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NATIONAL INSTITUTES OF HEALTH
PUBLIC HEALTH SERVICE

Dr. R. W. Berliner Appointed to Top NIH Policy Post

Dr. James A. Shannon, Director of the National Institutes of Health, recently announced the appointment of Dr. Robert W. Berliner as Director of Laboratories and Clinics.

Dr. Berliner will serve as Dr. Shannon's principal policy assistant and advisor on all research conducted at NIH, which includes some 1,400 projects here at Bethesda and in NIH field installations.

Since 1954 Dr. Berliner has served as director of Intramural Research for the National Heart Institute. He joined NIH in 1950 as chief of the Heart Institute's Laboratory of Kidney and Electrolyte Metabolism.

Before coming to NIH, Dr. Berliner was assistant professor of medicine at Columbia University

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Dr. Paul Carbone Named Chief of NCI Branch

The appointment of Dr. Paul P. Carbone as chief of the Medicine Branch, National Cancer Institute, has been announced by Dr. Kenneth M. Endicott, NCI Director.

The branch is under the supervision of Dr. Seymour Perry, Associate Scientific Director for Clinical Trials, who was also chief of the branch until Dr. Carbone's appointment.

Teaches at Georgetown

Dr. Carbone joined NCI in 1960 as a senior investigator with the Medicine Branch, and was appointed head of the Solid Tumor Service in 1965. He is also an instructor at the Georgetown University School of Medicine.

His specific research interests include the study of plasma cell disease in animals as a means of understanding similar diseases in man; the Philadelphia chromosome of chronic granulocytic leukemia;

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Complete Prevention of Dental Caries Seen Possible in Next Decade in U.S.

Further advances based on current research leads should make it virtually possible to completely prevent dental caries (tooth decay) in the United States in the next decade.

This prospect was viewed as a realistic one by Dr. Seymour J. Kreshover, Director of the National Institute of Dental Research, at a press briefing held last Tuesday, marking the 20th anniversary of the Institute. (See anniversary story, Page 3.)

To accelerate the achievement of this goal, he announced, a Caries Task Force is being formed to direct a targeted research program.

Many Disciplines Involved

Encompassing both intramural and extramural efforts, the program will draw on the skills of a variety of scientists and will have basic, clinical, and epidemiologic components. A major focus of this program will be the further exploration of the microbiological approach to caries.

For many years, Dr. Kreshover indicated, the oral cavity had been a microbiological wasteland due to lack of the necessary basic knowledge and tools for its study.

Today, he said, dental scientists know what questions to ask, and it is now possible to outline a logical plan of attack.

Elaborating on this concept, Dr. Ronald J. Gibbons, a guest worker in the Laboratory of Microbiology, pointed out that the view of dental caries and periodontal disorders as microbial plaque diseases is gaining greater currency.

Tooth decay is believed to be caused by a triad of factors acting in concert. These include (1) a diet high in fermentable carbohydrates, particularly sucrose, (2) the presence of decay-producing bacteria, and (3) the susceptibility of the individual.

Specific Bacteria Pinpointed

It had long been thought that the oral flora involved in caries were non-specific; that all acid-producing bacteria were implicated.

Recently, NIDR and grant-supported scientists have pinpointed specific anaerobic streptococcal bacteria with certain distinguishing characteristics.

These properties include the ability to form extracellular polysaccharide (dextran) from sucrose,



Dr. Kreshover, NIDR Director, announces new Caries Task Force.

as well as intracellular polysaccharide (amylopectin) from various carbohydrates.

The external formulation seems to be responsible for the bacteria's adherence to the tooth as microbial plaque. The internal product is fermented to acid during sugar-free periods, thereby prolonging the process of acid dissolution of hard tooth structure.

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DHEW Secretary Dedicates New NICHD Gerontology Research Center on June 15

The Nation's largest Federal facility for research on aging will be dedicated next Saturday (June 15) in Baltimore, Md. DHEW Secretary Wilbur J. Cohen will dedicate the \$7.5 million Gerontology Research Center building during a ceremony beginning at 10:30 a.m. Both the ceremony and tours of the new building will be open to the public.

Located at and operated in cooperation with the Baltimore City Hospitals, the Center is a research unit of the National Institute of

Child Health and Human Development.

The 4-story brick and concrete Center building will eventually house more than 300 scientific and supportive research personnel. Its

(See DEDICATION, Page 3)



The new 4-story, \$7.5 million Gerontology Research Center of the National Institute of Child Health and Human Development shown here is being dedicated Saturday, June 15.—Photo by W. H. Fisher.

Allied Health Professions Advisory Council Named

The first appointments to the National Advisory Allied Health Professions Council were announced recently by Dr. James A. Shannon, Director, NIH.

The Council will advise on matters relating to the Allied Health Professions Personnel Training Act of 1966, which is administered by the Division of Allied Health Manpower, Bureau of Health Manpower.

The Council also will review applications for research, construction, and training projects grants provided under the Act.

Dr. Shannon said that another major function of the Council will

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the NIH Record

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NEWS from PERSONNEL

CAR POOL LOCATOR

With traffic and parking space problems growing more acute each day, employees who drive alone to and from work may be interested in joining a car pool. As a service to employees, car pool locators are provided in several buildings at NIH.

Summer employees as well as others recently appointed to NIH are reminded of their opportunity to take advantage of this service. A card form, PHS 4368, "Car Pool Locator," should be completed and placed in the appropriate locator bin in accordance with the instructions on the back of the card.

A supply of these cards is provided at the various sites of the locators—in Bldg. 31, adjacent to the cafeteria; in the Westwood Building on the first floor, south side of the corridor, and in the Wisconsin Building.

Information about persons interested in starting a car pool or in joining an already existing car pool may be obtained by referring to the appropriate bin corresponding to the employee's area of residence.

