3 New Assistant Surgeons General Appointed to PHS

Dr. David J. Sencer, Deputy Chief of the Communicable Disease Center, Atlanta, Ga., becomes Chief of the Center. He succeeds Asst. Surg. Gen. James L. Goddard who, on Jan. 10, was appointed Commissioner of the Food and Drug Administration.

Dr. Erwin S. Rabeau, Deputy Chief of the Division of Indian Health, is named Chief of that Division. He succeeds Asst. Surg. Gen. Carruth J. Wagner who became Chief of the Service's Bureau (See NEW ASSISTANTS, Page 8).

Dr. Shock holds B.S. and M.S. degrees in chemistry from the University of Missouri, and the Ph.D. degree in biochemistry from the University of Minnesota. He is a member of Phi Beta Kappa, Sigma Xi, and the American Chemical Society.

The award, which consists of an inscribed plaque, will be presented to Dr. Becker by A. Lee Smith, President of the Society, during a Coblentz Society symposium. Following the presentation, Dr. Becker will give a paper on some of his recent infrared work.

Dr. Becker joined the NIAMD as a research chemist in October 1955, shortly after receiving his Ph.D. in physical chemistry from the University of California. He is a member of Phi Beta Kappa, Sigma Xi, and the American Chemical Society.

Research Services Supplies Germ-Free Animals to Facilitate Basic Research

By Tony Anastasi

The "golden eggs" of chicken, which are helping in basic research on the viral induction of cancer, are available in limited numbers to NIH scientists through the Laboratory Aids Branch of the Division of Research Services.

These RIF-free (Resistance Inducing Factor) chickens are part of a long-range LAB program for upgrading the quality of NIH animals available for medical research.

The RIF agents are a group of viruses which cause chicken leukemia. One of the most important techniques in virology involves the use of fertile hen eggs. Unfortunately, most eggs contain unwanted viruses, passed on from the infected hen, which interfere with the investigative work.

The most worrisome of these are the RIF agents. Therefore, the RIF-free chick embryos are essential to the cancer scientists for certain specific types of studies.

RIF-free chicken eggs are also being used by the Division of Biologics Standards to test vaccines, such as measles, to ascertain that these vaccines are free of the RIF agents.

NIH Studies Viruses

Also, the National Institute of Allergy and Infectious Diseases is studying viruses in the RIF group and using RIF-free eggs to develop new vaccines.

The chickens are only the latest phase of the LAB program to produce cleaner laboratory animals. The LAB also maintains supplies of germ-free and pathogen-free rats and mice.

These or their ancestors are Cesarian derived, which eliminates the transfer of most diseases from mother to offspring.

Born and maintained within closely controlled environments, (See GERM-FREE, Page 6)

Impact of Mental Health Centers to Be Evaluated

A first year grant of $99,960 to evaluate the impact and effectiveness of mental health neighborhood service centers in the South Bronx, New York City, has been awarded to Albert Einstein College of Medicine.

The grant, to be administered by the National Institute of Mental Health, will allow thorough evaluation of the operation of three neighborhood service centers serving some 150,000 persons in a blighted area of the South Bronx. The centers were established in 1965 under a grant from the Office of Economic Opportunity.
NIGMS Awards Grant for Training of Physician-Scientists to Duke University

A new research training program for the physician-scientist will be undertaken at Duke University Medical Center, Durham, N.C., under a grant from the National Institute of General Medical Sciences.

In announcing the initial award of approximately $178,000, Surgeon General William H. Stewart of the Public Health Service said that the greatest health need today is manpower, especially people trained to meet new kinds of assignments which are in line with the changing health needs.

The type of training to be given under the medical scientist training program is intended to develop research competence simultaneously in both the medical sciences and the basic physical and biological sciences.

Designs Aids Student

The design of this curriculum at Duke University will help the student acquire a medical and scientific background suited to his own needs and special interests.

Those who enter the program must have a good foundation in college mathematics and science, must fulfill all requirements for entrance to both medical and graduate schools, and must intend to make a career of research.

The new curriculum will incorporate into the first year general principles and information of the basic sciences usually covered during the first two years of medical school.

In the second year, the student will receive concentrated training in the medical sciences usually covered in the first two years of medical school, including some formal clinical training with patients of all ages and types of problems.

