

the

NIH

Record

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARESeptember 28, 1971
Vol. XXIII, No. 20

NATIONAL INSTITUTES OF HEALTH

**Dr. Ketcham Appointed
Clinical Director, NCI**

Dr. Alfred S. Ketcham was named Clinical Director of the National Cancer Institute. His appointment was announced by Dr. Carl G. Baker, NCI Director.

Dr. Ketcham, who assumed his new duties Sept. 1, is a specialist in surgical treatment for cancer, with emphasis on disease of the head and neck area.

He has developed a program of research on the problems of experimental and clinical metastasis, or spread, of cancer.

He also directed research which demonstrated the ineffectiveness of the laser beam as a surgical tool in cancer therapy.

Dr. Ketcham received his B.S. degree from Hobart College in 1945, and his M.D. degree from the University of Rochester School of Medicine in 1949. His internship was served at the National Naval Medical Center in Bethesda.

He completed surgical training

(See DR. KETCHAM, Page 8)

**Dr. Colvin L. Gibson Takes a Long, Hard
Look at EEO Aims and Accomplishments**

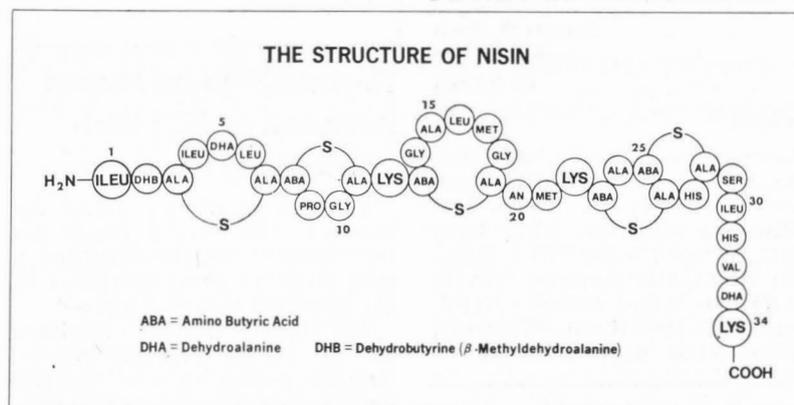
Dr. Colvin L. Gibson is a scientist whose work has no aura of the ivory tower. In the vernacular he's in there pitching—for Equal Employment Opportunity at NIH. He is the EEO Officer here.

Not too long ago, Dr. Gibson was a bench scientist. For 4 years he worked at an NIH post—really an outpost—in a small Guatemalan village. That was in 1948, the year Dr. Gibson became a PHS Officer, and accepted an assignment from the National Microbiological Institute (now NIAID).

He joined a 3-man team going to Guatemala to do research on onchocerciasis. The disease is caused by a threadworm, a parasite that lives under the skin and eventually enters the eye causing scar tissue in the cornea that may lead to blindness.

The natives called the disease pañal en el ojo—a “cloth in the eye”—because of threads of the tissue interwoven over the cornea.

(Continued on Page 6)

**2 NICHD Scientists Determine Chemical
Structure of Nisin, Polypeptide Antibiotic**

Nisin, a polypeptide antibiotic produced by *Streptococcus lactis*, a very common microorganism, has had its chemical structure described for the first time by two chemists in the National Institute of Child Health and Human Development.

Dr. Erhard Gross, head of the Section on Molecular Structure in the Laboratory of Biomedical Sciences, and John L. Morell, also in LBS, have found several unique structural features within the nisin molecule.

On the basis of their findings

anti-malarial and membrane activity was postulated.

For instance, nisin might deprive the malaria parasite of its vital supply of coenzyme A, or it might interact with sulfhydryl groups essential in the structure and function of membranes.

These propositions when tested by the investigators showed that nisin interfered with the growth of malaria parasites in mice and caused lysis of mouse erythrocytes.

In addition to the rarely seen amino acids lanthionine and beta-methylanthionine, the investigators established the natural occurrence of the alpha-beta-unsaturated amino acid Dehydroalanine (DHA).

The molecule contains a total of three alpha-beta-unsaturated amino acids, one of them being beta-Methyldehydroalanine also known as Dehydrobutyryne (DHB).

Structure Unusual

In addition to forming peptide bonds, ten of the 34 amino acids of nisin are also co-valently linked by the sulfide bridges forming the lanthionines and give rise to a novel type of heterodetic pentacyclic peptide structure containing the smallest ring size observed to this time.

The presence of the alpha-beta-unsaturated amino acids makes nisin a rather delicate molecule necessitating careful handling

(See NEW STRUCTURE, Page 4)

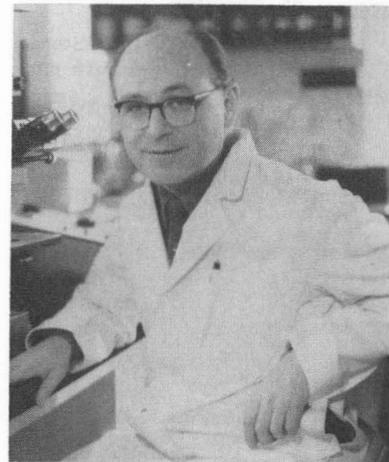
**Dr. Henry Harris,
Oxford Professor,
Gives NIH Lecture**

Dr. Henry Harris, professor of Pathology at the Sir William Dunn School of Pathology, University of Oxford, will present the NIH Lecture on Oct. 7 at 8:15 p.m. in the CC Jack Masur Auditorium.

Professor Harris will speak on “The Analysis of Malignancy by Cell Fusion.”

He will describe how cells of widely different types may be fused together by means of an inactivated virus to form hybrid cells which combine in various ways the chromosome complements of the two parent cells.

This technique has been used



Professor Harris was a Visiting Scientist at the National Cancer Institute in 1959-60.

to analyze the cellular inheritance of malignancy, defined as the ability of somatic cells to grow progressively and kill their host.

In Professor Harris' research, highly malignant mouse cells were fused with non-malignant cells and the ability of the resultant hybrids to grow progressively was tested in genetically compatible hosts.

The results of these experiments, which throw light on the genetic character of malignancy, will be described.

