

the NIH Record

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE October 29, 1968 Vol. XX, No. 22 NATIONAL INSTITUTES OF HEALTH

Tests on Vaccines To Prevent Rubella Highly Effective

Experimental rubella (German measles) vaccines have proved to be more than 90 percent effective in the first field trial conducted during a natural rubella epidemic. This announcement was made during a news conference held at NIH on Oct. 16 following the annual meeting of the National Institute of Allergy and Infectious Diseases' Vaccine Development Branch Contractors.

Dr. Daniel I. Mullally, chief of the Branch, was chairman of the press conference.

Other participants included: Dr. J. Thomas Grayston, chairman of the Department of Preventive Medicine, University of Washington, Seattle; Dr. Saul Krugman, chairman of the Department of Pediatrics, New York University School of Medicine; Dr. Louis Z. Cooper, also of N.Y.U., and Dr. Harvey Liebhaver, assistant professor of Epidemiology and Microbiology, Yale University School of Medicine.

Dr. Grayston reported on results of a test vaccine used on school-age children in Taiwan during a major epidemic which began in January 1968.

(See VACCINES, Page 8)

Dr. Robert Huebner, NCI, Named Chief of Branch

Dr. Robert J. Huebner, whose virus research has produced important findings related to cancer, has been appointed chief of the National Cancer Institute's Viral Carcinogenesis Branch. Dr. Kenneth M. Endicott, NCI Director, made the announcement.

Dr. Huebner will also serve as chairman of the Solid Tumor Virus Program of NCI's Special Virus Cancer Program.

He was formerly chief of the Laboratory of Viral Diseases in the National Institute of Allergy and Infectious Diseases. In recent years he has worked closely with the National Cancer Institute in virus-cancer research. These stud-

(See DR. HUEBNER, Page 6)

Dr. Marshall W. Nirenberg Is First NIH Nobel Laureate; 2 Grantees Share Prize



Dr. Marshall W. Nirenberg, the first Federal scientist ever to win a Nobel Prize, responds to one of many questions at a press conference held here Oct. 16. With him are (from left): Dr. Theodore Cooper, Director, NHI; Dr. Robert W. Berliner, Director of Laboratories and Clinics, and Dr. Robert Q. Marston, Director of NIH.

As his alarm clock began to ring about 7:30 a.m., Wednesday, Oct. 16, the telephone rang also, bringing Dr. Marshall W. Nirenberg the news that he had become the first Federal employee ever to win a Nobel Prize. The call came from a Swedish news reporter already in Washington hoping to be the first to interview the newest Nobel Laureate.

Dr. Nirenberg had worked until 3 a.m. and was to have left at 10 that morning for Philadelphia. There he was to receive the Frank-

lin Medal from the University of Pennsylvania and then go on to Columbia University in New York to share the Louisa Gross Horwitz Award.

His first reaction was that he wished to be in the laboratory—to be with his coworkers. A spontaneous reception began at his home and then moved to the Laboratory of Biochemical Genetics, National Heart Institute. Later in the morning the official telegram from the Royal Caroline Medical-Chirurgical Institute arrived.

Code Interpreted

Dr. Nirenberg shares the \$70,000 prize with NIH grantees, Dr. H. Gobind Khorana of the University of Wisconsin and Dr. Robert W. Holley of the Salk Institute in California, for "discoveries concerning the interpretation of the genetic code and its function in protein synthesis."

At a press conference held shortly after the official announcement, Dr. Nirenberg said, "I'm speechless, just speechless, but I would like to say that it has been truly magnificent working at the NIH."

Dr. Robert Q. Marston, Director of the National Institutes of Health, opened the press confer-

(See DR. NIRENBERG, Page 4)

Mil. Surgeons Hear Marston Discuss 'Paths to Quality'

Research, education and patient service exist as complementary rather than alternative functions, Dr. Robert Q. Marston, NIH Director, told the Association of Military Surgeons of the United States last week.