Curriculum Explained

These two years will provide an understanding of both basic and clinical sciences and their relationships, enabling the student to choose a major field of interest.

The succeeding years will be spent in developing research capacities in basic and medical sciences through research, seminars, and courses related to the student's major field. Studies will continue on a year-round basis.

Many of the candidates may fulfill the requirements for the Ph.D. degree, with the year spent in an individually adapted medical program will complete the requirements for the M.D. degree.

92 Give Blood at Westwood

Ninety-two persons donated blood when the NIH Clinical Center's bloodmobile made a first-anniversary visit to the Westwood Building. These, as well as donors who gave blood for the first time, augmenting the Blood Bank's file of typed, available donors.
New Special-Purpose Analog Computer Helps NHI Analysis of Complex Curves

Frank Noble, NHI Laboratory of Technical Development (left) and Dr. Richard Baxter of the E. I. DuPont de Nemours & Co. Instrument Products, observe a demonstration of the DuPont 310 Curve Resolver by Anthony Matesa, also of the DuPont Co. The new device is a commercial development based on electronic solutions achieved seven years ago by Mr. Noble and Dr. Joseph Hayes Jr., also of NHI, for analyzing certain complex analog curves important to an understanding of the chemical nature of a number of organic and inorganic materials.—Photo by Thomas Joy.

By Herbert B. Nichols

Two NHI staff members had an opportunity last week to see their original electronic solution for analyzing certain complex analog curves such as are obtained through chromatography, electrophoresis and spectroscopy, translated into a commercial instrument by the Instrument Products Division of E. I. DuPont de Nemours and Company.

Frank W. Noble, of the Laboratory of Technical Development, and Dr. Joseph E. Hayes Jr., now a scientist administrator in the Research Grants Branch, both of the National Heart Institute, witnessed a demonstration in the hallway of the new DuPont 310 Curve Resolver they pioneered.

Instrument Is Special

The instrument will now be marketed as a special-purpose analog computer for the rapid resolution of overlapping peaks in terms of their original form or distribution function.

Lectures and demonstrations attracted the attention of many NIH scientists and technicians, particularly from NHI, NCI, NIMH and the Isotope Laboratory during morning and afternoon sessions.

Several brought along curves they wanted to try out on the 310 in the hope that this first instrument of its kind to be commercially available, might be able to save them hours of hand calculations or programming on a digital computer.

Dr. Richard Baxter, DuPont Application Chemist, took some of these curves back with him to Wilmington for "homework."

According to Mr. Noble there are a number of analytical techniques, particularly in chemistry, that produce curves which are the sums of peaks or distribution functions.

The scientist is interested in locating the height, width and position of each peak, but some ride on top of others in overlapping fashion and some are completely buried.

The task accomplished by the curve resolver is to separate out the component distributions from each curve. It does this by generating in each of its function generator channels peak shapes that correspond to Gaussian, Lorentzian or other distributions.

Parameters Are Varied

The parameters of the individual trial peaks are then varied on each channel until the resulting summation curve from all channels exactly matches the original.

In gas chromatography the desired curve would be a graph of the concentration of some elusive sample versus time; and in the ultra-centrifuge or electromorphosis it would depict the concentration of a sample component against position in the cell.

In an optical absorption spectrum, light absorption would be...
2 Institute Participate in Symposium on Malignant Transformation Feb. 26-27

Five NIH scientists from two institutes will join other leading cancer research workers at a symposium in Chicago Feb. 26 and 27 to report their findings in a rapidly developing area of study—the viral transformation of normal cells into cancer cells in the test tube.

Renewed interest in the malignant transformation of cells has been one of the really exciting developments of the last 5 to 10 years," according to Dr. Paul H. Black of the Laboratory of Infectious Diseases, National Institute of Allergy and Infectious Diseases, who is one of the participants.

"Now we are using human cells in the test tube," Dr. Black said, "and can test many different viruses, including human viruses, for any oncogenic potential that in which researchers would be loath to experiment on living human beings.”

Participants Listed

Also taking part in the 2-day "Symposium on Malignant Transformation," sponsored by the University of Chicago Cancer Training Program, will be Dr. Robert J. Huebner, Chief of the Laboratory of Infectious Diseases, NIAID, who will be chairman of a roundtable discussion by symposium participants; Dr. Karl Habel, Chief of the Laboratory of Biology of Viruses, NIAID; Dr. Clyde J. Dawe, Laboratory of Pathology, National Cancer Institute; and Dr. Alan K. Rasbon, Pathologic Anatomy Branch, NCNI.