Professor Harris will discuss

(See DR. HARRIS, Page 6)



Dr. Gibson points out that “there are other life-styles than our own, quite different than that prevailing in suburbia.” He is a staunch advocate of summer programs for young people, terming them “tremendous.”

the NIH Record

Published biweekly at Bethesda, Md., by the Publications and Reports Branch, Office of Information, for the information of employees of the National Institutes of Health, Department of Health, Education, and Welfare, and circulated by request to interested writers and to investigators in the field of biomedical and related research. The content is reprintable without permission. Pictures are available on request.

The NIH Record reserves the right to make corrections, changes or deletions in submitted copy in conformity with the policies of the paper and the Department of Health, Education, and Welfare.

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NIH Television, Radio Program Schedule

Radio

DISCUSSION: NIH

WGMS, AM-570—FM Stereo
103.5—Friday, about 9:15 p.m.

October 1

Dr. Harold Baer, chief, Laboratory of Bacterial Products, DBS

Subject: House Dust Allergy (R)

October 8

Dr. James F. Bosma, NIDR
Subject: Oral and Pharyngeal Development

Television

ISSUES

WRC-TV Channel 4, 11:30 a.m.

October 3

Dr. Donald J. Cohen, NIMH
Subject: Twins

Subscriptions Are Available For Chamber Music Series

A few subscriptions are available for the 1971-72 Chamber Music Series at NIH sponsored by the FAES.

The concerts will be held in the CC Jack Masur Auditorium at 4 p.m. on the following dates: Oct. 24, Maurizio Pollini, pianist; Dec. 5, Trio di Milano; Jan. 8, Allegri Quartet; Jan. 30, Lillian Kallir and Claude Frank, and Mar. 26, Pierre Fournier, cellist. Later, the series may be sold out.

Fall Marks Fourth Year For NIH Radio Interviews On Station WGMS

Not only is Oct. 8 the starting date of a new fall season of interviews on "Discussion: NIH," but it also marks the fourth straight year that radio station WGMS has carried this NIH-sponsored segment.

The discussion features an interview with an NIH professional staff member each week during the intermission of the Library of Congress concerts.

The program is heard every Friday evening between 8:30 and 10 p.m. "Discussion: NIH" is presented mid-way in the program at approximately 9:15 p.m.

Dr. James F. Bosma of NIDR will be the lead-off guest.

Information Officers who wish to suggest nominees for interviews at later dates are asked to call Norm Brown, Ext. 65895.

Delivery Delay Cancels Movie

Because of delayed delivery, the Employee Health Service cancelled the movie on food and nutrition scheduled for Sept. 15 and 16. The film will be offered again early in January.

Subscribe now!

Subscriptions are \$20; children under 17, half price.

For further information, contact the Foundation for Advanced Education in the Sciences, Bldg. 10, Room B1-L-101, Ext. 66371.

Leikind, Lipson to Address Medical History Society

The Washington Society for the History of Medicine will hold a meeting on Thursday, Sept. 30, at 8 p.m., in the Billings Auditorium, National Library of Medicine.

Morris Leikind, WSHM past president, will discuss "Stanhope Bayne-Jones . . . Friend of Medical Librarians." Dr. Loren G. Lipson, National Institute of Arthritis and Metabolic Diseases, will talk on "The Plague in San Francisco in 1900."

The meeting is open to visitors.

Thirteen Student Nurses Assigned to CC Finish Work-Study Program

Thirteen student nurses assigned to the Clinical Center for the summer recently completed a work-study program sponsored by the American Cancer Society.

The students' clinical experience on the Cancer Nursing Service included bedside care of patients during their 10 to 12 week course.

They also attended weekly seminars on nursing care and hospital administration.

ACS Recruits Students

The students were recruited by the ACS from university nursing schools along the east coast. Similar groups participated in the program at the three other medical centers specializing in cancer research.

The program, now in its second year, was conceived by Virginia Barckley, national nursing consultant with the ACS, as a means of encouraging more nurses to specialize in care of cancer patients.

The program was offered at CC for the first time this year.

CFC Sets Record Goal; Marston Heads Drive

A record goal of \$296,308 for NIH employee contributions to the Combined Federal Campaign has been announced.

Dr. Robert Q. Marston, Director of NIH, is chairman for this year's campaign at NIH. He will be assisted by Dr. William C. Mohler, Acting Director of the Division of Computer Research and Technology, as Vice Chairman.

The campaign, which began Sept. 22, will continue until Nov. 5. All employees are urged to consider carefully what is their fair share—the amount they can give to those suffering "crushing need."

Donations are used to help member organizations of the United Giver's Fund, National Health Agencies, and the International Service Agencies.

These organizations supply services and programs to disadvantaged youth, disaster victims, the elderly, sick, and orphaned.

Donations may be earmarked for a particular agency, depending upon the contributor's preference.

Keymen in all the Institutes and Divisions have been appointed and will contact each employee. Contributions may be made in a lump sum, by payroll deductions, or by a combination of both methods.

American Podiatry Association Awards Gold Medal to DPHPE

The American Podiatry Association awarded a gold medal to the Division of Physician and Health Professions Education's exhibit for its "educational and information" value.

The exhibit presented the Division's role in support of podiatric education.



Ten of the 13 student nurses who participated in the ACS work-study program at the CC are pictured. Administering the program were (l): Louise C. Anderson, chief of the CC Nursing Department; Dr. Margaret Dunn, special assistant to the Chief for Nursing Research; and (r) Louise Lunceford, head nurse, Cancer Nursing Service, and Virginia Barckley, ACS.



Now there's a college on the campus for NIH employees—Upward Mobility College, a branch of Federal City College. Registration day recently took place and NIH'ers selected for admittance chose courses and heard Norma Greene, Federal City College coordinator (standing, far left), describe the curriculum. Sarah E. DeLay, DRS animal caretaker (l), is interested in math, and selects a

course suggested by an FCC aide. Diane E. Johnson, calls the idea of attending classes here "fantastic." She is taking English and algebra. William Brown (l) and Lindbergh Smith will "travel" to classes. They work in the Supply Operations Branch, Danac Bldg., and both are history buffs, the subject they have chosen for this semester.

Dr. Rousselot to Head Physicians Education Programs at BHME

Dr. Louis M. Rousselot has been selected to head the Bureau of Health Manpower Education's programs for the graduate and postgraduate education of physicians.