HOUSING REGISTRY

Employees are also reminded of the housing registry service available in the Employee Relations and Recognition Section, Bldg. 31, Rm. B2B-35.

This registry consists of room rental and houses for sale or rent in the NIH area. All NIH personnel are invited to use this service to find housing.

New Waste Disposal PPM Goes Into Effect June 17

The Division of Research Services has announced that Waste Disposal PPM-Intramural No. 10, Revision 1, will become effective next Monday (June 17).

This PPM established policies and procedures for the proper disposal of laboratory waste, dead animals, laboratory glassware, and similar items.

The new tag (NIH-179, Rev. 1) is available in the central and self-service storerooms. Rubber address stamps will be needed to identify I/D, Building, and Room where waste GI cans are filled and tagged.

Additional copies of this PPM and instruction sheets (for posting in labs, animal areas, etc.) may be obtained by calling Ext. 64501.

INJURIES AT WORK

All Civil Service personnel are reminded of their right and obligation to seek immediate medical attention from the Employee Health Service when they are injured at work or contract a work-related illness.

Under the Federal Employee's Compensation Act the Government will provide the medical care needed for job-related injuries or illnesses, as well as rehabilitation service and compensation in the event of disability.

To obtain these benefits, however, the employee must:

- Report the injury immediately to his supervisor;
- Obtain first aid from one of the Employee Health Units (Clini-

New Basic Data Booklet Reports on NIH in 1968, Limited Copies Available

A new booklet entitled *Basic Data Relating to the National Institutes of Health, 1968* has been issued in limited quantity for administrative use by the Office of Program Planning.

Those interested in the economics of medical research, and of NIH in particular, can obtain single copies of the Data Book from Institute/Division Information Officers or from Bill Carrigan, OPP, Ext. 64591.

Slides Obtainable

Color slides of most of the charts in the booklet may be borrowed from Bill Carrigan for presentation in speeches on NIH.

The Office of Program Planning has produced this booklet annually in its present format since 1961. It represents the work of several units—the Division of Research Grants, Financial Management Branch, and Personnel Management Branch—as well as OPP studies of national resources.

Medical Education Costs, Health Care, Discussed

Problems associated with the cost of medical education were discussed recently at a meeting called by Dr. L. D. Fenninger, Director of the Bureau of Health Manpower.

The role that medical schools and universities play in the preparation of health manpower was included among the range of topics.

Medical school deans, university administrators, and representatives of professional associations attended the meeting.

Another aspect of current health economics was also presented last month in a seminar at the Menorah Medical Center in Kansas City, Mo.

Dr. Joseph A. Gallagher, BHM deputy director, emphasized that increasing the number of physicians will not be enough to keep up with the health demands of the nation.

"We must also reevaluate the way we are using physicians and health facilities," Dr. Gallagher stated.

cal Center, Bldg. 10, Rm. B2-A-06; Bldg. 13, Rm. 2910; Bldg. 31, Rm. B2B-34; and Westwood Bldg., Rm. 30), and

• Make a written report of the injury or illness on a form, furnished by the Health Unit, and give it to his supervisor within 48 hours.

If further medical treatment is needed, the Employee Health Service will make arrangements with an authorized physician or hospital. Additional information is available from I/D Personnel Offices or from the NIH Safety Office.

Interest Rates Increased For Two Saving Bonds



Everyone's buying bonds!, including Dr. James A. Shannon, NIH Director, shown getting ready to sign Bond Allotment Card. With him is Dr. G. Donald Whedon, NIAMD Director and chairman of the 1968 NIH Bond Drive.—Photo by Tom Joy.

While NIH Bond Drive officials began to tally results of first returns in the 1968 campaign, news from the Treasury Department of an increase in interest rates, effective June 1, 1968, offers an additional incentive for buyers.

Series E Bonds rise from 4.15 to 4.25 percent, while the Freedom Shares, available only to buyers of E Bonds, increase from 4.74 to 5 percent.

In several Institutes and Divisions, the regular timekeepers are handling payroll deductions and increases in allotments for Bonds, while in some, special keymen have been appointed.

If you have not yet been given an opportunity, save your keyman a few steps by looking him up—and give yourself a break, too, by saving Bonds regularly.

Government Code of Ethics

Any person in Government service should:

Uphold the Constitution, laws, and legal regulations of the United States and all governments therein and never be a party to their evasion.

Dr. Alice Rivlin Named DHEW Asst. Secretary

Dr. Alice M. Rivlin has been nominated by President Johnson for promotion to the position of Assistant Secretary of Health, Education, and Welfare for Planning and Evaluation.

Dr. Rivlin is now Deputy Assistant Secretary for Program Coordination.

In her new position she will succeed William Gorham, who is resigning to become executive secretary of the new Government-supported Urban Institute.

Gen. William H. Harris Responsible for Parking And Protection at NIH

Brig. Gen. William H. Harris, U.S. Army retired, has been appointed chief of the Protection and Parking Section, Protection and Safety Management Branch.

Gen. Harris brings to his position more than 20 years of personnel and logistics experience in various parts of the world. Among his responsibilities will be providing a new approach to the perennial problem of parking at NIH.

Duties Described

He will also be responsible for planning and providing for the safeguarding of personnel and property, and training and evaluation of general security needs.

Even though it is early to pre-



Gen. Harris brings his considerable military experience to bear on problems of security and parking at NIH.

dict the direction his planning will take, Gen. Harris indicated he would research the methods used by universities, industrial complexes, and other Government agencies in solving their parking problems.

He hopes to adopt the best of their procedures to the unique situation at NIH. The first results of his planning effort are expected to be available by the end of July.

A first step in the new concept of protection and service to NIH will be an expanded and intensive training of the Guard Force with special emphasis on community relations.

Is West Point Graduate

Gen. Harris is a graduate of the United States Military Academy, the Coast Artillery School, Armed Forces Staff College and Army Management School. He was also Deputy Commandant of the Armed Forces Staff College.

