doubled (dimers), redoubled, or tripled (polymers). Some have acquired side chains, until many enzymes today are highly complex in shape.

The evolution of these side chains and polymers has led to the development of mechanisms which control the chemical reactions of cells.

One of these mechanisms, known as feedback inhibition, is comparable to a thermostat which cuts off the furnace when the heat reaches a desired level. When the product of an enzyme reaction reaches a certain level, the product itself, like the heat, blocks the activity of the enzyme which, like the furnace, started the reaction.

The inhibitor in some instances apparently blocks enzyme activity, Dr. Horecker said, by altering the bonds between the various polymer and chain subunits of the molecule. Heat and urea, which "loosen" bonds between subunits, block inhibition of some enzymes without interfering with normal enzymatic activity.

Reaction Described

The active site, which is the exact place on the enzyme where it reacts with another molecule, or substrate, may be an entirely different portion of the enzyme from the site where the inhibitor reacts.

Sometimes it is possible to increase the effectiveness of an enzymatic reaction by changing the strength of the bonds and the geometric shape of enzyme molecules.

Dr. Horecker has trebled the activity of one enzyme, an aldolase, found in muscle cells. He pointed out that, in rabbits, aldolase molecules from liver cells are very simi-

Participants Value GA Seminar Series On Public and Science Administration



Members of the Grants Associates Board confer with directors of the first week of the 1965 seminar series, conducted here May 17-21. Left to right: Dr. Stephen P. Hatchett, Chairman of the Board's Committee on Seminars and Deputy Chief of the Division of Research Grants; Dr. Charles A. Goodman, Professor and Associate Dean of the School of Government and Public Administration, American University; Dr. Marshall E. Dimock, authority on Public Administration; and Joseph A. Staton, Executive Secretary of the Grants Associates Program.—Photo by Ed Hubbard.

Dr. Karl R. Johansson, Chief of the Research Grants Branch, NINDB, and Chairman of the Grants Associates Board, reported recently that participants highly evaluated a concentrated 2-week seminar dealing with public and science administration.

The third of a series of such seminars conducted here annually, the objectives of the program are:

1. To give new science administrators an objective understanding of the political, social, economic, and scientific forces which affect governmental policies, procedures, and programs.

2. To give new science administrators an understanding of the broader restraints affecting decision-making.

3. To provide a clarification of concepts affecting the administrative process.

Ten Grants Associates, currently training here at the postdoctoral level, and 10 senior extramural staff members from the Public Health Service participated in the seminar.

Dr. Charles A. Goodman, Associate Dean, School of Government

lar in structure to those from muscle cells. Both have three chains and two active sites, and it is thought that the inhibition site is on the third chain.

During a question period following the lecture, Dr. Horecker stressed the need for more scientists trained in advanced chemistry and computer methods to do biological research. He said college advisors should encourage any student interested in biomedical research to acquire a substantial background in chemistry and mathematics.

Dr. Horecker served at NIH for 18 years, and was Chief of the Laboratory of Biochemistry and Metabolism, NIAMD.

and Public Administration, American University, was overall director of the seminar series.

The first week in the series, held



Dr. Gilpin



Dr. Confrey

May 17-21, was under the direction of Dr. Marshall E. Dimock, former Head of the Department of Government, New York University.

Dr. Robert G. Gilpin, of the politics and public affairs faculty, Princeton University, was senior seminar leader during the second week of the meeting, June 7-11.

The seminars are given for the benefit of Grants Associates and other selected science administrators. The Grants Associates Program which is administratively based in the Division of Research Grants, has been markedly successful in alleviating PHS-NIH needs for well-trained science administrators.

"A Federal science administrator," Dr. Eugene A. Confrey, DRG Chief, told the participants, "manages, innovates, decides, organizes and articulates in the public arena.

"He is accountable to the public, available to the press, his actions or inaction subject to public scrutiny. Is this a problem? I view it as a challenge to test one's intellectual and emotional maturity."

PHS Reports Change in Flu Vaccine Composition For 1965-66 Season

A slight change in the composition of influenza vaccine for the 1965-1966 season was announced recently by Dr. Luther L. Terry, Surgeon General of the Public Health Service.