Dr. Rousselot, a surgeon, became special assistant to the Director for Graduate and Post-Graduate Education on Sept. 1.

He will coordinate a project analyzing the types of medical specializations and recommend programs to achieve a desirable balance.

Also Liaison Officer

He will also be liaison officer between the Bureau and the American Hospital Association in developing programs to train residents in specialty areas such as public health and family practice.

Dr. Rousselot had been Assistant Secretary of Defense (Health and Environment) since July 1970. He entered the Defense Department in January 1968 as Deputy Assistant Secretary of Defense (Health Affairs).

Dr. Rousselot was an Army Medical Corps Colonel during World War II and commanded the 108th and 2nd general hospitals in Europe.

He was awarded the Army Legion of Merit and the French Legion of Honor (Chevalier).

He received his basic surgical training and held a long-time staff appointment at the Columbia-Presbyterian Medical Center and Columbia University's College of Physicians and Surgeons.

From 1948 to 1967, he was Director of Surgery at St. Vincent's Hospital and Medical Center in New York and has been a professor of Clinical Surgery at New York University School of Medicine since 1948.

Dr. Rousselot has written more than 155 scientific articles.

Scientists Suspect Oral Contraceptives May Induce Anemia, Metabolic Disorders

Scientists suspect that oral contraceptives may induce biochemical changes which may lead to abnormalities in absorption, metabolism, and utilization of essential nutrients in the diet.

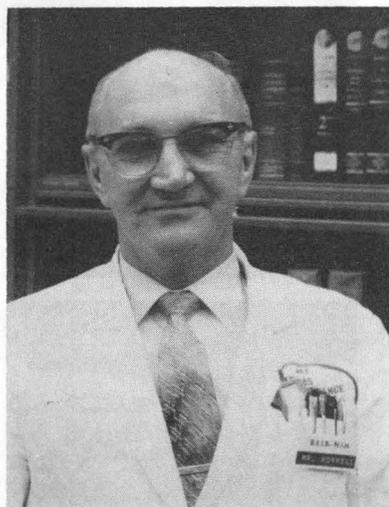
Recently, expert advisors met with National Institute of Child Health and Human Development scientists to outline research to increase understanding of the interaction of oral contraceptives and vitamins.

The session set priorities and goals for a program of the Fertility Regulating Methods Evaluation Branch of NICHD's Center for Population Research.

The participants discussed the finding that certain women taking oral contraceptives developed anemia and metabolic disorders, conditions similar to those associated with vitamin deficiency.

According to some investigators, the disorders can be attributed to use of the contraceptives.

Dr. John J. Schrogie, chairman



Herbert Horrell, Biomedical Engineering and Instrumentation Branch, DRS, received a \$50 award for his suggestion that only qualified personnel remove gas anesthesia apparatus from operating rooms and other areas. He pointed out that explosions may occur if anesthetic gasses and liquids are not removed before handling apparatus. His suggestion was endorsed by the NIH Safety and Fire Protection Branch.

of the session and chief of the Branch, reported that those attending the conference recognized the possible harmful effects of "the pill" on a small number of users.

"Although an adverse effect is surely produced in only a few individuals, it is not known why this small group of women is affected," Dr. Schrogie said.

He also noted that geographic region, socio-economic status, and diet also influence nutrition and make it difficult to isolate the biochemical effects of the contraceptive.

The planning committee recommended the development of diagnostic criteria and screening tests to establish the prevalence of drug-nutrient interactions.

Nuclear Medical Training Program Is Sponsored Jointly by BHME, AEC

The Bureau of Health Manpower Education and the Atomic Energy Commission announced a joint program for encouraging education and training of nuclear medical and allied health personnel.

The program covers the field of nuclear medicine, radiopharmacy, radiobiology, bionuclear engineering, nuclear medical technology, and radiology (including radiotherapy, but not X-rays and radium).

BHME will include education and training programs at AEC facilities and AEC-supported institutions in its grant programs.

AEC will make nuclear materials and laboratory equipment available to BHME-supported institutions and agencies, including training units in hospitals.

Patient Emergency Fund Is an Old Friend With A New Name—Donate!

The name has changed—but the message is the same. Now it's called the Patient Emergency Fund, instead of the Patient Welfare Fund.

The new name is considered more appropriate because funds are used in just that way—for emergencies, according to John Roatch, chief of the Clinical Center's Social Work Department and an administrator of the fund.



Follow Scrooge's words of advice—don't buy Christmas cards—donate that money to the Patient Emergency Fund.

The fund receives help around Christmas time from the Davis Plan—started some years ago by James B. Davis, Director of the Office of Administrative Services. Through this plan employees do not purchase Christmas cards for co-workers. Instead they contribute that money to the Patient Emergency Fund.

For further information on the PEF call Ext. 62381.

NEW STRUCTURE

(Continued from Page 1)

throughout all steps of the structural elucidation.

Final steps in the purification of nisin involved countercurrent distribution, a technique still extensively employed in Dr. Gross's laboratory.

When nisin had been cleaved into smaller fragments to facilitate sequencing, Dr. Gross and Mr. Morell took advantage of the presence of the unsaturated amino acids to establish the order in which they are arranged in the molecule.

In earlier, unrelated studies, the scientists had found that upon exposure to acid, DHA breaks down to form amide and pyruvic acid, thus rupturing the continuity of the peptide chain.

Most difficult was the assignment of the sulfide bridges and the distinction between genuine alanine and alanine that is part of a lanthionine residue.

By appropriately treating residues of lanthionine—causing beta elimination — new alpha-beta-unsaturated amino acids are formed.

Cysteic Acid Produced

The addition of sulfite to the unsaturations produced cysteic acids and enabled the scientists to sequence the peptide by more conventional means.

These structural features of nisin indicate interesting biosynthetic relationships, e.g., the formation of alpha-beta-unsaturated amino acids from keto acids and amides.

The lanthionine residues in turn may originate from the addition of cysteine to DHA and DHB.

This addition of sulfhydryl groups may play a role under physiological conditions.

A description of the structure of nisin has been published as a Communication to the Editor in the Sept. 8 issue of the *Journal of the American Chemical Society*.

National Graduate Univ. Holds Grants Conference

The National Graduate University will hold its fourth institute on grants, contracts, and other Federally funded projects on Oct. 4-5 at the Mayflower Hotel in Washington, D.C.