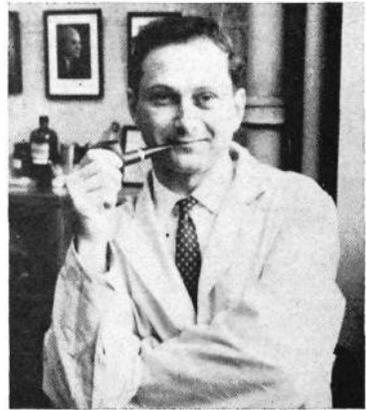
Dr. Marston, discussing "The Several Paths to Quality" in the keynote address for the 75th annual meeting of the association, noted that "there are, indeed, several paths to quality" in health care, and said balance in national support of research, education and service is necessary.

In particular, Dr. Marston placed emphasis on three of the numerous "paths to quality" in health care. Briefly, he summarized these as follows:

- Extending and sharing the quality of health care regionally in association with academic and research institutions.
- Focusing attention on the organization and delivery of health services.
- Improving the quality of research and education.

"There are dangers in any attempt to redeploy existing re-

(See DR. MARSTON, Page 6)



Dr. Alton Meister, Cornell University Medical College, will present the NIH Lecture at the CC auditorium tomorrow (Oct. 30) at 8:15 p.m. He will speak "On the Synthesis and Metabolic Functions of Glutamine and Asparagine."

the NIH Record

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NEWS from PERSONNEL

ANNUAL LEAVE

Only 49 working days remain in the current leave year which ends Jan. 11, 1969.

Some employees will have annual leave which, if not used, must be forfeited at the end of the year. They should not delay in consulting with their supervisor so that arrangements can be made for taking this leave.

Questions regarding accumulated leave should be referred to employee's timekeeper.

ELECTIONS

Limited time off for voting in the general election on Nov. 5 may be authorized under certain conditions. The time off may be charged to administrative leave.

Where the polls are not open at least 3 hours before or after an employee's regular work hours, he may be permitted to report for work 3 hours after the polls open, or leave work 3 hours before the polls close—whichever requires less time off.

Other Arrangement Possible

If an employee's voting place is beyond normal commuting distance, and voting by absentee ballot not permitted, the employee may be allowed time off to make the trip to the voting place. This leave is not to exceed a full day.

Polls will be open at the following times:

Maryland—7 a.m. to 8 p.m.
District of Columbia—8 a.m. to 8 p.m.
Virginia—6 a.m. to 7 p.m.

New Trades, Labor Federal Wage System Starts Nov. 3

NIH employees in trade and labor occupations in the Washington Metropolitan Area will be changed over to the new Coordinated Federal Wage System on Nov. 3, according to the Personnel Management Branch.

A new wage schedule will also be effective on that date.

If the new schedule is not received at NIH in time for the pay period beginning Nov. 3, the schedule will be applied retroactively.

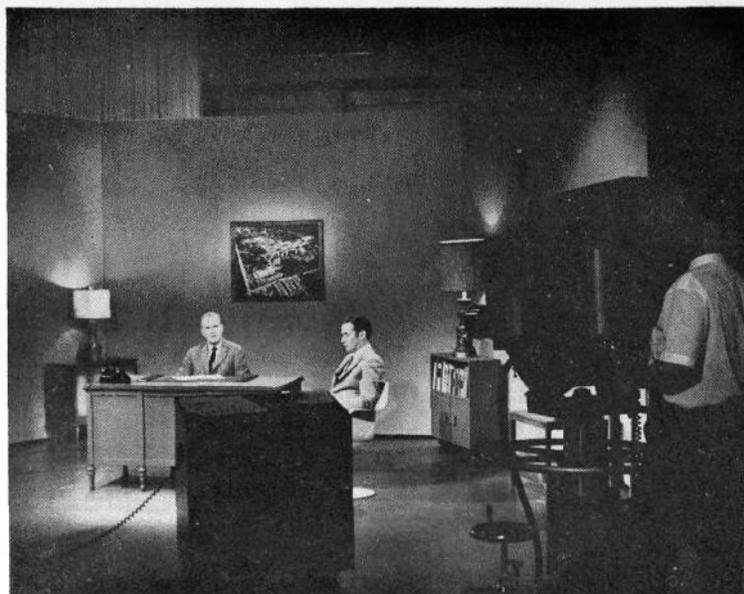
A detailed explanation of the new system will appear in the next issue of the *NIH RECORD*.

