

the

Record

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## Rally Here Spurs UGF Campaign; Goal Is \$79,305

The 1960 UGF campaign was highlighted here October 7 by an NIH-wide rally in the Clinical Center auditorium.

Guests included Edward F. Wilson, DHEW Assistant Secretary; Dr. Richard C. Arnold, Assistant Surgeon General and UGF Chairman for PHS; Ruth Rea, who won the title of Miss Washington and was third runner-up in the recent Miss America contest; and the Muppets, popular TV puppets.

The 17-piece dance band from Walter Johnson High School in Bethesda, under the direction of Gilbert Muir, played contemporary music.

### Quota Increased

An NIH quota of \$79,305 was announced by Dr. Roderick Murray, DBS Director and the UGF campaign chairman. Though this figure is above the quota for last year, Dr. Murray pointed out, there has also been a marked increase in the number of NIH personnel.

Mr. Wilson, in his brief talk said, "I can think of no better way to help the community's needs than through UGF. We give only once, yet we give all year long through united giving."

Dr. Arnold emphasized the fact that this is a voluntary campaign but added, "It is also a necessary part of today's living, for we all have a moral obligation to help our neighbor in time of trouble. It's simply the modern way of putting into practice the Golden Rule."

### Ruth Rea Speaks

Miss Rea, who is the daughter of Hazel Rea of NIMH, urged NIH employees to remember the aims of UGF and the number of UGF agencies which benefit all of the community. Ruth is a resident of Chevy Chase, Md.

Jim and Jane Henson, creators of the Muppets, presented an original skit concerning the UGF, using the puppets Kermit and Sam. The Hensons, residents of the Bethesda area, contributed their time and

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### Ready to Travel



Dr. Roderick Murray, DBS Director and NIH's UGF campaign chairman, points to the NIH campaign rocket as it starts on its climb toward the \$79,305 goal.

## NIH Growth Brings Parking, Traffic Woes; Employee Survey Launched; Bus Service, Car Pools Urged

By Ken Stabler

Within its 310-acre reservation, NIH over the years has enjoyed comparative freedom from the traffic and parking congestion problems that have long plagued government employees in downtown Washington.

But all indications point to the unpalatable fact that this pleasant era of non-traffic congestion and ample parking facilities at NIH is a thing of the past.

### Dr. Shannon Calls Problem Obvious, Asks Cooperation

Dr. Shannon today issued the following statement:

"It is obvious that the parking situation throughout the Reservation is becoming an increasingly serious problem that concerns all employees. While this in itself should provide sufficient impetus, I would like to urge all employees to promptly complete and return the traffic survey questionnaire which will be distributed tomorrow. This constructive effort is deserving of your full cooperation."

Top management, and especially those responsible for future planning here, are becoming increasingly concerned over this dual motor-age problem which has now come to roost on the range. And when they look ahead, even to the extent of the next twelvemonth, they begin to get the jitters.

### Population Up 47.6%

Within the past five years the NIH full-time on-the-reservation population has increased from 4,540 to 6,700. This represents an influx of 47.6 percent. In addition there are now 822 employees housed in rented office space in Silver Spring and Bethesda, who would be on the reservation if space permitted.

Within this same five-year period—from August 1, 1955 to August 1, 1960—the Division of Research Services by dint of careful planning and considerable industry has extended and improved NIH parking areas with a resultant increase in the number of spaces from 2,600 to 4,070.

### Car Ratio Mounts

This reveals a favorable increase of 56.5 percent. But Plant Safety Branch, OAM, reports that the ratio of automobiles to employees has also considerably increased in recent years. This is reflected in the currently full use of parking facilities and the mounting traffic congestion of the exit lanes beginning each day at about 5 p.m.

Serious as the parking and traffic situation is getting to be, Manage-

(See TRAFFIC, Page 7)

## Here's News: Two Spaces Available



This picture of the central parking lot, looking southwest from the roof of Building 8, reveals less than normal use. Two spaces are unoccupied. The time is 4:30 p. m. This and traffic photos by Bob Pumphrey.

# the Record

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## 'PERSONNEL' TO PERSON

A MESSAGE FROM

John M. Sangster  
Chief, PMB

If you are a supervisor you probably realize that the success of a program based on recognition of employees, such as the NIH Incentive Awards Program, depends largely upon you.

As a supervisor you have special responsibilities in utilizing all the resources placed at your disposal. One of the most important resources, recognized by private industry to the tune of millions of dollars every year, is that of **idea power** of the employees.

### Ideas Save Money

Unwittingly you could be sitting on ideas that would save the Government thousands of dollars. Without your help, these valuable ideas could stagnate or dry up completely.

The Awards Program at NIH can pay off only with your encouragement and cooperation. The program has unlimited potential for producing more efficiency, more economy, and better service in the Government. Equally important, it is a particularly effective way for you to recognize and reward ingenuity and personal accomplishment among employees under your supervision.

### Support Urged

Your support of the program also works to your personal advantage. In describing the supervisor's role, the Civil Service Commission says: "Your job success depends on results you get through people. By demonstrating that you want ideas for improving operations, by encouraging employee participation, and by recognizing good suggestions and superior accomplishment, you gain the respect and confi-

### Home Address Verification Asked by Credit Union

O. J. Wood, NIH Federal Credit Union Manager, requests all members to check with his office—Bldg. 10, Rm. B1C-27, Ext. 791—to verify the listing of their home addresses.

Mr. Wood reports that the Credit Union is now using the Addressograph mailing list system to communicate with members at their homes, and has found that almost 50 percent of addresses on file are incorrect or incomplete.

dence of the people whose work you supervise. At the same time, you reap extra benefits that come from more efficient operations, improved working conditions, reduced waste, increased production, and better employee morale and employee-supervisor relations—all the things that contribute to a well-run organization and reflect credit upon the supervisor."

### Publications Distributed

Your full participation, therefore, is vital in achieving the complete success of the Awards Program.