During his career in the Army, he has received a number of decorations and citations but he is particularly proud of the Golden Medal "Benemerenti" presented by Pope Pius XII. This represents personal recognition for over 20 years' work

DEDICATION

(Continued from Page 1)

many laboratory areas and ample research resources will enable it to serve as a national center for the study of aging and the problems of the aged.

Investigations carried out by Center scientists will include studies of many of the biological, physiological, medical, psychological, and social factors involved in the aging process.

Many to Use Center

NIH scientists and those of the Baltimore City Hospitals, Johns Hopkins University, the University of Maryland, other area institutions, as well as scientists from other American and foreign institutions, will conduct research in the new Center.

The research building's many modern features include animal colonies, a large specialized research library, fully equipped laboratories of modular design, complete instrumentation and maintenance shops, a photography and arts service section, and an area for data processing equipment.

Has 38-Bed Unit

An added feature is a 38-bed clinical research facility for the study of patients and healthy individuals participating as volunteers in long-term research projects. This facility, located on the Hospital's third floor, is linked to the Center by an enclosed bridge providing easy access to the new building.

Other persons participating in the dedication ceremonies will be: Dr. Philip R. Lee, Assistant Secretary for Health and Scientific Affairs, DHEW; Frederic G. Hubbard, Director, Baltimore City Hospitals; Dr. James A. Shannon, Director of NIH; Dr. Gerald D. LaVeck, NICHD Director, and Dr. Nathan W. Shock, chief of the Gerontology Research Center.

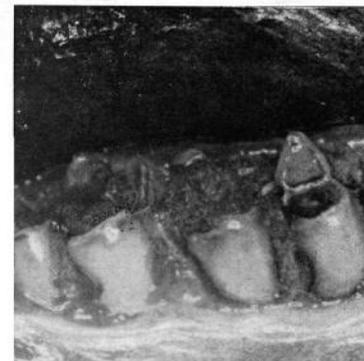
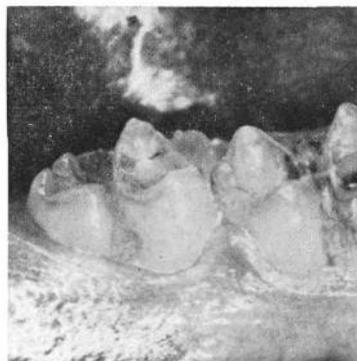
Dr. Egdahl Appointed to NIGMS Committee on Surgery Training

Dr. Richard H. Egdahl, professor and chairman of the Department of Surgery at Boston University Medical Center, has been appointed to the Surgery Training Committee of the National Institute of General Medical Sciences.

in the field of religious education for young people and assistance to chaplains at various stations throughout the world.

His varied military assignments included duty as Adjutant General, Supreme Headquarters Allied Powers Europe in Paris; Chief of Military History, United States Army; and Director of Personnel and Training, U.S. Army Materiel Command.

NIDR Celebrates Twentieth Anniversary With Report on Oral Health Research



Teeth of hamsters, on the same diet of sugar (sucrose) plus an oral inoculation of a streptococcus which produces dextran and lactic acid, reveal a marked difference in appearance. At left, molar teeth treated with enzyme dextranase show that no cavities developed during the assay period. Only minor stains and residues appeared. Teeth in untreated control hamsters (right) reveal bacterial plaques covering surfaces of the teeth. Cavitation of the crowns also occurred.

One of the "older" Institutes of NIH is still young enough to celebrate its 20th anniversary this month. Twenty years ago on June 24, 1948, Public Law 775 established the National Institute of Dental Research in order to spearhead an all-out drive against long-neglected oral diseases.

Today, with a budget of about \$30 million—more than 100 times the 1948 allocation—NIDR not only conducts its own research, but also supports some 300 projects in educational and research centers throughout the United States.

Studies Vary Widely

Investigations range from the esoteric study of how caimans (South American alligators) can continually produce new teeth throughout their lives, to demonstrating anesthesia techniques used in dental surgeons' offices.

The oral diseases, ranging from tooth decay and gum infections to malignancies, are universal afflictions of mankind. Few people fail to suffer from one or another of these disorders at some time during their lives.

In the U. S. an estimated 800 million cavities are in need of

treatment. About 20 million people have lost all of their teeth. Every year about 6,000 new babies are born with some form of cleft lip, palate, or both. They join the ranks of a quarter of a million persons with the same affliction.

Cancer of the mouth, often related to smoking and frequently beginning as a persistent lump or sore, kills about 7,000 Americans every year.

A small segment of the population now spends about \$3 billion annually for dental treatment. Optimal care for all who require treatment would cost about \$20 billion in the first year.

Fluoridation of public water

(See ANNIVERSARY, Page 4)

Elizabeth C. Hartman Honored by American Academy of Neurology

Elizabeth C. Hartman, chief, Training Grants and Awards Branch, Extramural Programs, National Institute of Neurological Diseases and Blindness, was named an honorary member of the American Academy of Neurology at its 20th annual meeting held recently in Chicago.

Dr. Richard P. Schmidt, AAN president, gave Mrs. Hartman a certificate commemorating the occasion, and praised her efforts to increase the number of trained teachers and research workers in the neurological field through NINDB training grants, fellowships, and research career development awards to major medical schools and teaching hospitals.

The Academy has only five other honorary members besides Mrs. Hartman.



Genevieve Pearsall (right), DRG, receives a cash Employee Suggestion Award from Dr. Willis Boss, also of DRG, for her idea of including an area code and time-zone map in the NIH telephone directory.

Like Dosage of Chlorpromazine Produces Unlike Plasma Levels in Mental Patients

Investigators of the National Heart Institute and the National Institute of Mental Health have reported that plasma chlorpromazine levels vary considerably among psychiatric patients on similar dosage, suggesting that effectiveness of this drug might be increased considerably by varying the oral dosage so as to produce an optimum plasma level.

