Clinton C. Powell Retires Friday as NIGMS Director

The retirement of Dr. Clinton C. Powell, Director of the National Institute of General Medical Sciences, has been announced by Surgeon General Luther L. Terry of the Public Health Service, effective Friday, July 31.

Dr. Powell is retiring to accept appointment as Associate Coordinator of Medical and Health Sciences at the University of California. He will assume his new duties on August 15.

As the first Director of the National Institute of General Medical Sciences, authorized by Congress in 1962 to supply recognition and support for basic research, Dr. Powell played a key role in formulating national programs for strengthening biomedical research on a broad front.

One of the most recent of these is a new program for supporting (See DR. POWELL, Page 6)

Contracts Awarded to Support Studies Of Cigarettes' Effect on Living Tissue

Dr. Luther L. Terry, Surgeon General of the Public Health Service, recently announced the award of three contracts totaling more than $300,000, to support research on the properties of cigarette smoke and its effect on living tissues.

These studies, a part of the National Cancer Institute's rapidly expanding program of investigations on environmental carcinogens (cancer-causing agents), are in those areas of research where members of the Surgeon General's Advisory Committee on Smoking and Health indicated they felt more information was needed.

A contract in the amount of $107,535 has been awarded scientists at the New York University Medical Center who will attempt to isolate and identify chemical components in tobacco extracts and tobacco smoke which may act as co-carcinogens. Such substances do not cause cancer but their presence is necessary for the cancer-causing effect to take place.

"The search for co-carcinogenic agents in tobacco smoke is of great importance," said Dr. Hans Falk, Chief of NCI's Carcinogenesis Studies Branch. "Known carcinogens present in tobacco smoke cannot account for the observed carcinogenic potency of the smoke. Identification and isolation of co-carcinogens might lead to the preparation of co-carcinogen-free tobacco possessing less risk to the smoker."

A second contract, in the amount of $300,000, to support research on the properties of cigarette smoke and its effect to take place.

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**Children of 6 Scientists Are Orchestra Members**

As members of the Montgomery County Youth Orchestra, the children of six NIH scientists are contributing their talents to the advancement of symphonic music in this populous area. The orchestra's 113 young members were selected from 10 high schools, nine junior high schools and two private schools in the county.

The six students and their NIH parents are Karen Whedon, violin (Dr. G. Donald Whedon, Director, NIAMD); Margo Anfinsen, violin (Dr. Christian B. Anfinsen, Chief of the Laboratory of Chemical Biology, NIAMD); Alice Robbins, cello (Dr. Jacob Robbins, Chief of the Clinical Endocrinology Branch, NIAMD); Connie Witkop, violin (Dr. Bernhard Witkop, Chief of the Laboratory of Chemical Biology, NIAMD); Guido Ajmone-Marsan, clarinet (Dr. Cosimo Ajmone-Marsan, Chief of the Electrocencephalography Branch, NINDB); and Alice Berliner, flute (Dr. Robert W. Berliner, Director of Intramural Research, NHI).

**Prohibited Activities Cited**

Among the prohibited activities are: serving on political committees, soliciting contributions, organizing or addressing meetings, distributing literature, becoming a candidate, and other involvements.

Detailed listings appear on the poster, copies of which are displayed on the bulletin boards at NIH. Additional information is included in the leaflet, Federal Employee Facts No. 2, given to each employee when he was employed here. Copies are available in Rm. 31, Bldg. 1, Ext. 64851.

Because severe penalties can result from violation of the Hatch Act, employees should be sure they understand what is permitted and prohibited under the Act. Their I/D Personnel Officers are prepared to answer questions.

**SELECTIVE PLACEMENT SUCCESS**

The latest Federal statistics show that ninety-two specially selected, mentally retarded persons were placed in Government jobs of a routine, repetitive nature between February 18 and June 15. Of this number, the NIH has employed four—the best placement record in DHEW thus far.

Employment under this selective placement program, initiated in February under the leadership of the President's Committee on Employment of the Handicapped, is limited to persons who are educable and who are certified by the appropriate State vocational rehabilitation agency as qualified satisfactorily to perform the full duties of the position for which they are being hired.

In nearly every instance the employees' supervisors have voiced high praise of the way these employees are performing. The NIH reports similar gratifying results.

**Deluge of Personal Mail Hampers Operation of Central Mail Room**

The Central Mail Room in Building 31, where all NIH incoming mail is received, reports that it is increasingly deluged by personal mail addressed to NIH employees.

Horace H. Thomas, Head of the Mail and Messenger Unit, Communications Section, OSB, said this non-official mail consists largely of monthly statements from department stores and public utilities.

He points out that under Chapter 12-00-40 of the Communications Services Manual, employees are requested not to use their official (office) address in conducting personal correspondence, except in emergencies.

"To facilitate the flow of official mail here and to insure its proper handling," Mr. Thomas said, "all NIH employees are urged to have all personal mail sent to their home addresses."