May I call your attention to two current publications by the NIH Awards Board: *Supervisors Guide to Awards*, which outlines procedures and areas for your participation in this program, and *A Word to the Wise*, a paralleling guide to awards for all employees. These guides are now being distributed. For additional copies call Ext. 4851, Employee Relations & Services Section.

### EMPLOY THE HANDICAPPED

Only one week in the year (which this year was October 2-8) is officially set aside to publicize the profits to be gained from employing men and women who are physically handicapped, yet these profits create their own unofficial publicity

## CAMPAIGN

(Continued from Page 1)

talent to the UGF campaign at NIH.

The campaign, now beginning its third week, will continue throughout October.

A breakdown of quotas by Divisions and Institutes follows:

	Number of Employees	
OD-NIH	787	\$6,414
DRS	866	9,008
DRG	347	4,056
DGMS	74	896
DBS	181	2,041
CC	1,532	12,128
NCI	956	12,281
NHI	393	5,985
NIMH	548	8,106
NIDR	131	2,083
NIAID	333	4,483
NIAMD	447	7,451
NINDB	342	4,373
Totals	6,937	\$79,305



Ruth Rea, the 1960 Miss Washington; NIH Director Shannon, and the TV Muppets, Kermit and Sam, all appeared at the NIH-wide UGF rally. Each—in his own way—appealed for 100 percent employee participation.

daily throughout the year.

In earlier years potential skills and manpower were lost or wasted because physically handicapped men and women were not considered for employment. Now many handicapped men and women have been trained and employed so that they make a meaningful use of their abilities for their own profit and for the profit of their employers.

Employment of the physically handicapped has proved that it is ability, not disability, that counts.

There are still many handicapped people, however, whose training and employment have been neglected. Supervisory personnel are in a particularly good position to encourage employment and training of the handicapped.

Many physically handicapped men and women are now employed at NIH. Their continuing contributions of skill and ability have pointed up the profits to be gained from their employment. It is hoped

## Dr. Knutti Appointed To New NIAMD Post

Dr. Floyd S. Daft, Director, NIAMD, has announced the appointment of Dr. Ralph E. Knutti to the newly created NIAMD position of Associate Director for Extramural Programs.

Dr. Knutti joined NIAMD in 1951 as Chief of its Extramural Programs with responsibility for directing its nationwide research grant, training grant, traineeship, and fellowship programs. He has also carried out special NIH assignments.

Prior to his association with NIH, Dr. Knutti was on the staffs of the Rockefeller Institute, the University of Rochester and associated hospitals, and the University of Southern California, where he was an associate professor of pathology.

## Correction

In the story on the appointments of Clair E. Lacey and Philip Janus as NIH Deputy Employment Policy Officers appearing in the September 27 issue of the *Record*, the last word of the final paragraph was inadvertently changed after the paper had been proofed by the *Record* staff. The final paragraph should read as follows:

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

The *Record* regrets the error.

that more handicapped men and women can be employed here.

For further information please contact C. M. Hull, NIH Representative to the Departmental Committee for Placement of the Physically Handicapped, Ext. 2404, or Dr. John Lynch, Chief, Employee Health Services, Ext. 4411.

# Science Section

## Correlation of Effort Urged In Encephalitides Research

By Ruth Scott  
NINDB Information Office

"Acute and Subacute Encephalitides of Current Interest" was the subject of a lecture early this month by a Belgian neurologist and neuropathologist, Dr. Ludo van Bogaert. Dr. van Bogaert, who is Director of the Institut Bunge, Antwerp, and president of the World Federation of Neurology, will remain at the National Institutes of Health for several weeks as a visiting scientist. The lecture was sponsored by the National Institute of Neurological Diseases and Blindness.

Beginning with a brief historical review, Dr. van Bogaert stated that he had not seen a single verified case of encephalitides of type A of Von Economo since 1925. (Encephalitides is the plural of encephalitis.) This pandemic infectious disease from 1921 to 1925 overlapped the world epidemic of influenza, and was notorious for the after effects of Parkinsonian symptoms. Because, however, of new cases of this post-encephalitic type of Parkinson's disease, Dr. van Bogaert admitted that "This infectious disease must continue to exist among us, in the endemic state."

The first problem of etiology he raised was that either the sequelae follow unrecognized cases of this type A encephalitis, or are due to some other neurotropic disease. "It is well known that Parkinson's disease has followed poliomyelitis, although rarely. But in most cases of Parkinsonian disease we can find no evidence of initial acute poliomyelitis," Dr. van Bogaert pointed out.

### Mutation Question Raised

From this disappearance of epidemic encephalitis type A, and the appearance of other forms of encephalitides, both acute and subacute, Dr. van Bogaert raised a basic question of epidemiology, that of mutation. Do the different symptoms and characteristics of encephalitis today come from "a mutation of the virus, or a modification in the substratum of the host?"

Difficulties in checking these theories arise because no cause (probably a virus) for encephalitis type A has been isolated, and in many cases of acute encephalitis no etiologic agent is known.

"Pathology is helpful only to a point," Dr. van Bogaert said. The same typical lesion of type A encephalitis occurs in rabies and poliomyelitis. A scientist handed a

slide with the lesions in the *substantia nigra* would not be able to differentiate these diseases. However, polio and rabies also show other localized lesions which permit identification. "The overall localization of the lesions" reveals the diagnosis, he asserted, "in addition to the quality and type of the neuronal alterations and the inflammatory infiltrations."

### Etiologies Discussed

He concluded that the type A (Von Economo) encephalitis of 1917-1925 "is no longer seen for practical purposes today."

What, then, are the etiologies of today's encephalitides? He discussed these large groups:

I. The influenzal encephalitides of types A and B. In the period before viral studies, clinical observations on influenzal epidemics of 1890-91, and 1918-19, noted coma with or without meningismus. According to Dr. van Bogaert, "It was only around 1950 that we began to separate the influenzal epidemics of virus A and B."

