

Noted Neurologist Chosen to Give The NIH Lecture

Dr. Wilder Penfield, internationally known lecturer and author and one of the world's most esteemed neurologists, will present the next in the series of NIH lectures on Tuesday, October 4, at 8:15 p.m., in the CC auditorium.

Dr. Penfield was the founder and first director of the Montreal Neurological Institute. He will speak on "Conscious Experience—What the Brain Records and Where." All NIH employees and guests are invited to attend.

In a recent book by Dr. Penfield, he says of this subject:

"In the awareness of each individual there is a succession of perceptions of the present. They are joined together by the continuous stream of time—the waking time of a man's life-span. They are recorded in the brain in continuity, and yet, separable related experiences are somehow classified and made available for later selective reconsideration."

Some of the mechanisms of recall and comparison may be discussed in the NIH LECTURE, Page 8)



Dr. Penfield

UGF Campaign Opens Here; Dr. Murray Is Chairman

The 1960 UGF campaign opened at NIH on Wednesday, September 21. Dr. Roderick Murray, DBS Director, who is campaign chairman here this year, named 26 chairmen and vice chairmen to head the drive in the Institutes and Divisions.

Chris A. Hansen, Chief of DBS, is co-chairman of the NIH campaign.

A UGF rally for all NIH employees will be held in the Clinical Center auditorium Friday morning,



Blasting off the 1960 Campaign!

October 7. The dollar goal for NIH will be announced at that time.

The quota for the National Capital area is \$7,200,000 of which the government agencies are asked to contribute \$3,325,000.

Dr. Murray, in his initial talk to the NIH chairmen and vice chairmen said, "Let's remember that this is a giver's campaign."

The donations directly or indirectly benefit everyone in the community. If we so choose, we have an opportunity to designate those agencies in our communities to which we want our contribution to go."

Last year, for the first time, NIH exceeded its quota.

Dr. Shannon urged full support for the campaign this year when he said in a note to all NIH employees, "... I know that all of us share this feeling of responsibility."

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Dr. Murray

OD-NIH Changes Involve Dr. Kidd, J. S. Murtaugh

Dr. Charles V. Kidd, Chief of the Office of Program Planning, NIH, has been appointed by Dr. Shannon to fill the newly created post of Associate Director for Institutional Relations in the Office of the Director, NIH.

Joseph S. Murtaugh, formerly Assistant Chief of the Office of Program Planning, succeeds Dr. Kidd as Chief of the Office of Program Planning.

In his new position as Associate Director for Institutional Relations, Dr. Kidd will be one of the NIH Director's policy staff and the leading advisor on the development of NIH relations with educational and research institutions. His principal function will be the evaluation of the total effect of all NIH research



Dr. Kidd



Mr. Murtaugh

grants and fellowships on such institutions.

As Chief of the Office of Program Planning, Mr. Murtaugh will have responsibility for the development and analysis of data relating to NIH programs, and for advising on the nature, scope, and magnitude of NIH programs for the conduct and support of research.

Dr. Kidd received his A.B. degree in 1935 and his M.A. degree in 1937, both from Princeton University, and his Ph.D. degree in 1957 from Harvard University. He is the author of *American Universities and Federal Research*, published by the Harvard University Press in 1959.

Before coming to NIH in 1949, Dr. Kidd was staff director and advisor on a number of White House

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Dr. Shannon Opens Symposium Oct. 3

"Biological Application of Fluorescence" will be the theme of the opening session of this year's Instrument Symposium, to be held Monday, October 3, at 8 p.m. in the Clinical Center auditorium. Dr. Shannon will give the welcoming address and introduction.

On the following day, October 4, the Tenth Annual Research Equipment Exhibit will open in Building 22. Special instrument sessions are scheduled at six of the

exhibits from Oct. 5 through 7.

Dr. Sidney Udenfriend, Chief of the Laboratory of Clinical Biochemistry, NHI, is chairman of the October 3rd symposium session, which will feature three papers on new developments in the field of fluorescence.

In the first of these Dr. C. A. Parker, Admiralty Materials Laboratory, Dorset, England, will discuss "Recent Development in Instrumentation for Fluorescence Assay."

A world authority on instrument design and development, Dr. Parker has contributed much toward

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Dr. Udenfriend

Employee Health Service Offers Free Flu Shots

NIH personnel desiring the protection afforded by the standard Polyvalent Influenza Vaccine are requested to report to the Employee Health Service, Bldg. 10, Rm. B2-A-06, for a series of two inoculations.

The first inoculation will be available each day during the week of October 3 between 8 and 9 a.m., or between 2 and 4 p.m.

The second dose will be given at the same hours during the following week.

the NIH Record

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Editor.....E. K. Stabler
Associate Editor.....Elizabeth D. Mok

Staff Correspondents

Sandra Polsky, NCI; Patricia L. Spencer, NHI; Kathryn Mains, NIAID; Lillie Bailey, NIAMD; John Kley, NIDR; Lucille Furman, NIMH; Pat MacPherson, NINDB; Peg O'Brien, CC; Mary Henley, DBS; Corinne Graves, DGMS; Phyllis Snyder, DRG; Jean Torgerson, DRS.

NEWS from PERSONNEL

Personnel Evaluation

Representatives of the CSC and PHS are now conducting a review of certain aspects of the NIH personnel program. The review is primarily concerned with the effectiveness of NIH policies and procedures for establishing and maintaining good employee-management relations.

Emphasis is being placed on the extent to which information is available to employees on basic rights and privileges accorded them by virtue of their NIH employment and the various phases of supervisory-employee relations.

The evaluation will stress both the positive and negative aspects of existing programs and practices and will include interviews with selected officials, supervisors, and employees. Questionnaires will also be sent to a selected sample of NIH employees.

Information Booklet

The PMB recently published a booklet entitled "Information, Please." The booklet tells employees where they may secure information concerning their jobs, rights, and privileges.

Employees may obtain copies from their Administrative Offices or the Employee Relations and Services Section, Bldg. 1, Rm. 21.

Federal Service Entrance Exam

Application cards for the first of the 1961 series of Federal Service Entrance Exams are now available in the Recruitment and Placement Section, Bldg. 1, Rm. 21.

Applications for the first exam, to be given on October 15, must be filed not later than September 29.

Lacey, Janus Appointed As NIH Policy Officers

Clair E. Lacey, Administrative Officer, NIAMD, has been appointed Deputy Employment Policy Officer for NIH, and Philip Janus, Acting Executive Officer, NHI, has been named as his alternate.

These appointments are in accordance with the policy of the Federal government as described in detail in Executive Order 10590, providing that discrimination against any Federal employee because of race, creed, color, or national origin shall be specifically prohibited.