Despite the importance attained by chlorpromazine in the treatment of mental illness during the past decade, the concentrations of this tranquilizer and its major metabolites in the plasma of psychiatric patients have not been measured prior to this collaborative NHI-NIMH program currently in progress at St. Elizabeths Hospital in Washington, D.C.

Purpose of Study Noted

The program, being conducted by Dr. Stephen H. Curry, NHI, and Dr. J. H. L. Marshall, St. Elizabeths Hospital, is an investigation of the range, significance, and possible control of plasma levels of chlorpromazine and its metabolism in humans.

The investigators used a heptane plasma extraction technique and a gas chromatograph equipped with an electron capture detector to determine the plasma levels of chlorpromazine and its three major non-polar metabolites in 16 St. Elizabeths patients who had been receiving the drug at 12-hour intervals under careful supervision for at least a month.

The NIH team found that the plasma chlorpromazine rose swiftly to a peak within 3 hours after dosage, and then rapidly diminished, its maximum half-life in the 16 patients being only 6 hours.

There was marked interpatient variation not only in the rate of elimination (half-life) but also in the peak plasma level and the plasma level just before each dose.

Drug Elimination Varied

Two of the 16 seemed to eliminate the drug almost as fast as it reached the blood stream; for, despite the unprecedented sensitivity of the analytical methodology (it detects nanogram quantities in plasma), there was no detectable plasma chlorpromazine in these two patients 3 hours after the drug was administered.

Rates of elimination varied over such a large range that other patients retained from 100 to 200 nanograms per milliliter of plasma after 3 hours.

Although the significance of particular plasma levels cannot be fully evaluated from this preliminary work, the investigators observed that the patients whose plasma levels were relatively high and steady at around 100 to 200 nanograms per milliliter were those with good clinical (psychotropic) response to the drug, whereas the patients with low and

DR. CARBONE

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Dr. Paul Carbone is studying responsiveness of Burkitt's lymphoma to cancer chemotherapy and immunotherapy.

and Burkitt's lymphoma, a cancer characterized by jaw tumors and largely limited to African children.

Dr. Carbone was the first to demonstrate that the Philadelphia chromosome persists in the bone marrow of patients with chronic granulocytic leukemia during all phases of the disease, including seemingly complete remission.

Uganda Center Established

Most recently he has been engaged in studies of the responsiveness of Burkitt's lymphoma to cancer chemotherapy and immunotherapy. Largely through his efforts an NCI-supported Lymphoma Treatment Center has been established in Uganda.

A native of New York, Dr. Carbone was educated at Union College in Schenectady and received his M.D. degree from Albany Medical College.

Dr. Carbone is a member of Alpha Omega Alpha, USPHS Clinical Society, American Medical Association, American Association for Cancer Research, American Federation for Clinical Research, and the American Society of Hematology.

variable plasma chlorpromazine levels were those with relatively poor clinical response.

The implications of these findings are that an optimum chlorpromazine dosage regimen might be based on the intake which is necessary for the individual patient to sustain a therapeutic plasma level of the drug.

ANNIVERSARY

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supplies is an example of a research project that will continue to pay dividends even beyond the expectations of the dental scientists who began the work.

The pioneer scientists whose research was the forerunner for fluoridation were Drs. H. Trendley Dean, NIDR Director from 1948 to 1953; Frank J. McClure, and Francis A. Arnold, Jr., NIDR Director from 1963 to 1966.

These investigators noticed two facts, small amounts of fluoride—as little as one part per million in drinking water—prevented decay; large amounts mottled teeth. The scientists were more interested in the first fact.

Fluoride Value Shown

For a variety of reasons, including public misunderstanding in several localities, two-thirds of our Nation still do not have access to fluoridation. This preventive measure has reduced tooth decay by over 60 percent in many communities.

NIDR is further studying other methods of providing the protective benefits of fluoride. One demonstration proved that there was an 80 percent reduction in tooth decay when children living in an unfluoridated New York community used fluoride gel over a 2-year period.

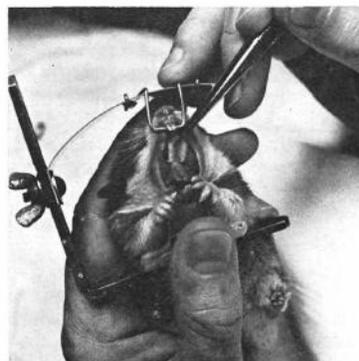
The fluoride was administered in custom-fitted plastic mouthpieces for a few minutes each school day.

In other NIDR-supported research, mountain villagers in Colombia, S.A., are given fluoridated salt in their diet as a means of preventing tooth decay.

Recent investigations have shown that acid-phosphate-fluoride solutions may be more effective than fluoride alone in preventing decay.

Soluble phosphates are also under study as a good additive to further reduce tooth decay.

Research at NIDR has shown



One method of applying fluoride to teeth of hamsters is the thermoplastic, vinyl mouth applicator, held by forceps. Research has shown the tiny mouthguard, applied for a few minutes a day, retards tooth decay and prevents development of new cavities.



Custom-fitted mouthpieces such as these have produced a dramatic decrease in cavities among students during an NIDR study. Fluoride gel, containing 1.1 percent sodium fluoride, is applied to mouthpiece.—Photos by Jerry Hecht.

that certain microbes attack teeth and gums. NIDR scientists working with pharmaceutical industry researchers proved that the enzyme, dextranase, helps dissolve sticky, bacteria-laden dextran from the teeth of hamsters.

The dissolving process thus prevents the development of cavities. The enzyme may soon be tested on humans.

During the past two decades, dental researchers have assembled oral health knowledge that should prove useful in many fields of medicine.