Dr. Dawe will read a paper on cellular factors in the tumor response to polyoma virus, and will report on research into the nature and function of specific antigens produced by tumor-forming viruses.

Dr. Black will present a paper of descriptive oncogenic viruses, and Dr. Rasbon a paper on the transformation of human cells by oncogenic viruses.

Test Tube Experiments

Although experiments with human cells are being done in the test tube, Dr. Black stressed, scientists still have no proof that viruses cause cancer in humans.

Adenoviruses, which cause various human infections, are known to produce cancer in hamsters and other rodents, but no one knows yet whether they may cause human cancer, he said.

Malignant transformation of human or animal cells growing in a tissue culture, Dr. Black said, has these other advantages:

• The oncogenic event is produced rapidly and the proportion of cells transformed can be measured.
• The researcher can focus on the event in the test tube and observe it continually.
• The variable factors present

In vivo will invariably produce a tumor in the intact living organism.

Transformation Demonstrated

Malignant transformation of cells in the test tube by some viruses was demonstrated in the early 1950s. A spurt in the field of virus-cancer research came in 1959 with the demonstration that polyoma virus will transform cells in vivo.

Conference proceedings will be summarized by Dr. Albert Sabin, developer of the oral polio vaccine and winner of the 1965 Albert Lasker Medical Research Award, who is a member of the NIAID Advisory Council.

Dr. Sabin is Director of Virology and Cancer Research at the Children’s Hospital Research Foundation, Cincinnati, Ohio. Another speaker will be Dr. Ian A. Macpherson of the Institute of Virology, Glasgow, Scotland.

The work of most of the other scientists participating in the symposium has been or is currently supported by NCI or NIAID grants or contracts. The University of Chicago also receives NCI training grants for its Cancer Training Program.

3 Awards Aid Construction Of Retardation Centers

Three awards totaling nearly $6.24 million to aid in constructing mental retardation research centers in the Northeastern, Midwestern, and Western sections of the country were announced recently by Surg. Gen. William H. Stewart of the Public Health Service.

When completed, the facilities and resources available at Baltimore will be the most comprehensive in the country.

Awards Aid Construction Of Retardation Centers

Three awards totaling nearly $6.24 million to aid in constructing mental retardation research centers in the Northeastern, Midwestern, and Western sections of the country were announced recently by Surg. Gen. William H. Stewart of the Public Health Service.

These latest awards bring to almost $20 million the total funds awarded under 1963 legislation authorizing PHS to provide up to 75 percent matching funds toward the cost of building large, multidisciplinary centers for research and research training in mental retardation and related aspects of human development.

William B. Page, Office of Architecture and Engineering, DSFR (left), receives a commendation medal from Dr. John F. Sherman, NIH Associate Director for Extramural Programs, "in recognition of his outstanding administrative abilities in technical services to applicants for construction research grants and attaining cooperation to the fullest extent in the methods of construction as related to grants-in-aid for health-related research facilities and resources.”—Photo by Ralph Fernandaz.

Dr. Axellrod Cited for Meritorious Research In Biochemical Fields

Dr. Julius Axellrod, Chief of the Section on Pharmacology, Laboratory of Clinical Science, National Institute of Mental Health, has received the Award for Meritorious Research given by the Association for Research in Nervous and Mental Diseases. The announcement of the citation, which carried a $1,000 honorarium, was made recently.

Dr. Axellrod was cited for his work in these fields:

• Biochemical factors in activation and inactivation of drugs.
• Elucidation of the metabolic pathways of noradrenaline and adrenaline in the body.
• Uptake, storage and release of noradrenaline in the sympathetic nerves and the effect of drugs on these processes.
• Biochemical functions of the pineal gland and how such functions are controlled by the sympathetic nervous system.

Other Discoveries Noted

Dr. Axellrod has been responsible for many other scientific discoveries, including some 15 enzymes involved in the formation and metabolism of several hormones, and the inactivation of many drugs.

He has also identified four normally occurring metabolic compounds in the urine which have proved useful in diagnosing tumors of the sympathetic nervous system.