**HERE'S A MYSTERY**

Can you identify this woman? This picture was printed from a roll of film in a camera found in the ladies' washroom, 4th floor, B wing, Building 31. Owner may claim camera by describing it to the finder, Mrs. Rose Marie Taylor, Ext. 65375.
Cancer Institute Creates An Immunology Branch, Names Dr. Fahey Chief

Dr. Kenneth M. Endicott, Director of the National Cancer Institute, has announced the establishment of an Immunology Branch in the intramural research area, and the appointment of Dr. John L. Fahey as Branch Chief.

The creation of the new branch, Dr. Endicott said, emphasizes the growing importance of immunologic approaches to the cancer problem. The branch will serve as a focal point for an expanding program of Institute research on immunology.

It will conduct and support fundamental research in immunology as applied to neoplastic diseases, including the investigation of the function of immune mechanisms in cancer patients. It will also provide consultative and collaborative assistance to investigators in other areas of the Institute.

Dr. Fahey, a 1951 graduate of the Harvard University Medical School and a native of Ohio, has been a member of the NCI staff since his appointment as a Clinical Associate in 1952. In 1954 he became a senior investigator of the General Medicine Branch and since 1956 he has been head of a group of investigators conducting studies in immunology within the Metabolism Service.

In August of 1960 he was detailed to the National Institute of Medical Research, London, England, for a year's intensive period of research and study.

Program Launches COSTEP Students on A Summer Session of Special Training

Program Director of Engineer Career Development, Office of the Surgeon General, counsels engineering students on opportunities in the PHS at one of eight discussion groups conducted here July 7.

More than 50 students from colleges and universities throughout the country, who comprise the latest group to receive special training under the PHS Commissioned Officer Student Training and Extern Program (COSTEP), began their summer tour of duty with the Public Health Service this month.

Together with more than 25 other students who are Civil Service summer employees and potential COSTEP applicants, they attended a special orientation program in the Clinical Center auditorium July 7, beginning at 1 p.m.

Principals制成ers Listed

Principal speakers were Dr. Murray A. Diamond, Chief of the Office of Personnel, PHS; Dr. James T. Lovett, Chief, Health Professions Student Loan Program, Bureau of State Services; Dr. Willis R. Boss, Chief, Career Development Review Branch, Division of Research Grants, NIH; and Dr. G. Robert Coatney, Chief of the Laboratory of Parasite Chemotherapy, National Institute of Allergy and Infectious Diseases.

The program was arranged by Joseph A. Staton, staff member of the Personnel Management Branch, serving as Director of the COSTEP.

Heart Conference Is Rescheduled for November 22-24

Dr. Carleton B. Chapman, President Elect of the American Heart Association, and Dr. Ralph E. Knutti, Director of the National Heart Institute, recently announced that the Second National Conference on Cardiovascular Diseases, originally scheduled for next January 25-28, will be held on November 22-24 of this year at the Sheraton-Park Hotel in Washington, D.C.

The AHA and NHLBI are co-sponsoring the meeting with the Heart Disease Control Program of the Public Health Service.

Dr. Chapman and Knutti, the conference Chairman, said the earlier date will permit the results of the conference to be coordinated with the recently announced President's Commission on Heart Disease, Cancer and Stroke, in preparing a report requested by President Johnson.

Rescheduling Explained

"Our purpose in rescheduling the conference," the two spokesmen declared, "is to facilitate the most fruitful possible exchange between the conference and the President's Commission."

According to Drs. Chapman and Knutti, more than 400 scientists have been at work for more than a year developing summaries and interpretations of developments in the cardiovascular field since 1950, when the First National Conference was held.

At the 3-day November meeting, approximately 500 invited experts will review and discuss these advanced reports. Additional information and recommendations arising from these discussions will then be incorporated in the conference report.

500 Delegates Invited

It is hoped to make the final document the most complete and authoritative summary possible at this time of progress, opportunities and needs in the field of heart and blood vessel disease, the conference spokesman said.

Among the 500 delegates invited to the November sessions are leaders in cardiovascular research, prevention, treatment, rehabilitation and education.

All disease entities in the cardiovascular field will be reviewed, including coronary heart disease, high blood pressure, stroke, rheumatic fever and rheumatic heart disease, infectious defects of the circulatory system, among others.

There's this much to be said about middle-aged spread—it sure brings people closer together.—Hot Shoppes Table Talk.
to furnish information for use in planning mass vaccination campaigns in developing countries. About 550 children were inoculated with live viruses, smallpox, and yellow fever vaccines, either singly or in combinations, using an automatic jet-injection apparatus.

The results indicated that "jet inoculation" of the vaccines, alone or in combination, was safe and effective and provided a much faster and cheaper way of immunizing the population than the usual method. During this period, the NIH team also taught these new techniques to native Volta nurses.

The second 1962-63 study was the mass campaign, in which live measles vaccine was made available to all measles-susceptible children between six months and five years of age.