Mr. Lacey and his alternate, Mr. Janus, will serve as representatives of the HEW Employment Policy Officer with responsibility for assisting in the administration of EO 10590. As such, they will be available to all employees for consultation on employment policy questions dealing with discrimination.

They will investigate complaints that are brought to their attention, and will cooperate with employees and their supervisors toward satisfactory discrimination.

CHANGES

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advisory groups. In 1958 he was detailed to Geneva, Switzerland, for one year to work on plans for an expanded program of international medical research. He has also served as consultant to national foundations in the health field.

Mr. Murtaugh, a graduate of the College of St. Thomas, St. Paul, Minn., has a total of 25 years service with the Federal government. He joined the Public Health Service in 1947, after serving with several wartime executive agencies. At the time of his NIH appointment in 1956, he was Assistant Executive Officer for the Bureau of Medical Services, PHS.

Dr. Windle Is Appointed Assistant Director Of Neurology Institute

Dr. William F. Windle, for the past six years Chief of the Laboratory of Neuroanatomical Sciences, NINDB, has been appointed Assistant Director of that Institute.

In his new post, Dr. Windle will serve as assistant and advisor to Dr. Richard L. Masland, NINDB Director.



Dr. Windle

Dr. Sanford L. Palay will replace Dr. Windle as Chief of the Laboratory of Neuroanatomical Sciences.

During the initial period of Dr. Windle's appointment a major concern will be the development of the Laboratory of Perinatal Physiology, which at present is a joint operation with the School of Medicine, University of Puerto Rico, in San Juan.

Activities Cited

Before coming to NINDB in 1954, Dr. Windle was scientific director of Baxter Laboratories, Morton Grove, Ill. As professor of neurology, he served as Director of the Institute of Neurology of the Northwestern University Medical School and also occupied the Chairs of Anatomy at the University of Washington and the University of Pennsylvania.

In addition to serving on advisories in the fields of neurological sciences, Dr. Windle is the author of more than 150 papers and books in these fields. With his publication of *Physiology of the Fetus* in 1940, he pioneered and stimulated research in the field of perinatal physiology.

Dr. Windle is Editor-in-Chief of the journal, *Experimental Neurology*, and author of the *Textbook of Histology*.

Dr. Palay has been head of the Section of Neurocytology in the Laboratory of Neuroanatomical Sciences since 1955. He came to NIH in that year from the Yale University School of Medicine, where he was assistant professor of anatomy.

Dr. Davis Is Secretary Of DGMS Section

Dr. Everett F. Davis, formerly a staff member of NIAMD, has been appointed Executive Secretary in the Fellowships Section of the Research Training Branch of DGMS.

In his new capacity, Dr. Davis will be associated with the DGMS program of fellowships to individuals for full time research training

Dr. van Bogaert, King's Physician, To Lecture Here

Dr. Ludo van Bogaert, Director of the Institut Bunge, Antwerp, Belgium, and personal physician to His Majesty Baudouin I, King of Belgium, will present a lecture in Wilson Hall, Monday, October 3, at 1 p.m.

Dr. van Bogaert, a renowned neuropathologist who is also President of the World Federation of Neurology, will speak on "Acute and Subacute Encephalitides of Current Interest." All NIH employees and their guests are invited to attend the lecture.



Dr. Van Bogaert

The talk will be followed by a panel discussion by NINDB staff members: Dr. G. Milton Shy, Associate Director in Charge of Research, and Drs. Igor Klatzo and Lucien J. Rubinstein of the Surgical Neurology Branch.

Dr. van Bogaert has directed the Institut Bunge since 1934. In 1957, he served as Secretary-General of the First International Congress of Neurological Sciences, during which the World Federation of Neurology (WFN) was founded.

Founder of Journal

Subsequently, he was elected president of the WFN, whose primary purpose is the stimulation of research and the advancement of knowledge in the neurological sciences throughout the world.

A member of the editorial board of numerous professional journals, Dr. van Bogaert is the founder and editor of the *Journal de Genetique Humaine*, editor of the *Acta Neurologica Psychiatrica Belgica*, and an associate editor of the new journal, *World Neurology*. He is an honorary member of neurological societies in this country and has been a fellow of the Rockefeller Foundation.

Following the lecture, he will remain at NIH for several weeks as a visiting scientist.

at the postdoctoral and special levels in the basic biomedical sciences and in other health-related fields.

Prior to this appointment Dr. Davis served as Executive Secretary of the Fellowships and Traineeships Section of NIAMD. He was associated earlier with the Office of Naval Research, the National Academy of Sciences-National Research Council, and the Bio-Sciences Information Exchange.

Science Section

This four-page section, devoted chiefly to summaries of research findings that have been reported by scientists of the National Institutes of Health, is prepared with the cooperation of the Information Offices of the Institutes and Divisions of the National Institutes of Health.

NIDR Scientists Study Cariostatic Effects Of Tetracycline Use

Previous studies with tetracycline have shown a characteristic deposition of this antibiotic in the bones and teeth of animals. Moreover, caries inhibition has been achieved by the addition of tetracycline to the diets of test animals. National Institute of Dental Research scientists have now reported on studies to investigate the possible relationship between skeletal deposition and residual cariostatic effects.

Divided in Groups

In laboratory experiments by Drs. I. Zipkin and Rachel Larson, Laboratory of Biochemistry, Sprague-Dawley rats were bred and subsequently divided into four groups. Animals in groups A, B, and C received 2.5 mg/ml of tetracycline hydrochloride in drinking water, and group D received distilled water.

Group A animals received the antibiotic during gestation only; group B during gestation and for 14 days following birth; and group C during gestation, lactation, and the remainder of the preweaning period. Group D animals received distilled water until weaning at 21 days of age.

A standard laboratory diet (Purina laboratory chow) was available during gestation and lactation and a non-cariogenic diet was offered thereafter until weaning. After weaning, the offspring of animals in all four groups received distilled water and a caries test diet for 60 days.

Caries Reduced

Tetracycline did not adversely affect litter production, weight gains, diet intakes or fluid consumption in either mothers or offspring. The most striking effect of tetracycline (administration) was seen in the marked reduction in caries activity under all experimental regimens. For example, the caries scores for offspring in the three experimental groups were 2.3, 4.5, and 1.8 respectively. In the control group the caries score was 20.3.

Although characteristic fluorescence was seen in the teeth and bones, thereby indicating the presence of tetracycline, the low level of caries activity could not be related directly to the incorporation of the antibiotic in the teeth. Rather, tetracycline appears to act by

Australian Studies Suggest Virus May Cause Mongolism

By Pat MacPherson
NINDB Information Office

An epidemiological survey which suggests that an infectious agent may cause Mongolism, a form of mental deficiency, was described by an Australian scientist at a lecture sponsored by the National Institute of Mental Health.