In contrast to "the meager information on past influenza epidemics," the Asian flu pandemic of 1956-58 offered research opportunities with modern viral techniques, "to which tremendous importance at first was attached," Dr. van Bogaert recounted.

"But the experience was not as fruitful as we had hoped."

His group saw only four cases, verifying one by histological examination. An Italian group of investigators studied 14 cases, dividing them into three groups by symptoms.

From these studies Dr. van Bogaert asked, "Are we dealing with the infectious manifestations of more than one virus? Or, are we dealing with the activation of a latent infection by another virus? We might also accept the fact that

(See ENCEPHALITIDES, Page 4)

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.

## Screening of Anticancer Drugs Aided By the Use of Virus Induced Tumors

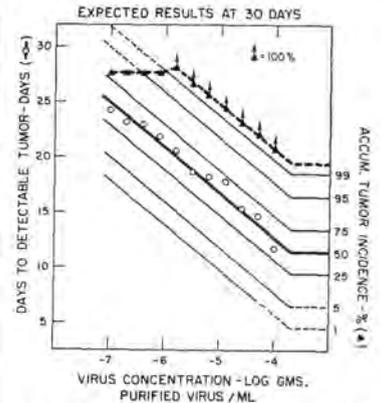
Dr. W. Ray Bryan of the National Cancer Institute's Laboratory of Biology has suggested an approach to employing virus-induced animal tumors in the screening of potential anticancer drugs.

Tumors induced by viruses are desirable for screening potential anticancer agents because they derive entirely from the hosts' own tissues, thereby simulating naturally occurring tumors. Since several established viral tumor systems are now available, biologically comparable tumors can be produced in large numbers. These can be used as a basis for increasing the accuracy of measuring chemotherapeutic effects.

A large store of knowledge has emerged from several years of investigation of the biological properties of such viral tumors as the Rous sarcoma of chickens, the Friend leukemia of mice, the Shope rabbit papilloma, and a leukemia of mice recently described by Moloney. Using such information, Dr. Bryan devised several "orientation charts," with which an investigator can plan a test program of chemotherapy screening using viral tumors.

The charts show the frequency of animals developing tumors with increasing dilution of virus dose and the smallest amount of virus that produces 100 percent incidence of tumors. They also show the latent period—the time elapsing between virus inoculation and appearance of tumors.

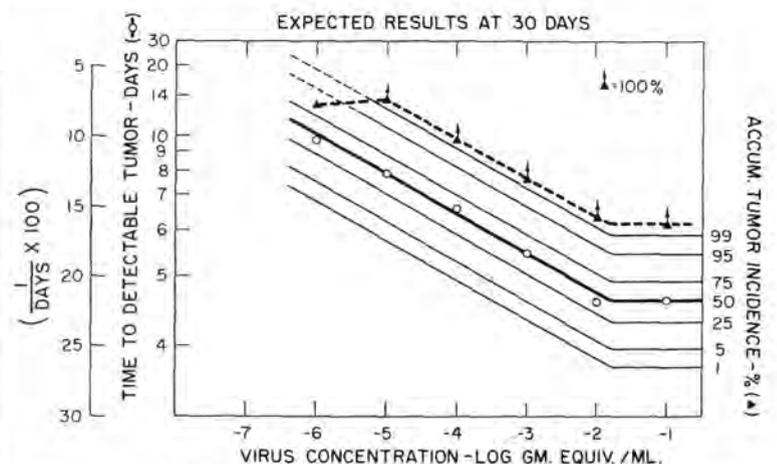
Dr. Bryan reviewed preliminary results of studies at other labora-



This chart shows responses of rabbits to 0.1 ml inoculums of the Shope papilloma virus.

tories using the Rous sarcoma and Friend leukemia systems to show the sensitivity of these tumors in measuring antitumor activity of test compounds. After virus inoculation, antitumor effect was measured by the extent to which a drug delayed the appearance of grossly detectable tumors. It is of interest that many of the compounds showing significant antitumor effects in both these systems are among those found to be most effective in non-viral tumor test systems and in man.

These findings were presented to the national meeting of the American Chemical Society in Atlantic City, and are published in *National Cancer Institute Monograph No. 4, Symposia—Tumor Viruses*.



These "orientation" charts were prepared by Dr. W. Ray Bryan, National Cancer Institute, to aid in designing experiments in the viral-tumor therapy field. This one shows the response of homogenous groups of chickens to the Rous sarcoma virus (0.2 ml of the dilutions indicated along abscissa inoculated into wing web of 2-week-old New Hampshire Red chickens).

## ENCEPHALITIDES

(Continued from Page 3)

a single virus may cause different pathological and clinical signs, depending upon the nature of the terrain upon which it is implanted."

Turning from such unsolved questions, he presented this fact, "The neurological picture of influenza resembles very closely the hypertoxic forms of post-infectious encephalitis."

II. Acute necrotizing encephalitis. This group of encephalitides often starts, the lecturer reported, with the same clinical signs of malaise and fever, but rarely with pneumonia and intestinal symptoms. "Mental confusion and disorientation are most striking," Dr. van Bogaert emphasized.

### Picture Characteristic

He confessed that his term for this type leaves much to be desired. However, as a vesicular eruption was seen in only 2 of their 37 cases (reported with Haymaker, Smith, and Chenar in 1958), he could not accept a herpetic etiology for the group which is united by a strikingly characteristic clinical picture.

"This particular type of encephalitis differs from the influenzal type," Dr. van Bogaert pointed out, "by the superposition of a psychiatric symptomatology with hallucinations, refusal of food, suicidal tendency, and fugues. Epileptic episodes are characteristic."

Autopsy diagnosis is made from necrotic softening of the brain, as his slides demonstrated.

"The reason we persist in calling them 'acute necrotic encephalitis' without denying their possible herpetic etiology is the almost complete absence of a biologic demonstration of the presence of a virus," he concluded.