First Mass Vaccination

This campaign was the first national attempt to control measles with the new vaccine developed in America through the pioneering efforts of Dr. John Enders and his colleagues at Harvard University. Eight trained teams of native nurses, supported by the 3-member NIH team, traveled in jeeps through Volta, from the bush in the south to the desert in the north, and from November 1962 and March 1963 jet-inoculated 751,000 children with the vaccine.

Though it characteristically caused a mild febrile reaction in the recipients, the vaccine was enthusiastically accepted by Volta parents who know and fear natural measles as the single biggest killer of children in West Africa.

Dr. Meyer reported that it was not unusual for mothers to walk 10 miles carrying their babies, or to wait by the roadside until long after dark to make certain they would not miss the mobile teams as they canvassed the country.

Ministry Reports Success

The Health Ministry of Upper Volta reported the successful conclusion of the mass campaign in May 1963 at a Paris meeting of the OCCGE, a regional West African health organization.

The seven other member nations—Ivory Coast, Dahomey, Niger, Mali, Guinea, Senegal, and Mauritania—proposed a measles vaccination training and demonstration project for the fall of 1965 in order that they might have an opportunity to evaluate the role of measles immunization in their own health program.

This program, financed by AID, was technically directed by Dr. Meyer and Mrs. Bernheim. During October 1963, nurses from each OCCGE member nation were trained in Bobo-Dioulasso, Upper Volta.

Felix Speaks at Opening Of Center for Research On Mental Retardation

Dr. Robert H. Felix, Director of the National Institute of Mental Health, was the principal speaker at dedication ceremonies for the new Research Center for Mental Retardation at Pacific State Hospital in Pomona, Calif., July 15.

The research center has received a research program-project grant of $350,000 from NIH for the first year of a proposed 7-year period for socio-behavioral research in mental retardation.

Calls for Collaboration

Dr. Felix called for collaboration of research efforts among "all those competent to work in the fields of both mental illness and mental retardation."

He cited the aims of the new research center project as analyzing hospital-community relationships, interpreting the social processes that direct the retardate to the hospital and return him to the community, observing the critical periods of the retardate's transition after his admission to the hospital and again after his release.

It will also compare the effectiveness of treatment in a large hospital with treatment in the local community clinic, the foster home and the day-care center.

After completion of the training, the NIH team and its Volta colleagues traveled overland by jeep to each of the member countries. The NIH team and the trained native nurses then conducted a demonstration measles vaccination campaign in an area designated by the Health Ministry of each country.

The project was completed in January 1964. The American and Volta teams had traveled approximately 20,000 miles and had vaccinated 100,000 children, about 15,000 in each country.

The seven African nations that participated in these demonstration studies reported the results at a meeting of the OCCGE last April. It is against this background of developmental research that the U. S. Government pro-ceeding with an expanded measles control program in Africa.

Dr. Murray A. Diamond, Chief, PHS Office of Personnel (right), is introduced to students at the COSTEP Orientation and Seminar Program here by Joseph A. Staton, staff member of PMB and director of the program.

COSTEP

(Continued from Page 3)

Army, and are placed on active duty for a period not to exceed 120 days in any one fiscal year.

The value of the program, according to Mr. Staton, is demonstrated by the fact that many of the earlier participants who have returned to NIH for extended active duty are educating their younger colleagues to the career opportunities that exist at NIH and throughout the FHS.

Although the largest number of COSTEP participants serve during the summer months, the program is open the year-around, NIH staff or summer employees who wish additional information about the program may contact Boyd W. Stephenson, Chief, Commissioned Officers Section, PMB, Ext. 64212.

Mother bring their small children for measles vaccination in the Republic of Upper Volta.—NIH Photo.

The inactivating factor could also be extracted from other common aluminum alloys, such as aluminum foil and the aluminum caps on ultracentrifuge tubes. Of nine other metals tested, only zinc and magnesium were found to have inactivating properties.

Substance Appears in Liquid

The inactivating substance was shown to be a soluble, unstable, organic compound which appears in the liquid after contact with the metal surface.

Ionized salts of aluminum and other metals had no effect on the phage tested; neither did aluminum extracts treated with acid or base.

To test the hypothesis that the compound responsible for inactivation is electrolytically formed hydrogen peroxide, catalase, an enzyme which decomposes hydrogen peroxide, was added to the aluminum extracts. It prevented inactivation of the MS2 phage.

Direct exposure of the phage to hydrogen peroxide inactivated five phage strains so tested.

Cupric ions appear necessary for catalyzing the inactivation process. When they are sequestered by the introduction of EDTA (ethylene diamine tetra acetic acid), a compound which complexes cations, inactivation is blocked.

MAY PREVENT ERRORS

This new finding that viruses may be inactivated by metals may prevent error in results from work with phage using the ultracentrifuge, the aluminum parts of which can affect viability.

It will caution investigators working with other biological systems that may be sensitive to catalytic oxidation by hydrogen peroxide formed in this manner, not to assume inertness of all metallic equipment.

These findings were reported by Dr. Nobuto Yamamoto and Dr. C. W. Hiatt, DBS, and Wolfgang Haller, of the National Bureau of Standards, in Biochemica et Biophysica Acta.