Advances Cited

NIDR scientists and investigators, working through the Institute's grant program, have:

- Begun to characterize the structure and function or malfunction of collagen, a chief protein of connective tissue throughout the body;
- Achieved success with an experimental plastic that fills in the natural pits and fissures of chewing surfaces to keep out decay-causing organisms;
- Found ways to correct deformity or impairment of function in a child's jaw by transplants of rib bone;
- Developed long-lasting plastic tooth implants in baboons, which may point toward eventual experiments in humans;
- Identified certain snack foods that lessen tooth decay in laboratory animals;
- Shown that damage to tooth pulp can be held to a minimum with high-speed, water-cooled drills; cavities can be sealed and filled immediately because little or no reparative tissue forms, and
- Developed a cement that glues porcelain teeth so firmly to plastic base that precious metal pins formerly used to reinforce the bond are no longer necessary—saving about \$8 million a year in manufacturing costs.

DENTAL

(Continued from Page 1)

No single mechanical cleansing agent can effectively remove the microbial plaque by itself, Dr. Gibbons noted. The brush cannot reach deep crevices in the occlusal (chewing) surfaces of teeth, nor can the bristles reach between the teeth. It should be supplemented by such other measures as floss and water jets.

Otherwise, the plaque creeps downward, finally infecting the roots. This causes loosening of what on the surface appears to be a healthy tooth.

Diphtheroids Produce Plaque

In experimental animals the plaque associated with periodontal disease is produced by diphtheroids—filament-forming bacteria. Similar bacteria may be involved in human disease. The bacterial deposit forms in the teeth at the gum margin, causing inflammation, recession of the gums, and finally bone resorption which leads to tooth loss.

The great challenge therefore lies in new chemotherapeutic procedures to supplement mechanical cleansing, not only for caries but also periodontal disease, Dr. Gibbons believes.

A number of antibacterial



Dr. Nelsen tells of efforts to find better restorative materials, and developments in the barnacle study and tests of plastic tooth implants in baboons.

agents—antibiotics, for example—are highly effective in controlling plaque in animal experiments, he reported, but they have not been used extensively in clinical situations. Enzymatic agents, such as dextranase, have also proved helpful in animal tests but have yet to be tested clinically.

Until caries can be completely prevented, the development of improved restorative materials is a practical necessity. Improved biomaterials sought in programs supported by NIDR promise simplified treatment and extended life for fillings, crowns, and artificial dentures, as well as facial prosthetics.

Dr. Robert J. Nelsen, chief of the Materials Science and Special

Dr. F. McKee Analyzes Manpower Problems at Fifth AMA Congress

Dr. Frank Wray McKee, Director, Division of Physician Manpower, Bureau Health Manpower, presented an analysis of the present and future needs for environmental health manpower.

Dr. McKee spoke before the 5th AMA Congress on Environmental Health Problems in Chicago last month.

"Blueprint for the Future," was the theme stressed at the meeting.

The Congress also reviewed the recommendations of the Task Force on Environmental Health and Related Problems. This group was established by the DHEW Secretary in 1966.

Dr. McKee emphasized the need for using present manpower personnel in the most effective way. He pointed out the necessity for re-examining and updating the national educational system and on-the-job training concepts.

Dr. McKee noted that traditionally local and state health departments have handled public health services. He further explained that "as chief administrators of these agencies, physicians have a unique opportunity to deploy allied health personnel in the most productive manner."

Clinical Studies Program, discussed prospects in this area of research.

With present restorative materials, the dentist must not only remove the decayed part of the tooth, but also enlarge the cavity so that the filling will be locked in mechanically.

Development of a filling that sticks to tooth surfaces would greatly simplify reparative procedures, reducing the time and cost involved.

Thus, when a cavity is just beginning, it would be necessary to scrape off only the diseased area of the enamel, instead of drilling into the dentin as is now required.

A dental hygienist or other auxiliary could be trained to fill a shallow cavity of this type, thereby freeing the dentist for more intricate problems.

Shortage May Be Eased

In view of the continuing shortage of dentists, this prospect represents one approach to helping solve a critical professional manpower problem.

The quest for an adhesive filling material extends beyond the traditional dental sciences. Dentists are joined in the search by scientists developing materials for space explorations and by biologists studying marine animals.

The answer, according to Dr. Nelsen, may be a new type of plastic, or a composite material held to the tooth with some kind of glue. Special interest centers on barnacle

Compact and Efficient Artificial Kidney Simulates Network of Human Capillaries

Progress in developing a new compact, highly efficient artificial kidney has been made under a contract from the Artificial Kidney Program of the National Institute of Arthritis and Metabolic Diseases.

The "capillary kidney," so-called because it simulates the human kidney's network of blood capillaries, was tested several months ago by Dr. Richard D. Stewart, Marquette University School of Medicine, and is now used routinely for patients at the Northern California Analysis Center at San Francisco General Hospital.

Has 10,000 Fibers

The compact unit, about the size of a "large can of soup," contains approximately 10,000 hollow, hair-size cellulose fibers.

Scores of patients with chronic kidney disease have been maintained using only the capillary kidney for a period of from one to several weeks. All responded favorably as well as they had previously to treatment with other types of kidney machines.

Two key features of the capillary kidney are its compactness and its effective action without significant loss of and damage to blood cells and consequent formation of clots. Clotting has been a major barrier to development of such systems in the past.

Preliminary tests indicate that this artificial kidney unit will probably be reusable. Another advantage has been the use of the kidney without an external blood pump; the patient's own heart pumps the blood through the fibers.

Unit Is 'Self-Priming'

In addition, the kidney requires only a small amount of the patient's own blood for "priming" the system. Other kidneys now in use require large amounts of donor blood or saline solution for priming.