"A 16-year survey conducted in the state of Victoria indicates that Mongoloid births occur in 'clusters,'" reported Dr. Alan Stoller, Chief Clinical Officer of Australia's Mental Hygiene Authority, Mental Health Research Institute, Melbourne. "The 'clustering' phenomenon, evident in 40 percent of our cases, strongly suggests that an infectious process may be involved."

"In addition," Dr. Stoller said, "consistently higher rates were found in urban areas, where personal contacts are greater. Annual incidence rates in rural areas rose and fell in proportion to those in cities, but lagged about a year behind."

Differences Determined

The study was initiated four years ago to determine significant differences in annual, seasonal, and geographic variations in the Mongoloid birth rate in Victoria from 1942 to 1957. Careful data collection methods showed that 1,134 cases had occurred during this period, or about one Mongoloid in every 688 live births. Of these cases, 581 were male and 553 female, a proportion similar to the total birth rate.

Comparisons of annual incidence rates indicated that twice as many Mongoloid births occurred in 1944-45, the years of highest incidence, as in 1954, the lowest year. Rural incidence rates were consistently lower than urban, but followed a similar pattern, lagging behind by about a year. In four major cities, the total Mongoloid birth rate was 0.160 percent of births; in the rest of Victoria, the rate was only 0.122 percent. Although no significant seasonal variations were found, frequency was lowest from July to September.

Studies of geographic variation showed 112 distinct cluster areas,

depressing the intestinal (and oral) microflora which had previously been demonstrated by NIDR scientists to contain the caries activating organisms.

69 of which were in the cities. For purposes of the survey, Victoria was divided into nine similar areas, and two of these areas, as well as four of the 42 Melbourne municipalities, had exceptionally high incidences of Mongoloid births. Definite variations were found between all the areas, however, even when rates were adjusted for differences in maternal age in each area.

As in previous studies, the incidence of Mongoloid births was related to the age of the mothers. The age-specific rate increased with maternal age, being highest for women 45 and over. Mongoloid mortality, determined by surveying some 200,000 death certificates, was found to correspond with total mortality rates. Only two cases of multiple Mongolism (where more than one child in a family is affected) were found in over 1,000 Victoria cases.

Areas Well Defined

"The area surveyed," Dr. Stoller emphasized, "has a homogeneous population, and urban and rural areas are well defined. Much effort was spent in insuring that all Mongoloid births were identified. Known cases were contacted personally or by letter, hospital and school records were checked, all pediatricians and general practitioners were queried, and a few cases were found through newspaper and journal notices. Stillbirths, births elsewhere, and doubtful cases were then eliminated from the study."

"Our results suggest that an injurious agent, rather than environmental influences or a susceptible host, is responsible for Mongolism," Dr. Stoller continued. "Theoretically, the agent is infectious, active over a short period of time (about three months) and has a subclinical effect on the mother, damaging chromosomes at meiosis or early mitosis. The disease, which has a long incubation period, occurs at five to ten year cycles, in endemic, and at times becomes epidemic. Finally, we might suspect that Mongolism is caused by a virus or by a combination of viruses."

RNA Seen Transmitter Of Genetic Properties Of Type 1 Poliovirus

Previous studies by several investigators have shown that the ribonucleic acid (RNA) of a number of animal viruses, when extracted from the virus particle, will initiate infection in tissue cell cultures.

Although these studies indicate that the infectivity is due to the RNA itself and not to residual virus particles, it was not known whether subtle differences in the genetic makeup of the virus could be transmitted by the RNA. One such difference would be the virulence of the virus particles for animals.

Study Reported

In a study reported in the *Journal of Experimental Medicine*, Drs. Paul Gerber and Ruth Kirschstein, Division of Biologics Standards, have presented evidence that genetic information controlling neurovirulence and other characteristics, as well as infectivity, are transmitted by the viral RNA.

The study was made with two Type I poliovirus strains which have been adapted to mice by Dr. C. P. Li, of DBS. The LSa strain is virulent for mice; the LSe strain is an avirulent variant developed from the LSa strain.

Although the RNA from each strain had the same infectivity for cell cultures, the RNA from the virulent strain was highly neurotropic for mice when inoculated intraspinally, whereas the RNA from the attenuated strain was completely avirulent for mice.

Infection Induced

Additional evidence that the inheritable character of virulence was maintained following passage of viral RNA was derived from an experiment with rabbit kidney cell cultures infected with LSc-RNA and LSa-RNA. Although intact poliovirus cannot infect rabbit kidney cells, it was possible to induce limited infection with the isolated RNA. The viral progeny from such infected cells, when inoculated intraspinally into mice, produced infections characteristic of the parent RNA virus.

Moreover, when the progeny of the Mahoney-RNA in monkey kidney cell cultures were incubated at 40° C., their reproductive capacity (t marker) remained undiminished. In contrast, the RNA extracted from the highly attenuated LSc virus failed to synthesize complete virus at that temperature.

Synthetic Penicillin X-1497 Proves Promising in Test

A synthetic penicillin (X-1497) which may be effective against certain forms of resistant staphylococcus has been tested by scientists of the National Institutes of Allergy and Infectious Diseases with promising results.

The new drug was first developed commercially by Beecham Laboratories in England. Under the trade name, Staphicillin, the United States Bristol Laboratories, which has an arrangement with Beecham, released it to the National Institutes of Health and others for clinical and biochemical tests. Results were presented September 7, 1960 at a symposium sponsored by the State University of New York, Upstate Medical Center at Syracuse, to bring together available knowledge concerning the new drug.

Penicillinase Resistant

In discussing its biochemical aspects at the morning session, Dr. Harry Steinman of the Laboratory of Clinical Investigation observed that the new synthetic, in contrast to penicillin G (the form of the drug commonly employed against infection) was almost completely resistant to destruction by penicillinase (a staphylococcal enzyme whose production is stimulated in the presence of penicillin). Yet, paradoxically, Staphicillin is 10 times as active in inducing penicillinase production in resistant staphylococcus.

In the clinical trials, Drs. David Rifkind and Vernon Knight of the same Laboratory administered the drug to 10 patients with a variety of severe staphylococcal and streptococcal infections.

Typical among these patients was a 27-year-old housewife who had been treated for staphylococcal bloodstream infection with tetracycline, penicillin G, chloramphenicol and erythromycin, without success. Twenty-one days of therapy with penicillin X-1497 resulted in an uneventful and sustained recovery.

Boy Cured

Another patient, a 9-year-old male, had suffered recurrent staphylococcal infections for most of his lifetime. These included, among others, 10 episodes of pneumonia, 4 of bloodstream infection and innumerable abscesses. Thirty-five days of therapy resulted in the disappearance of fever and healing of all skin lesions. Cultures derived from the nose and liver no longer harbored the organism.