### Occurs in Children

III. Subacute sclerosing leucoencephalitis. Primarily occurring in children between 2 and 18 years of age, this encephalitis lasts usually from 3 to 10 months, but occasionally up to 27 months. "Parents bring in a child with complaints of poor school work and repeated falls in the past 2 weeks," Dr. van Bogaert related. "The child soon develops epileptiform seizures. Such children die in a state of hyperthermia and extreme marasmus." His motion picture revealed the wasting and the rhythmic jerking of arms and legs in these children.

IV. Arthropod or tickborne encephalitides. "The natural hosts of the virus are small rodents, the vector is the tick, and the virus seems to be transmitted by the eggs from one generation to the next," the lecturer said. "Transmission to man is by the tick, by swal-

## Thyroxine Analogues Tested to Find Ideal Plasma Cholesterol Depressant

By Dorothy Jeanne Davis  
NIH Information Trainee

Results of detailed studies on the effects of various thyroxine analogues on oxygen consumption, myocardial metabolism, and plasma cholesterol in animals and man were reported by Dr. G. S. Boyd of the University of Edinburgh Department of Biochemistry, in a National Heart Institute lecture at the Clinical Center, September 7.

The association of hypercholesterolemia with coronary heart disease has led to efforts to find the ideal plasma cholesterol depressant. Thyroid hormones depress the serum cholesterol level, but increased oxygen consumption stimulated by these hormones usually makes this therapy unsuitable for hypercholesterolemic patients with this type of heart disease.

Dr. Boyd's experiments were an attempt to determine threshold dose levels at which the various analogues lowered serum cholesterol without increasing the basal metabolic rate, and to determine whether the depressed serum cholesterol level could be maintained by continuous administration of the compound.

Studies in rats, and subsequent clinical studies in euthyroid, hypercholesterolemic patients with coronary heart disease, indicated that from the standpoint of usefulness in ischaemic heart disease, certain dextro-isomers produced the more promising results.

At least one dextro-isomer also produced more satisfactory results when tested for sustained effectiveness. The most active thyroxine analogue tested, 3:5:3'-Tri-iodothyroacetic acid (TRIAc), reduced serum cholesterol, but after a period of time the serum cholesterol

gradually rose to its original level, even though the dosage was maintained. Continuous administration of 3:5-Di-ido-D-thyronine (DT<sub>2</sub>), unlike TRIAC, maintained lowered serum cholesterol levels for periods ranging up to three months in duration. When the drug was withdrawn serum cholesterol slowly returned to its initial level.

### Heart Affected

Dr. Boyd noted that all of the thyroxine analogues studied affected the heart to some extent, and increased the tendency of a proportion of the patients to angina, even though the basal metabolic rate was not increased. He indicated that this might reflect the relative insensitivity of the basal metabolic rate to minor changes in oxygen requirements.

Experiments conducted to determine whether long term administration of DT<sub>2</sub> would be beneficial to hypercholesterolemic individuals produced inconclusive results, and Dr. Boyd noted that undesirable side effects such as increased angina, hypertrophy of the heart, and long term effects on the thyroid might result.

A report by Dr. Boyd on part of his experiments appeared in the *British Medical Bulletin*, May 1960, with Dr. M. F. Oliver as coauthor.

lowing infected ticks, or by ingestion of non-pasteurized goat milk."

Typically, fever is followed by a neurologic phase, first systemic, then with recrudescence of headache, fever, chills, vertigo, diplopia, and occasionally delirium and coma. The disease is particularly dangerous to children and old persons.

### Principles Drawn

From his own studies of encephalitides in Western Europe today and review of studies of others, Dr. van Bogaert drew general principles:

1st. The influenzal viral encephalitides, type A or B, do not differ markedly from the clinical standpoint from those described from 1919 to 1950.

2nd. The cases observed during the Asian influenza epidemic show histologic lesions reminiscent of acute poliomyelitis or panencephalitis.

One must always ask if we are dealing with a mixture of diseases or associated diseases.

3rd. The acute necrotizing encephalitides present a uniform clinical picture, regardless of etiology such as herpes simplex virus, the virus of lymphocytic choriomeningitis, or no virus.

4th. The same is true of subacute sclerosing leucoencephalitides.

5th. The arthropod-borne encephalitides with primary cerebral involvement present a uniform clinical and pathological picture. Certain epidemics under the name of acute poliomyelitis may well belong to this group of arthropod-borne viral diseases.

Dr. van Bogaert pointed out the necessity for team work of the clinical neurologist, the pathologist, and the virologist in solving the etiology of the modern encephal-

## Dental Decay Is Related To Bacteria Presence

Previous studies at the University of Notre Dame using germ-free rats fed a cariogenic diet provided unequivocal evidence that experimental caries do not occur in the absence of bacteria.

Attention was then logically directed toward isolating specific decay producing microorganisms in gnotobiotic animals. These studies soon led to the establishment of a direct cause and effect relationship between dental decay and an enterococcus (reported from Lobund) and a single strain of oral streptococcus (reported by National Institute of Dental Research scientists).

### 2 Control Groups Used

In studies by Drs. Robert J. Fitzgerald and Harold V. Jordan, Laboratory of Microbiology, and Dr. Harold R. Stanley, Clinical Investigations Branch, 16 weanling white rats of the Lobund germfree strain were divided into two groups and housed in Reyniers' germfree tanks.

Animals in group I were infected with a pure strain of a single organism, a streptococcus isolated from the oral cavity of a caries-active rat, while those in group II remained as germfree controls. A third group of rats used as conventional controls were offspring from breeders of the Lobund germfree strain, brought to a conventional environment prior to mating.

Animals in all three groups were maintained on the same cariogenic diet that was autoclaved and supplemented with vitamins.