Discussions will include new sources of funds, cost sharing, indirect cost, overhead, duties and problems of grants and contract administrators, and legislation affecting financing of research.

Among the scheduled speakers will be Dr. Ronald Lamont-Havers, NIH Associate Director for Extramural Research and Training; Dr. J. Palmer Saunders, associate director for Extramural Ac-

Six Contracts Awarded To Evaluate Management Of Sickle Cell Crises

The National Blood Resource Program, National Heart and Lung Institute, has awarded six contracts to evaluate and compare three forms of therapy in the management of sickle cell anemia crises.

Under certain biochemical conditions (possibly reduced blood-oxygen levels and/or increased blood-acidity), this defective hemoglobin undergoes slight changes in its configuration, then aggregates into long rods called tactoids.

Red Cells Impede Flow

The rods force the normally round, concave-lens-shaped red cells into elongated, sickle-shaped form. These cells move with difficulty through small arterial branches and capillaries which increase the chance for blood clots.

During the sickle cell crises—which may be precipitated in unpredictable fashion by infections, heavy exertion, extremes of heat and cold, emotional stress, dehydration, or other factors—swarms of misshapen red cells may impede bloodflow and reduce oxygen and nutrient supply to various organs and tissues.

Usually the hardest hit are the spleen, liver, intestines, and joints.

The crises are painful and frequently disable the victim for a week or more.

At least 5,000 American blacks require hospitalization each year for sickle-cell crises. How many others treated as outpatients in hospital emergency rooms isn't known.

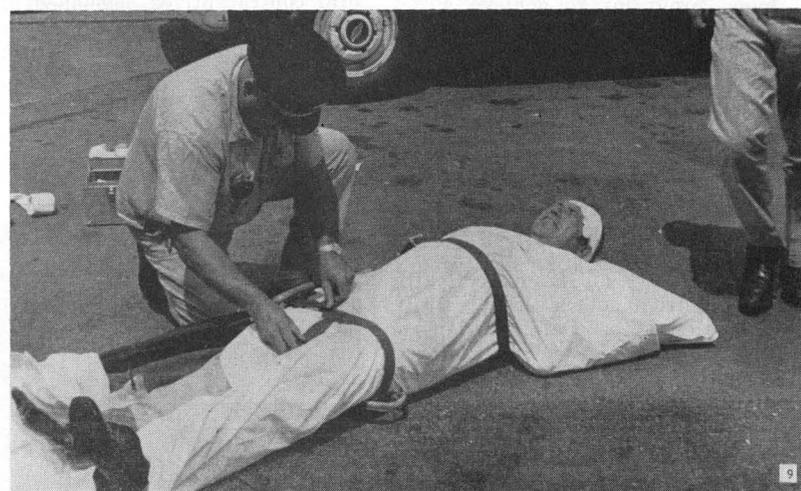
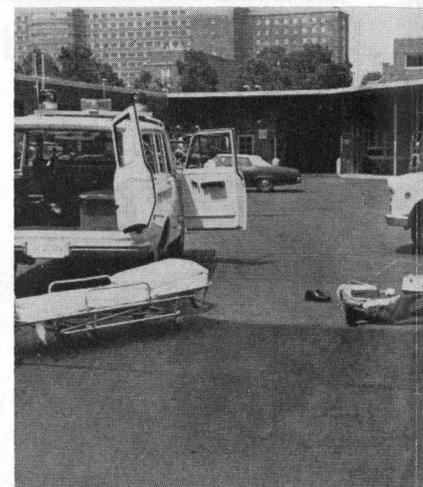
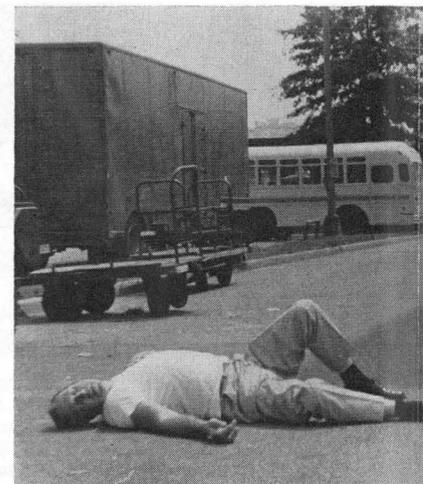
Therapies Show Promise

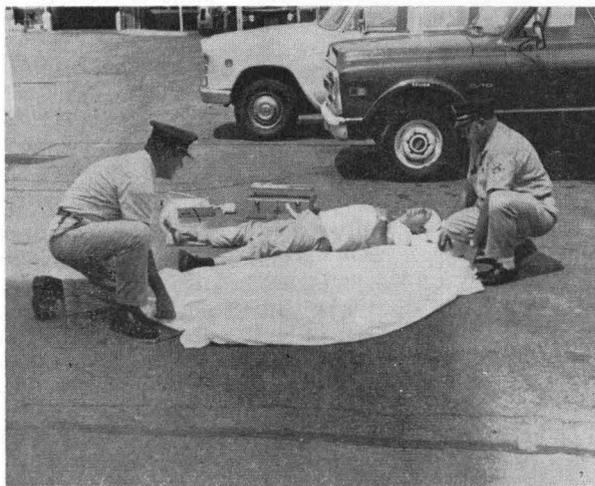
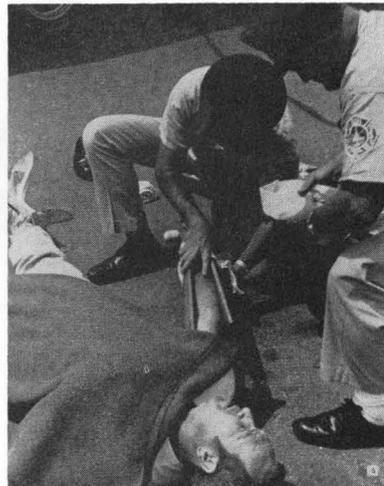
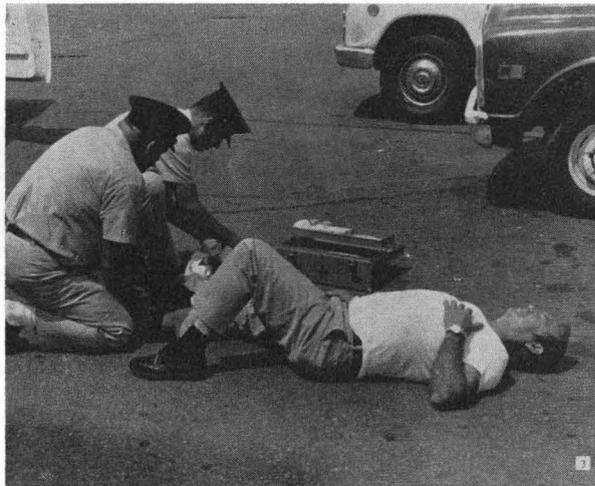
Recently, several modes of therapy have shown promise in the clinical management of crises. But limited clinical experience with the techniques has not produced sufficient data to select any one treatment.