All other cases of infection were also followed by recovery or other evidence of effective antimicrobial activity after treatment.

The scientists commented that the present difficulties in the treatment of severe staphylococcal infections are derived largely from

the fact that many cultures are resistant to the older penicillins, making even huge doses of drugs ineffective. Moreover, infections in which large populations of staphylococci are present, even though susceptible, may respond poorly to treatment with these drugs.

Active Against Staphylococci

In contrast, penicillin X-1497 has thus far proven active against all strains of staphylococci tested, even those that are resistant to the older penicillins. And finally, the new penicillin has been found to be active against large populations of staphylococci.

In a separate study conducted by Dr. Richard Aster of the National Institute of Arthritis and Metabolic Diseases, results suggest an immunological difference between penicillin X-1497 and other penicillins and indicate the possibility that the new drug may be tolerated by those individuals allergic to penicillin G. The investigator tested serum specimens from one of the cases for antibodies against penicillin X-1497. Although antibodies were noted for other penicillins, presumably from previous treatment, none was found in response to the new synthetic drug.

Skull Changes Observed In Muscular Disorder

A recent National Institute of Neurological Diseases and Blindness study has confirmed that "hyperostotic" skull changes are a variable finding in dystrophia myotonica, an inherited type of muscular dystrophy. Of eighteen patients with the disease, skull changes were observed in the X-rays of seventeen (94 percent) by Drs. G. Di Chiro and J. E. Caughey, Neuroradiology Branch, NINDB.

Observations suggest that the changes are progressive and that they may be related to increased growth hormone activity.

Four types of radiographic changes in the skull vault were defined: thickened calvaria throughout, thickened calvaria in the frontal region, irregular bulgings of newly-formed bone in the frontal region (hyperostosis frontalis interna), and thickened calvaria throughout with hyperostosis frontalis interna.

Changes of the vault appeared with equal frequency in males and

Abalones Found Source Of Antimicrobial Agent

The search for antiviral and antibacterial agents has been largely concentrated in the field of microbial products. However, the abundance and variety of organic materials in sea water, and the known ability of certain mollusks to filter and concentrate suspended solids of their aquatic milieu, led Dr. C. P. Li, of the Division of Biological Standards, to study the abalone as a potential source of antimicrobial agents.

As recently reported in the *Proceedings of the Society for Experimental Biology and Medicine*, Dr. Li has demonstrated the antimicrobial action of fresh abalone juice against *Staphylococcus aureus*, as well as a protective effect of canned abalone juice against experimental poliomyelitis in mice.

Withstands Heating

At the beginning of his study, Dr. Li tested the inhibiting effect of canned abalone juice on *S. aureus*, but found the results to be inconsistent. Fresh abalone juice, however, demonstrated a consistent and marked antimicrobial activity against *S. aureus*. Furthermore, when the juice was heated to 95° for 45 minutes, or dialyzed against water overnight, no impairment of its effect was evidenced.

In testing the effects of abalone juice in experimental poliomyelitis, Dr. Li inoculated groups of Swiss mice with each of the three types of poliovirus, and fed the gastropod product to the treated mice in their regular diet. The rates of paralysis and death were 20 to 50 percent lower in the treated animals than in the controls. Moreover, the incubation periods were, in general, several days longer in the treated mice.

The thermostability and nondialyzability of this agent suggests that it is not an ordinary antibiotic. One of the chief advantages of its possible use for therapeutic purposes is that it is edible as a food. Further work on purification and concentration of the agent is in progress.

females, although previous studies have shown that cranial hyperostosis occurs almost exclusively in women.

The most marked skull changes were found in patients afflicted with the disease the longest. In addition, the degree of change was greatest in eight patients with confirmed gonadal failure, suggesting that the unrestrained activity of growth hormone may be a cause of the progressive skull alterations. The study appears in *Acta Radiologica*.

New Method Developed For Rapid Assessment Of Cariostatic Agents

Conventional screening methods for assessing cariostatic agents are unsatisfactory in that they are limited to the recording of caries initiation and progression of lesions.

In demonstrating a new method to assess cariostatic agents, Dr. Paul H. Keyes selected young albino hamsters known to be infected with a cariogenic flora and maintained them on a caries-test diet for a period of 10-14 days. At the end of this time carious lesions could be detected in the first and second molars; the third molars not yet being erupted.

Drinking Water Used

Following this evidence of carious activity, the agent to be tested for cariostatic properties was introduced to the animal via the diet of drinking water. The caries-inhibiting effect of the drug was then determined by noting the degree of arrest of the previously induced lesions in the first and second molars and the degree of prevention of caries in the newly erupted third molars.

Finally, withdrawal effects of the agent could be determined by observing the reactivation of caries in arrested lesions and the initiation of new cavities in the previously protected third molars.

Controls Develop Caries

In the described assessment procedure parallel observations on untreated control animals maintained on the caries producing diet but not receiving any caries-inhibiting agent showed a rapid progression to severe caries within the test period of 42 days.

Collaborative efforts are now being made with Dr. R. J. Fitzgerald, Laboratory of Microbiology, to trace these events microbiologically. Further studies may delineate more clearly the basic mechanisms involved in the pathogenesis of dental caries.

Ethylene Oxide Seen Practical As Animal Cage Sterilizer

The Division of Research Services reports that a program has been started to develop the use of ethylene oxide as a sterilizing agent for germ-free apparatus which cannot be heat sterilized.

A procedure using the gas has been developed and tried. Use of ethylene oxide in place of the peracetic acid normally used will eliminate problems created by the corrosive action of the acid on animal cages in other metal surfaces.

Germfree Animals Used To Study Bacteria Role In Human Nutrition

The use of germfree animals at the National Institute of Arthritis and Metabolic Diseases has helped to clarify the role played by man's intestinal bacteria in supplying essential nutrients.

At the recent Fifth International Congress on Nutrition held in Washington, D. C., Dr. Floyd S. Daft and Ernest G. McDaniel reported on their studies of the growth-promoting effects of penicillin and ascorbic acid in rats, and the production of folic acid by gastrointestinal bacteria.

Deficiency Prevented

Earlier studies showed that both penicillin and ascorbic acid could prevent a deficiency in pantothenic acid, an essential B vitamin, in conventional rats, but the exact mode of action of these compounds had not been clear.

In the reported studies, germfree rats were fed a pantothenic-free diet containing either 200 mg% penicillin or ascorbic acid at a level of 2 percent in the diet. Neither of these compounds prevented the B vitamin deficiency in the germfree animals, indicating that the previously observed growth-promoting effects of these compounds are mediated through their biochemical action on intestinal bacteria.