Dr. Axellrod has devised many micro-methods for measuring drugs, hormones and enzymes. He has also traced several drugs, hormones and biogenic amines through the body and determined their role and effect on body processes.

He has authored or co-authored more than 250 professional papers and has lectured widely both in this country and abroad.

Previously at NIH

Prior to his present position, he was senior chemist with the National Heart Institute.

Dr. Axellrod received his B.S. degree from the College of the City of New York, his M.A. degree from New York University, and his Ph.D from George Washington University.

Dr. Axellrod is the second NIMH scientist in two years to be cited by the Association for Research in Nervous and Mental Diseases. Dr. Paul MacLean, of the Laboratory of Neurophysiology, won the award last year.
Dr. Allen Named Advisor On Hospital Computers

Dr. Scott Allen has been named Advisor on Hospital Computer Systems to the Director of the NIH Clinical Center, Dr. Jack Masur.

Dr. Allen will take part in a feasibility study, already underway at the CC, of the use of computers in a research hospital environment. The study includes determination of accuracy and practicability as well as costs and the extent to which they will be offset by man-hour savings. This program may eventually involve the use of a time-shared central hospital storage and retrieval system.

The long-range purpose of the study is to demonstrate to hospital administrators whether the installation of computers in hospitals is advantageous.

Dr. Allen has just completed 2 years of computer research at Harvard University and Massachusetts General, where an extensive NIH-sponsored research and development program is underway.

Dr. Schmitt Discusses 3 Brain Systems In Explaining the Neurosciences Program

By Hilah B. Thomas

The Neurosciences Research Program—its scientific basis, how it operates, and its future—was explained by Dr. Francis O. Schmitt, Institute Professor at the Massachusetts Institute of Technology, at a recent seminar sponsored by the National Institute of General Medical Sciences. The NRP is an independent research institute established in Boston in 1962.

Dr. Schmitt said that the central problem in science today is to understand the development and working of the human brain. Knowledge which he is sure has more potential for good or evil than any bomb.

Dr. Schmitt believes that tools will eventually be found for mind control, and that most scientists today are unaware of the revolution taking place in the science of the mind.

Dr. Schmitt outlined three aspects of brain function in discussing the scientific basis of the NRP. He described the neurovascular aspect of the brain, its oldest and simplest system, which relates the animal with its environment.

The contractile net in some protozoa, with a center near the nucleus and fibrils extending to the cellia, is an example of the "doorbell effect" in which a sensory input (animal bumps an object) goes through a simple circuit (network or neuron-synapse-muscle) and results in an effector output (animal jumps or swims away).

Brain Stores Information

The second aspect of the brain (instinct, memory, and learning) involves a storage mechanism. This mechanism, which is unknown in animals but is in humans, is a network in primitive animals. In vertebrates it lies in the forebrain; in man it may be hidden in the limbic system.

The third aspect of the brain deals with cognition, answers the question "Who am I?", plans for the future, uses symbols of speech and writing, and makes abstractions. This system, which appears to be the unique gift of man, lies in the neocortex where 70 percent of man's 10 billion neurons are found.

The primary question, of course, is how does this system work? Dr. Schmitt explained that two nerve proteins, which appear to be basically similar, may act through molecular recognition as switches.

This recognition could be selection or directional, and the arrangement of amino acids on these polymers could change the shape of the molecules enough to act as a code for most of these reactions in much the same way as the nucleic acids and gamma globulins are known to code information. Many physiologists, behavioral scientists, and psychologists who are accustomed to thinking of the brain in terms of systems and circuits find this idea of molecular coding repugnant at the present time.

The Neurosciences Research Program represents an effort to integrate the various approaches to understanding the mind into a new type of thought with a new idiom.

Activities Described

Associates in the NRP are 31 scientists from all over the world working in the physical, chemical, mathematical, biological and medical sciences. The Program's headquarters is located in a Center at the American Academy of Sciences in Boston, with a permanent staff providing library, communication, and investigatory services to members.

NRP Associates meet regularly to identify important problems for study and set up workshop sessions. A small group of scientists interested in a particular problem are invited by the NRP to attend the workshop and present papers. Accounts of these meetings are sent to all Associates who contribute any information or research results they may have, and final results of the discussions are published in the Bulletin of the NRP which is distributed around the world. In addition, interested scientists come to Boston to work at the Center or in Dr. Schmitt's laboratory for various periods of time, and may also attend the workshops.