In addition to the representatives of the four influenza virus strains—A, A₁, A₂, and B—which are used in the current vaccine, next season's formula will include another A₂ strain, isolated in Taiwan in 1964.

This strain is closely related to the A₂ strain which has been associated with epidemic influenza during the past season.

The licensed influenza vaccine manufacturers have been advised by the Division of Biologics Standards of the addition of the Taiwan A₂ strain for the 1965-66 season.

3 Strains Studied

Three A₂ influenza strains which were responsible for influenza epidemics in various parts of the world during 1964 have been under intensive study as possible candidates for inclusion in the current vaccine.

Identified as A₂/Taiwan/1/64, A₂/Puerto Rico/1/64, and A₂/Sidney/2/64, they were evaluated for their antigenic properties as well as for suitability for commercial production.

Both clinical and laboratory information indicated that of the three candidate strains, the Taiwan/1/64 had the most desirable properties. It showed broader coverage than the other two, it had greater antigenicity in animal and clinical tests, and was considered suitable for production.

The laboratory and clinical work was carried out by Dr. J. Anthony Morris, Division of Biologics Standards; Dr. Vernon Knight, National Institute of Allergy and Infectious Diseases; Dr. Fred Davenport, University of Michigan; Dr. Edward Buescher, Walter Reed Army Institute of Research; and Dr. Joseph Quilligan, Loma Linda University, Los Angeles.

DBS Advises Manufacturers

After careful consideration of the data, DBS advised the manufacturers to proceed with the manufacture of a vaccine in which the A₂ influenza virus strain representation is equally divided between Japan/170/62, the current A₂ representative in the vaccine, and Taiwan/1/64.

"It is clear that we continue to be in a period of antigenic change," Dr. Terry said, "and that examination and analysis of the strains isolated in this country and abroad during the current season, or later in the present year, may call for further recommendations."

Dr. Barrett and Wife To Retire Next Month From Cancer Institute

Dr. Morris K. Barrett, a National Cancer Institute biologist since 1940, will retire next Friday, July 2. He holds the rank of Medical Officer. His wife, Dr. Margaret K. Deringer (who retains her maiden name for professional use) is also an NCI biologist and will retire July 31.

Dr. Barrett joined the Institute as a Research Fellow and has been a member of the biology research staff since it was organized first as the Biology Section and later as the Laboratory of Biology. For a number of years he headed a Gastric Cancer Unit and served as Executive Secretary for a Gastric Cancer Committee of the National Advisory Cancer Council.



Dr. Barrett

Research Listed

Dr. Barrett has conducted research on cancer causation and the relationships between immunity to the disease and the genetic make-up of the individual, with emphasis on host-tumor relationships and adaptive changes in transplanted tumor tissue.

He observed that red blood cells when broken up by three different methods, which reduced the cell's constituents to very small size, lost their ability to produce immunity.

This finding introduced the concept that antigenicity of cells may depend upon more than their molecular structure. In recent work, Dr. Barrett explored the relationship and interactions between animal gastric mucosa and its secretions.

Educational Background

A native of Brookville, Ky., Dr. Barrett was graduated from the Colorado School of Mines in 1924 and worked as a research metallurgist and geologist before studying medicine. After receiving an M.D. degree from the University of Colorado in 1937, he was for two years an NCI Fellow at the Rockefeller Institute in New York. His research career was interrupted for three years, from 1942 to 1945, while he served as a surgeon in the U.S. Army Medical Corps during World War II.

Dr. Barrett is a Fellow of the American Association for the Advancement of Science and the New York Academy of Sciences, a member of the American Association for Cancer Research, Society for Experimental Biology and Medicine, Washington Academy of Sciences, Tau Beta Pi, Alpha Omega

Study Shows Reticulum Cell Sarcoma Is Transmittible in Hamsters by Mosquito

A joint study by three NIH Institutes has demonstrated that the reticulum cell sarcoma (TM) of hamsters can be transmitted from one hamster to another by a mosquito, probably by transfer of viable tumor cells rather than passage of an oncogenic virus.

