# the NIH Record

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## U. S. Scientists Look to Africa For Chimpanzees

Dr. Willard H. Eyestone, head of NHI's Primates and Veterinary Grants Program, is one of five scientists recently returned from a three-week trip to Africa where they surveyed the possibility of acquiring chimpanzees for medical research.

The American scientists attended a three-day conference with the Ministers of Health and Agriculture of the Belgian Congo at the Princess Astrid Institute for Medical Research in Leopoldville, where they laid the groundwork for further discussions.

The five-man team also inspected a number of possible sites for location of a chimpanzee breeding and screening center.

"In Kivu Province in the middle of Lake Kivu," Dr. Eyestone said, "is a wooded island 12 miles long, on which chimpanzees could be placed and allowed to live and develop in a natural environment.

*(See CHIMPANZEES, Page 2)*

## Nutrition Team Leaves For Colombian Survey

At the request of the Republic of Colombia, a team of U. S. nutrition experts left on June 6 to commence a 74-day survey of the nutritional status of the Colombian people.

The study was arranged by the Interdepartmental Committee on Nutrition for National Defense (ICNND), operating administratively through NIAMD.

Since 1954, the ICNND has been making such nutritional survey assistance available to many of the developing countries of the world.

The team, headed by Dr. Walter G. Unglaub of the Tulane University School of Medicine, New Orleans, is comprised of clinicians, biochemists, nutritionists, dentists, food technologists, and others who will work with counterpart Colombian personnel.

NIH members of the team are

*(See NUTRITION TEAM, Page 8)*

## King of Thailand to Dedicate DBS Building on June 30

**Architect's sketch of Division of Biologics Standards Building.**

The Division of Biologics Standards will celebrate its fifth anniversary on June 30 with the formal dedication of its new building. Although not ready for occupancy until mid-August, the first floor of the five-story structure will be open to visitors after the ceremonies.

The DBS staff has grown fourfold during the past five years. Its present personnel of approximately 190 occupy laboratory and office space in five buildings. The long-anticipated centralization under one roof of scientific and administrative personnel—with the exception of the Clinical Center Blood Bank staff—will greatly facilitate the Division's research and regulatory programs.

The dedication ceremonies are scheduled to begin at 2:45 Thursday afternoon. Music by a 50-piece section of the U. S. Marine Band, conducted by Captain Dale Harpham, will precede the dedication.

The program will be as follows:

The Royal Anthem of Thailand

Invocation

Presiding
Dr. Leroy E. Burney
*Surgeon General, PHS*

Welcome
Dr. James A. Shannon
*Director, NIH*

Presentation of
The Hon. John E. Fogarty
*U.S. Representative, Rhode Island*
The Hon. Lister Hill
*U.S. Senator, Alabama*

*(See DEDICATION, Page 8)*

## New DBS Home Is Well Planned

The design of the new DBS Building (Bldg. 29) reveals careful planning for the needs of today and an awareness of changes that may come in the future.

The building is a self-contained laboratory unit, serving the needs of DBS scientists and supporting personnel. Its most unusual features are flexibility, economy of space, and a high degree of utility.

Building 29 has five floors of laboratories, a basement and subbasement, and a penthouse for elevator machinery and air-conditioning exhaust equipment. The entrance faces the south side of the Clinical Center. The parking area is south of the building.

The offices of the DBS Director are on the east corridor of the first floor. Other first-floor rooms include blood research laboratories, a dual-purpose room where DBS personnel can meet for lunch and for seminars, and a paneled library where they can hold conferences. The library has a folding partition and a built-in projection screen.

Two elevators are in the center of the building. A third elevator,

*(See DBS HOME, Page 7)*

## Space Allocations Effective July 1; Buildings Leased

Reassignment of a considerable number of NIH personnel to new office locations, both on and off the reservation, was announced last week by Dr. Shannon.

Most of the new space assignments are effective on or about July 1. Others are scheduled for October 1.

Among the off-reservation locations to be used are three recently constructed, two-story office buildings in the Woodmont Triangle in Bethesda. They are the Trunnell Building, 4865 Cordell Ave.; the Norfolk Building, 7801 Norfolk Ave.; and the Nave Building, 7770 Woodmont Ave.

With the exception of the Norfolk Building, in which half of the first floor will be occupied by other tenants, the buildings have been leased in their entirety.

Additional space has also been acquired in the Arts Building in Silver Spring. The entire second floor is to be used by NIH. The building's third floor is currently

*(See ALLOCATIONS, Page 7)*

## Dr. Anderson Appointed To Succeed Dr. Bauer

PHS Surgeon General Burney recently announced the appointment of Dr. Robert J. Anderson as Deputy Chief of the Service's Bureau of State Services, to succeed Dr. Theodore J. Bauer, whose appointment as Chief of the Bureau was announced earlier.

**Dr. Anderson**

Both appointments are effective July 1.

For the past four years, Dr. Anderson has been Chief of the Communicable Disease Center, a division of the BSS, in Atlanta, Ga. His successor has not yet been selected.

As Deputy Chief of BSS, Dr.

*(See DR. ANDERSON, Page 8)*

the NIH Record

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# 59 Student Volunteers Here As Normal Controls in CC

SHIFTING from their college campuses to the "campus" at NIH, 59 students arrived at the Clinical Center this month prepared to spend their summer vacations serving as Volunteer Normal Control Patients.

This summer program extends from June 15 to September 1 and doubles the complement of volunteers ordinarily serving at the CC.

Recruited through the Service Centers of the Mennonite and Brethren Churches, this special group of young men and women are taking advantage of an opportunity to "earn, learn, and serve" at the same time.

Their respective churches will receive $5 per day for the service of each volunteer and will return $4 of that amount to each student.

Described by Dr. Jack Masur, CC Director, as "our most precious resource," volunteers serve as healthy, normal controls for studies involving ill patients. These volunteers stand ready to swallow pills, give small amounts of blood, tolerate strict diets, receive injections, and undergo many tests in order to help scientists learn more about the functioning of the human body.

When these young people are not actively engaged in research projects, they are assigned regular duties in NIH laboratories and offices according to their individual abilities and interests.

Several of the group are premedical students and six are majoring in chemistry. During their stay here they will be gaining first-hand information in a medical research environment while assisting the professional and scientific staff.