Advantages Are Many

All these activities, Dr. Schmitt said, result in corporate thinking, new ideas, new recruits in the field, and rapid research developments which are disseminated throughout the scientific community.

The NRP, which receives support from both private sources and government agencies, has been described as a "sort of voluntary working study section." Dr. Schmitt is confident that similar invisible colleges could also be designed for other science branches.

Stephen Ackerman Chief Of Planning, Evaluation Branch in New Division

The appointment of Stephen J. Ackerman as Chief of the Planning and Evaluation Branch of the new Division of Regional Medical Programs, National Institutes of Health, was announced recently by Dr. James A. Shannon, Director of NIH.

Mr. Ackerman comes to NIH from the Public Health Service's Bureau of State Services, where he has been Associate Chief for Planning and Analysis since 1962.

In his present position, Mr. Ackerman will be responsible for the overall development of program plans and evaluation of the accomplishments of the Regional Medical Programs to combat heart disease, cancer, and stroke.

Born in Washington, D.C., Mr. Ackerman received the B.S. and LL.B. degrees from Georgetown.

Background Cited

In 1942 he worked for the Federal Reserve Board and later was an economic statistician at the War Production Board until 1945.

After World War II Mr. Ackerman joined the PHS Bureau of Medical Services as an economic statistician. He became a budget examiner with the Bureau of Budget in 1951, and was admitted to the District of Columbia bar in that year. In 1953 he joined the BSS as Financial Management Officer.

From April 1964 to April 1965 Mr. Ackerman served as Executive Secretary to the President's Commission on Heart Disease, Cancer, and Stroke.

Pfc. Paul J. Weddle, Plant Safety Branch, was selected as Guard of the Month for January for prompt action in alerting authorities to a malfunctioning machine in the Clinical Center, thereby preventing serious damage to the $15,000 machine.—Photo by Ralph Fernandez.

Mayo Alumni News Sought

Alumni of the Mayo Clinic, Rochester, Minn., are requested to report to W. J. Holmes, Editor of the Mayo Alumnus, any noteworthy items of their activities.

Dr. Elisabeth Schwachauer, Minister of Health of West Germany, the first and only woman member of the West German Cabinet, questions Dr. Robert Farrier, CC Associate Director, about illuminated scroll in the CC lobby, during recent NIH visit. The scroll quotes the Biblical description of the Pool of Bethesda.—Photo by Thomas Joy.

'Girl of Golden West' Is Next R&W Film at CC

The next selection in R&W's program of classic films will be "The Girl of the Golden West," starring Jeanette McDonald, Nelson Eddy, and a very young Buddy Ebsen.

Screening will take place in the Clinical Center auditorium at 8 p.m. on Saturday, Feb. 26. R&W members, their guests and friends are invited. Admission is free.
The germ-free animals provide the original stock for pathogen-free colonies. Germ-free animals are raised in complete isolation, but pathogen-free animals, raised in limited access rooms, come in direct contact with caretakers. To prevent the introduction of pathogenic or detrimental organisms, everything entering the PF areas, including personnel, are subjected to strict decontamination procedures.

Breeding Procedure New

This highly controlled breeding and handling of research animals is a relatively new procedure. Not long ago the major requirement for laboratory animals was that they be reasonably healthy. But lately more research investigators are requiring animals which are also free of infections, are genetically defined, have been reared in a constant environment, and have been fed a standard diet.

Responding to these added requirements, the LB, under the direction of Dr. Robert J. Byrne, Chief, has embarked on its long-range program for upgrading the quality of animals available for use to NIH scientists.

"Our program is a step in the continuous path to higher quality research animals," says Dr. Charles W. McPherson, Assistant Chief of LAB.

Goal Described

"The ultimate goal is a completely defined animal; one that is defined genetically, microbiologically, nutritionally, and environmentally. If this is accomplished, it would remove many of the variables now present in animal research," he said.

Working with Drs. Byrne and McPherson are two others who have been instrumental in improving the animals in both quality and genetic makeup. They are Dr. Colbert D. LeMunyan, Chief of the LB Animal Production Section, and Dr. Carl T. Hansen, Associate Chief (Genetics) of the Section.