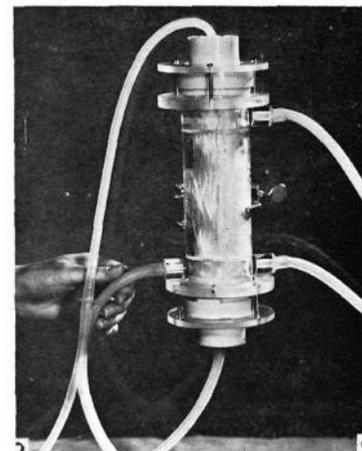
This self-priming feature eliminates the risk of transfusion reaction and hepatitis and makes feasible treating children where the introduction of large amounts

cement because it is extremely tenacious in an aqueous environment.

The importance of prompt replacement of lost teeth was stressed by Dr. Nelsen. Not only is the function of the opposite tooth lost as well, but in time one vacancy may contribute to the general breakdown of the mouth.

Still in an experimental stage, plastic tooth implants represent a promising approach to this problem. In grant-supported research, these implants have remained in place in baboons for almost eight years.

He also called attention to the need to improve materials for use as replacement parts for victims of oral-facial injury and disease.



New compact artificial kidney developed under an NIAMD contract has proved highly successful in human trials.—Photo by Marquette University School of Medicine.

of donor blood can be dangerous.

In terms of uremic wastes removed per unit of time, the capillary kidney is 10 to 20 percent more efficient in its removal of solutes from the blood than the most widely used dialyzing equipment.

Blood travels through the capillaries at the rate of one cupful per minute and it takes about 6 hours to remove wastes.

Well-controlled, large-scale human trials are now under way at San Francisco General Hospital. This long term study is intended to give a backlog of data on which to base commercial production of the kidney.

The capillary kidney is being developed for NIAMD by the Dow Chemical Company.

Home Nursing Care Data Updated in New Report

The fourth in a series of updated reports on nursing care for the sick at home was published recently by the Division of Nursing, Bureau of Health Manpower.

The document, "Services Available for the Nursing Care of the Sick at Home," PHS Publication No. 1265 Revised, includes data on nursing services for specific type patients.

Also incorporated in this series is the fact that almost 70 percent of the population in the U.S. is living in areas with some type of organized home nursing service.

This shows a 15 percent rise over the 1963 figure. However, the report points out that there are still 55 million Americans who are without the resource of nursing care for the sick at home.



AT THE ANNUAL HEW AWARDS CEREMONY MAY 28 were (first row from left): Samuel M. Poiley, Gerald F. Meyer, Robert J. Eisel, NCI; Dr. Cornelius B. Philip, NIAID; Dr. Stuart M. Sessoms, NIH Deputy Director, who presented the awards to NIH employees; Mrs. Herbert H. Weissbach, who accepted for Dr. Weissbach, NHI; Dr. Thressa C. Stadtman, who accepted for Dr. Earl R. Stadtman, NHI, and Dr. Ludwig von Sallman, NINDB. Second row from left are: Dr. Eugene H. Guthrie, Associate Surgeon General; Surg. Gen. William H. Stewart; Dr. Robert Q. Marston, Administrator, HS&MHA; Dr. Philip R. Lee, DHEW Assistant Secretary for Health and Scientific Affairs, who opened the Awards Ceremony; Dr. George A. Nevitt, BHM; Dr. Marvin A. Schneiderman, Dr. Sidney J. Cutler, NCI; Leland B. May, FM-OD; Dr. Leonard D. Fenninger, Director, BHM; Dr. Arnold W. Pratt, Director, DCRT, and Dr. Hans L. Falk, NCI. Drs. Robert A. Manaker and John B. Moloney, both of NCI, were not present for the picture.—Photo by Ralph Fernandez and Tom Joy.

Dr. B. R. Baker to Chair Study Section at DRG

Dr. B. R. Baker, professor of Chemistry at the University of California at Santa Barbara, has been appointed by the Division of Research Grants to a 2-year term as chairman of the Medicinal Chemistry A Study Section effective July 1.

Dr. Baker has had an outstanding career in medicinal chemistry over the past 25 years. He is author or coauthor of more than 250 papers and is credited with 40 U.S. patents.

Is NCI Consultant

He is now a consultant to the National Cancer Institute, and a member of the Council of the Gordon Research Conferences.

Dr. Baker received a research achievement award in pharmaceutical and medicinal chemistry from the American Pharmaceutical Association Foundation in 1963; also, the Ebert Prize in 1964 for his series of papers in the *Journal of the Pharmaceutical Sciences* on non-classical antimetabolites.

In 1966 Dr. Baker was honored as the first recipient of the American Chemical Society Award in Medicinal Chemistry.

This award was presented "in recognition of his many and diverse contributions to medicinal chemistry for excellence in the study of natural products and related substances, and in particular, for the concept of active-site-directed irreversible enzyme inhibitors, which has added a new dimension to the design of antimetabolites."

Seven NIMH Employees Receive DHEW Awards For Superior Service

Seven employees of the National Institute of Mental Health received Superior Service Awards at the recent DHEW Awards Ceremony in the Clinical Center auditorium.

They are: Dr. Julius Segal, Chief, Office of Program Planning and Evaluation; Dr. Edward V. Evarts and Dr. Julius Axelrod, Laboratory of Clinical Science.

Also Julian G. Hanlon, Regional Office III; James S. Bryan, Chief, Section on Technical Development; Dr. Ichiji Tasaki, Laboratory of Neurobiology, and Allene K. Tilley, St. Elizabeth's Hospital.

The awards, made in recognition of excellence in several fields, were presented by Dr. Stanley F. Yolles, Director of NIMH.

Drs. Evarts, Axelrod, and Tasaki and Mr. Bryan work at the Clinical Center here.

Dr. Hutchison Appointed BHM Assistant Director

Dr. Marilyn K. Hutchison has been appointed assistant director of Physician Manpower in the Bureau of Health Manpower.