Scientists of the Division of Biology Standards have found that sensitive phages are inactivated by contact with aluminum, zinc, and magnesium through the electrolytic production of hydrogen peroxide.

The inactivation of viruses by metals was discovered during a study of photo-inactivation. Three strains of phage (RNA phages MS2 and f2, and DNA phage S13) placed in containers made of an aluminum alloy were found to lose their viability.
Agnes Middleton Resigns Here, Will Accept Post At Univ. Medical Center

Agnes Middleton, Chief of the Clinical Center's Psychiatric Nursing Service, has resigned to accept an appointment with the University of California Medical Center in San Francisco.

At the associate professor level, Miss Middleton will serve the center's graduate nursing program as lecturer on the care of emotionally disturbed and mentally retarded children.

"She came to NIH to be head nurse on the first ward we opened," said Dr. Robert A. Cohen, Director of Clinical Research of the NIH. "She has played an increasingly significant role in organizing an unusually sensitive and responsive nursing service for the entire psychiatric program. We all feel she is a remarkably effective individual, and we shall miss her support."

Born in Vicksburg, Miss., Miss Middleton took her first nursing education at the St. Louis (Mo.) City Hospital, where she was awarded her R.N. certificate in 1929. She received her B.S. degree at St. Augustine College in Raleigh, N.C., in 1938 and her M.S.F.H. at the University of Michigan in 1942.

Receives NIMH Grant

In 1947, under an NIMH grant, she studied clinical psychiatry and psychiatric nursing at the Catholic University of America. Her academic education has been consistently supplemented with evening courses at the Washington School of Psychiatry and elsewhere. Prior to her tenure here, she served for six years with the Bureau of Mental Hygiene and the Child Guidance Clinic of the District of Columbia Health Department.

"During her 11 years on the nursing staff here, Miss Middleton has won the greatest admiration from her colleagues," according to Louise C. Anderson, Director of the CC Nursing Department.

In addition to her accomplishments at NIH, Miss Middleton has made important contributions to the Washington community through her membership on the Board of Directors of the Montgomery County Mental Health Association, the Board of Directors of the Washington Area Council on Alcoholism, and the Public Health Advisory Council to the Commissioners of the District of Columbia—for which she received a Meritorious Public Service Award in 1959.

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"The climate and the charm of San Francisco have something to do with my decision to accept this opportunity," Miss Middleton said. But the prospect of teaching has a strong appeal for her.

"It's going to be very satisfying to share what I have been able to learn along the way—both in the classroom and in writing," she explained.

Mouse Milker, Developed Here, May Aid Scientists in Study of Breast Cancer

The laboratory mouse has long been an important tool for the study of breast cancer, and for many years it has been known that a virus is involved in the initiation of this prevalent type of cancer.

Recent advances in virology, including increased knowledge of cancer-causing viruses, can now be applied to the further understanding of breast cancer.

One important aspect of this research is the study of milk, but it has been difficult to obtain sufficient amounts from mice. This difficulty may now be alleviated by planned production of an increased yield of milk by means of a new instrument.

Prior Yields Limited

Yields of one cc of milk per animal have in the past required 15 to 20 minutes of individual manipulation. This time-consuming procedure has produced inadequate amounts of virus for study, even from a high cancer mouse strain such as C3H.

An instrument designed to extract the same quantity of milk from each of 8 to 10 mice in the same period of time has now been developed for the National Cancer Institute by the Division of Research Services.

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Research Facility Opened in Florida By New Institute

The establishment in St. Petersburg, Fla., of the first direct research facility of the National Institute of Child Health and Human Development, was announced recently by Surgeon General Luther L. Terry of the Public Health Service.

To be called the Human Development Study Center, the unit evolved from a prior Public Health Service research activity in St. Petersburg known as the Study Group on Accidents and Aging. Dr. Alfred H. Lawton, who directed the study group, will also direct the center.

According to Dr. Robert A. Aldrich, Director of the National Institute of Child Health and Human Development, the new study center initially will endeavor to determine changes in physiological and psychological capacities of older persons. Future research at the center will be broadened to include study of other aspects of the life cycle.

To Use Area Volunteers

Subjects chosen to participate in center studies will be volunteers from the St. Petersburg area.

Dr. Lawton has had both medical training in the aging field and extensive research experience in physiology. He received his M.D. and Ph.D. degrees from Northwestern University. He is Past Chairman of the Tampa Bay Area Council on Research in Aging and President Elect of the Florida Council on Aging.

Dr. Lawton had worked closely with the Florida State Health Department, the Pinellas County Health Department, and with local and county medical societies in St. Petersburg and vicinity.

Navy Band to Entertain At CC Tuesday, Aug. 4

The fourth in this season's series of outdoor band concerts for Clinical Center patients will be presented next Tuesday, August 4, at 7:30 p.m. by the United States Navy Band on the first floor patio, east of the CC auditorium. In event of rain, the concert will be given in the auditorium.