In this study, conducted by the National Cancer Institute, National Institute of Allergy and Infectious Diseases, and the National Institute of Dental Research, the contagious tumor, a lymphomatous tumor characterized by a high white cell count, has been transmitted by subcutaneous implantation, feeding tumor tissue, and cannibalism among cage-mates.

Transmission is believed to be by direct passage of tumor cells because a very consistent and highly specific chromosome pattern, differing from the normal hamster karyotype, is maintained in the transmitted tumors.

Chromosome changes known to be induced by oncogenic viruses do not approach the degree of specificity observed in these tumor cells.

The present study was designed to determine whether TM could be transmitted by the mosquito, *Aedes aegypti*, and if such transmission involved chromosome changes consistent with the hypothesis of direct cell implantation.

Investigation of Interest

Speculation that Burkitt's lymphoma may be caused by a mosquito-borne agent makes such an investigation of special interest.

In one series of experiments, mosquitoes that had been fed on either tumor-bearing or tumor-free hamsters were implanted subcutaneously in normal hamsters.

Tumors developed in 24 of 60 hamsters implanted with mosquitoes fed on tumor-bearing hamsters, but no tumors developed in seven hamsters implanted with mosquitoes fed on tumor-free hamsters.

In another series of experiments, mosquitoes were fed on seven "donor" hamsters bearing tumors transmitted by subcutaneous trans-

Alpha, and Phi Lambda Upsilon, and an affiliate of the Royal Society of Medicine, London.

A graduate of Hood College and Johns Hopkins University, Dr. Deringer joined the Institute as a Research Fellow in 1942. She has specialized in developing experimental animals of unusual genetic strains.

In addition to her independent studies, she has collaborated extensively with her husband, supplying him with laboratory animals of unique and complicated genetic structure vital to his work.

The Barretts, whose home is in Bethesda, are looking forward to the leisure of retirement and the freedom to travel.

plantation. After the feedings were interrupted, these mosquitoes were then allowed to feed on "recipient" tumor-free weanling hamsters.

Within 13 to 23 days, five of the 50 recipients developed tumors histologically resembling those of the donors. The tumors appeared as subcutaneous nodules with metastases or as widespread tumors involving most of the internal organs.

Structure Described

Chromosome studies performed on one of the mosquito-bite induced tumors showed a karyotype identical to the specific pattern previously described by these investigators.

The cells contained seven extra chromosomes with a characteristic distribution, a single X chromosome, and a minute marker chromosome.

Repeated examinations for a virus in the tumor used in these experiments using electron microscope, tissue culture, and serial passage techniques, were unsuccessful.

A report of this study appeared in *Science*. The investigators were Dr. William G. Banfield and Carol MacKay, of the Laboratory of Pathology, NCI; Dr. Paul A. Woke, of the Laboratory of Tropical Virology, NIAID; and Dr. Herbert L. Cooper, of the Section of Cellular Biology and Cytogenetics, NIDR.

FRANCES CANNON

(Continued from Page 2)

either her performance as a histotechnician or her pursuit of various avocations. An interest in flying began at an early age when her father, Lt. Col. Joseph C. Bergling, was Commander of the National Capitol Wing, Civil Air Patrol.

Following graduation in 1958 from Immaculata Junior College in Washington, she took flying lessons at the old Congressional Airport on Rockville Pike, although she never quite reached the solo stage. She had to "give it up" because of the expense, with college coming up.

In November 1963, Frances took a commercial flight to Sicily to attend the wedding of a college girl friend, traveling alone, as usual.

She is frequently called upon to speak before local handicapped groups to describe her work and encourage others with physical handicaps to seek careers. She is a member of the Fellowship Club of the Washington Hearing Society, consisting of about 45 members, most of whom use hearing

Drs. Eddy and Stewart Participate in Symposium By Women of Science

Two scientists from the National Institutes of Health participated in a "Symposium by Distinguished Women of Science," sponsored recently by the Putnam Memorial Hospital Institute for Medical Research in Bennington, Vt.