Dr. McPherson pointed out that the germ-free and pathogen-free animals and RIP-free eggs are now available to NIH scientists and that he expects increasing requests for these.

He said that eventually these animals are expected to replace the conventional ones produced in NIH colonies here. The animals are now housed on the reservation, but expansion of the program calls for new facilities at the NIH Animal Center in Poolesville, Md.

This germ-free rat takes a cautious approach to his meal at feeding time. He is housed inside a germ-free tank and fed by a caretaker through a long glove attached to the tank.—Photo by Jerry Hocht.
Studies of Sea Urchins To Explore Cell Growth

What molecular mechanisms enable cells to multiply, specialize and join together to form tissues? Through studies of primitive animals such as sea urchins, a group of scientists at the University of California in Berkeley will search for answers to this and other questions, with the aid of a grant from the National Institute of General Medical Sciences.

The award, with first-year support, amounting to $217,715 was announced recently by Surg. Gen. William H. Stewart of the PHS.

The California investigators plan to explore relationships between individual cells and the animal as a whole, as well as reactions and movement within cells. No one knows at present what enables a cell to move, to divide, to attach to other cells, and to change from an un specialized egg to a specialized tissue cell.

Cell Processes Investigated

Dr. Daniel Mazia, the principal investigator, is professor of zoology. Using modern techniques of chemistry and microscopy combined with special methods for growing cells, he and his associates will investigate the molecular mechanics of cell processes.

Other questions which Dr. Mazia and his associates will investigate concern why most cells stop dividing and begin to specialize after the organism reaches a certain stage, how certain hormones stimulate particular cells to make special proteins, where in the cell the proteins are made, and what makes cells assume definite patterns.

Dr. Roy Hertz Admits 1st NICHD Patient to Clinical Center Jan. 16

When Dr. Roy Hertz, Scientific Director of the National Institute of Child Health and Human Development, admitted the Institute's first patient to the Clinical Center Jan. 16, he marked another important milestone in the history of clinical research at NIH.

Dr. Hertz had also admitted the first patient to the Clinical Center 12 years ago.

NICHD, recently reorganized, has been allotted 13 of the CC's 516 beds. Members of the new clinical care staff include Dr. Griff Ross, Chief; Dr. William Odell, and two clinical associates, Dr. Howard Kulin and Dr. Arlene Riskind.

First Patient Admitted

The first CC patient, admitted by Dr. Hertz on July 6, 1953, was Charles C. Meredith of Germantown, Md. Although Mr. Meredith's condition was listed as "serious," he lived until September 1954.

The assignment of beds to NICHD was the first addition to the CC of an Institute clinical investigation program in 10 years. In the CC's first year, six Institutes were allotted beds, and NIDR was added in December 1955.

The Washington Evening Star in 1953 described the admission of the first patient as follows:

"The $54 million Clinical Center in Bethesda, seven years in planning and construction, today opened its doors and went into business.

"A gray-haired, elderly man, identified only as a 'Montgomery County farmer,' was the first patient to enter the impressive structure operated by the Public Health Service."

It would appear here that at least one NIH employee (center, hands in air) was overwhelmed by the Blizzard of '66. The "victim" was posed by Tony Anastasi, DRS Information Officer, to simulate burial in the snow. R. R. Auvil (left) and Tom Nettrice, Grounds Maintenance and Landscaping Section, DRS, do their best to extricate the victim. —Photo by Ralph Fernandez.

CHRIS HANSEN, CHIEF OF DRS, PUBLISHES ARTICLE ON ENVIRONMENTAL HEALTH

The two most important factors influencing our lives, according to many authorities, are heredity and environment. Both are under study at NIH. Many scientists here are studying heredity, but perhaps it's not as evident that the Division of Research Services conducts a sizeable program in the environmental health area.

An insight into the preventive medical aspects of a good environmental health program is presented in the February issue of the American College Health Association Journal by Chris A. Hansen, Chief of DRS.

In the article Mr. Hansen discusses some of the environmental health projects at colleges and universities.

Programs Listed

Mr. Hansen cites in his article some examples of programs in this area at NIH:

1. Air samples collected during a routine survey of one of the operating rooms revealed evidence of Staphylococcus aureus organisms. A detailed study ruled out the implication of organisms in the physical facilities and narrowed the field to a few of the operating room staff. At the present time, these staff members are being studied to determine who is shedding the organisms. (Ed. note: Since this article was written, measures have been taken to detect, on a routine basis, operating room personnel that are carriers and shippers of these and other harmful organisms).