**A SUMMER OF SERVICE.—Arriving by motorcade from Akron, Pa., site of the Mennonite training center where they prepared for their summer's work as Volunteer Normal Control Patients, these college students are welcomed to NIH by Willard Maginnis, Chief of Patient Activities. They are moving into the CC for a stay of 10 weeks.**

**CHANGE OF COMMAND.—CC Patient Activities Chief Willard Maginnis (left) greets Robert Martin (right), leader of the newly arrived summer group of Volunteer Normal Control Patients, while at the same time saying goodbye and thanks to Jim Conrad, leader of the outgoing group.**

# *NEWS from PERSONNEL*

### Personnel Folders

The Recruitment and Placement Section suggests that employees keep in mind the importance of bringing their personnel records up to date. Personnel files are continuously being reviewed by operating officials and members of the Personnel staff in connection with promotion and reassignment opportunities within NIH as well as DHEW. It is therefore beneficial to all employees to keep their files current.

Each folder should contain detailed coverage of past experience and academic achievements. Employees can bring their files up to date by submitting a completed form SF-57 to their personnel assistants.

### *Official Bulletin Boards*

PMB is encouraging employees to read the *official* bulletin boards located in the various buildings of NIH. The boards are used as a means of informing employees about matters of timely interest and importance.

Examples of material posted are: employee handouts, announcements of personnel policies and developments, examination announcements, and vacancy and recruiting lists. There are 16 such boards at NIH (including the Robin Building). They are maintained by the Office Services Branch.

## Ronan Takes BSS Post

Howard Ronan, who has been with the NIAMD Information Office since November 1958, transferred to the Engineering Division of the Bureau of State Services, PHS, on June 1. Mr. Ronan previously worked with a field unit of Engineering Services from 1945 to 1951.

## New Cancer Group To Meet in Holland

The International Psychosomatic Cancer Research Association, an organization for those interested in the study of the psychosomatic aspects of cancer, is preparing to hold its first convention in Amsterdam, Holland, August 11-13, according to a recent announcement.

Those interested in attending or presenting papers are requested to notify Dr. L. LeShan, 144 East 90th Street, New York 28, N.Y.

## CHIMPANZEES

*(Continued from Page 1)*

Such a center," he said, "would be an excellent source of chimpanzees with known backgrounds."

This location, Dr. Eyestone pointed out, would also have the advantage of proximity to the Institute for Scientific Research of Central Africa, situated in nearby Lwiro in the same province, which is staffed by approximately 150 Swiss, Belgian, and American scientists and could provide facilities for preliminary research.

In Nairobi, Kenya, the group investigated the possibility of further developing a baboon-capturing facility, established by the Southwest Foundation for Research, of San Antonio, Tex., where primitive laboratories and a catching station are located at the edge of Tsavo Royal National Park.

Other members of the group were Dr. Frederick Stare, head of the Department of Nutrition, Harvard School of Public Health; Dr. Karl Meyer of the University of California School of Medicine, Chairman of the National Advisory Committee on Primates; Dr. George E. Burch of Tulane University, Special Advisory Consultant to the National Advisory Heart Council on Primate Research Centers; and Dr. Arthur J. Riopelle, Director of Yerkes Laboratory in Orange Park, Fla.

# 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.**

## ROUS SARCOMA VIRUS LOCATED IN TUMOR CELL CYTOPLASM

National Cancer Institute scientists have reported results of a study designed to pinpoint the location of the Rous sarcoma virus within the cells of the Rous sarcoma.

Electron microscope studies previously reported in the scientific literature demonstrated particles thought to be the Rous sarcoma virus in the cytoplasm of sarcoma cells.

### Fowl Provide Serum

In the NCI studies, chicken and turkey anti-Rous sarcoma virus serums obtained from fowl in which Rous sarcomas had regressed were labeled with fluorescein isothiocyanate.

When sections of sarcoma tissue were exposed to the fluorescein-labeled anti-Rous virus serums, fluorescence was observed in the majority of instances in the cytoplasm of sarcoma cells. Occasionally, intranuclear fluorescence was noted.

### Relationship Seen

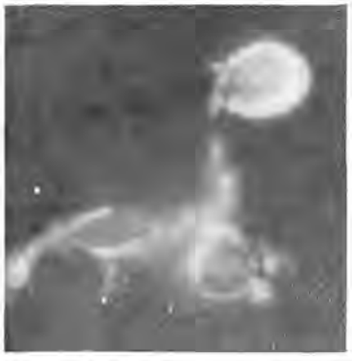
The number of sarcoma cells containing the fluorescent material was related to the amount of virus inoculated into chickens to initiate tumors.

Fluorescence was not seen in the cells of normal chicken tissues exposed to the labeled anti-Rous sarcoma virus serums.

The work was reported in a recent issue of the *Journal of the National Cancer Institute* by Dr. Richard A. Malmgren, Pathologic Anatomy Branch; Dr. Mary A. Fink, Laboratory of Biology; and Willie J. Mills, Laboratory of Pathology.

**Group of Rous sarcoma cells exposed to fluorescein-labelled chicken anti-Rous sarcoma serum. Note diffuse cytoplasmic fluorescence.**

**Group of Rous sarcoma cells exposed to fluorescein-labelled turkey anti-Rous sarcoma serum. Note intracytoplasmic fluorescent particles.**



**Group of Rous sarcoma cells exposed to fluorescein-labelled chicken anti-Rous sarcoma serum. Note cell in center of field with diffuse cytoplasmic fluorescence and faint fluorescence of intranuclear body.**

## Rickettsial Relationships Shown by NIAMD Test

Using a test based on neutralization by specific antiserums of toxins produced by various rickettsiae of the spotted fever group, Dr. E. John Bell and associates at the Rocky Mountain Laboratory, National Institute of Allergy and Infectious Diseases have derived information of value in diagnosis and specific prophylaxis with vaccines. Their findings were published in the *Journal of Immunology*.

The toxins produced by *R. rickettsii* (Rocky Mountain spotted fever) and by *R. conorii* (boutonneuse fever) could be easily differentiated, and all strains in each species were found to be similar. It was shown that the organisms of Kenya typhus, Indian tick typhus, and South African tick-bite fever are closely related to, or identical with, that of boutonneuse fever.