Three forms of therapy will be evaluated over the next 2 years—urea in dextrose solution; infusions of a physiological electrolyte solution to expand plasma volume and restore blood electrolyte balance, and infusions of sodium bicarbonate or lactate to make the blood more alkaline.

tivities, National Cancer Institute, and Clifford F. Johnson, assistant for Grantee Relations, Extramural Research and Training, OD.

For further information contact the Grants Institute, National Graduate University, 1630 Kalmia Road, N.W., Washington, D.C. 20012, or call (202) 829-4600.





Fire Department's Ambulance 'Ready for Any Emergency'

The NIH Fire Department has converted a standard carryall into the first ambulance to be used to service NIH employee emergencies.

Prior to this, the FD used a van-type vehicle to transport victims of accidents or illness. The van was also used for light and heavy rescue efforts, as a back-up piece for the fire pump, and in many other operations.

Chief Charles K. Keys and Assistant Chief Milton Mullican planned the inside of the ambulance determining exactly which equipment would go where.

The old, do-everything van-ambulance was awesome. "If sick or injured people weren't nervous or upset when they got into that thing; they would be when they reached the Employee Health Service," Chief Keys said.

"Now we have a specialized piece of equipment that is comfortable and won't cause apprehension.

"We feel that we now have a modern and efficient ambulance service to meet any emergency," Chief Keys said. The FD created an "emergency" to demonstrate.

1. Charles O. Poole, driver-operator, climbs into the ambulance to respond to a first-aid call.

2. Firefighter Charles E. Lindsay, the "victim" lies in the street waiting for the NIH ambulance.

3. The ambulance crew, Poole

and Lt. A. R. Branzell, Jr., examine the victim and find "several injuries." An air splint is being applied to a fractured ankle.

4. A fixation splint is applied to a fracture of the right arm.

5. Poole holds the arm up while Branzell secures the splint.

6. A loose bandage is applied to the forehead to prevent "wounds" from being contaminated.

7. The crew prepares a stretcher.

8. Lindsay is carefully lifted. The crew, aware of the injuries, make sure that no complication will result from their handling.

9. Straps are secured around the victim to keep him from moving.

10. Lindsay is lifted and moved onto the ambulance cot.

11. Poole and Branzell place the injured Lindsay in the ambulance. The EHS is their destination.

12. Branzell rides in the back with Lindsay and Poole drives. The EHS has been notified of the patient's injuries. Doctors will be standing by to give aid.

Photos by Ed Driscoll

Meeting for Physicians On Hodgkin's Disease To Be Held Oct. 7-9

A symposium designed to give practicing physicians information on recent advances concerning treatment of Hodgkin's disease will be sponsored by the National Cancer Institute in St. Louis, Mo., on Oct. 7-9, at the Chase Park Plaza Hotel.

It was arranged by the Cancer Clinical Investigation Review Committee and the Clinical Investigations Branch, NCI.

Co-chairman of the meeting are Dr. James Nickson, Department of Radiation Therapy, Michael Reese Hospital, Chicago, and Dr. Emil Frei, III, associate director for Clinical Investigation, M. D. Anderson Hospital and Tumor Institute, Houston.

All physicians, hospital staffs, medical students, and research scientists are welcome to attend.

Sessions will be headed by Drs. William C. Levin, chairman of the CCIRC, who is professor of Medicine, University of Texas Medical Branch, Galveston; James Nickson; Paul Carbone, chief of NCI's Medicine Branch of the Chemotherapy Program, and Virgil Loeb, Jr., associate professor of Medicine, Washington U.

Participants in a discussion on techniques, problems and results of radiation therapy will include Dr. Henry Kaplan, Department of Radiology, Stanford University Hospital, and Dr. Ralph Johnson, chief, NCI Radiation Branch.

Radiotherapy is currently used to treat the early stages of Hodgkin's disease.

Results of treating Hodgkin's disease with single drugs, combinations of drugs, and combinations of radiation and drugs will also be presented.

Arrangements for this meeting were made by Dr. William G. Hammond, acting chief, NCI's Clinical Investigations Branch.

Dental Examiners Issue Volumes On Licensed Hygienists Survey

Three volumes of state-by-state statistical survey of licensed hygienists have just been published by the American Association of Dental Examiners.

Dental Hygienists Licensed in Tennessee, 1966; *Dental Hygienists Licensed in Illinois, 1967*, and *Dental Hygienists Licensed in California, 1968*, were published in conjunction with the respective State Boards of Dental Examiners.

The survey is also under contract with the Manpower Studies Branch, Division of Dental Health, BHME.

Single copies of the handbooks are available from the Manpower Studies Branch, DDH.



DR. GIBSON EXPLAINS EEO GOALS FOR NIH



An EEO session starts early and ends late. Representative groups discuss career opportunities for "people who are boxed in at various levels. . . ." At one meeting the agenda included the consideration of campus training courses that would be most helpful to NIH employees.

(Continued from Page 1)

Dr. Gibson and his family arrived in Guatemala on July 4, "just in time to miss the ambassador's party." His wife and children lived in Guatemala City; he would visit there for weekends.

The three American scientists recruited natives from the small village. "We taught them to use microscopes and to make cultures. That experience made me understand there are very good things in other life styles," Dr. Gibson explained.

From there he went to another NIH parasitic research project in Memphis. This entailed going out in the field for studies on Negroes living in rural areas. Dr. Gibson called this his "first real insight" on American Negro life.

Returns to Campus

In 1958 Dr. Gibson returned to the campus as a NIAID administrator for research grants and contracts. In 1967 he was offered—and accepted—the EEO post.