Aspects Clarified

The NIAMD investigators also clarified aspects of folic acid deficiencies. It is well known that conventional rats do not require a dietary source of folic acid. However, symptoms of folic acid deficiency can be produced in rats on a folic-free diet, if sulfa drugs are administered.

This suggests that folic acid is ordinarily made available to the host animal by bacteria in its gastrointestinal tract and that this essential vitamin is no longer synthesized during suppression of the intestinal flora by sulfonamides.

Hypothesis Confirmed

The germfree studies confirmed this hypothesis by showing that germfree rats develop severe folic deficiency after about 50 days on a folic-free diet. Normal growth stops, severe anemia develops and the animals die if not treated.

These results indicate that the rat does have a requirement of folic acid which, under normal circumstances, is satisfied through synthesis of this essential nutrient by the intestinal bacteria. Such studies furnish significant analogies for the elucidation of the role of intestinal microflora in the nutrition of man.

Electrical Impulse Origin In Nerve Cells Explored By NINDB Investigator

A series of studies conducted by a National Institute of Neurological Diseases and Blindness investigator show that spontaneous, rhythmic electrical discharges occur in excitable tissues which receive no electrical energy from outside sources.

The experiments suggest that the spontaneous activity may be generated by a disturbance of the intrinsic mechanism of individual nerve cells or muscle fibers. Additional studies of epileptic brain cells indicate that the same mechanisms operate during seizures.

In determining the origins of electrical potentials in nerve cells in the brain, Dr. Chou-Luh Li, Surgical Neurology Branch, NINDB, found random small potentials similar to miniature endplate potentials generated from motor nerve endings. Dr. Li summarized his studies of spontaneous rhythmic activity in lectures in the Department of Physiology, University of Chicago.

Glass Electrodes Used

In three groups of experiments, glass electrodes were used to record intracellularly from single muscle fibers. In the first study, conducted on rats with intact motor nerve supplies, no spontaneous spike activity was observed.

In subsequent experiments, where the sciatic nerve of the rats was severed, the electrical potential of muscle fibers was found to oscillate continuously, often setting off a series of rhythmic spike

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In germfree nutrition studies at NIAMD a sealed tube containing a heat-sensitive previously sterilized through a Seitz filter before it was sealed. Such five solution of water soluble vitamins is sprayed with peracetic acid to sterilize it before it is taken into the germfree isolator. The vitamin solution had procedures are used when it is not possible to autoclave material used in germfree studies.

50% Mortality Reduction in Burns Found With Use of Gamma Globulin

Studies of severely burned children have shown that injections of gamma globulin may reduce the incidence of deadly post-burn infections by approximately one-half, a Public Health Service scientist has reported. Speaking before the First International Congress on Research in Burns, Dr. Nicholas A. Kefalides of the National Institute of Arthritis and Metabolic Diseases reported on the latest results of a continuing study of burns and their treatment which has been carried on in both NIAMD laboratories and the Children's Hospital in Lima, Peru. The international congress was held at the National Naval Medical Center, Bethesda, Md.

Counteracts Infection

The gamma globulin treatment was developed to counteract overwhelming infections usually caused by *Pseudomonas aeruginosa*, a microorganism that is resistant to all commonly used antibiotics. Burn victims sometimes die from this type of infection; they appear to recover from the shock period immediately following the burn only to succumb to the bacterial infection within several days.

Earlier NIAMD animal studies by Drs. R. C. Millican and S. Rosenthal had suggested that the best way to fight this infection was to bolster the body's own defenses by administering gamma globulin, the blood fraction that contains antibodies. Clinical trial of gamma globulin treatment was begun in 1957

on burn victims seen at the Children's Hospital in Lima, and the value of the treatment has now been established in over 100 cases. The gamma globulin was obtained from the American Red Cross.

Septicemia Rate Reduced

In a control group of 111 patients, who received other forms of treatment than gamma globulin, the incidence of septicemia (generalized blood infection) was 41%. In the 104 gamma globulin treated patients, however, the incidence of septicemia was only 21%. These patients had received approximately 60 ml. of gamma globulin as a preventive measure. The treatment was most effective in children under 4 years with burns under 25% of body area and brought about a considerable reduction of overall mortality.

Antibiotic therapy was given to both groups, but it was of little value in preventing or combatting the infections. Dr. Kefalides and his associates at the hospital, Drs. Jose A. Arana, Augusto Bazan and Pedro Stastny, found that in more than 90% of the cases, the microorganisms responsible for the infection became resistant to antibiotics, requiring continual changes from one antibiotic to another.

"The results indicate that antibiotic prophylaxis does little to prevent wound infection or septicemia, while gamma globulin prophylaxis may significantly reduce septicemia and mortality in young children," Dr. Kefalides reported.

Outgrowth of Basic Research

These studies of burn treatment are an outgrowth of basic research in burns which began at the NIAMD in 1942, with the search for a simple and effective treatment for burn shock, a condition developing three to five hours after serious burn. Laboratory studies by Drs. S. Rosenthal, H. Tabor and R. C. Millican indicated that this often fatal condition could be prevented by administering, by mouth, a solution of ordinary table salt and baking soda. The treatment was clinically tested in a group of cooperating hospitals in Lima, under the direction of Dr. Kehl Markley of the Institute, and was found to greatly reduce the number of human deaths from burns that otherwise would have occurred.

Burn shock is often prevented or overcome by the administration of blood or plasma, but in many areas (See BURNS, Page 6)

Nuclei of Infected Cells Seen Primary Location Of Polyoma Virus

National Cancer Institute scientists have reported results of a study strongly suggesting that the polyoma virus localizes primarily in the nucleus of infected cells. This finding adds still another bit of evidence to the accumulating store of knowledge on the properties and nature of this virus-tumor laboratory model for studies of viruses as causative agents in human cancer.

Rabbit Serum Used

In the study polyoma virus was grown in cultures of milk-adapted mouse lymphoma cells. The infected cells were exposed to labeled antipolyoma virus serums. These had been obtained from rabbits immunized against the virus and had been labeled with fluorescein isothiocyanate. The cells were fixed on slides and examined under ultraviolet light.

Clumps of fluorescent material of varying size were scattered throughout the nucleus and were particularly prominent near the inner surface of the nuclear membrane. These fluorescent particles were not seen in uninfected tissue-culture preparations.

Finding Interpreted

Since the deposition of dye-labeled antiviral serums is dependent on an antigen-antibody combination, the finding is interpreted as demonstrating either virus or virus associated antigen in the nucleus of cells infected with polyoma virus.