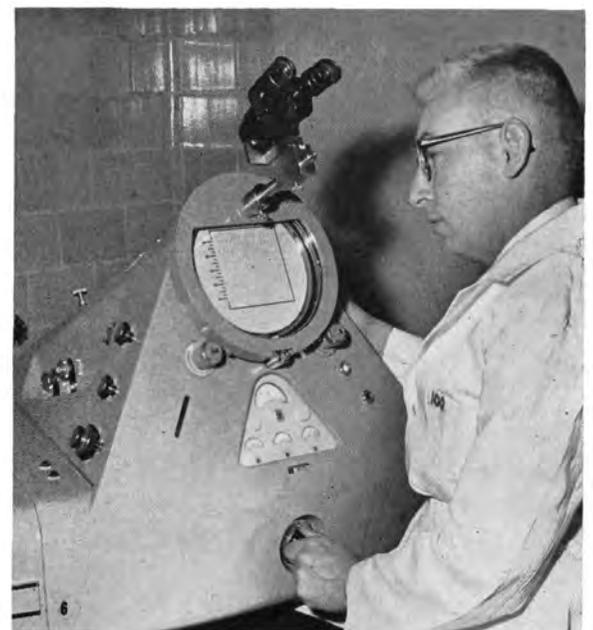
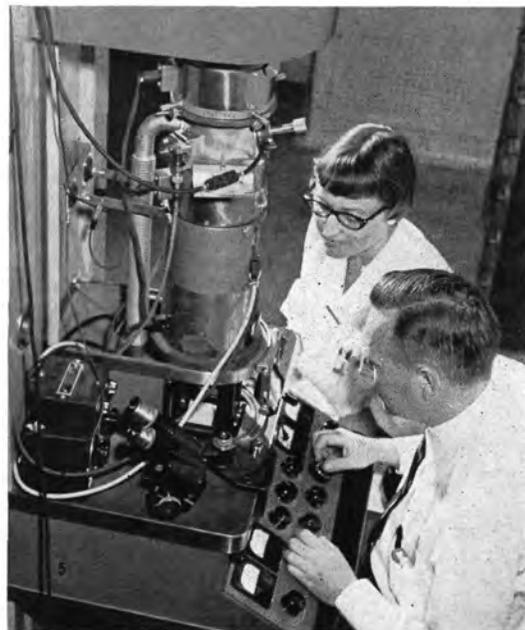
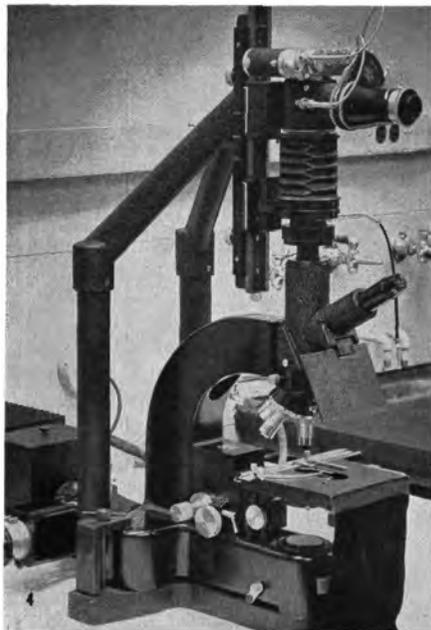
### Cavitation Shown

Each of the rats in the conventional control group, sacrificed after 100 days on the cariogenic diet, and all animals in the monoinfected group, sacrificed after 77 days, showed extensive cavitation frequently involving both the dentine and pulp chamber of molars.

In contrast, the teeth of the germfree animals, sacrificed after 84 days, were free of caries in spite of considerable food impaction and occasional fracture of a molar cusp.

These significant studies with gnotobiotic animals have extended our knowledge of oral disease by demonstrating the etiological role of the streptococcus organism in the production of experimental caries. The studies will be reported in the forthcoming issue of the *Journal of Dental Research*.

He said, "The virologist will only be able to make progress if the clinician and the pathologist provide him with necessary material as early as possible during the course of the disease."



### Special Purpose Microscopes Aid Research

Recent advances in microscopy, and the problems and advantages of the newer methods, were discussed at one of the sessions of the Symposium on Recent Developments in Research Methods and Instrumentation held at the Clinical Center early this month.

Among new methods especially helpful for examination of specimens too transparent for the brightfield microscope are fluorescent, phase, interference, and electronic scanning.

Fluorescence microscopy, although introduced a few years ago, has been gaining increasing attention, particularly in immunology. Fluorescent antibody techniques are potentially applicable to any system in which a reaction between antigen and antibody occurs. The rapidity and sensitivity of the method are its chief advantages for diagnostic bacteriological procedures.

Applications of fluorescence microscopy include the study of naturally fluorescent substances in tissues, examination of tissues stained with fluorescent dyes, demonstration of fluorescent dye labelled proteins, and products of reaction of tissue enzymes with fluorescent substrates, Dr. Frank B. Johnson of the Armed Forces Institute of Pathology pointed out at the Symposium.

The microscopes shown on this page are all in use here at the National Institutes of Health. For those readers of the NIH Record Science Section who wish to test their ability to recognize these every day tools of medical research, here is the key:

1. Brightfield.
2. Direct view.
3. Microscope with ultramicrotome.
4. Fluorescence.
5. Electron.
6. Desk model electron.
7. Apparatus for microcinematography.



## NIDR Develops Method For In Vivo Studies Of Calcified Tissues

Basic studies in the broad field of mineralization have suggested that "regulators" of calcification, or differences in the reactivity of hard or soft tissue collagens, may be factors determining which of the collagenous tissues do or do not undergo mineralization. New methods enabling *in vivo* studies of these factors have been reported recently by National Institute of Dental Research scientists.

In collaborative studies by Drs. S. Mergenhagen, G. Martin, A. Rizzo, and D. Scott, assisted by Mr. D. Wright, strips of tail tendon from mature rats were implanted in the peritoneal cavities of young Sprague-Dawley rats. Samples removed at 100, 120, and 160 days were found to be hard on gross examination.

Marked calcification was indicated by the typically altered calcium/hydroxyproline ratio, and by the presence in the collagen fibrils of hydroxyapatite crystals as identified by electron diffraction. Tail tendon dissected from these same animals at the times when calcified tendon implants were removed showed no evidence of mineralization.