Since that time, he, his staff, and EEO representatives have concentrated on developing career opportunities for "people who are boxed in at various levels and don't know how to get out of the box."

Dr. Gibson credits EEO conferences for promoting understanding between employees and management, and he discussed the "opening up of corridors" that frequently result because of the meetings.

However, he did not minimize the sometimes heated—but by no means a donnybrook—discussions that also take place.

Dr. Gibson explained that the first Institute or Division EEO conference is attended by top management with a representative group of employees; black and white, and other minorities.

Subsequent conferences include lower levels of management with

groups of employees. He, or a member of his staff, try to attend every conference.

The staff gatherings are planned to define problems, provide an opportunity to solve them, and perhaps, for the first time, to effectively show how employees see NIH as an employer.

"Almost every conference ends up with a set of recommendations, and after the meetings are over management says 'we'll certainly give this a hard look.'

"What this program is really all about is to be sure that every employee has a chance to compete equally; to be able to grow up to their jobs to the limits of their own capabilities," he stated.

He compared present campus awareness to EEO problems with that period when the program started in 1967.

"There is certainly an increased feeling that we in fact do have EEO problems. We had been excluding some segment of our employees from training, promotion and recognition.

"Now, there is an increasing commitment on the part of management to take steps to correct past imbalances. Positive support for EEO concepts has been forthcoming from Dr. Marston since he came in 1969."

Dr. Gibson pointed out that NIH training programs are one factor which help correct imbalance on the campus.

Cites Training Program

He termed identifying underutilized people, and helping them find career ladders in order to move up, as "the essence of upward mobility."

Dr. Gibson called the training courses and the summer programs for young people "tremendous."

"Some of the students are given a chance to work for the first time. They may come with unreal expectations, but they have to face reality that there are less

Proceedings of NIAMD Conference Published

Proceedings of the fourth annual Artificial Kidney-Chronic Uremia Program Contractors' Conference have been published by the National Institute of Arthritis and Metabolic Diseases.

The participants also examined the metabolic aberrations of chronic kidney failure and uremia.

Achievements discussed included a new generation of compact artificial kidneys, the "hollow fiber" and envelope dialyzers, and development of ingestible sorbent materials.

Copies of the proceedings are available from the Artificial Kidney-Chronic Uremia Program, NIAMD, Bldg. 31, Room 9A-05.

glamorous jobs that have to be done. Hopefully, they will learn some skills, and intellectual and sociological values," he pointed out.

Besides the opportunities EEO offered to employees who were in dead end jobs and now have "marketable skills," Dr. Gibson cited the recent increased proportion of minorities and women in grades nine to 12 as positive results.

Asked if he thought EEO had so far accomplished what it set out to do, Dr. Gibson said, "Its accomplishments are less than I hope for, but more than I expected. We could do more, and we will do more."

Dr. Gibson, editor of *Tropical Medicine and Hygiene News*, was asked if he would ever go back to the mainstream of medical research at NIH. His answer was, "I really don't know, I haven't thought that far ahead.

"But I have never enjoyed 4 years as much as I have these. I don't want to be corny about it, but this has been rewarding and exciting. Which is not to say

DR. HARRIS

(Continued from Page 1)

how the hybrid cells lose chromosomes on continued cultivation and thus show segregation of parental characteristics.

Observations on the relationship between malignancy and histocompatibility, derived from the analysis of segregation patterns, will also be presented.

Professor Harris has been a Fellow of the Royal Society since 1968, and since 1963 professor of Pathology at the University of Oxford and Director, British Empire Cancer Campaign, Cell Biology Unit.

He was head of the Department of Cell Biology, John Innes Institute from 1960 to 1963; Visiting Professor, Vanderbilt University in 1968; Walker-Ames Professor at the University of Washington, also in 1968, and the Dunham Lecturer at Harvard University in 1969.

Communications Bibliography Offered by Information Center

A new communications bibliography is available from an NINDS-supported Information Center for Hearing, Speech, and Disorders of Human Communication at Johns Hopkins University.

For further information on *Current Citations on Communication Disorders*, write to the Center at 310 Harriet Lane Home, The Johns Hopkins Institutions, Baltimore, Md. 21205.

that it's always peaches and cream here, there are many days when it's absolutely hectic."

However, when the EEO program has accomplished its goals, Dr. Gibson may well return to research and he cited a very good reason for doing just that—"we are here, the EEO office is here, to help solve what we hope is a temporary problem."



Seven employees of the Plant Engineering Branch receive 30-year Service Certificates and pins from Ross Holliday, Director of the Office of Engineering Services. L to r: Francis McDonald, James F. Travers, Samuel Dicara, Willard Harris, Stanley W. Oliver, PEB chief, and Monette Ross, Shops Section chief. Robert E. Margraf was not present.

NICHD Epidemiologist, Dr. F. Lundin, Receives Commendation Medal

Dr. Frank E. Lundin, Jr., now of the National Institute of Child Health and Human Development, was recently awarded the PHS Commendation Medal and Plaque by Dr. Leon Jacobs, NIH Assistant Director for Collaborative Research.

Dr. Lundin received the award for recognition of outstanding service in the organization, management, and completion of a definitive study of the epidemiology of lung cancer among miners of uranium ore.

The citation states, in part: "Completion of the study required the resolution of extraordinary problems under notably difficult circumstances, outstanding professional and managerial efforts, and a considerable personal sacrifice."

His studies were made while he was with the National Institute of Environmental Health Sciences in the Epidemiology Branch, Office of the Associate Director



Dr. Jacobs (l) congratulates Dr. Lundin after awarding him the PHS Commendation Medal.

for Epidemiology-Biometry.

Dr. Lundin has been appointed Senior Epidemiologist in NICHD's Epidemiology and Biometry Branch.

He will plan and carry out epidemiologic studies in collaboration with the intramural and extramural staff.

Dr. Lundin's areas of interest include mental retardation, aging, and growth and development. He will also provide consultations to all program areas of the Institute.