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

This close-up of the new mouse milk extractor in operation shows the molded plastic teat cup. Water is swabbed on the breasts of the mouse to help seal the rim of the teat cup. The milk is collected in the small bottle at right. The other tube connects with the alternating high-low vacuum pressure system.—Photo by Jerry Hecht.

The project was begun in 1962 when Dr. William F. Feller of NCI's Laboratory of Viral Oncology approached the DRS Instrument Engineering and Development Branch for design assistance.

The most difficult problem in developing the device was the teat cup design. After trying different shapes and types of plastics, John Boreto, Head of the IEDB Plastics Unit, devised a silicone rubber cup that proved successful.

These cups deform and inflate under a gently alternating high-low vacuum action that draws the milk into small collection bottles immersed in ice.

The complete device, the third in a series of designs, is a compact plastic unit with demountable parts, all produced by the IEDB Plastics Laboratory.
broader and more intensive preparation of medical scientists for research careers by combining graduate training in mathematics and the biological and physical sciences with medical training.

In announcing Dr. Powell's retirement, Dr. Terry said:

"Without adequate support for such programs, aimed at acquiring fundamental knowledge rather than curing disease, medical science would lose its momentum and creativity."

"The progeny we call 'practical advances' are the natural offspring of basic research. We must understand this relationship so that we may continue to improve our lot and elevate our standards of life."

**Budget Now $113 Million**

In establishing the Institute following Congressional authorization in 1962, the Public Health Service created the first Institute at NIH with primary responsibility for fostering basic research in the medical and health-related sciences. The budget it presented to Congress to support the program in the present fiscal year totals $113,395,000.

Before becoming Director of NIGMS, Dr. Powell served in areas of general program development and grants management at NIH. He was Assistant Director of the National Institute of Allergy and Infectious Diseases in 1961-62 and held several posts in the Division of Research Grants from 1958 to 1961.

Dr. Powell was born in Hartford, Conn., in 1918. He received the B.S. degree from the Massachusetts Institute of Technology in 1940 and the M.D. degree from Boston University in 1944.

**Interns in Boston**

He served his internship at the U. S. Marine Hospital, Boston, from 1944 to 1945, and was a medical officer in the U. S. Navy from 1945 to 1946. He was commissioned in the U. S. Public Health Service in 1946.

He was a resident in radiology at the U. S. Public Health Service Hospital, Baltimore, from 1951 to 1952. From 1952 to 1954, he was a fellow in radiology at the University of Pennsylvania Hospital. He returned to NIH in 1954 as staff physician in the Clinical Center's Pathology Branch.

Colleagues and friends honored Dr. Powell, his wife and three daughters at a reception in the Executive Dining Room in Building 31, on Thursday, July 16. Dr. Jack M. Masur, Director of the Clinical Center, served as Master of Ceremonies and presented a Polaroid 100 camera to Dr. Powell and a crystal necklace to Mrs. Powell.

**A group award for sustained superior performance in providing "vital statistical data and invaluable program planning assistance" to the National Heart Institute staff and advisory groups was presented recently to 12 members of NHL's Analysis and Reports Section, Operations Branch, Extramural Programs, by Dr. Ralph E. Knutti, Institute Director. They are, left to right, seated: Margaret Schork, Claire Wahr, Janet Welsh, Supervisor; and Rose Sheriber. Standing: Donald Spencer, Operations Branch Chief; Nancy Cherry, Loretta Prince, Molly Schlonsky, James Pike, Alan Hough, Sylvia Maxixe, Dr. J. Franklin Yeager, NHL Associate Director for Extramural Programs; and Dr. Knutti. Two of the award winners, Ellen McCloskey and Florence Ober, were not present when the picture was taken.—Photo by Bob Pumphrey.**

**Dr. Jenerick Appointed DRFR Branch Chief**

Dr. Frederick L. Stone, Chief of the Division of Research Facilities and Resources, recently named Dr. Howard Jenerick as Chief of the Special Research Resources Branch, succeeding Dr. Herbert B. Pahl, recently appointed Chief of the Division's General Research Support Branch.

Since 1960 Dr. Jenerick has been Associate Professor of Physiology and Biophysics at Emory University, Atlanta, Ga.

In his new position he will administer a grants program for large-scale research resources, such as computer and biomedical engineering centers which serve many scientific disciplines in an institution, a region, or a national segment of biomedical science.

**Teaches at MIT**

Dr. Jenerick is not new to NIH having served from 1958 to 1960 as Executive Secretary of the Physiology Training Committee in what is now the National Institute of General Medical Sciences. From 1951 to 1958, he was Assistant Professor of General Physiology at the Massachusetts Institute of Technology, Cambridge, Mass.

A native of Chicago, Ill., Dr. Jenerick attended the University of Chicago where he received his B.S. and Ph.B. with honors, and in 1951 his Ph.D.

He was a Frederick Holbrook Rawson, Jr., Fellow in 1950, a Helen Kimmins Van Liere Fellow, and a U. S. Public Health Service Fellow in 1951.