In another experiment, gels of reconstituted rabbit skin collagen were also calcified when implanted (either directly or after encapsulation in dialysis bags) into the peritoneal cavities of white rabbits and rats.

The phenomenon of intraperitoneal mineralization gives rise to challenging possibilities for *in vivo* experimentation with collagen preparations which may be subjected to various treatments prior to implantation, or implanted in combination with agents thought to influence mineralization.

Such living "model systems" should provide new information on the still undetermined factors and mechanisms in calcification.

## Cancer Drug Therapy Seen Causing Damage In Scalp Hair Roots

National Cancer Institute scientists have reported further results in their continuing study of changes in scalp hair roots of patients receiving treatment of cancer. Earlier studies showed damage to hair roots following treatment with radiation and the antifoliate agent, methotrexate, and an association between the extent of damage and the dose used in therapy.

In the present study, microscopic examinations were made of growing hair roots obtained from the scalp of patients receiving a variety of chemotherapeutic agents in the clinical services of the National Cancer Institute. In 57 patients, effects of the following drugs were studied: 3', 5'-dichloroamethopterin, triethylene thiophosphoramide (thio-tepa), 6-mercaptopurine, 5-fluorouracil, colcemid, actinomycin D, nitrogen mustard, cyclophosphamide, and Vincalukoblastine.

Structural damage to hair roots occurred following the administration of the drugs. The essential effect seemed to be inhibition of hair root growth, which was promptly reversible when the drug was discontinued. A close correlation was found between hair root damage and hematologic signs of drug toxicity.

The findings led the investigators to confirm their earlier conclusion that the hair is a sensitive indicator of the toxic effects of chemotherapeutic agents and to suggest that the relatively simple procedure of examining hair roots can be useful in the clinical management of patients receiving such treatment.

The work is reported in a recent issue of the *Journal of Investigative Dermatology* by Drs. Robert G. Crouse, now at the University of Miami School of Medicine, Miami, and Eugene J. Van Scott, NCI's General Medicine Branch.

## Soviet Cancer Specialists Report on Recent Findings

During the visit to the National Cancer Institute of a delegation of Soviet scientists, NCI sponsored a meeting at which two of these scientists reported on some of their recent findings.

Dr. Zil'ber, Director of the Department of Immunology and Malignant Tumors and Scientific Director, Institute of Epidemiology and Microbiology, Moscow, talked on his work with tumor viruses. He reported he had induced a pathologic reaction in two species of mammals with the Rous virus, which causes tumors in chickens and other fowl.

### Cysts Formed

Inoculation of rats before birth or as newborns, caused a disease characterized by the formation of cysts filled with serous transudate which became hemorrhagic. The cysts were found under the skin and in other parts of the body, and hemorrhages were found in various tissues and organs, including in particular the pleura, pericardium, and lungs. The disease was in many respects similar to the hemorrhagic disease of chick embryos infected with the Rous virus.

Newborn rabbits inoculated with Rous virus developed numerous benign subcutaneous fibrous nodes. At autopsy, fibrous nodes were found in the liver, and hemorrhages in various organs.

In a few instances virus was recovered from cyst walls and fibrous nodes following X- or ultraviolet radiation. The irradiated material induced typical sarcomas when administered to chickens. These findings suggest that the virus is probably fixed by an inhibitor which is destroyed by radiation.

### Other Experiments Performed

Other experiments showed that the sera of hemorrhagic rats did not contain virus antibodies, while the sera of affected rabbits contained antibodies in about half the samples tested.

Dr. Zil'ber interpreted these findings as demonstration of the pathogenicity of the Rous virus of fowl for representatives of another class, mammals. He suggested that the hemorrhagic disease in rats, in which a few sarcomas developed sometime later, and the fibrous nodes in rabbits provide new models for study of the nature and mechanism of the neoplastic process. They are particularly interesting because "it is possible for the first time to follow in the same animal the infectious and neoplastic process caused by the same virus."

### Chemotherapy Discussed

Another Soviet scientist, Prof. L. F. Larionov, reported some recent findings of the experimental chemotherapy program, which he directs at the Institute of Experimental and Clinical Oncology in Moscow.

These were results of tests of some new derivatives of two well-known anticancer drugs: sarcocollin, a compound developed in Russia, and chlorambucil, developed in Great Britain; and in addition, chlorphenacil, a compound related to chlorambucil.

### Amino Acids Used

The rationale for the synthesis of the compounds was to prepare antimetabolites which would incorporate the cytotoxic properties of the parent alkylating agents into the new molecules. Amino acids constituted the metabolite portion of the new drugs. These were combined chemically in groups of two or three to yield di- or triptides of sarcocollin, chlorambucil, or chlorphenacil.

The new derivatives, which are called alkylating metabolites, were less toxic than the parent compounds for mice and rats, and some of them were more effective against certain animal tumors.

The alkylating metabolites differed from one another in antitumor activity, depending on which amino acid was used. Furthermore, the natural (i. e., levo) isomer of the amino acid was essential in the terminal position of the molecule in order to produce antitumor activity. These findings suggested to the Russian investigators that the structure of the compounds, and particularly the identity of the terminal amino acid, influenced the extent of antitumor activity.

## NINDB Studies Suggest Cellular Protein Uptake Occurs by Pinocytosis

Some scientists now think that certain brain cells may ingest proteins and other soluble metabolites in much the same way that amoeba surrounds and entraps its food by the movement of pseudopodia. This process, known as pinocytosis or "drinking" by the cells, has been observed in the living cells grown in tissue culture using phase-contrast optics. Otherwise, pinocytosis can be studied by tracing inclusions of protein in the cells which were made visible by labeling with a fluorescent maker.