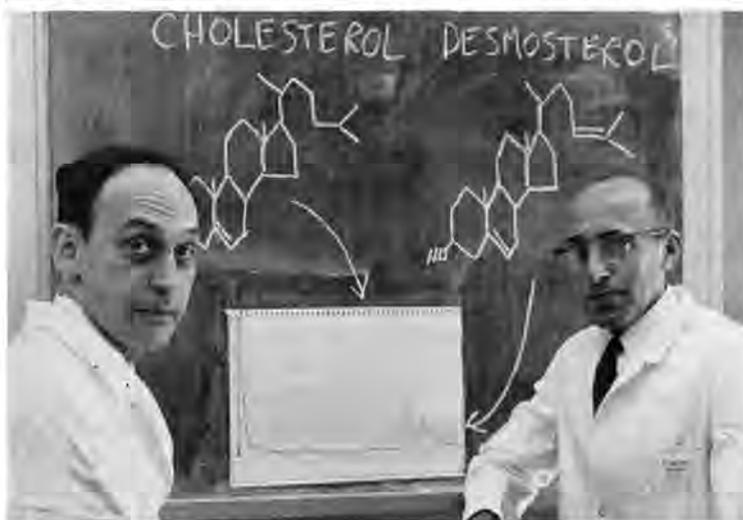
Cytochemical studies reported by other NCI investigators have demonstrated abnormal nucleoprotein in vacuoles within the nucleus of polyoma virus-infected cells. The present finding is consistent with these observations.

Found in Cell Nuclei

Electron microscope studies at NCI have also demonstrated large collections of viral particles within the nucleus of infected mouse lymphoma cells. However, the electron microscope studies also showed viral particles in the cytoplasm of infected cells. The concentration of viral particles in the cytoplasm may be too small to be revealed by the fluorescent antibody technique.

The study is reported in a recent issue of the *Journal of the National Cancer Institute* by Pathologic Anatomy Branch investigators Drs. Richard A. Malmgren, Giancarlo Rabotti (now at the Jefferson Medical School, Philadelphia), and Alan S. Rabson.

DESMOSTEROL CONVERSION BLOCKED



DRS. DANIEL STEINBERG (left) and JOEL AVIGAN, of the National Heart Institute's Laboratory of Cellular Physiology and Metabolism, found that MER-29 inhibits cholesterol synthesis by blocking conversion of desmosterol to cholesterol. Desmosterol, a possible immediate precursor of cholesterol, is structurally identical except for unsaturated side chain. A recently developed analytical method made it possible to separate and identify the two compounds by gas chromatography. Strip chart from gas chromatograph (center) shows two clearly defined peaks: first peak is cholesterol, second is desmosterol.

Gingival Tissues Found Endotoxin Sensitive

The finding that certain oral bacteria possess endotoxic properties that may contribute to the pathogenesis of periodontal disease has been demonstrated in studies by investigators in the Laboratory of Microbiology, National Institute of Dental Research.

In previous experiments at NIDR using endotoxins from oral bacteria, primary toxicity to rabbit skin was demonstrated, and the local Schwartzman reaction of hemorrhagic necrosis was produced by intradermal and intravenous injections of endotoxic preparations.

Recognizing the possibility that such endotoxins may have etiologic significance in oral soft tissue diseases, either through primary toxicity or through Schwartzman-like effects, one of the recently isolated endotoxins was tested in rabbit oral mucous membrane.

In the study conducted by Drs. A. R. Rizzo and S. E. Mergenhagen, 200 micrograms of a purified endotoxin (lipopolysaccharide) from *Veillonella* organisms were injected into the gingiva and palatal mucosa of rabbits. Control injections of saline, as well as lipid-carbohydrate-protein products isolated from viridans streptococci, were given at corresponding sites on the opposing sides of the mouth.

To provoke the Schwartzman reaction, rabbits were given 125 micrograms of *Veillonella* endotoxin in the marginal ear vein 12-24 hours following local injection. Six

NERVE CELLS

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discharges. However, the spike activity did not affect the rhythmic oscillations.

Similar results were obtained in a tissue culture study of isolated muscle fibers, which were also observed microscopically.

On the basis of these results, Dr. Li suggests that this spontaneous electrical activity must be related to periodic disturbances of metabolic or electrochemical factors, which are as yet unknown, within the denervated muscle cell.

Similar observations were obtained on epileptic cells in the cerebral cortex, and were reported to the Symposium on Basic Mechanisms of Epileptic Discharges sponsored by the American Electroencephalographic Society.

hours after intravenous injections animals were sacrificed and processed for histological examination.

Results showed that in rabbits receiving preparatory and provoking injections of endotoxin, gross and histological signs of the classical Schwartzman reaction were evident in the oral mucosa. Control sites given streptococcal products and provoked with intravenous *Veillonella* endotoxin did not produce this reaction.

This demonstration of classical endotoxins in oral bacteria, and the marked susceptibility of gingival tissue to these toxins, may offer a better understanding of the inflammation sequence characterizing periodontal disease.

Electronic Microscopy Clarifies Structure Of Neurosecretory Cells

Certain nerve cells in the brains of goldfish, which, like similar human cells, supply droplets of fluid to the pituitary body, have been described in detail for the first time by a National Institute of Neurological Diseases and Blindness investigator. The neurosecretory cells, which are thought to supply hormones or their precursors to the pituitary body, are also found in higher vertebrates, including man.

Two Types Produced

Electron microscope studies indicate that the cells produce two types of droplets, which may have separate chemical components and functions.

Within the nucleus of the preoptic region of the goldfish, clusters of closely packed secretory nerve cells were found. Micrographs of individual cells showed a central zone which included multivesicular bodies and membranous elements typical of the Golgi complex. Close by, numerous small, dense, spherical droplets enclosed in individual membranes were identified as the neurosecretory granules.

Two sizes of droplets were found, 0.1 micron and 1 micron or larger. No intermediate stage between the types was seen.

Hormones Transported

Further observations indicated that the small droplets arose primarily from the Golgi complex, whereas the larger droplets originated by gradual transformation of the multivesicular bodies. However, only the small droplet form has been found in the nerve fiber leading to the pituitary body, indicating that these granules transport hormones or their precursors. The large droplets may be concerned with such other functions as intracellular metabolism.

Results of the study were presented by Dr. Sanford L. Palay, Laboratory of Neuroanatomical Sciences, NINDB, at the European Regional Conference on Electron Microscopy, Delft, Netherlands, August 1960.

BURNS

(Continued from Page 5)

of the world there are insufficient quantities of stored blood to fill such needs. Even in the U. S. a major disaster could seriously tax available supplies. For such emergencies, the simple salt and soda solution provides a valuable emergency treatment, and one which is now routinely used in many areas where supplies of blood and plasma are limited.

Committee Will Advise On Role of Computers In Medical Research

The establishment in DRG of an Advisory Committee for Computers in Research was announced recently by Dr. Shannon. Dr. Fay Hemphill, DRG's Assistant Chief for Training, will serve as the committee's Executive Secretary.