2. An explosion-proof, activated charcoal filter unit was developed to permit scientists to conduct in a cold room experiments involving large amounts of toxic solvents.

3. Television is being used to correlate bacteriological results of air sampling during surgical operations with actual events occurring in the operating room. In this way, previously unexplainable peak bacteriological counts may be evaluated.

REVISED TRAVEL BOOKLET GIVES VACCINE DATA

The Public Health Service recently published a revised edition of the booklet, "Immunization Information for International Travel, 1965-66."

It provides information on vaccine requirements of foreign countries as well as requirements for entrance into the United States. This handy-sized booklet (4½ by 6 inches) was revised as of September 1965.

Copies of the booklet, PHS Publication No. 584, may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402, at 35 cents a copy. There is a discount of 25% for 100 or more copies delivered to the same address.
4th, 5th Radio Programs In Cancer Series to Be February 26, March 5

"Development and Use of Drugs—Chemotherapy in Cancer Research," the fourth program of the NCI Research Report Series, is scheduled to be broadcast locally over WAMU-FM (88.5 mc) Saturday, Feb. 26, at 4:30 p.m.

Scientists will discuss the development of anticancer drugs, especially through the collaborative program coordinated by the NCI. In this program chemicals are tested in animal systems for effectiveness and toxicity and those found to be active are then studied in human patients.

Drugs now in use and some of the research problems under investigation will be presented.

The six participants in this program will be present or former members of the NCI with one exception—a vice president of Kettering-Mayer Laboratories.

"Mathematics in Cancer Research," the fifth program of the series, is scheduled for the same time and station on Saturday, March 5.

NEW ASSISTANTS
(Continued from Page 1)
of Medical Services on Dec. 23.
Born in Orrville, Ohio, on Dec. 30, 1910, Dr. Arnold received his B.S. and M.D. degrees from Western Reserve University. After serving his internship at the U.S. Marine Hospital in Cleveland, Ohio, he was commissioned in the PHS in 1936.

He joined the staff of the Dental Research Section of the NIH in 1937 and served as Assistant Chief of the Section from 1943 to 1948. He was Associate Director of NTID from 1948 to April 1, 1953, when he became its Director.

HONORS GIVEN
A pioneer in the study of fluorides and epidemiological studies of the effects of fluoridation, Dr. Arnold has received an honorary Sc.D. degree from Western Reserve University, as well as the Callahan, Geis, and Dean Awards.

Dr. Sencer has been a member of the PHS Commissioned Corps since 1945. A native of Grand Rapids, Mich., he was educated at Wesleyan University, Middletown, Conn., and the University of Mississippi, and received his medical degree from the University of Michigan in 1951 and a master degree in Public Health from Harvard University in 1958.

Prior to appointment as Deputy Chief of CDC in 1964, he spent four years as an Assistant Chief. His entire career has been in the area of infectious disease control.

Dr. Babau was born in Madison, S. Dak. He took his undergraduate

Helen Grosskopf Retires From CC Nursing Dept After 18 Years Service

Helen Grosskopf, Assistant for Education and Training to the Clinical Center Nursing Department Chief, retired Feb. 1.

Miss Grosskopf was a Senior Nurse Officer (equal to Navy commander) in the PHS Commissioned Officer Corps. She is a veteran of 18 years' service with the Corps, and also served 2½ years in the Navy Nurse Corps during World War II.

Miss Grosskopf received her R.N. at St. Luke’s Hospital, Chicago; a B.S. degree in nursing education at Marquette University, Milwaukee, and an M.A. degree in nursing administration from Teachers College, Columbia University.

She joined the CC in 1956 as Assistant Chief, Infectious and Trop­rical Diseases Nursing Service, and later held positions as Supervisor of the Heart Nursing Service, and Chief Nurse Training Officer.

Miss Grosskopf is remembered in the Nursing Department as meticulous and thoughtful. She plans to stay in this area and is presently living at 4877 Battery Lane, Bethesda.

work at the University of Chicago from which he also received his medical degree in 1944. He was commissioned by the PHS in 1946 and assigned as Medical Officer in Charge of the PHS Alaska Native Hospitals in Tanana, Barrow and Kotzebue.