An organism isolated from the tick, *Amblyomma americanum*, was distinguishable from all other organisms under consideration, but has some reactions which show a relationship between it and *R. conorii* and the rickettsiae of Siberian tick typhus.

The rickettsia of Siberian tick typhus, with the exception of the cross reaction noted above was also distinguishable from other strains of the group.

These results further indicate the antigenic complexity of this group of rickettsiae and provide an elegant method for differentiating the members of this family of agents which has a world wide distribution.

## New NIAID Finding Challenges Malaria Transmittal Concept

Transmission of monkey malaria to man through the bite of an infected mosquito—an experimental feat which may compel scientists to re-examine long established knowledge on the transmission cycle of this disease—has been reported by the Laboratory of Parasite Chemotherapy, National Institute of Allergy and Infectious Diseases, Memphis, Tennessee.

This finding directly challenges the concept of malaria investigators throughout the world that types of malaria which infect animals cannot be transmitted to man by the bite of an infected mosquito. Only in the laboratory has it been possible, up until now, to infect man with monkey malaria, and then only by an artificial method: blood inoculation.

### Results Summarized

Results of the study are summarized in *Science*, official publication of the American Association for the Advancement of Science. The authors are Dr. Don E. Eyles, Dr. G. Robert Coatney, and Dr. Morton E. Getz, all of the Laboratory of Parasite Chemotherapy, National Institute of Allergy and Infectious Diseases.

The authors emphasize that the implications of their findings, suggesting the possibility that there may exist in nature a monkey-mosquito-man cycle of malaria infection, remain matters of conjecture at this time.

They also point out that no one can say as yet whether this new knowledge will have any practical effect on the course of malaria eradication in areas of the world where monkeys and other non-human primates are found.

Referring to these considerations, the authors summarize their views as follows:

"We believe that research on lower monkey malarias, with particular regard to the possible existence of reservoirs of human infection, or sources of reinfection of man with new strains, is necessary as an essential adjunct to the present malaria eradication program. We expect to study monkey-human malarias in detail and re-examine the entire question of the host-specificity of primate malarias."

### Infections Accidental

The study reported here originated from accidental infections involving Dr. Eyles and an assistant at the Institute's Memphis Laboratory. In the course of a routine study in which large-scale inoculations of monkeys with primate malaria were being carried out, the two investigators developed illness with fever. Malaria parasites were demonstrated in the blood of both.

"Presumably," the authors state, "the source of the malaria was mosquitoes infected with monkey malaria, as neither individual had had any recent contact with human malarias."

Blood taken from each of the infected individuals was injected into uninfected Rhesus monkeys. Both animals developed typical infections 8-10 days later.

### Prisoners Volunteer

Then, blood from one of the infected workers was then injected into two inmate volunteers at the federal penitentiary in Atlanta. Both developed clinical attacks of malaria but neither exhibited high parasite densities. These infections are still under study.

The two accidental infections at the Memphis Laboratory were followed by two planned and purposeful infections involving staff members. The first volunteer allowed 30 to 50 *Anopheles freeborni* mosquitoes heavily infected with monkey malaria to feed on him. Eleven and 12 days later he experienced typical symptoms of malaria infection: headache, malaise, and elevated temperature.

When parasites could not be demonstrated, a sample of his blood was injected into an unin-

*(See MALARIA, Page 5)*

# Reliable Analysis of Lipids Provided By Use of Gas Chromatography

By William E. Sanders
*Information Office, National Heart Institute*

During the past decade, the steadily accumulating evidence that dietary fat plays an important role in the development of atherosclerosis has stimulated a tremendous expansion of research on the chemistry of lipids. This expansion underscored the need for more rapid, sensitive, and reliable methods of lipid analysis than existing ones, which were complex, time-consuming, and inadequate for the accurate assay of small samples. In 1952 a giant step toward the solution of this problem was taken by the English scientists James and Martin, who developed gas chromatography. Since that time, refinements and improvements contributed by a number of scientists have made gas chromatography a remarkably sensitive, reliable, and versatile means for the separation and analysis of lipids.

Gas chromatography separates lipids by taking advantage of their differing vapor pressures and differing solubilities in certain nonvolatile liquids (called liquid phases) in an analytical column. The sample to be analyzed is injected into a heated column, vaporized, and the vapors swept through the column by a stream of inert carrier gas (usually argon or helium).

### Equilibrations Repeated

In transit through the column, the lipid vapors are brought into repeated contact with the liquid phase and undergo repeated equilibrations between gas and liquid phases. If the lipid is highly volatile and only sparingly soluble in the liquid phase, it spends less time in this phase and its retention time in the column is short. Conversely, the less volatile, more soluble lipids spend more time trapped in the liquid phase and thus pass more slowly through the column.

The volatility and solubility of a lipid depends on such factors as the number of carbons in its molecule, the arrangement of those atoms (straight chains, branched chain, cyclic structure), functional groups, and double bonds. Thus with a given liquid phase, temperature, and gas pressure, the column transit time is characteristic of a particular lipid and can be used as a basis of identification.

### Phases Varied

A wide variety of liquid phases are available to the scientist, and he chooses the one having the best combination of heat stability and lipid retention characteristics for the class of substances he wishes to analyze.

The liquid phase selected can be used in either of two types of analytical columns. In one type, a thin coating of the liquid phase is applied to the inner surface of plastic or metal capillary tubing. In the other, the coating is applied to a finely divided inert material (such as diatomaceous earth) with which the column is packed. The capillary column can achieve higher resolution (ability to separate substances whose molecular structures differ only slightly); however, the packed column is much simpler to prepare and can handle larger quantities of sample.

By the time the sample is injected, the scientist has chosen the combination of liquid phase, type and length of column, temperature, and carrier gas pressure that will provide high resolution but (hopefully) will not result in excessively long column retention times.