In the various cell types of the nervous tissue grown in tissue cul-

ture, pinocytotic activity (as seen by formation of clear vacuoles in the phase-contrast optics) was closely correlated with the uptake of fluorescent proteins and was characteristic for the individual cell type. This correlation suggests that the cellular uptake of protein might take place by the mechanism of pinocytosis.

Strikingly similar protein uptake by the glial (glue) cells was observed in the area of edema surrounding brain injury in animals into whose blood stream or subarachnoid space "marked proteins" had been introduced. Thus, al-

though pinocytosis cannot be observed directly in cells in the living brain, this similarity in appearance of protein inclusions in cells grown in tissue culture to those seen in the brain suggest that pinocytotic mechanism may be active in the living brain at least under certain conditions.

The study was conducted by Drs. Igor Klatzo and Jaime Miquel of the Surgical Neurology Branch, National Institute of Neurological Diseases and Blindness, and was reported at the meeting of the American Association of Neuro-pathology.

## TRAFFIC

(Continued from Page 1)

ment points out that from now on it will tend to get worse.

Four buildings are now in various stages of construction: the 11-story Office Building, the Dental Research Building, the National Library of Medicine, and the Surgical Wing addition to the Clinical Center.

In addition, funds have been authorized for the planning of a Cancer Research Building and for planning and construction of a Mental Health-Neurological Building.

### Acreege Shrinking

This means that the present ratio of parking space to employee population cannot long be maintained. Those 310 acres, when viewed in relation to needed building space and the number of employees and automobiles to be accommodated, do not appear to be as expansive as they seemed not long ago.

Because this problem is one that directly concerns all NIH employees, Management is requesting the full cooperation of every employee in a plan which it is hoped will not only relieve the present congestion but serve to lessen this problem in the foreseeable future.

### Questionnaire Circulated

A one-page memo-questionnaire, prepared by the Plant Safety Branch for distribution to NIH employees tomorrow (October 12), will say in part:

"Basically, there are two approaches open to us: (1) improved bus service, and (2) increased use of car pools. In order for us to approach this problem constructively, your prompt response to the questions listed below is requested."

The questions are designed to discover:

First, how many employees would use direct bus service to all parts of the reservation, if available; how often they would use it, and at what hours.

Second, how many are now participating in car pools, and how many of those who are not would be interested in doing so.

### Replies to Be Used

The employee is also requested to designate the area in which he lives, and is urged, before answering the questions, to "give consideration to the feasibility of walking or driving to a certain area and then boarding a bus."

The form is to be filled in and returned to Matthew J. Peters, Plant Safety Branch, Rm. 106, Bldg. 8. Telephone queries may also be directed to Mr. Peters. His extension is 4756.

As the questionnaires are returned the information will be com-

## Soviet Cancer Specialists Visit NIH To Observe NCI Research Projects

Five Soviet scientists engaged in cancer research paid a three-day visit to the National Cancer Institute September 26-28.

The Russian scientists were here under an agreement between the U. S. and the U. S. S. R. for cooperation in exchanges in the scientific and cultural fields.

A return visit to Russia next year is contemplated for a group of U. S. scientists.

Purpose of the Russians' visit was to talk with NCI scientists and observe their research projects. They also discussed with Institute officials the prospects for long-term

exchanges of scientists, particularly younger investigators, between the two countries.

Under the agreement, signed in Moscow November 21 of last year, details of specific exchanges will be worked out by direct negotiations between the U. S. Public Health Service and the U. S. S. R. Ministry of Health.

In the field of cancer these involve the National Cancer Institute and the Memorial Sloan-Kettering Cancer Center. Similar arrangements in the fields of cardiovascular diseases and poliomyelitis are also specifically authorized.



Looking north on Center Drive in front of Building 1 at 5:15 p. m. Cars in right lane are legitimately parked along curb. Office Building (background) is one of four under construction. Their completion will mean more cars at NIH.



Looking west on South Drive from Center Drive intersection at 5:10 p. m. Central parking lot at left. Center and South Drives carry two-way traffic here. Seven of the 10 nearest cars on South Drive are transporting only their drivers.

piled for use.

As a result of conversations with officials of D.C. Transit, Plant Safety Branch has been assured that the bus company is prepared to extend direct service throughout the reservation, provided a sufficient number desire such service.

The names of those wishing to participate in car pools will be classified according to residence

within relatively small areas, and a list of the names and home addresses of all within such areas will be sent to each one, enabling them to make direct contact.

When all the returns are in, Plant Safety Branch plans to publish results in the *Record*, and by means of a bulletin to all employees will "inform you of the specific cost of bus service."

## George A. Van Staden Is Appointed NIMH Executive Officer

George A. Van Staden, NIH Financial Management Officer since 1955, has been named Executive Officer of NIMH. His appointment became effective October 3.

The NIMH position was filled previously by Charles E. Mills, who died July 23.



Mr. Van Staden

Mr. Van Staden entered the Federal government in 1945, following wartime service with the Marine Corps. He served as fiscal accounting clerk with the Bureau of State Services and then became a cost analyst in the Office of Purchase and Supply, Office of the Surgeon General, PHS.

In 1948 he was selected for a year's training course in PHS administration. A year later he became Administrative Assistant, then Administrative Officer of the National Microbiological Institute, the forerunner of NIAID.

### Here Since 1951

Mr. Van Staden has been with the Financial Management Branch since 1951, first as Budget Officer, then, in 1955, as Financial Management Officer. In this latter capacity he was chief financial advisor to the NIH Director. In addition, during 1954-55 he served as Executive Secretary to the Clinical Directors and as Special Assistant to the Associate Director for Intramural Research.

A graduate of George Washington University in political science, Mr. Van Staden received an M.A. degree in public administration in 1951 from the same university.

## Proceedings Published On Louisiana Meeting

Proceedings of the Fourth Conference on Research Needs in Tropical Medicine have recently been published and are now available from DRG.

The conference, sponsored by DRG's Tropical Medicine and Parasitology Study Section, was held at the School of Medicine of Louisiana State University, New Orleans, April 29 through 30, 1960.