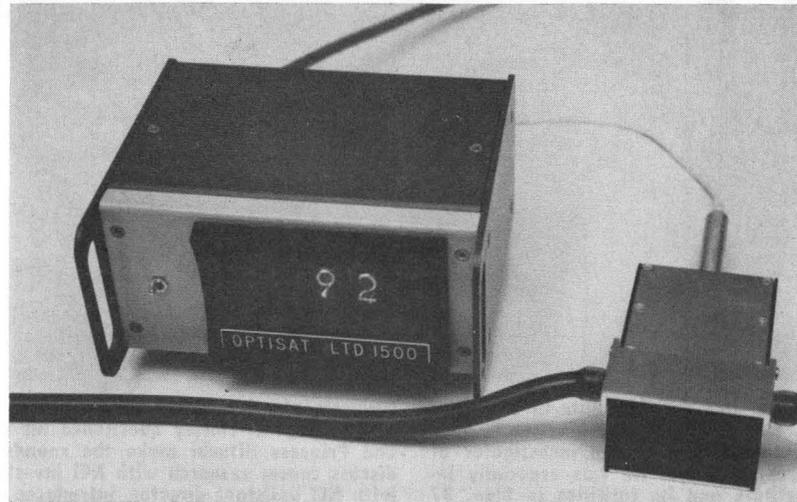
Study Evaluates Med. Students

A 20-year study to establish criteria on evaluating the selection of medical students was recently published by the University of Utah.

It is titled *Measurement and Predictors of Physician Performance: Two Decades of Intermittently Sustained Research*.

The book may be purchased for \$3.95 from the Department of Psychology, University of Utah, Salt Lake City.

Electro-Optical Device Selected as One Of Top 100 Technical Products of 1971



The OPTISAT LTD-1500, developed by Dr. Vurek and Mr. Friauf, is an electro-optical device which measures the blood oxygen levels during procedures involving the circulation of blood outside the body.

An electro-optical device, developed by NIH scientists for the continuous measurement of blood oxygen levels during use of an artificial lung, has been selected by Industrial Research, Inc., in its international "I.R. 100" new product competition as one of the one hundred most significant technical products of the year.

The device, the OPTISAT LTD-1500, was developed by Dr. Gerald G. Vurek, a senior investigator in the National Heart and Lung Institute's Laboratory of Technical Development, and Walter S. Friauf, chief of Electrical and Electronic Engineering in the Division of Research Service's Biomedical Engineering and Instrumentation Branch.

They collaborated with Dr. Theodor Kolobow—also in the Technical Development laboratory—using the OPTISAT in conjunction with an artificial lung (membrane blood-oxygenator) developed by Dr. Kolobow for long-term respiratory support.

Methods of determining blood oxygen—obtaining serial blood samples, carrying them away from the operating room for analyses, and reporting the vital information back to the surgeon—can introduce hazardous delays and potential errors.

Measures Continuously

The OPTISAT provides immediate continuous measurement without sampling or blood flow obstruction. The information is displayed visually in analog or digital form, and can be recorded.

Blood oxygen saturation is a term used to express the amount of oxygen being carried by the blood in relation to its oxygen-carrying capacity.

Normal arterial blood oxygen saturation is about 95 percent.

The new method of measuring blood oxygen saturation takes advantage of the fact that hemo-

globin changes its optical absorption properties when it combines with oxygen to form oxyhemoglobin (the main transport form of oxygen in the blood, accounting for about 98 percent of blood oxygen).

In the OPTISAT, blood flowing through a clear plastic tube is illuminated alternately by red and infrared light sources.

As the light travels through the blood, it is scattered and partly absorbed by the hemoglobin-filled red blood cells. Some of this light is detected by a photoelectric cell, converted into an electric current, amplified, and used to compute saturation.

Because hemoglobin absorbs less visible red light than does oxyhemoglobin, the component of the resulting electrical signal is roughly proportional to blood oxygen saturation.

However, the accuracy of this index alone can be diminished by changes in bloodflow or hematocrit (the fraction of blood occupied by the red cells regardless of their hemoglobin content).

The use of an infrared light compensates for the variations in scattering effects because both oxyhemoglobin and hemoglobin absorb about the same amount of infrared light.

By taking the ratio of the infrared signal to the red signal, an indication proportional to saturation is obtained which is virtually independent of hematocrit or flow over a saturation range of 40 to 100 percent.

The oxygen saturation is computed by a unique electro-optical ratio circuit that was developed especially for the OPTISAT.

Cell Lines, Developed From Monkey Tissue, Considered for Vaccine

The establishment of monkey diploid cell lines as candidates for use in human viral vaccine production has emerged as the result of a research program sponsored by the Division of Biologics Standards. The project was carried out by Lederle Laboratories, Pearl River, N.Y., under contract to DBS.

The preliminary results of the project were reported at the 12th International Congress for Microbiological Standardization in Annecy, France, by Roslyn E. Wallace, Lederle Laboratories.

The report describes the development of two cell lines from fetal lung tissues of rhesus and African green monkeys.

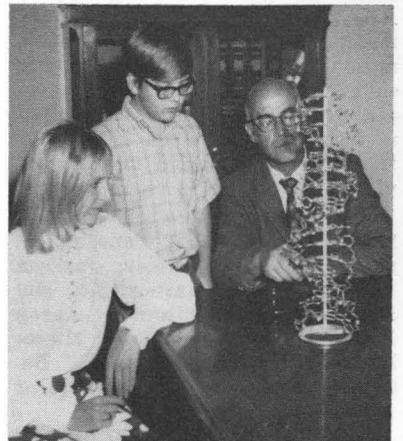
Characterization studies of these cell lines, designated DBS-FRHL-2 and DBS-FCL-1, show them to have a finite life of approximately 50 culture passages while maintaining normal chromosomal (diploid) characteristics.

The cells are non-tumorigenic when tested *in vivo*, and adventitious agents have not been detected. They are susceptible to a variety of viruses, including polio, rubella, measles, and mumps, and can be preserved by freezing without losing the above properties.

A human diploid cell line, WI-38, was developed more than 10 years ago and its use in the production of live poliovirus vaccine may soon be approved by NIH.

Although viral vaccines produced from primary cell cultures have been successful, monkey diploid cell lines may provide another alternative for viral vaccine production.

A report of the study will be published in *Science*.



Two outstanding high school students who have received summer fellowships from the Montana Division of the American Cancer Society—Anne Kosteczko and Miles Nelson—discuss the components of a DNA molecule with Dr. Herbert G. Stoener, Director of NIAID's Rocky Mountain Laboratory.