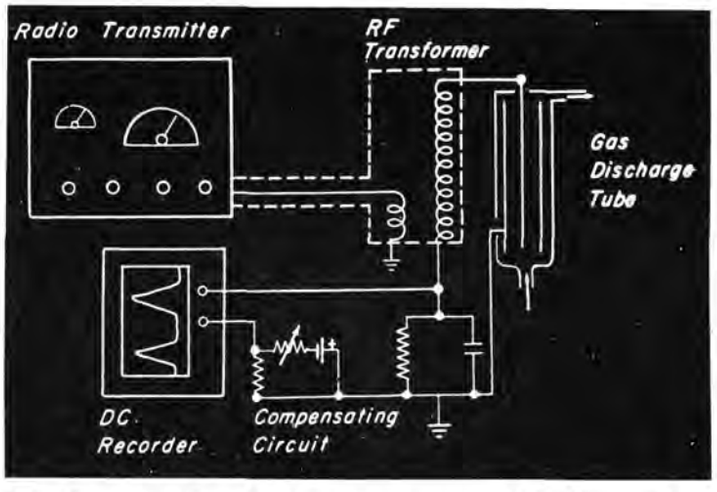
As the separated components of the lipid sample emerge from the analytical column on the carrier gas, they flow through a device which detects their passage, measures their concentrations, and records this data against a time base on a strip chart.

One of the most sensitive of these devices is the radio frequency glow detector developed by Drs. Arthur Karmen and Robert L. Bowman of the National Heart Institute Laboratory of Technical Development. In this detector, high frequency alternating current from a radio transmitter is passed into a wire electrode running down the center of a small metal detector cell. This excites a stable glow discharge in the carrier gas (helium) flowing around the electrode.

The ionized gas acts as a rectifier, converting a portion of the alternating current from the electrode into direct current and conducting it to the recorder circuit. As long as pure helium flows through the cell, a stable direct current flows in the recorder circuit.

However, the presence of lipid vapor in the carrier gas alters its electrical properties. The lipid vapor quenches the glow discharge and reduces the direct current to the recorder. The reduction in direct current voltage is directly proportional to the concentration of the vapor and is recorded as a peak on a strip chart. The area of the peak then provides an accurate index of the amount of that particular compound in the sample.

**In the radioassay of lipids labeled with carbon-14, radioactive vapors emerging from the analytical column of a gas chromatograph (center) are captured in a trapped column containing anthracene crystals coated with a silicone oil. Anthracene crystals fluoresce in the presence of radioactivity, and the scintillations are counted by the phototubes (left) of automatic scintillation counter (right). The column was developed by Drs. Harold R. Tritch and Arthur Karmen. Dr. Karmen is inserting the column between the phototubes.**




**Radio frequency glow detector senses passage of lipid vapors from analytical column, measures their concentrations, and plots these data on a strip chart. High frequency alternating current is passed through transformer into electrode of gas discharge tube, exciting stable glow in carrier gas (helium). Ionized gas converts part of alternating current to direct current and conducts it to electrode of recorder circuit. Presence of lipid vapor quenches glow and causes voltage drop in recorder circuit, which is recorded as a peak on a strip chart.**

### Stability Resumed

When the sample has passed through the detector cell and pure helium once more flows past the electrode, the glow discharge returns to normal and the stable direct current once again flows in the recorder circuit until the passage of the next component.

So great is the sensitivity of this detector that it can detect and determine the quantity of each component in less than microgram quantities of lipid sample. (A microgram is one millionth of a gram.)

Two other highly significant contributions to gas chromatography which greatly extend the usefulness of the method were made recently by NHI scientists. The first makes possible the use of gas chromatography for radioassay of lipids tagged with radioactive carbon; the second, its use for the analysis of steroids.

The system for the radioassay of carbon-14 labeled lipids was worked out by Drs. Arthur Karmen and Harold R. Tritch of the Laboratory of Technical Development. It uses a special short trapping column which contains anthracene crystals coated with silicone oil. As the lipids emerge

*(See GAS, Page 6)*

# A Replacement for Morphine

By Hugh Jackson
*Information Officer, NIAMD*

*This is an adaptation of a talk given by Mr. Jackson at the May 5 staff meeting of NIH Information Officers.*

The will to live and to avoid being hurt are strong instinctive urges in man. Consequently, one of his major objectives throughout the course of history has been the conquest of pain. As it is with death and taxes, complete avoidance or suppression on a permanent basis have seemed impossible achievements. However, progress has been made. Even before the advent of recorded history opium was found and its pain-killing and euphoric properties discovered. Dioscorides, the Greek medical author, writing in the second century, recorded full directions for preparing opium from the exudate of the unripe seed capsule of the opium poppy, and the method he described has remained virtually unchanged through the centuries to the present day.

The latest significant chapter in the story of man's struggle toward the conquest of pain has been written by two NIH scientists, Everette L. May, Ph.D., a chemist, and Nathan B. Eddy, M.D., a pharmacologist, of the National Institute of Arthritis and Metabolic Diseases. They developed phenazocine, a remarkable new synthetic analgesic drug which, although much more powerful than morphine, is safer to use and more effective. This potent new drug is now on the market and in general use throughout the United States.

### Morphine Sets Standards

Morphine, the standard by which other potent analgesic drugs are measured, has, through the years, demonstrated its power both as a blessing and as a curse. Its ability to allay severe pain has been of great solace and service to mankind, reserving for it a very special place in every physician's bag. Yet, it has important disadvantages which have limited its usefulness. Outstanding among morphine's detriments is its ability to enslave the unwary user as an addict. Other short-comings include such undesirable side effects as nausea, vomiting, and lowering of blood pressure.

### Derivatives Produced

For nearly 100 years, then, ever since chemists have had some knowledge concerning the nature of morphine, they have been trying to modify it in attempts to obtain a drug which would retain the analgesic (pain-killing) potency without the several bad effects, particularly addiction liability.

Scientists working on this problem have produced numerous morphine derivatives and synthetic drugs with wide variations of pain-killing power, ranging upward from those in the comparatively low-potency range of codeine to compounds much more powerful than morphine. A number of drugs in the codeine range have been developed which are very low in addiction liability, but in the high-potency range of morphine, addiction potential and other harmful properties generally have increased in proportion with the pain-killing power. Phenazocine represents a significant step forward toward the ultimate goal—the complete separation of the analgesic and addicting properties of narcotic drugs. Also significant is the fact that phenazocine is a completely synthetic product made from simple and abundantly available raw materials. We are no longer dependent upon opium as a source for potent pain-killing drugs.