The group, composed of biologists, physicists, and experts in computer technology, will have four general functions:

1. To advise the National Institutes of Health on the role of computers in medical and biomedical research, in areas of medical research in which computer usage might be encouraged by NIH efforts, and areas of research in computer technology which should be stimulated and supported by NIH activities.

2. To appraise and assign priority scores to applications for grants referred to the committee for such actions.

3. To appraise and prepare recommendations on applications and inquiries referred by Study Sections.

4. To stimulate use of computer techniques in medical research and development of computer technology as applied to biomedical problems.

Invitations to the first committee meeting, September 20-21, were sent to the National Science Foundation and the National Research Council so that both agencies could be informed of developments by their observers.

Dr. Goodman to Head New Section in NIAID

Dr. Howard Charles Goodman, formerly with the National Heart Institute, has been appointed Head of the new Clinical Immunology Section, Laboratory of Immunology, NIAID.

He has just returned from a year of special study at the Pasteur Institute in Paris where he worked under Prof. Pierre Grabar, the discoverer of immuno-electrophoresis.

In his new capacity, Dr. Goodman will initiate a series of clinical investigations into the allergic diseases and other illnesses presumed to have an immunologic basis. Clinical research in this area is considered to be especially germane today, in view of the advances made recently in the broad area of basic immunology.

Dr. Goodman is a graduate of the Johns Hopkins Medical School. He was appointed Columbia Research Fellow at the Institute for Medical Research, Cedars of Lebanon Hospital, in 1949.

'While You Wait' Data Processing Now Available to NIH Investigators

The Computation and Data Processing Branch, DRS, is now offering investigators "telephone request" and "on-the-spot" service on certain jobs involving retrieval or correlation of data from punchcards, including printing-out of information.

The requested information will be available in minutes and will be transmitted to the investigator via telephone or messenger.

NIH is believed to be the first organization to initiate such a telephone service. Initially, the service will be confined to the use of the IBM-101 and to card decks of approximately 10,000 cards or less.

Charles E. Greene, Chief of the Operations Section, developed the automated service which, in effect, places the IBM-101 on the desk of

every NIH investigator.

According to Mr. Greene, investigators who use the 101 telephone service need make only one trip to Building 12, where the IBM-101 and electronic computer activities are located. The one trip necessary is for brief, personal instruction in a simple code language to be used for telephone communication.

The instruction requires only 15 to 20 minutes and is available by appointment with Mr. Greene (Ext. 2282).

Mr. Greene is also prepared to instruct investigators in use of the 101 machine on a self-service basis, which some may prefer.

Charles H. Burkhart and Felix Liski supervise the 101 machine operation and will be on standby for incoming calls.

Visit to Clinical Center Included in U.S. Tour

Members of the International Hospital Federation, making a study-tour in the United States, visited the Clinical Center on September 16.

Ninety-three prominent hospital administrators, architects, and engineers from 19 countries were in the group, including Dr. R. De Cock, President of the International Hospital Federation and President of the Belgian Hospital Federation.

On odd years the Federation holds its Congress, and on even years it conducts a study-tour which consists of visiting hospitals throughout a country. This year's tour is sponsored by the American Hospital Association and the Federation.

Following a welcoming address by Dr. Jack Masur, Associate Di-

rector for NIH Clinical Care Administration and Director of the CC, and after viewing the NIH orientation film in the CC auditorium, the visitors were divided into six language groups and taken on guided tours of the hospital.

Interpreters translated the presentations of CC staff members in various areas, including the X-ray, Nutrition, Rehabilitation, Clinical Pathology, and Nursing Departments.

In past years representatives from 25 or 30 countries have visited hospitals in Ireland, France, Italy, Sweden, and Germany.

This year's tour included visits to Boston, New Haven, New York City, Philadelphia, and Baltimore, in addition to Washington.

The next Congress is scheduled for Venice.

SYMPOSIUM

(Continued from Page 1)

the marked increase in accuracy of fluorescence instrumentation.

Prof. R. T. Williams of St. Mary's Hospital, London, England, will discuss "Relationship of Chemical Structure to Fluorescence," and Dr. John M. Olson of Waltham, Mass., will speak on "Fluorescence of Pyridine Nucleotide in Intact Cells."

Fluorescence methods are recognized as among the most sensitive for detection and qualitative measurement of chemical substances. Application of these techniques has increased greatly in importance because of the new laboratory-developed equipment that is now becoming commercially available.

Tuesday and Wednesday the symposium subjects will be "Activation Analyses" and "Recent

Advances in Microscopy." Afternoon sessions, Tuesday, Wednesday, and Thursday, will cover "Infrared Spectrophotometry," "Ultracentrifugation and Electrophoresis," and "Membrane Electrodes."

The symposium is sponsored by local section of six national scientific groups.

The Research Equipment Exhibit, to run from Oct. 4 through 7, will feature 121 displays of the latest mechanical, optical, and electronic instruments for use in laboratory and clinical investigations. Sponsors of the exhibit are leading manufacturers of scientific instruments.

The exhibit will open each day at 11 a.m., and will hold special evening hours on Thursday.

Six of the exhibitors will send representatives to conduct special demonstrations:

Wednesday at 9:30 a.m., Coulter

Four Divisions Created In BSS as First Step In PHS Reorganization

The creation of four new divisions in the Bureau of State Services was announced recently by PHS Surgeon General Burney.

The action was termed "the first major move in a Service-wide reorganization designed to strengthen environmental health programs and to streamline the administration of various other programs."

The Division of Air Pollution, which takes over the work formerly handled by medical and engineering units, is under the direction of Vernon G. MacKenzie, a BSS career engineer officer who has been engaged in air pollution control for the past 10 years. Dr. Richard A. Pringle, who has been chief of the Service's air pollution medical program, is the Deputy Chief of the new division.

The Division of Occupational Health, headed by Dr. Harold J. Magnuson, has been created from the former BSS occupational health program, which has been under Dr. Magnuson's direction for the past four years.

Divisions Merged

A Division of Nursing, with Miss Margaret Arnstein, a career nurse officer, as chief, merges two former divisions: the Division of Public Health Nursing, which operated as a part of the BSS, and the Division of Nursing Resources, which was a part of the Bureau of Medical Resources.

A Division of Dental Public Health and Resources has been created from the former BSS Division of Dental Public Health and the former BMS Division of Dental Resources. The new division is headed by Dr. Donald J. Galagan, a career dental officer.

All four new divisions began their operations September 1.

These organizational changes were in accordance with recommendations made by the Study Group on Mission and Organization of the Public Health Service, appointed last January by Dr. Burney to consider how the PHS should deal more efficiently with the major public health problems of the next decade.

counter, and at 10:15 a.m., physiological gas analyzer.