Among the topics covered are "Tropical or Geographic Medicine" and "Impact of Modern Instrumentation in Some Fields of Medicine in the Tropics."

Copies of the Proceedings may be obtained from Dr. Ernestine Thurman, Bldg. T-6, Rm. 1206, Ext. 3692.

## New Committees On Polio Control Formed by PHS

The Public Health Service recently announced the formation of a Surgeon General's Committee on Poliomyelitis Control to be made up of representatives of the medical and health professions and the general public.

Invitations were sent to the heads of 23 organizations asking them to designate members to serve on the committee.

Previously the Surgeon General had made public at a press conference the recommendations of the PHS Committee on Live Polio-virus Vaccine. It is on the basis of these recommendations that the Service considers the vaccine suitable for use in the United States, according to the announcement.

### Committee Meets Today

Dr. John D. Porterfield, Acting Surgeon General in Dr. Burney's absence from the city, said that the Surgeon General was also appointing an Agenda Committee, made up of representatives of the medical and public health professions, which will meet at the Public Health Service's Communicable Disease Center in Atlanta on October 11 and 12.

This committee will consider both technical and administrative problems and develop the basic agenda for the first meeting of the Committee on Poliomyelitis Control.

Seeking to obtain the fullest range of technical information on the oral vaccine available today, the Surgeon General has also invited a number of experts in the field of polio vaccines to serve as consultants to the Agenda Committee and the Committee on Poliomyelitis Control.

### Problems Posed

The Control Committee is expected to hold its first session in December or January, according to the announcement.

At the time of his news conference, the Surgeon General took special note of a recommendation by the Committee on Live Poliovirus Vaccine that use of the live vaccine should be integrated with the presently available Salk vaccine.

Dr. Burney also pointed out that the use of live virus vaccine in the American population posed a number of special problems which would require careful consideration. Among them is the committee's suggestion that administration of the live virus vaccine will be more appropriate on a community than on an individual basis.

The Committee on Poliomyelitis Control will consider these and

## BOOKBINDING PROJECT UNDER WAY



Walter Stroman, a bindery assistant in the NIH Library, and Barbara Cummins, a summer employee, pose with their supervisor, Marion D. Steinbarga (right), during a breather in the Library's bookbinding project that will return thousands of worn periodicals to circulation. Nearly 4,000 volumes have been bound or rebound since the program began in May. It will continue on an accelerated basis for the next three to four years. On the day of this picture, 1,564 newly bound volumes had been received from the bindery and were being checked for compliance with instructions.

## Scientist-Administrators To Attend Conference

Fifty-three Federal scientific administrators have been selected to attend a seven-day Institute for Career Science Executives to be held here in Stone House, October 12-14 and 17-20.

The Institute, sponsored by the U.S. Civil Service Commission, is planned "to promote the future effectiveness of scientist-administrators in Federal government by the study of important concepts and current issues related to the organization and administration of scientific and related activities of the Federal government."

Dr. Shannon will be a member of a three-man panel conducting the October 13 morning session of the Institute. Other speakers at the seven-day meeting will include well-known scientists who are administrators in the fields of government, industry, and education.

The NIH delegates to the Institute are Drs. Stephen P. Hatchett, Chief of the Research Fellowships Branch, DRG, and Walter E. Heston, Head of the General Biology Section, Laboratory of Biology, NCI.

Other questions developed by the Agenda Committee at its midwinter meeting.

Production of the oral vaccine is not anticipated before mid-1961 and

## New PHS Publications Now in Distribution

Two Public Health Service publications have recently been completed and prepared for distribution.

The 1960 edition of *Support of Cardiovascular Research, Training, and Community Programs* was prepared by the Heart Information Center, NHI, and enumerates the grants in heart research which were active February 1 of this year.

Including listings by state, territory or country, grantee's name, title of project, grant number, and amount, the report provides a quick reference for information on current research in this field.

A revised edition of *The Clinical Center, Current Clinical Studies and Patient Referral Procedures* has also been released.

Several new studies not listed previously have been included in this revised edition.

Prepared primarily for physicians who are interested in referring patients to the CC for study, the pamphlet is not for general distribution.

The Service will continue its efforts to promote the widest possible use of the Salk vaccine in the interim period, the PHS announcement said.

## Grants Totalling \$230 Million Awarded in '60

A total of \$229,505,503, representing 11,743 grants for research and for construction of research facilities in non-Federal institutions, was awarded by NIH during the fiscal year ending June 30, 1960.

Detailed information on the nature, distribution, and amounts of these awards is contained in a 445-page summary entitled *Public Health Service Grants and Awards by the National Institutes of Health, Fiscal Year 1960, Part I*.

Approximately 87 percent of the total amount granted, or \$198,719,397, went for support of 11,572 research projects concerned with major diseases and various basic problems in the medical and biological sciences. The grants were made to 973 institutions in the United States and to 145 institutions in 38 other countries.

Grants to help build, equip, or expand 171 research facilities, totaling \$30,786,106, were awarded on a matching basis to 141 institutions throughout the country.

Single copies of the publication may be obtained from the Information Office, DRG, Bldg. T-6, Rm. 2411, Ext. 4987.

Multiple copies, or single copies for use outside of the government service, are available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D.C., at \$1.25 per copy.

A companion report on the research fellowships, training grants, and traineeships awarded by NIH during the last fiscal year will be available shortly.

## Laurence Ring Named R&W General Manager

Lawrence E. Ring, a retired Federal employee, has been appointed to the newly created position of General Manager of the NIH Recreation & Welfare Association. He will be responsible for the overall administration of R&W and the coordination of its decentralized activities.

The position was established, R&W explained, because of the Association's increased membership and expanding activities which have resulted in a structure too complex to be operated on a voluntary basis.

At the time of his retirement August 31 after 31 years of Federal service, Mr. Ring was Chief of the General Methods Staff, Office of the Surgeon General, PHS. He has also held positions at the Bureau of the Budget and the Department of Commerce.