As an experimental drug phenazocine was first identified as NIH 7519 because it was the 7519th

*(Continued on Page 5)*

## Pain-Relieving Potency of Analgesic Drugs

An idea of the relative pain-killing power of analgesic drugs may be obtained by rating them, on the basis of equivalent doses, on a numerical scale, assigning to morphine the value of 100. At the top of the list are phenazocine (NIH 7519) and 14-hydroxydihydromorphinone (Numorphan), a morphine derivative. At the bottom of the list is aspirin, which actually does not belong with the other drugs listed, but is inserted for comparison.

| | |
|---|---|
| 500-1,000 | Phenazocine (NIH 7519); 14-hydroxydihydromorphinone (Numorphan) |
| 500 | Levophan (Dromoran) |
| 300-400 | Dihydromorphinone (Dilaudid); Metopon |
| 300 | Heroin |
| 100 | Morphine; Methadone (Dolophine) |
| 80-90 | Dihydrohydroxycodeinone (Eucodal) |
| 30-50 | Anileridine, (Leritine); Diethylthiambutene (Themalon) |
| 20-30 | Meperidine (Demerol) |
| 15 | Codeine |
| 1-2 | Aspirin |

The usefulness, medically, of each of these drugs varies not so much with regard to its potency as with other characteristics. For an ordinary headache or muscular pain aspirin might well be sufficient. For moderate pain codeine might be called for, but for severe pain one of the more potent drugs would have to be used. For each drug there is an "optimal dose," beyond which additional pain relief either cannot be obtained or can less safely be obtained. Thus, it is not possible to relieve some forms of pain with codeine, no matter how large a dose might be given, while, on the other hand, codeine might easily relieve pain aspirin does not touch. In some cases a drug may provide pain relief, but only in such large dosage that dangerous side effects might follow.

All of the drugs listed are addicting to some degree with the exception of aspirin, which definitely is not. Heroin, although listed above, is not used in medical practice in the United States. It is a drug which cannot legally be imported or manufactured in this country. It has been banned because of its high rate of abuse as an addicting drug.

## MALARIA

*(Continued from Page 3)*

fected monkey. Six days later the animal came down with malaria, indicating a low-grade infection of the human subject whose blood had been injected into the monkey.

The second staff member allowed himself to be bitten by 10 mosquitoes heavily infected with the strain of primate malaria under study. Fourteen days later he came down with clinical malaria, and parasites were easily demonstrated in his blood.

Both volunteers then received standard antimalarial treatment, followed by uneventful recovery.

The parasite causing this disease is known as *Plasmodium cynomologi*, subspecies *bastianelli*, and was recently described by Professor P.C.C. Garnham of the London School of Hygiene and Tropical Medicine.

The new subspecies was isolated from a Kra monkey from Malaya and infected blood was forwarded to the NIH investigators by Professor Garnham for study purposes.

According to the authors, the findings of this investigation underline the need for immediate and intensive studies of monkey malaria in various parts of the world in order to determine their significance.

# Opacities Appear As Side Effect Of Steroid Use

Clinical investigators at the National Institute of Arthritis and Metabolic Diseases in collaboration with the National Institute of Neurological Diseases and Blindness have discovered a heretofore unnoticed side effect of corticosteroid therapy—the production of slight opacities in the lens of the eye.

These opacities (posterior subcapsular cataracts) in most cases cause no impairment of vision and do not require surgery. They are distinct from the more serious "senile" type of cataracts which result in failing vision and require surgical removal of the lens.

The lens opacities were first noticed in four rheumatoid arthritis patients at the Institute who were receiving prolonged therapy with synthetic corticosteroids. The eye lesions consisted of small filament-like spots present on the posterior surface of the lens and occurred in both eyes.

### Arthritics Examined

Such cataracts are generally associated with exposure to toxic agents, eye disease or injury, or exposure to radiation, but since none of these factors were implicated in the four cases, the NIAMD and NINDB investigators began a careful examination of 66 rheumatoid arthritis patients available for study at the Institute. Of this group, 44 had received steroid therapy while 19, who served as the control group, had not.

The investigators, Drs. Roger L. Black, Richard B. Oglesby, Ludwig von Sallman and Joseph J. Bunim, found the posterior subcapsular cataracts in 17 of the 44 steroid-treated patients (39 percent) and none in the non-steroid treated control group.

### Opacity Uniform

The appearance of these opacities was uniform and easily distinguished from the more common cataracts. In 11 of the 17 cases the opacities were visible with an ophthalmoscope.

Only six of these 17 patients had experienced any symptoms from the opacities and in only four of these six was there any measurable loss of vision. The visual loss was slight (a change from 20/20 to 20/40 vision), and no case required surgery.

There was a striking relationship between the amount of corticosteroid received and the occurrence of the lens' opacities. For purposes of the study the steroid-treated patients were divided into

*(See CATARACTS, Page 6)*

# A REPLACEMENT FOR MORPHINE

(Continued from Page 5)

drug to pass through the screening program operated by the analgesics section of NIAMD. Its development was first announced in January, 1959, by Secretary Arthur S. Flemming.

During 1959, phenazocine was thoroughly tested in laboratories, hospitals and clinics throughout the country. These tests and trials, involving more than 3,000 patients by December, 1959, confirmed early expectations that in several important respects phenazocine constituted a substantial improvement over morphine and other potent analgesic drugs.

### Tested at Lexington

Exhaustive tests of phenazocine's addiction liability at the Addiction Research Center, USPHS Hospital, Lexington, Ky., revealed that phenazocine, although it must be classified as an addicting drug, was less liable to produce and maintain physical dependence, an important aspect of addiction.

On the basis of clinical experience to date it seems clearly indicated that phenazocine presents a number of advantages over morphine and similar powerful pain-killing drugs:

Physical dependence (one aspect of addiction liability) develops more slowly and is less intense; the drug is more powerful and may relieve pain that morphine, in optimal doses, does not; it has fewer and milder side effects in clinical use, an advantage which makes it effective in cases (such as labor pain) where morphine would be contraindicated; in cases of chronic pain (such as cancer) it can be used more safely over longer periods of time; and, because it is more potent, phenazocine achieves its pain-killing effect at a fraction of the dosage level necessary with morphine.