Thursday at 9:30 a.m., fluorescent microscope, and at 10:15 a.m., robot chemist.

Friday at 9:30 a.m., RM automatic and recording electrobalance, and at 10:15 a.m., nitrogen analyzer.

It is expected that more than 5,000 will attend this year's symposium and the exhibit.

Reproduction Facilities Demonstrated by DRG

Approximately 500 NIH employees inspected the new automatic reproduction facilities in the DRG Duplicating Unit at an open house September 14.

DRG staff members demonstrated the new equipment and outlined the progress of a job from the receipt of an order to delivery of completed materials. Revisions in procedures for requisitioning duplicating services were also explained.

With the addition of new equipment and an extra work shift, it is now possible to provide faster service and relieve many individuals of jobs that could only be done by tedious hand labor.

The expanded facilities include the following new pieces of equipment:

1. A Xerographic Copy-Flo machine which makes either facsimile copies on paper, or transfers an image to paper offset plates from which thousands of impressions can be reproduced.

Process Simplified

This process will do away with typing paper plates, mimeograph stencils, or ditto masters. Material to be duplicated may be typed on plain paper; the copy-flo will make the reproduction plate. The machine will also enlarge or reduce the size of an image.

2. A 12-bin Macey collator with stapler attachment (12 sheets of paper at one time), and a 50-bin rotary Thomas collator with stapler attachment (50 sheets at a time). The Thomas can collate either a single large job or several small ones simultaneously.

3. Six fully automatic offset presses—truly push-button age machines.

4. A three-head Challenge drill for punching 3 holes at a time for standard 3-ring binders.

Further information may be obtained from Kenneth J. Bowden, Head of the Unit, on Ext. 4808.

NIH LECTURE

(Continued from Page 1)

cussed by Dr. Penfield in his NIH lecture.

For almost 30 years, Dr. Penfield has been Chairman of the Department of Neurology and Neurosurgery of McGill University. He is the recipient of honorary degrees and fellowships from over 17 universities here and abroad.

In addition, he holds the Order of Merit from the British Crown, the Cross of the Legion of Honour, and the United States Medal of Freedom.

Until recently, he has been neu-

CAMERAMEN SURPRISE THEIR CHIEF



NIH Photographers Lee Bragg (left) and Bob Pumphrey are shown with the photographic exhibit with which they surprised their chief, Roy Perry (right), on his return from the annual meeting of the Professional Photographers of America. The exhibit features the "inside" work of medical photographers at NIH, in a sequence of pictures showing the variety of photographic services that comprise their daily routine. Lee and Bob used their evening hours during the week of Roy's absence to make and clear the pictures and arrange for their display in the clinical Center Lobby. The Medical Arts Section, DRS, designed and constructed the exhibit. Photo by Jerry Hecht.

CAMPAIGN

(Continued from Page 1)

bility and that we will all give as much as we can to support these important community services which are part of our American way of life."

Chairmen and vice chairmen in the Divisions are Richard L. Seggel and Howard E. Kettl, OD; Drs. Margaret Pittman and John C. Wagner, DBS; Reynold R. Holliday and Robert H. Handy, DRS; Drs. Frederick L. Stone and Carl R. Brewer, DGMS; Dr. Dale R. Lindsay and Gilbert J. Frey, DRG; and Dr. Clifton K. Himmelsbach and Edith A. Jones, CC.

Institute Chairmen Listed

Institute chairmen and vice chairmen are Dr. Kenneth M. Endicott and Maurice Arnold, NCI; Dr. Dorland Davis and Daniel McMonagle, NIAID; Dr. James Watt and Philip Janus, NHI; Dr. Floyd S. Daft and Clair E. Lacey, NIAMD; Dr. Francis A. Arnold and John W. Fitzgerald, NIDR; Dr. William C. Jenkins and Hazel W. Rea, NIMH; and Dr. Richard L. Masland and Eckart Wipf, NINDB.

This year 147 health and well-being agencies in the National Capital area are supported wholly or in part by the United Givers Fund. Providing over 500 services to residents of this area, the agencies include such basic programs as care for homeless and neglected children, counseling on personal and family problems, hospital care, legal help, rehabilitation of the physically handicapped, and care for the aged.

Other UGF agencies work on the prevention, as well as the cure of physical, mental, and social ills. While contributions will be accepted in the form of cash or checks, givers may find it more convenient to pledge their donations on a system of periodic payments, designed to fit their own situation.

Pledges Welcomed

Contributions may be designated specifically for any one or several of the agencies. If the donor wishes to keep his gift private, he may use a plain envelope without name or identification.

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Lolia H. Campbell Dies

Lolia H. Campbell, a clerk with the National Cancer Institute until his retirement last February, died September 14 at Mt. Alto Hospital.

Mr. Campbell had been associated with NIH for 12 years, first in the Office of the Director, NCI, and more recently in the NCI Field Investigations and Demonstrations Branch in the Robin Building.

3 New Positions Added to Staff Of NCI Director

Three Associate Directors have been appointed on the staff of Dr. Kenneth M. Endicott, Director of NCI. The appointments became effective September 13.

Dr. Endicott said the new positions were established because NCI's direct and grant- and contract-supported program operations have evolved to the point where realignment of activities and changes in staff organization are necessary to improve administration and future planning.

Dr. Ralph G. Meader, Chief of the Research Grants Branch since 1948, has been designated Associate Director for Grants and Training.

Dr. Michael B. Shimkin, Chief of the Biometry Branch since 1954, has been appointed Associate Director for Field Studies.

Dr. Stuart Sessoms, Chief of the Cancer Chemotherapy National Service Center since 1958, has been given the title of Associate Director and will continue to head the Center.

Virus Research Expanding

All of the Institute's grant and training activities will be administered in different branches under Dr. Meader's direction. He will have responsibility in particular for the expanding program of research on viruses as a possible cause of human cancer, currently supported under 155 grants totaling \$5,600,000, and for comprehensive programs that may be authorized at designated research centers.

Activities under Dr. Shimkin's purview will include studies in biometry, epidemiology, environmental cancer, and diagnosis, including field investigations, which will be administered by several branches.

Full responsibility for administration of clinical research in the Institute has been assigned to Dr. Charles G. Zubrod as Clinical Director.

Dr. Carl G. Baker, Assistant Director, is in charge of non-clinical research.

Dr. Eli Nadel, formerly Assistant to the Associate Director for Intramural Research, NIH, has been named an Assistant Director of NCI.

It is anticipated that several new branches will be established in NCI following study by the Associate Directors.

A resident of Takoma Park, Md., Mr. Campbell is survived by his wife, Estelle.