Dr. Hutchison is a physiatrist who received the B.A. degree from the University of Kansas City (now the University of Missouri at Kansas City).

She received her M.D. degree from the University of Kansas School of Medicine where she later returned for training in Physical Medicine and Rehabilitation.

Dr. Hutchison has been assistant

Dr. Hildegard Cannan, NCI Chemist, Retires

Dr. Hildegard Wilson Cannan, research chemist, has retired from the Endocrinology Branch of the National Cancer Institute.

Dr. Cannan came to NIH in 1954 as a guest worker under a grant from the United Cerebral Palsy Association. She stayed on as a chemist at the National Institute of Arthritis and Metabolic Diseases until her NCI appointment in 1961.

Her major research interest has been steroid biochemistry. In this field she has written more than 50 papers and a chapter of a book dealing with methods in lipid chemistry.

Developed New Techniques

Dr. Cannan developed new analytic methods for steroid analysis that are in clinical and research use.

In addition, she initiated studies of the metabolism of testosterone and epitestosterone that have contributed significantly to knowledge of androgen metabolism.

A native of New York, Dr. Cannan received her A.B. degree in chemistry from Cornell University, an M.A. degree in physical chemistry from the University of Illinois, and her Ph.D. in biochemistry from New York University.

professor of Physical Medicine at the University of Kansas Medical Center, and is now assistant clinical professor in Community Medicine and International Health at Georgetown University School of Medicine.

Dr. Mearl F. Stanton Named Scientific Editor of 'Journal of the NCI'

Dr. Kenneth M. Endicott, Director of the National Cancer Institute, has appointed Dr. Mearl F. Stanton of the Institute's Laboratory of Pathology as Scientific Editor of the *Journal of the National Cancer Institute*. He succeeds Dr. Howard B. Andervont who retired last March.

Military Service Noted

Dr. Stanton has been a member of the Laboratory of Pathology since 1957, except for a period during the 1961 Berlin crisis when he returned to active duty as chief of the Department of Pathology of the 354th Army General Hospital, Ft. Meade, Md.

From 1955 to 1957, Dr. Stanton was chief pathologist, St. Mary's Hospital, St. Louis; consultant, Veterans Administration Hospital of St. Louis; and senior instructor in pathology, St. Louis University.

Dr. Stanton attended the University of Southern Illinois, the University of De Paul in Chicago, and the University of Wisconsin.

He received graduate credits from St. Louis University in pathology and bacteriology and from the University of Maryland in biological and enzyme chemistry. He received his M.D. degree from St. Louis University in 1948.

Research Interests Listed

Dr. Stanton's major interest is pulmonary carcinogenesis, and he has devised unusual methods for the study of cancer in animals, including the production of lung cancer in rats.

In addition to his new responsibilities as Scientific Editor of the *Journal of the National Cancer Institute*, Dr. Stanton will continue his laboratory research on murine sarcoma viruses, osteogenic sarcoma, and carcinoma of the lung.



Dr. Stanton, new Scientific Editor of the *Journal of the NCI*, will also continue his laboratory research.

Dr. M. Rechcigl Joins NIH Grants Associates

Dr. Miloslav Rechcigl, Jr. recently joined the NIH Grants Associate Program, administered by the Division of Research Grants. He has been a research chemist in the Laboratory of Biochemistry, National Cancer Institute, since 1964.



Dr. Rechcigl

From 1958 to 1960 Dr. Rechcigl was a PHS Research Fellow. He then joined the NCI. He came to the United States from Czechoslovakia in 1950, and attended Cornell University with a scholarship from the National Committee for a Free Europe. There he earned his B.S. (1954), M.N.S. (1955), and Ph.D. (1958) degrees.

His bibliography includes contributions to books, articles in periodicals, book reviews, abstracts, and monographs in the fields of nutrition, physiology, oncology, and Czechoslovakian culture.

Dr. Rechcigl holds a Certificate of Merit for Distinguished Service to Scientific Research, Dictionary of International Biography, London, as well as memberships in the Honorary Society of Phi Kappa Phi and the Society of the Sigma Xi.

COUNCIL

(Continued from Page 1)

be to deliberate on current and future national problems and opportunities with respect to allied health manpower.

Members of the National Advisory Allied Health Professions Council are: Margaret Bates, Carmel, Calif.; Charles Edward Barr, D.D.S., School of Dentistry, University of Maryland; Ralph H. Boatman, Ph.D., Department of Health Education, University of North Carolina; Frederic W. Brown, M.D., Fort Wayne, Ind.

Others Named

Also, Kevin Bunnell, Ed.D., Western Interstate Commission for Higher Education, Boulder, Col.; Robert W. Coon, M.D., College of Medicine, University of Vermont; E. J. Drummond, S.J., St. Louis University Medical Center; Eli Ginzberg, Ph.D., Conservation of Human Resources, Columbia University; Gerhard Hartman, Ph.D., Graduate Program in Hospital and Health Administration, University of Iowa.

Others appointed are: Darrel J. Mase, Ph.D., College of Health Related Professions, University of Florida; Edmund J. McTernan, Division of Allied Medical Sciences, Northeastern University; James S.

Tissue-Destroying Enzyme Pinpointed in Granule Fraction of Human Leukocytes

Investigators of the National Institute of Dental Research have reported that one source of the enzyme that splits collagen, the chief protein in connective tissue, is localized in the granule fraction of human leukocytes.

Latest Participants in NIH Visiting Scientists Program Listed Here

5/1—Dr. Vaclav Klement, Czechoslovakia, Viral Oncology Section. Sponsor: Dr. Wallace P. Rowe, NIAID, Bldg. 7, Rm. 304.

5/6—Dr. Eliezer Huberman, Israel, Viral Oncology Section. Sponsor: Dr. Frank J. Rauscher, NCI, Wisconsin Bldg., Rm. 502A.