The concept that viruses may cause tumors in man was explored by seven scientists distinguished



Dr. Stewart



Dr. Eddy

for their work in the fields of virology, cancer research, and cellular biology.

Dr. Bernice Eddy, Chief of the Section on Experimental Virology, Division of Biologics Standards, presented a paper on "Studies on the Oncogenic Viruses: Simian Virus-40 and Human Adenovirus Type 12."

"Viruses in Cultured Human Lymphoma Cells" was the title of a paper presented by Dr. Sarah E. Stewart, Division of Viral Oncology, National Cancer Institute.

Dr. Robert J. Slater, Dean of the University of Vermont Medical College, served as moderator for the symposium, the first to be sponsored by the Putnam Memorial Hospital Institute for Medical Research.

aids, although some are totally deaf.

It was at a meeting of the club last year that she met her husband-to-be. Nine months later they were married "with colored rice, some of which I still have," she remembers excitedly. Her husband, Richard, is partially deaf and wears a hearing aid. He is president of the club, she is treasurer.

Sight Is Keen

Frances drives to NIH from their new apartment in McLean, Va., using the Beltway. Her sight perception and driver intuition are exceptionally keen; according to friends who often ride with her. It is not uncommon for her to see flashing lights of ambulances or police cars before her riders hear the siren.

Her fondest wish? To some day have a telephone that will permit her to see the caller in order to read his lips. Until that day comes, she'll go on answering the telephone when she sees the flashing light in her Building 30 laboratory: "Mrs. Cannon speaking, one moment please."

PHS Awards \$5 Million To Aid in Construction Of Retardation Centers

Grant awards totaling almost \$5 million to aid in the construction of three multidisciplinary mental retardation research centers were announced recently by Surgeon General Luther L. Terry of the Public Health Service.

The grants are:

1. \$1,724,000 to the Children's Hospital, Cincinnati, Ohio, for construction of an 8-story building adjacent to the hospital to be known as Children's Hospital Institute for Developmental Research.

2. \$2,405,000 to George Peabody College for Teachers, Nashville, Tenn., for construction of two units: a 4-story mental retardation laboratory building, and a 5-story human development laboratory, the latter structure to include animal facilities. Both buildings will have provisions for observation and play facilities for children.

State School Included

3. \$827,000 to the Walter E. Fernald State School, Waltham, Mass., for a 4-story building for clinical research in mental retardation.

The award to the Children's Hospital in Cincinnati will provide research space to extend ongoing mental retardation research and research training programs. Research at this center emphasizes the biological and medical aspects of mental retardation.

Divisions of the Children's Hospital in which research will be directed entirely toward mental retardation and related aspects of human development include teratology and genetics, experimental pathologic embryology, fetal pharmacology, and chromatography.

The award to the George Peabody College for Teachers will help bring together in a modern facility programs of the school dealing with mental retardation and related aspects of human development.

Grant Is 1st of Kind

The grant to Peabody is the first such grant under this program to an institution primarily emphasizing the educational, psychological and social aspects of mental retardation.

Strong emphasis in the new center will also be put on studies related to the impact of cultural deprivation on retarded intellectual development, an area in which Peabody has been investigating for several years.

The Walter E. Fernald State School houses 2,500 mentally retarded persons, and is the oldest of its type in the country. The new grant will aid in replacing its research building, constructed before 1900, with a modern facility suitable for comprehensive studies of

Committee to Advise NIAID on Research In Immunology of Organ Transplantation

Appointment of an advisory committee for collaborative research in the immunology of organ transplantation has been announced by Dr. Luther L. Terry, Surgeon General of the Public Health Service.

The committee will advise Dr. Dorland J. Davis, Director of the National Institute of Allergy and Infectious Diseases, on ways to develop and coordinate methods, procedures, and resources for enhancing research in the immunology of organ transplantation, which Dr. Terry called "one of medicine's most challenging frontiers."

The committee will also advise on the development of methods for evaluating and applying research results.