**Swerdlow Directs New Dental Services Branch; Gamble Named Deputy**

Dr. Francis A. Arnold, Jr., Director of the National Institute of Dental Research, recently announced the appointment of Dr. Herbert Swerdlow as Chief of the newly established Dental Services Branch, and Dr. Jack W. Gamble as Deputy Branch Chief.

The new branch will be responsible for providing dental services for patients of all the Institutes. These services heretofore were provided by the Dental Department of the Clinical Center.

The Dental Services Branch will use the space formerly occupied by the Dental Department. It will not only provide patient dental care but will serve as the clinical arm of the Dental Institute and conduct a number of clinical research programs.

In addition, clinical research projects will be expanded in coordination with the Institute’s Oral Medicine and Surgery Branch, under the supervision of Dr. Edward J. Driscoll, Clinical Director.

Dr. Swerdlow came to NIH in 1953, and has been Assistant Chief of the Clinical Center Dental Department. He has been with the Public Health Service since 1951, serving his internship and residency in PHS hospitals in Baltimore and Seattle. He completed two years of graduate study in prosthodontics at the University of Washington in Seattle, Wash.

**Dr. Jenerick Dr. Gamble**

**Cigarettes**

The third contract, totaling $304,446, is with Hazleton Laboratories, Falls Church, Va. Experiments in these laboratories will be set up to help evaluate the role of multiple factors in the causation of lung cancer.

Rats known to be resistant to respiratory infection will be divided into four groups. In each group half the animals will have been treated with a chemical which damages the lungs but is not cancer-causing.

Three of the groups will be exposed daily to air contaminated by one of three agents implicated in the causation of lung cancer: tobacco smoke, nickel dust, and ozone, and the fourth will be left unexposed.

One group will not be exposed to contaminated air and will serve as a control. Incidence and cause of death among animals in the four groups will be compared.

The investigations will be coordinated by National Cancer Institute scientists who will serve as project officers.
New Method for 'Matching' DNA Shows Extent of Relationship in Vertebrates

Biologists have long been aware that vertebrate animals, which include all backboned creatures, are related, but the degree and the nature of this relationship have not been determined.

In the May 22 issue of Science, Dr. B. H. Hoyer of the Laboratory of the Biology of Viruses, National Institute of Allergy and Infectious Diseases, currently a Research Associate of the Carnegie Institution, and Drs. Brian J. McCarthy and Ellis T. Bolton, staff members of the Institution, disclosed a new technique for "matching" the inheritance-carrying deoxyribonucleic acid (DNA) of the cells of vertebrates in such a way as to reveal the extent of this relationship.

The new technique was developed by the Biophysics group at the Carnegie Institution's Department of Terrestrial Magnetism, Washington, D. C.

Characteristics Shared

The technique shows that men and mice, for example, share from 20 to 25 percent of their hereditary characteristics; salmon and man, about five percent.

All vertebrates so far studied by the method include monkeys, rats, hamsters, guinea pigs, rabbits, and cattle, showing definite relationships. No genetic relationship exists among such diverse forms as fish and men. These sequences represent genes which have been conserved with relatively little change throughout the long history of vertebrate evolution.

Technique Outlined

"Although we have no means yet to relate such genes to particular phenotypic body form expressions, it is conceivable that they are the determinants of the fundamental conservative characteristics of the vertebrate form, as, for example, bilateral symmetry, establishment of a notochord, and the presence of hemoglobin."

Drs. Hoyer, McCarthy, and Bolton outlined in detail the new technique which, they said, "depends on the relationship that the total genetic potential of an organism is represented in DNA, and that the polynucleotide sequence held in common between species are indicative of similar genes."

The technique is to allow fragments of single-stranded DNA from one species to attach themselves to homologous sections of single-stranded DNA from the other species.

It consists of the following steps:

1. The two-stranded helix of DNA in the cells of a test species are heated in order to separate the individual strands, and the hot solution is cooled quickly so that the individual strands will remain separated.

2. The separated strands are then entrapped, in the single state, in jelly-like agar, and when cooled the agar is mechanically broken into small bits.

3. Separately prepared DNA of a notochord, and the presence of hemoglobin." The authors cautiously asserted in their paper on the new technique.

"It is clear from the results that there exist homologies among polynucleotide sequences in the DNA's of such diverse forms as fish and men. These sequences represent genes which have been conserved with relatively little change throughout the long history of vertebrate evolution.

Technique Outlined

"Although we have no means yet to relate such genes to particular phenotypic body form expressions, it is conceivable that they are the determinants of the fundamental conservative characteristics of the vertebrate form, as, for example, bilateral symmetry, establishment of a notochord, and the presence of hemoglobin."

Drs. Hoyer, McCarthy, and Bolton outlined in detail the new technique which, they said, "depends on the relationship that the total genetic potential of an organism is represented in DNA, and that the polynucleotide sequence held in common between species are indicative of similar genes."

The technique is to allow fragments of single-stranded DNA from one species to attach themselves to homologous sections of single-stranded DNA from the other species.