5/6—Dr. Leo Sachs, Israel, Viral Oncology Section. Sponsor: Dr. Frank J. Rauscher, NCI, Wisconsin Bldg., Rm. 502A.

Walter M. Haag Named DRS Analysis Officer For Management Data

Chris A. Hansen, Director of the Division of Research Services, recently announced the appointment of Walter M. Haag, Jr. as management analysis officer for the Division.

Mr. Haag has been employed as a management analyst in DRS for the past 20 months and succeeds Lawrence W. Lance, who retired in April.

Before joining DRS, Mr. Haag held positions as Industrial Engineer and Supervisory Quality Control Engineer in private industry.

Mr. Haag received his B.S. degree in industrial engineering from Pennsylvania State University and will shortly complete work on the M.S. degree in the same field.

Data Provided

The management analysis group, which also includes Stanley E. Bisssey and Thomas Field, is responsible for providing data on the utilization of manpower resources within each of the DRS branches.

The data provides a sound basis for program and budget planning, and is a mechanism for evaluating execution of program plans.

Peters II, Ph.D., Division of Vocational Rehabilitation, Connecticut State Department of Education; Bill J. Priest, Ed.D., Dallas County Junior College District; Otto H. Ravenholt, M.D., Clark County Health District, Las Vegas, Nev., and Anne R. Somers, Princeton University.

One vacancy on the Council will be announced at a later date.



Mr. Haag

Collagen is a long-chain, fibrous, protein molecule found throughout the body in connective tissue. The collagenase enzyme splits this molecule into two unequal pieces, one-quarter and three-quarters of its original length.

Enzyme Always Present

The appearance of the two pieces of collagen, therefore, serves to demonstrate the presence of this enzyme.

It is probable that a minute quantity of collagenase is always present in connective tissues and that it is concerned with the day to day turnover of collagen.

Detectable amounts of human collagenase were first demonstrated in culture fluids of diseased gingival tissues and subsequently in culture fluids of human bone and skin.

Cultures of synovial membranes from individuals with rheumatoid arthritis have also been shown to contain collagenase.

Since tissue collagen is rapidly destroyed in abscesses and inflammations, the NIDR scientists, Drs. G. S. Lazarus, R. S. Brown, J. R. Daniels, and H. M. Fullmer, investigated the possibility that one of the various kinds of human white blood cells might also be a source of collagenase.

Technique Explained

They collected and separated granulocytic leukocytes (which have granules) from lymphocytes (which have none). Both types of white blood cells were then homogenized, and various fractions of each type were incubated with specially prepared collagen from rat skin.

This preparation is not affected by the usual non-specific enzymes which digest proteins.

Their findings showed collagenase present in white blood cells and almost entirely localized in the granule fraction of the leukocyte.

Unlike collagenase in other tissues, which requires culture and considerable time for detection, the enzyme in the granule fraction reacts immediately under conditions of physiological pH.

The investigators surmise that

Cohen Joins Red Cross Board

Appointment of HEW Secretary Wilbur J. Cohen to a 3-year term on the board of governors of the American Red Cross has been announced by President Johnson.

Secretary Cohen replaces former HEW Secretary John W. Gardner on the board.

DR. BERLINER

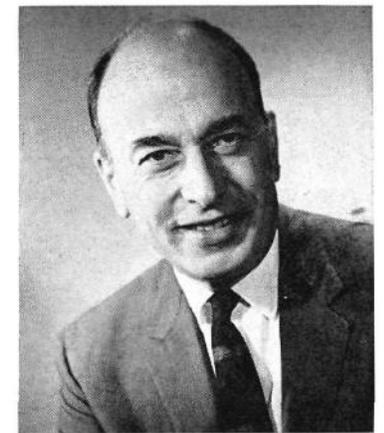
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and research associate with the New York City Department of Hospitals.

Dr. Berliner was born in New York City in 1915, and received his Bachelor of Science degree from Yale University in 1936, and his M.D. degree from Columbia University in 1939.

A renal physiologist of international repute, Dr. Berliner has published extensively in his field and is a member of numerous professional societies.

He is president of the American Physiological Society, past president of the American Society for Clinical Investigation, past president of the Third International Congress of Nephrology, and president-elect of the American Society of Nephrology.



Dr. Robert W. Berliner, a renal physiologist of international repute, has published extensively in this field.

Dr. Berliner has received many honors and awards for distinguished achievement and last April was elected to the National Academy of Sciences.

this collagenase, working with other lysosomal enzymes known to be present in these granules, may prove to be crucial in the destruction of collagenous tissues associated with many infections and inflammations.

NLM Publishes Reference Guide, Bibliography of Medical Reviews

A new desk reference tool for guidance to the latest reviews in the journal literature of biomedicine is now being published by the National Library of Medicine.

The new periodical, *Monthly Bibliography of Medical Reviews*, may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, at an annual subscription price of \$2.25. Sample copies may be obtained, without charge, from the Office of Public Information, NLM, Ext. 66308.

Spring at THE NIH ANIMAL CENTER

Photos by Roy Perry

Although the NIH Animal Center has been said to have little in common with other farms around Poolesville except for its pastoral setting, the animals reveal a kinship with their neighbors in the Spring.

The Division of Research Services is responsible for operation of the Center. Its Laboratories Aids Branch produces and/or supplies most of the animals, large and small, used in NIH Laboratories.



Caretaker James Wightman helps these stragglers. Most of the other 50 burros—used for producing immune serum—have returned from pasture for the night.



"Oh, what a beautiful morning . . ."



These puppies will grow up to be blood donors like their larger relatives who supply units of A-negative blood.



"In the spring a young man's fancy . . ."



An armload of kittens is more fun than a barrel of monkeys, says Kathleen James, Animal Biologics Sec.