### Prescription Needed

Important points to remember about phenazocine and its use:

(1) Although it may be, in some respects, less addicting than morphine, phenazocine *is* an addicting narcotic drug, available only upon a qualified physician's prescription or narcotic order.

(2) Phenazocine is not and will not be available in drug stores as an over-the-counter item; it is available at the present time only in liquid form, for injection, and should be administered only by a physician or under his direct supervision for the treatment of conditions involving severe pain. Indications and precautions concerning its use are much the same as for morphine.

(3) Phenazocine is not specifically indicated in the treatment of arthritis. It is not an anti-rheumatic drug, and only rarely might a physician find it advisable, in an extreme case, to use it in the treatment of arthritic pain.

Six pharmaceutical companies have been licensed by the Department of Health, Education, and Welfare to manufacture, distribute and use phenazocine in the United States, subject to all applicable laws, rules and regulations governing the manufacture, sale and use of narcotic drugs. Of these companies only one, Smith, Kline and French Laboratories, Philadelphia, Pa., has been authorized by the Food and Drug Administration to market its brand of phenazocine, under the trade name, Prinadol. Other licensees have not as yet applied for authorization. As an act of good will the United States has made phenazocine's formula and method of synthesis available without restriction to other countries throughout the world. Dr. May and Dr. Eddy, in whose names phenazocine is patented, have surrendered all their rights, domestic and foreign, to the United States government.

### Search Continues

In conclusion it should be noted that although phenazocine emerged successfully from many months of tests and investigations and is now on the market for general use in the fight against pain, it is not by any means the end of the search for new and better analgesic drugs—it is merely a new beginning for a program of basic research that has contributed, over the course of 30 years, increasingly significant findings. The National Institutes of Health is not in the business of drug development. However, basic research, which aims to create new knowledge, whether it is applicable to an immediate problem or whether it is not, develops, from time to time, practical and immediately applicable findings. Phenazocine was one of these, and there may be more. Phenazocine, itself, of course, can be improved upon. It is only one of a completely new family of compounds, the benzomorphan series, whose discovery by Drs. Eddy and May has opened up a new pathway of analgesic research which has tremendous potential.

As a matter of fact, it is possible that some of this potential may be realized in the near future, for May and Eddy now have, in the process of screening, several new and promising benzomorphan compounds, cousins of phenazocine, which, with pain-killing potency approximating that of morphine, have demonstrated in preliminary screening tests a lower addiction potential than either morphine or phenazocine.

**Dr. W. J. A. Vanden Heuvel, of the NHI Laboratory of the Chemistry of Natural Products, holds the special analytical column developed for the analysis of steroids by gas chromatography.**

# GAS

(Continued from Page 4)

from the analytical column, they are condensed and trapped in the silicone coating and brought into close proximity to the anthracene crystals. The beta radiation emitted by the carbon-14 causes the anthracene crystals to scintillate, and these scintillations are counted by the photo tubes of an automatic scintillation counter.

The new method allows the collection of individual fatty esters in separate trapping columns or for continuous monitoring of a single column. In the second method, the total counting-rate can be plotted against a time base on a strip chart. Stepwise increases in the total counting rate in the trapping column then indicate the time that each component entered the column (which allows identification of the substance) and the amount of the increase indicates the quantity of radioactivity that each contained.

The system, described by the scientists in *Nature*, has already proved its value in experiments using radioactive tracers to study fat mobilization and transport.

### Value Proven

The analysis of steroids by gas chromatography was made possible by a special analytical column devised by Drs. W. J. A. Vanden Heuvel, C. C. Sweeley, and E. C. Horning of the Laboratory of the Chemistry of Natural Products.

Steroids have been the subject of intense scientific study in recent years. This family includes cholesterol (of great interest for its apparent role in atherosclerosis and heart disease), a large number of important adrenal hormones, several vitamins, and the androgens and estrogens.

Previous attempts had been made to use gas chromatography for the separation and analysis of steroids, but had been at best only partly successful. Unfortunately, with ordinary liquid phases and column temperatures, most steroids were so highly soluble in the liquid phase that they would be retained in the analytical column too long. As a result, many heat-sensitive steroids would decompose in the column.

The scientists overcame these problems with a packed column whose inert particles were coated with a low percentage of methyl silicone gum having excellent thermal stability. This column gave rapid transit times (approximately 35 minutes for cholesterol) and excellent resolution at the relatively low temperature of 222° C. (which licked the steroid heat-sensitivity problem). The unique combination of speed, sensitivity, and high resolution afforded by the new technique makes it a significant advance in the field of steroid chemistry.

# CATARACTS

(Continued from Page 5)

three groups: a "low dosage" group who had received on the average less than 10 mg. daily of prednisone or its equivalent; a "midrange dosage" group receiving 10 to 15 mg. daily; and a "high dosage" group receiving 16 mg. or more per day.

No patients in the low dosage group had developed opacities whereas 23 percent of the midrange dosage group and 75 percent of the high dosage group had developed the eye lesions. The duration of the corticosteroid therapy was also significant in the production of the opacities but to a lesser extent than the dosage level.

The relatively young age of the patients developing the opacities (10 of the 17 were less than 50 years of age) further supports the evidence that the posterior subcapsular cataracts were not of the senile type. Additionally of all the patients over 50 in the study, none of the non-steroid-treated ones were found to have posterior subcapsular cataracts whereas half of the steroid-treated patients in this age group developed the condition.

### Various Drugs Used

No specific corticosteroid preparations were implicated; there was no apparent difference between the various drugs used (cortisone, hydrocortisone, prednisone, triamcinalone, 6-methyl prednisolone and dexamethasone) as far as their likelihood of producing the opacities was concerned.

The NIAMD and NINDB investigators, who reported the study to the recent annual meeting of the American Rheumatism Association emphasized that the opacities do not constitute a major hazard to vision and should not be alarming. To date, no patient has developed serious visual defects.

## John Robinson, NIAMD, Named as Acting I.O.

John W. Robinson, Information Specialist, NIAMD, has been appointed Acting Information Officer for the Institute. He replaces Hugh Jackson who transferred recently to the Office of Research Information.

Mr. Robinson came to NIAMD early in 1958 from Science Services, Inc., where he was a medical reporter. After graduating from George Washington University, he worked in TV production and promotion.