Dr. Amos Is Chairman

Chairman of the committee is Dr. Bernard Amos, Professor of Immunology, Duke University, Durham, N.C. The other members of the committee come from many leading hospitals and university medical centers.

The entire collaborative transplantation immunology program is under the immediate direction of Dr. John R. Overman, Associate Director for Collaborative Research, NIAID.

Commenting on the present state of organ transplantation, Dr. Terry said:

"The main obstacle is a problem in immunology. The surgery is successful but the recipient rejects the transplant. The human body reacts to transplanted tissue in much the way that it reacts to other invaders—viruses, bacteria, or other foreign substances.

Defense Mechanisms Studied

"Little understood defense mechanisms which protect against infection unfortunately 'protect' against transplanted tissue.

"In an effort to understand and eventually prevent tissue rejection, researchers are striving to answer two important questions: How does the body recognize the foreign invader, that is, the transplanted tissue? How can the body be 'taught' to live with the invader?"

The immediate goal of the NIAID collaborative program in

a large group of mentally retarded.

In the planned center, an expanded research program will be carried out, combining the resources of the school and the Massachusetts General Hospital.

Grants for construction of mental retardation research centers are administered by the Division of Research Facilities and Resources. The National Institute of Child Health and Human Development is the focal point for program consultations with institutions interested in developing mental retardation research centers.

transplantation is a technique for matching graft donors and recipients in much the way patients requiring blood transfusions are now matched with blood donors.

Although advances have been made in tissue typing, the problem is far more complex than in blood typing. The reason has to do with the different goals of blood transfusion and organ transplantation.

Ordinarily, when blood is transfused, only the red blood cells (which transport oxygen) need survive, and blood matching helps attain this goal. But when an organ is transplanted, all of its cells and tissues must keep working. It is the complexity of this problem that makes tissue typing more complex than blood typing.

Program Coordinates Efforts

The collaborative program in tissue typing will coordinate, primarily through contracts, the efforts of many university and commercial laboratories to find a tissue typing technique that works.

Successful tissue typing will increase the percentage of successful organ transplants by minimizing tissue incompatibility, just as blood group typing paved the way for large-scale life-saving blood transfusions.

The tissue of such organs as the kidneys, the liver, the lungs, and the heart is much more complex than blood. A perfect match such as is possible in blood typing may not be possible in tissue typing.

Tissue typing, therefore, may have to be combined with drug or other therapy to bridge the gap between donor and recipient.

Future Research Noted

That is the reason why the NIAID collaborative transplantation program will also study and compare various supplementary measures for insuring acceptance of the transplant.

The NIAID is also expanding its research grants program in transplantation with funds specially allocated by Congress in 1964.

Medical scientists now working with NIAID support have achieved noteworthy success in kidney transplant studies.

At Peter Bent Brigham Hospital, Boston, for example, researchers are using drugs to suppress rejection of transplants. At the University of Colorado, Denver, scientists use a procedure which involves drug therapy, irradiation, and removal of the thymus gland and the spleen (organs which play a role in the body's defense mechanism).

Floyd Swanson of NIH Personnel Branch Named NHI Personnel Officer

Dr. Ralph E. Knutti, Director of the National Heart Institute, and John M. Sangster, Chief of the Personnel Management Branch, have announced the appointment of

Floyd R. Swanson as Personnel Officer of the Institute. Mr. Swanson replaces Virginia B. Porter who retired June 18.

Before joining NHI Mr. Swanson was a staff specialist with the NIH Recruitment and Placement Section, PMB. His first position with NIH was as a personnel management specialist with the National Institute of Allergy and Infectious Diseases from June 1962 until August 1963. He served in the same capacity with the National Cancer Institute from 1963 until this year.

Graduate of Boston U.

Born in Beverly, Mass., in 1932, Mr. Swanson received his B.S. and M.B.A. degrees from Boston University in 1959 and 1960. He came to Washington to join the Army Corps of Engineers as a personnel specialist in 1960.

Mr. Swanson is a member of the Society of Personnel Administration.

NEW CONCEPTS

(Continued from Page 1)

placed on architectural style, technique, or other design determinants. The participants were encouraged to seek new concepts in architecture, construction methods, materials and processes.