On their recent visit to the reservation Prince and Princess Hitachi of Japan are greeted by NIH Director Dr. Robert Q. Marston and Mrs. Marston. Prince Hitachi, the second son of the Emperor of Japan, is a special investigator at the Japanese Foundation for Cancer Research in Tokyo. He was especially interested in visiting the National Cancer Institute and its facilities in Bldg. 37 and the Clinical Center. Center: In front of Bldg. 37, the Prince and Princess chat with Japanese nationals—many of them scientists—from NIH and other

Government offices. Prince Hitachi, who has published an article on nitrosamines as carcinogens, closely questioned his compatriots on their work. Right: Prince and Princess Hitachi make the rounds of many labs and offices in order to discuss cancer research with NCI investigators. Dr. Anthony Bruno (second from left), NCI assistant director, introduces the Royal couple to Dr. Louis B. Thomas, chief, Laboratory of Pathology. Joseph Leahy, Protocol Office, Department of State, is in the background.

NCI Scientists Present Papers Stressing Virus Relationship to Cancer at Meeting

The major theme of most of the papers presented by NCI investigators at the Vth International Symposium on Comparative Leukemia Research was the relationship of viruses to cancer.

The symposium, held Sept. 13 to 17 in Padua and Venice, Italy, was co-sponsored by NCI's Special Virus Cancer Program, the Leukemia Society of America, and a number of Italian agencies.

Dr. George Todaro, chief of NCI's Viral Leukemia and Lymphoma Branch, reported that evidence supporting the "oncogene" (tumor gene) theory of cancer causation continually grows stronger.

This theory was proposed in 1969 by Dr. Robert J. Huebner, chief of the Viral Carcinogenesis Branch, NCI, and Dr. Todaro.

Basic Premise Explained

Its basic premise is that the genetic information necessary to create a cancer-causing type-C RNA virus is present in every mammalian cell; exposure of a normal cell to a cancer-causing chemical, radiation, the aging process, or a second virus other than a type-C RNA virus may thus trigger the formation of a tumor virus.

Four investigators on contract to the Special Virus Cancer Program—Dr. Hans Meier, Jackson Laboratory, Bar Harbor, Me., and Drs. Carrie Whitmire, Aaron Freeman, and John Rhim, Microbiological Associates, Inc., Bethesda—also expressed support of the oncogene theory.

They reported the use of cancer-causing chemicals and DNA viruses to demonstrate that in mice and in rat and hamster cells the latent type-C RNA virus can be triggered to induce cancer.

Evidence suggesting that the chemical reverse transcriptase,

found in certain tumor viruses, may be a key element in the change of a normal cell to a cancer cell, was presented by Dr. Robert Gallo, head of the section on Cellular Control Mechanisms.

The chemical participates in the production of hereditary substances, or genes, found in animal and human cells as well as in viruses.

Its action can be inhibited by certain derivatives of the antibiotic rifampicin. Dr. Gallo reported that such compounds may prove useful as anticancer agents in man.

Identification Possible

A potential means of identifying the long-sought human cancer viruses was proposed by Dr. Raymond Gilden, a contract investigator at the Flow Laboratories, Inc., Rockville.

He and his co-workers have successfully developed immunologic reagents that recognize RNA leukemia viruses of the mouse, rat, hamster, and cat.

In the future the investigators may be able to relate these findings to the search for human cancer viruses.

Dr. Harish C. Chopra, head of the NCI Electron Microscopy Section, reported that he has established similarity between a virus he discovered by electron microscopy in a monkey breast cancer and a virus known to cause mouse breast cancer.

The monkey virus is similar in appearance to the known cancer-causing RNA viruses and will infect types of human and monkey cells. If proven to induce tumors, the monkey breast virus might help in the search for a possible human breast cancer virus.

Some cancer-causing viruses of the cat occur in nature as mixtures of several viral strains rather than pure strains, according to a report by Dr. Padman S. Sarma, head of NCI's Ecology and Epizootology Section.

Findings May Prove Useful

His finding further explains the characteristics of animal cancer viruses and may prove useful in the study of viruses as a possible cause of cancer in man and in developing methods of cancer control.

Also in relation to the eventual control of human cancer, Dr. Lloyd Law, chief of the NCI Laboratory of Cell Biology, reported that some virus-caused cancers in mice, including leukemia, were prevented by reinforcement of defective immune, or infection-fighting, systems of the mice.

Survivors Reported

Dr. John Ziegler, an NCI scientist and director of the Uganda Cancer Institute, reported on the survival of patients with Burkitt's lymphoma, a rare form of cancer of the lymph system, which develops primarily in African children.

If untreated, the disease is fatal in one to three months. With the drug treatment program begun in 1967, the long-term survival rate has jumped from 20 to 60 percent.

Over 90 percent of the 130 patients in the program experienced a complete, but possibly

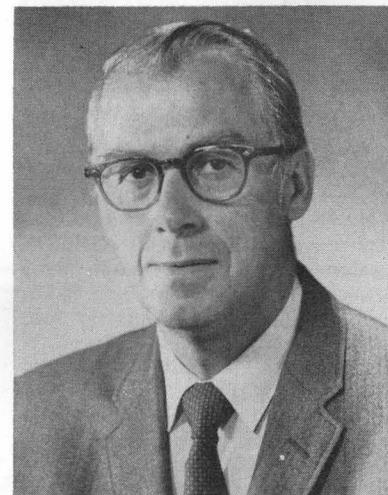
DR. KETCHAM

(Continued from Page 1)

at PHS hospitals in San Francisco and Seattle between 1950 and 1955.

Dr. Ketcham served as Chief of Surgery at the PHS hospital in Talihina, Okla. from 1955 to 1957. From there he joined the NCI staff where he has been chief of surgery since 1962.

Dr. Ketcham is a diplomate of the American Board of Surgery and holds an honorary D.Sc. degree from Hobart College.



Dr. Ketcham, a specialist in surgical treatment for cancer, has directed research which demonstrated the ineffectiveness of the laser beam as a surgical tool in cancer therapy.

temporary, disappearance of all signs and symptoms of their cancer, following treatment with cyclophosphamide, an anticancer drug.

Efforts are currently under way to maintain remission of the disease with an anti-tuberculosis vaccine called BCG.