## DBS HOME

*(Continued from Page 1)*

at the west end, will service a specially constructed monkey-testing area on the fifth floor.

The second, third, and fourth floors will contain tissue culture, immunological, viral, bacteriological, and chemical laboratories as well as other laboratories and offices for the scientists.

There will be special autoclave rooms, animal rooms, sterile rooms, and constant-temperature rooms. Glassware-cleaning and cagewashing equipment will be in the basement, and mechanical equipment in the sub-basement.

Movable metal partitions separate the laboratories and offices so that the space in each can be increased, diminished, or exchanged as needed. The temperature in each room will be controlled by an individual thermostat.

### Utility Lines Extended

Utility pipes adjacent to interior columns are accessible through doors opening off the corridors. The utility lines may be extended into the movable metal partitions between rooms or capped at the columns as the use of the space requires. Each utility outlet will be plainly identified.

Visitors to DBS will not be conscious of the close proximity of animals because of the highly effective ventilation system. Fume hoods can be installed in any of the rooms without changing the basic system. All air will be filtered through a triple filter. No air will be recirculated.

The sterile rooms are stainless steel chambers. Work with certain infectious materials will be conducted in a sterile room equipped with an exhaust system that incinerates the air.

The Norair Engineering Corporation constructed the building, and Public Buildings Service administered the contracts. John A. Cofrancesco, Research Facilities Planning Branch, DRS, was NIH project engineer, and Ted Englehardt, of Silver Spring, was the architect.

## JAPANESE SCIENCE WRITERS HERE

**Dr. Mitsuo Yokoyama, DBS Visiting Scientist from Tokyo Medical and Dental University, shows science writers from Japan a plastic blood-collection bag used in the Clinical Center Blood Bank which is operated by the DBS Laboratory of Blood and Blood Products. The Japanese writers visited and toured NIH June 6 and 7 as part of their trip to the United States under sponsorship of the Asia Foundation and the Japan Newspaper Publishers Association.**

## ALLOCATIONS

*(Continued from Page 1)*

occupied by the Cancer Chemotherapy National Service Center and the Field Investigations and Demonstrations Branch, NCI.

The Space Management Section, OSB, and the Communications Officer will communicate with all offices involved in the impending moves, to assign specific square footage, room numbers, and telephone extensions.

The announced space assignments are as follows:

*Effective on or about July 1*

1. The Division of General Medical Sciences is assigned 5,200 square feet in the Trunnell Building.

2. Of the 3,000 square feet of space released by DGMS in T-18, 1,000 is assigned to the International Health Program. The remaining 2,000 square feet is placed in Director's Reserve.

3. The Neurology Extramural Program is assigned 4,500 square feet of space in the Norfolk Building.

4. The 3,400 square feet of space released by the Neurology Extramural Program in T-6 is assigned to the Neurology Office of Director.

5. The 2,900 square feet of space released by the Neurology OD, in Building 8 is placed in Director's Reserve. It is anticipated that this space, due to heavy construction within the building, will be unusable for most of the coming year.

6. The Dental Extramural Program is assigned 2,000 square feet in the Norfolk Building.

7. The Allergy Extramural Program is assigned 2,600 square feet of space in the Norfolk Building.

8. Of the 4,000 square feet of space released by Dental and Allergy in T-6, 3,300 square feet is assigned to the Division of Research Grants. The remaining 700 square feet is assigned to the Management Policy Branch, OAM. (Some members of the Branch are already on long-term studies in T-6.)

9. The Management Policy Branch, OAM, will release 700 square feet of space on the ground floor of Building 1. This space is assigned to the Personnel Management Branch.

*Effective October 1*

1. Cancer Field Investigations and Demonstrations is assigned 8,500 square feet of space in the Nave Building.

2. The 7,200 square feet of space released by Cancer, FIDB, in the Robin Building is assigned to the Neurology Collaborative Program.

3. The 3,200 square feet of space released by FIDB and the Neurology Collaborative Program in the Arts Building is assigned to Cancer Chemotherapy.

4. The Arthritis Extramural Program is assigned 4,500 square feet of space in the National Bank Building.

5. The 3,600 square feet of space released by Arthritis in T-6 is assigned as follows: 800 to Cancer, 800 to Heart, 800 to Mental, and 1,200 to Director's Reserve.

*Other Moves*

1. Research Facilities Planning Branch is assigned 1,500 square feet of space in Building 13 (old electrical shop area now being converted to office space). Timing is estimated to be October, 1960.

2. The remaining 3,500 square feet of space in Building 13 (also old electrical shop area) is placed in Director's Reserve.

## Dr. Daft Is President, Dr. Schaefer Secretary Of Nutrition Institute

Dr. Floyd S. Daft, NIAMD, was elected President, and Dr. Arnold E. Schaefer, Executive Director of the Interdepartmental Committee on Nutrition for National Defense (ICNND), was elected Secretary of the American Institute of Nutrition at the annual spring meeting held recently in Chicago. Both appointments become effective July 1.

The president is elected to serve a one-year term and the secretary to a term of three years.

During Dr. Daft's term as president, the American Institute of Nutrition will be host society for the Fifth International Congress on Nutrition, to be held in the United States for the first time this year. Approximately 3,000 nutrition scientists from almost every country in the world are expected to attend the Congress, in Washington, D. C., during the week of September 1.

In 1961, upon the completion of

**Dr. Schaefer (left) and Dr. Daft.**

his term as president, Dr. Daft will serve as Chairman of the Executive Committee of the Federation of American Societies for Experimental Biology.

Other NIAMD investigators active in nutrition research elected to membership in the American Institute of Nutrition are: Dr. G. Donald Whedon, Assistant Director; Dr. Milton Silverman, Ernest G. McDaniel, and Dr. Richard S. Yamamoto, Laboratory of Nutrition and Endocrinology; and Dr. Ernest M. Parrott, ICNND.

Other new members from NIH are Dr. Karl R. Johansson and Dr. Jerome A. Uram of DRG, and Dr. Julius White, NCI.

## Miss Kamran Accepts Position in DHEW

Gwenyth Kamran, Publications Officer, CCNSC-NCI, and Managing Editor of *Cancer Chemotherapy Reports*, has accepted a position in the Office of Public Information, Office of the Secretary, DHEW, effective June 13.