The head architect taught only by example; each student contributed, criticized, and was criticized. Consultants on all aspects of the problem were available at a moment's notice.

Scale Models Completed

Toward the end of a second week, a marathon effort transformed schematic sketches and blueprints into scale models, complete with paint and miniature trees. Climax of the fete came on the final day when each team presented its product to a critical audience of the other teams and special guests.

Previous fetes have been conducted with great success on factory fallout shelters and community colleges. Called an "experiment in experience," the fetes bring together professionals and students in an informal atmosphere to provide imaginative and creative solutions to specific problems.



Mr. Swanson

Disposition, Metabolism Of H³-Norepinephrine In Rat Brain Studied

The injection of radioactive norepinephrine into the brain ventricles of rats has enabled National Institute of Mental Health scientists to study the fate of this neurohormone within the brain.

Such study was hindered previously by the inability of norepinephrine to penetrate the blood-brain barrier from the peripheral circulation.

The new technique of intraventricular administration of a small amount of H³-norepinephrine makes it possible to do studies on a large number of animals under physiological conditions.

Norepinephrine is considered to play an important role in brain function. The introduction of H³-norepinephrine into the brain makes it possible to study the dynamics of the metabolism and disposition of this neurohormone in the brain and also measure the effects of psychoactive drugs on the metabolism of this neurohormone in the brain.

Radioactivity Cut Half

The injection of small amounts of H³-norepinephrine into the brain of rats was followed by an uneven pattern of distribution. Immediately after injection, about half of the radioactivity remained in the brain. The norepinephrine disappears rapidly at first and then more slowly over a period of days.

These findings suggest that norepinephrine is stored and metabolized in different ways: part is rapidly released and metabolized and part is retained in several reservoirs within the brain and gradually released and metabolized.

While it is stored in the brain, it is temporarily inactivated by binding; when released it is metabolized by O-methylation and deamination. H³-norepinephrine binds within the subcellular structures of the brain, the nerve-ending particle, in a similar pattern as endogenous norepinephrine.

Work Conducted by Three

Analysis of the radioactive metabolites present in the urine after intraventricular and intravenous injection in the periphery indicates that the blood-brain barrier is operating in both directions. Norepinephrine has difficulty in leaving as well as entering the brain.

This work, conducted by Drs. Jacques Glowinski, Irwin J. Kopin, and Julius Axelrod of the Laboratory of Clinical Science, NIMH, was reported in the *Journal of Neurochemistry*.

President Harry S. Truman laid the Clinical Center cornerstone on June 22, 1951.



Left: Following ceremonies in observance of the 100th anniversary of the National Library of Medicine June 17, at which he was one of the principal speakers, Sen. Lister Hill of Alabama (center) talks with Dr. Luther L. Terry, Surgeon General of the Public Health Service (left) and Dr. Martin M. Cummings, Director of the NLM. At right, Rep. John E. Fogarty of Rhode Island is pictured delivering his address, "Medical Libraries and Medical Research."—Photos by Jerry Hecht (left) and Otis Parnham.

INFLUENZA

(Continued from Page 1)

not only antibody against the equine virus itself but also antibody against a human influenza A₂ virus.

The lack of species specificity of equine influenza virus in this study, added to the knowledge that human influenza antibody has been found in horses, suggests that an exchange of equine and human influenza viruses in these hosts may occur in nature.

Antigenic Relationship

In addition, there appears to be an antigenic relationship between equine and human influenza viruses.

These preliminary findings were reported in *Nature* by Drs. Julius A. Kasel, Robert H. Alford, and Vernon Knight, of NIAID's Laboratory of Clinical Investigation; also Drs. Glenn H. Waddell and M. Michael Sigel, of Variety Children's Research Foundation, Miami, Fla.

Dr. Lee, Exec. Officer Of FASEB, to Retire

Dr. Milton O. Lee, Executive Officer of the Federation of American Societies for Experimental Biology and Managing Editor of its publications, has announced his retirement effective July 1. He will then serve as Adviser to the Chairman of the Federation Board until his full retirement in September 1966.