Subsequently, he was Clinical Director of the PHS Anchorage Medical Center and Deputy Area MOC for Alaska. Prior to being named Deputy Chief of the Division of Indian Health in 1963, he was Indian Health Area Director.

COMPUTER
(Continued from Page 2)
plotted against wave length.

At the time Mr. Noble and Dr. Hayes did their pioneering work, early models proved useful at NIH for studying fatty acids, for analysis of a number of infra-red or ultra-violet-visible spectra, for measuring rather complicated blood pressure graphs and for several problems in biostatistics.

"It seems fantastic to those of us who work with ideas like this, how long it takes for a model to eventually reach the manufacturing and marketing stage," said Mr. Noble.

"It takes a long time to interest a commercial house. Otherwise something new sits on the shelf or finds use only among a small circle of scientists.

Desk Computer Useful
"It certainly will be a useful instrument," he noted, "a computer that can be described as a desk model, right at your finger tips.

"Best of all, it allows one to use the computer between his ears as well, and come up with results gained extremely fast—almost without the need of endless hand calculations or reliance on cumbersome digital machines."

Mr. Noble added that when he first began work on his curve resolver there was no direct demand for it. He was merely trying to build a "harmonic analyzer" and the idea of applying the principle to mathematical distribution functions was suggested by Dr. Murray Eden now at the Massachusetts Institute of Technology.

"You might say we started out developing elegant solutions to non-existent problems," Noble concluded, "Then we had to go and find people who needed them."

Not all of NIH could dig out as quickly as Bethesda employees. At the Pooles­ville, Md., Farm 1,500 animals were isolated, together with their caretakers. Through the kindness of the Army Motorol Command, 2 helicopters transported 4 Laboratory Aids Branch personnel, 2 Ground Maintenance Section personnel, and supplies. John L. Jones of Plant Safety Branch, OAM, coordinated the effort, including rounding up enough supplies such as food and blankets to tide over any further emergency. Employees are shown unloading the sup­plies. Third from left is Dr. Thomas P. Cameron, Chief of the Animal Condition­ing Section. Dr. Raymond Zinn, Chief of the Biological Service Section at Poolesville, is pictured with his back to the camera.—Photo by Thomas Joy.

Dr. Bruce Ames Winner Of Fleming Award as Outstanding Young Man

Dr. Bruce N. Ames of the Na­tional Institute of Arthritis and Metabolic Diseases is one of ten winners in the 18th annual Arthur S. Fleming Awards program honoring outstanding young men in Fed­eral service.

The awards, named for the for­mer Secretary of Health, Education, and Welfare, were presented Feb. 17 at a luncheon in the Statler-Hilton Hotel. The awards program is sponsored by the D.C. Justice Chamber of Commerce and the Civil Service Commission.

Dr. Ames, who is Chief of the Section on Microbial Genetics of the Laboratory of Molecular Biology, NIAMD, was cited for work which has provided the first definite information on the origin of histidine.

Amino Pathway Clarified
Largely through his efforts, the complete biosynthetic pathway of this important amino acid is well understood. He has purified most of the critical enzymes involved in the biosynthesis, and is now characterizing these enzymes physically.

His studies have also dealt with the genetic control of the pathway of histidine biosynthesis. He was among the original investigators who noted the functional significance of the grouping of related enzymes on the chromosome, and his studies on coordinate repression of all the histidine enzymes are cited as fundamental evidence for the functioning of linked genes as a group, termed the operon.

He has also developed a frequently quoted model system called the intracellular regulation of protein synthesis at the level of translation of messenger RNA instructions into poly­peptide building by cell ribosomes.

Experience Noted
Dr. Ames joined NIH after obtaining his Ph.D. from the Califor­nia Institute of Technology in 1955. He worked in NIAMD’s Laboratory of Biochemistry and Nutrition as a PHS Postdoctoral Fellow for one year before transferring to NIMH. He returned to NIAMD one year later.

During 1961 he spent a sabbatical year working with Dr. Francis Crick at the Cavendish Laboratory, Cambridge, England, and with Dr. Francois Jacob at the Institut Pasteur, Paris, both subsequently Nobel laureates, under a National Science Foundation Senior Postdoctoral Fellowship.