Miss Kamran came to NIH as CCNSC Information Officer in 1956. She helped launch *Cancer Chemotherapy Reports* in January 1959 and has served as managing editor since its inception.

Her successor has not yet been named. Patricia Anderson was appointed assistant managing editor and Arleen Kennedy assistant editor of the publication last April.

Miss Kamran

In her new position Miss Kamran will be the staff specialist in the Office of Public Information on subjects involving the Department's scientific activities. She will assist with liaison between that office and the operating agencies on scientific subjects and with the development and review of public information materials on such subjects.

## DR. ANDERSON

*(Continued from Page 1)*

Anderson will assist in the administration of the Public Health Service programs that deal with the control of chronic and communicable diseases and the maintenance of a healthful environment.

These programs include financial and technical assistance to States to secure widespread application of research findings in such fields as radiation, water and air pollution, and sanitation, as well as in the prevention and control of specific diseases.

Dr. Anderson's entire professional career has been spent in the Public Health Service. Following his internship in the Service's Staten Island hospital, he became a commissioned officer of the Public Health Service in 1940. He gained experience in local health work in Missouri and then specialized in tuberculosis control, becoming Chief of the Division of Tuberculosis Control in 1948.

In 1954, after tuberculosis control activities were incorporated into a special Health Services Division, Dr. Anderson became Assistant Chief of the new division. He held this position until he went to the Communicable Disease Center in 1956.

Dr. Anderson is a native of Zumbrota, Minn., and a graduate of Carleton College, Northfield, Minn., and the University of Minnesota School of Medicine. He holds a Master's degree in Public Health from Columbia University.

## WHAT AND WHERE IS IT?

**No, a family of nomads has not decided that NIH is the ideal place to spend the summer. This trailer is the new "office building" for the Motor Pool staff. Located at the rear of Bldg. 1 near the loading platform, the trailer affords efficient management control of the 30-odd cars and station wagons in the NIH Motor Pool, according to its occupants, John P. Finch, transportation foreman; Fred L. Jones, dispatcher; and Edith B. Erzen, Mr. Finch's secretary, who also assists in dispatching. Not only are the motor pool cars within sight of the trailer but the "office" has the advantage of mobility if at any time its location should be changed. In addition to the usual office equipment, the trailer boasts a short-wave transmitter and receiver for communication with the shuttle buses, the emergency cash messengers, and the moving and hauling supervisor. The short-wave radio is also part of the Civil Defense system.**

## DEDICATION

*(Continued from Page 1)*

The Hon. Thomas H. Kuchel
*U.S. Senator, California*
The Hon. Melvin R. Laird
*U.S. Representative, Wisconsin*

Remarks
The Hon. Arthur S. Flemming
*Secretary, DHEW*

Address
Dr. Roderick Murray
*Director, DBS*

Dedication
His Majesty Bhumibol Adulyadej
*King of Thailand*

The National Anthem of the United States

His Majesty Bhumibol Adulyadej, King of Thailand, will officially dedicate the building by unveiling a bronze plaque, suitably inscribed, which will eventually be placed in the main entrance.

Their Majesties, King Bhumibol and Queen Sirikit, who arrive for a four-day state visit in Washington on June 28, will be honor guests at a luncheon given by Secretary and Mrs. Flemming at Stone House preceding the ceremonies.

The invitation to participate in the dedication ceremonies was extended to King Bhumibol because of his active role in health measures in his own country and his interest in the South East Asia Treaty Organization—National Institutes of Health Cholera Research Project.

During the 1958-1959 cholera epidemic in Thailand, the work of U.S. and Thai scientists demonstrated, through a greatly reduced death rate, the value of collaborative research. The U. S. Cholera Research Advisory group which visited the SEATO and other Asian countries last year was granted an audience by King Bhumibol in Bangkok.

The group was headed by Dr. Joseph E. Smadel, NIH Associate Director for Intramural Research, who will assume his new duties as Chief of the DBS Laboratory of Virology and Rickettsiology next month.

Although cholera has not been a health problem in this country for many years, DBS scientists continue to take an active part in the World Health Organization's program for the development of international recommendations for cholera vaccine.

Research on the development of a quantitative potency test for laboratory evaluation of cholera vaccine is being carried on in the DBS Laboratory of Bacterial Products. This work is coordinated with the SEATO Cholera Research Project.

DBS plans to hold Open House sometime in the fall when the new laboratories will be functioning.

## Dr. Burton Appointed Assistant to Dr. Daft

Dr. Benjamin T. Burton has been appointed Special Assistant to Dr. Floyd S. Daft, Director, NIAMD. In this capacity he is in charge of the issuance of research information and acts as staff liaison in the fields of nutrition, biochemistry, and metabolic diseases.

Dr. Burton

Dr. Burton attended the University of California, where he received his BS degree, with highest honors, in food technology. He also attended medical school there and received his Master's and Ph.D. degrees in microbiology and biochemistry.

While a graduate student in Berkeley, Dr. Burton worked as a research chemist and consultant in the dried fruit industry. This was followed by a four-year stint as technical director and vice president of a West Coast pharmaceutical company.

For the past five years Dr. Burton was in charge of the nutrition activities of the H. J. Heinz Company, where he organized the Heinz International Nutrition Symposium which coincided with the opening of the Heinz Research Center in 1958.

## Medicinal Chemistry Study Section Formed

The establishment in DRG of a study section on Medicinal Chemistry was approved May 27 by Dr. Shannon. The study section is the 36th in DRG. It was formerly the division's Panel of Medicinal Chemistry Consultants.

Dr. Helen Jeffrey, who has been serving as Executive Secretary to the Biochemistry Study Section and to the former panel, will continue in that capacity for both the Biochemistry and the Medicinal Chemistry Study Sections.

## NUTRITION TEAM

*(Continued from Page 1)*

Dr. Charles J. Donnelly, NIDR, dentist; and NIAMD's Dr. Zeki M. Tolgay, visiting scientist from Turkey, who will assist the group as a biochemist.

Laboratory equipment and supplies to be used in the survey have been shipped to Bogota. At the conclusion of the study, the equipment will be turned over to the Colombian Government under provisions of the Mutual Assistance Program for use in operating nutrition services on a permanent basis.