It consists of the following steps:

1. The two-stranded helix of DNA in the cells of a test species are heated in order to separate the individual strands, and the hot solution is cooled quickly so that the individual strands will remain separated.

2. The separated strands are then entrapped, in the single state, in jelly-like agar, and when cooled the agar is mechanically broken into small bits.

3. Separately prepared DNA

from the same or another species, artificially made radioactive for "labeling" purposes, is broken into short fragments by mechanical shearing. These in turn are heated to separate the strands and are quickly cooled to keep them from recombining into double strands—the form which DNA "prefers," and to which it normally seeks to return.

4. The short strands of radioactively labeled DNA are then allowed to diffuse through the agar containing the long single strands of the test species, and the mixed DNAs are "incubated" for several hours at normal temperature. During this period bits of the short strands combine with portions of the longer strands, where a sequence of similar genes permits such recombination.

5. The amount of such recombination indicates the degree of homology, or relationship, between the species under test.

The method is still so new that its full usefulness in exploring the relationships and differences among various life forms cannot as yet be fully predicted.

"It is now possible to measure the extent of genetic relatedness within higher taxonomic categories," the authors said, "and it should also prove possible to arrive at an estimate of the relative genetic diversities in different taxa of different groups.

Florida high school students listen attentively as Dr. Robert B. Livingston lectures at Miami University on "How Man Looks at His Own Brain."—University of Miami Photos.

Livingston Lectures on Brain Function Relation To Potential of Man

Four hundred students from high schools throughout Florida recently attended a series of five lectures on "How Man Looks at His Own Brain," presented at the University of Miami by Dr. Robert B. Livingston, Associate Chief of the Division of Research Facilities and Resources.

Through his lectures and demonstrations, Dr. Livingston gave the students insights into the function of the brain and its relation to the physiological, psychological, and sociological potentialities of man.

The students, chosen for their excellence in science studies, came from urban and rural schools from all the counties in Florida.

Sponsored by the American Association for the Advancement of Science under a National Science Foundation grant, the lectures were part of the Annual Holiday Science Lecture Program and the first to be given during an early summer holiday period.

Lectures Begin in 1826

Previously the holiday science lectures were given during Christmas holidays, as were the Christmas lectures initiated by the Royal Institution of Great Britain in 1826.

The American series began in 1959 with lectures by Rene Dubos, and subsequent lectures by Paul Weiss, Lyman Craig, Theodore Dobzhansky, and other eminent scientists.

Dr. Livingston's lectures explored the indispensable biological foundations of creativity as observed in cellular, individual, and social organizations, as well as the mechanisms of consciousness, wakefulness, sleep, and dreaming; of emotional experience and expression; of perceptual and sensorimotor coordination and commitment; and of reorientation from previously committed perceptual and sensorimotor habits.

“In this connection it has already been suggested that genetic diversity among families of bacteria is relatively greater than among the major vertebrate classes.”

In addition to DNA relationships, the new method makes it possible to study the interactions of DNA and ribonucleic acid (RNA), the chemical substance by means of which DNA in the cell directs and controls the production of proteins and other organic compounds necessary to life or cell functioning.

The biggest trouble with political promises is that they go in one year and out the other.—The Washington Post.
PLANE CRASH
(Continued from Page 1)

served, "Dr. Levin is slated for a very productive career in clinical research."
His paper, titled "Separation and Transfer of Platelets Aggregated by Adenosine Diphosphate," was read at the conference by Dr. Emil J. Freireich of NCI's Medicine Branch.
Dr. Levin leaves a wife and two children.
Dr. Geisler, a former pathology resident in NCI's Pathologic Anatomy Branch from July 1956 to July 1958, continued his training in the Clinical Pathology Department of the Clinical Center until 1961.
After leaving NIH he was a member of the staff of the Charlotte Drake Cardenza Foundation for Hematologic Research, Philadelphia, Pa., where his principal research was concerned with the study of platelets in hemophilia.

Serves on Board
In addition to his official appointments at the Foundation and Jefferson Medical School, Dr. Geisler was a member of the Medical Advisory Board of the Delaware Valley Center of the National Hemophilia Foundation.

Dr. Alfred Leitner, 31, a former Clinical Associate at the National Institute of Arthritis and Metabolic Diseases, had worked under Dr. N. Raphael Shulman in NIAMD's Clinical Hematology Branch. He was one of the co-authors of a 1960 paper by Dr. Shulman which reported the finding of several different types of human blood platelets.

Dr. Leitner left NIAMD in June 1961, to study in England for a year on a National Foundation Fellowship before going to the Massachusetts General Hospital in Boston.
A native of Allentown, Pa., Dr. Leitner is survived by his wife, the former Sandra Polsky, who was an information writer with NCI in 1960-61, and one child.

NCI Publishes Second in Research Report Series
A new publication, "Virus-Cancer Research," was issued recently by the Public Health Service as the second pamphlet in the National Cancer Institute's Research Report series.
"Virus-Cancer Research" describes and explains some of the approaches currently being utilized in virus-cancer work. It discusses the basic nature of viruses, their existence in our modern environment, and their implication in leukemias and lymphomas. The 27-page pamphlet describes current research efforts to find a possible virus-cancer path from animals to man, and reports on the prospects for prevention and therapy in the area of viral diseases.