Dr. J. F. A. McManus, Professor of Pathology in the Experimental Program of Medical Education, Indiana University, will succeed Dr. Lee as Executive Officer of the Federation, effective July 1.

Dr. Lee joined the Federation in 1947, when he became the Executive Director of the combined offices of the Federation and the American Physiological Society. In 1948 he was appointed Federation Secretary, succeeding Dr. William H. Chambers, and has continued in the same capacity since that time. His title was later changed to Executive Officer.

Robert Walters Named To Child Health Post

Robert S. Walters, Jr. was recently appointed Assistant Information Officer of the National Institute of Child Health and Human Development. Prior to joining the Institute's staff, Mr. Walters served as Information Officer of the Division of Research Services since 1963.

Mr. Walters will help plan and conduct the Institute's information program concerned with reporting direct research activities.

Before joining the NIH staff, Mr. Walters was a science writer with the University of Wisconsin News Service from 1959 to 1961. A former trainee in the NIH Information Training Program, he worked as a Technical Publications Writer for the National Institute of Neurological Diseases and Blindness from 1962 to 1963.

Born in Atlanta, Ga., he received his B.S. degree from Oglethorpe University, Atlanta, in 1957, and his M.S. degree in zoology from the University of Wisconsin, Madison, in 1961.

DR. KENNEDY

(Continued from Page 1)

gaged in research in renal and electrolyte physiology in that Institute's Laboratory of Kidney and Electrolyte Metabolism until 1960, when he became Assistant to the Director of Laboratories and Clinics, NIH.

Born in Washington, D.C., in 1920, Dr. Kennedy received his B.S. degree from Catholic University in 1940 and his M.D. degree from the Johns Hopkins University in 1943.

He has been certified as a Specialist by the American Board of Internal Medicine and is a member of the American Federation for Clinical Research and the American Physiological Society.

During World War II he served in the U.S. Army's Office of Scientific Research and Development.

New Publications Issued On Nurse Training Aid

A series of six pamphlets on aid to students and schools of nursing under the Nurse Training Act of 1964 (P.L. 88-581) has been released by the Public Health Service.

A general pamphlet, "Nurse Training Act of 1964," PHS Publication No. 1154, summarizes the legislation, which authorizes up to \$283 million during the next five years for Federal aid to nursing.

Funds' Use Cited

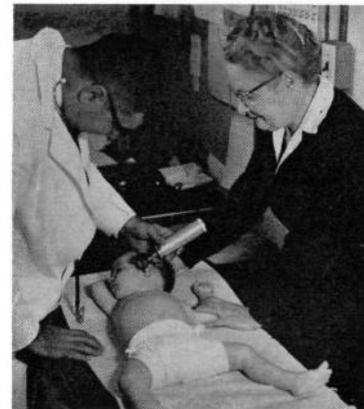
These funds are for extension and expansion of traineeships for nurses in teaching, supervisory, and administrative positions, and for four new aid programs: project grants to help schools of nursing improve their training; payments to reimburse diploma schools in part for training students whose enrollment may be attributed to the Act; long-term, low-interest loans for students of nursing; and grants to construct, expand, renovate, and replace training space in new or existing nursing schools.

The series also includes separate pamphlets to explain the purpose, conditions for participation, and application and funding procedures for each provision of the Act.

Titles Listed

These pamphlets, PHS Nos. 1154-1 to 1154-5, are titled: "Professional Nurse Traineeship Program;" "Project Grants for Improvement in Nurse Training;" "Payments to Diploma Schools of Nursing;" "Nursing Student Loan Program—Information for Schools;" and "Construction Grants Program for Schools of Nursing."

Copies may be obtained by writing to the Public Health Service, Washington, D.C. 20201.



Children like the one shown here in the Junior Village nursery are particularly susceptible to colds. Their illnesses are studied by pediatricians from the D. C. Welfare Department and the National Institute of Allergy and Infectious Diseases as part of the Institute's continuing research on virus infections and ways to combat them.