"Virus-Cancer Research" (PHS Publication No. 1130) is available in single free copies from the Publications Distribution Branch, NCI, 5600 Fishers Lane, Bethesda, Md. 20014. Additional copies may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402, at 15 cents each.

Dr. J. Frederick Bell of NIAID Reports Rabies Not Necessarily Fatal
Rabies is not necessarily a fatal disease, according to a report by a scientist of the National Institute of Allergy and Infectious Diseases.
It is well known that bats can survive rabies infection and even develop a healthy carrier state, but this is generally believed to be a remarkable peculiarity and one that is atypical of other host-vectors. Increasing evidence now shows that other animals can recover spontaneously from the disease.
In the June issue of the Journal of Infectious Diseases, Dr. J. Frederick Bell, of NIAID's Rocky Mountain Laboratory, has reported studies in which untreated white mice survived experimental infection with rabies virus.

After intraperitoneal injection of "Street" viruses of diverse origin, a varying and sometimes large proportion of mice developed typical symptoms of rabies and recovered despite persistent, severe sequelae.

Virus Three Criteria
Dr. Bell used three criteria to determine rabies infection in the mice: first, development of the characteristic signs of illness after the appropriate incubation period; second, recovery of virus; and third, development of a high degree of immunity to intracerebral challenge with doses of virus ordinarily fatal to control mice.

In his report, Dr. Bell said, "The evidence from others as well as our own studies of rabies in mice is that survival is a common, reproducible, and expected occurrence. It is a phenomenon which affords a greater measure of optimism for patient prognosis and for scientific inquiry than does the present fatalism."

"The fact that raging virus in the central nervous system may be suddenly and spontaneously aborted carries the hope that the mechanism involved can be enhanced or supplemented to make it more effective. Reproducibility of the phenomenon in the laboratory implies that it can be studied at will."

Dr. Bell is survived by his wife and two children.

Schachter Joins DRFR As OPA Ass't Chief
Joseph Schachter has joined the Division of Research Facilities and Resources as Assistant Chief of the Office of Program Analysis.
In this recently established position he will assist Dr. Deward Waggoner, Chief of that office, in developing procedures for analyzing and evaluating the current status of the office's five major grants programs which, in Fiscal Year 1964, totaled $129.4 million in appropriated funds.
Mr. Schachter comes to DRFR from the National Heart Institute where he has been Chief Statistician of the National Diet Heart Study in the Biometrics Research Branch since 1962.

Begins Federal Career
He began his government career in 1941 as a statistician with what was then the War Department. In 1944 he transferred to the Social Security Administration, serving there as an economist until 1949.
Joining the Public Health Service that year, he served in the National Vital Statistics Division and held increasingly responsible positions including that of Chief of the National Vital Statistics Bureau to which he was appointed in 1959.
Mr. Schachter is a graduate of the College of the City of New York, and has taken postgraduate work in statistics and economics at American University.

Studies Show CI-501 Is Effective Against Falciparum Malaria
Clinical testing by scientists of the National Institute of Allergy and Infectious Diseases indicates that a single injection of the drug compound, CI-501 (Parke, Davis & Co.), is effective against induced falciparum malaria.

The testing revealed that complete eradication of falciparum malarial may be possible when everyone in an infected area is medicated and when the strains of falciparum parasite are chloroguanide-sensitive.

CI-501, although still an experimental drug, is known to be effective also against the Chessen strain of vivax malaria.
The testing concerned CI-501's efficacy against falciparum malaria which was induced in 28 volunteers, divided into two equal groups. One group received single intramuscular injections and the remaining 14 served as controls.

Twelve of the control group were observed in order to prove the infectivity of challenges and two to prove either chloroguanide sensitivity or resistance.

Volunteers received challenges by intravenous inoculation of parasitized blood and/or by bites of heavily infected mosquitoes. The results showed that CI-501 did not protect against infection when challenged by trophozoites—parasitized blood—but it did provide protection when challenged by the bites of heavily infected mosquitoes.

The report of this study, by Dr. Peter G. Contacos, Dr. G. Robert Coatney, Dr. Joseph S. Lunn and John W. Kilpatrick of the Laboratory of Parasite Chemotherapy, NIAID, appeared in the American Journal of Tropical Medicine and Hygiene.

Cummings Names Karel Chief of Bibliographic Services Division, NLM
The appointment of Dr. Leonard Karel as Chief of the Bibliographic Services Division of the National Library of Medicine has been announced by Dr. Martin M. Cummings, NLM Director.

The Bibliographic Services Division produces Index Medicus, a comprehensive monthly guide to medical and related literature of the National Library of Medicine.

Dr. Karel was the Assistant Chief of the Division and was selected from a group of more than 60 applicants, as the Division's new Chief, effective September 1, 1964.