R&W Investigating Need For Day Care Center

The possibility of providing a day care facility for the children of present and future NIH personnel is being investigated by the NIH Recreation and Welfare Association.

A questionnaire has been sent to every NIH employee to determine which type of facility would best serve the needs of our NIH community. A second one will be sent to those who express interest on the first.

The day care center would aid in recruiting personnel who would otherwise not be able to work, supporters of the project idea believe.



Dr. Robert Q. Marston, NIH Director, on camera in the WRC studio with announcer, Bob Kelly. Dr. Marston will again appear before a TV audience on Saturday, Nov. 9, at 4:25 p.m., WRC—Channel 4.

Dr. Robert T. Schimke, Former NIH Scientist, Wins Chemistry Award

Dr. Robert T. Schimke, a scientist, formerly with the National Institute of Arthritis and Metabolic Diseases, has won the American Chemical Society's 1968 Award in Enzyme Chemistry. Dr. Schimke's award-winning research was undertaken while associated with NIAMD's Laboratory of Biochemical Pharmacology.

He was recognized for his studies of the control of protein levels in mammalian tissues.

Dr. Schimke is now associate professor of pharmacology and biology at Stanford University's School of Medicine.

Research Aids Understanding

His research while at NIAMD resulted in increased knowledge of the biological control of enzyme reactions, particularly in animal tissues.

Dr. Schimke was the first to clearly show that controlling factors of animal enzymes may be different from those in bacteria.

In 1964, while a member of the NIAMD staff, Dr. Schimke was voted "outstanding young scientist of the year" by the Maryland Academy of Sciences.

He will receive the American Chemical Society award at its annual meeting in April.

Dr. Stetten on NIGMS Council

Dr. DeWitt Stetten, Jr. has accepted membership on the National Advisory General Medical Sciences Council, Dr. Robert Q. Marston, Director of the National Institutes of Health, announced recently. Dr. Stetten is dean of Rutgers Medical School.

NIH Television, Radio Program Schedule

Television

NIH REPORTS

Dr. Robert Q. Marston, Director, NIH
WRC, Channel 4—Saturday, Nov. 9—4:25 p.m.

Dr. Gerald D. LaVeck, Director, NICHD
WRC, Channel 4—Saturday, Nov. 16—4:25 p.m.

Radio

DISCUSSION: NIH

Dr. Nathan W. Shock, Chief, Gerontology Research Center, NICHD
WGMS, AM-570—FM Stereo 103.5—Friday, Nov. 1—about 9:15 p.m.

Dr. Daniel I. Mullally, Chief, Vaccine Development Branch, NIAID
WGMS, AM-570—FM Stereo 103.5—Friday, Nov. 8—about 9:15 p.m.

Both interviews take place during intermission, Library of Congress Chamber Music Series.

NIH Library Changes Hours Effective on November 1

Temporarily, the NIH Library will observe the following schedule, effective Nov. 1:

Monday through Friday—8:30 a.m. to midnight.

Saturday—8:30 a.m. to 6 p.m.

Sundays and holidays—closed.

The Library is requesting NIH staff members to limit as much as possible their use of its photocopying service.

CFC Total Nears Goal; NIH Employees Urged To Give—'Need Great'

Continued hard work by Combined Federal Campaign workers and unprecedented generosity of NIH employees have brought this year's CFC total closer to its goal of \$207,722. Dr. Seymour J. Kreshover, Director of the Institute of Dental Research and campaign chairman, reports.

For the period ending Oct. 16, the campaign reached 86.2% of its assigned quota with pledges and contributions totalling \$179,160.18.

At this point in the campaign, the average individual gift is \$20.31. A total of 8,819 NIH employees have pledged or contributed for a percentage total of 84.1.

CFC Collections to Oct. 16

Unit	Amount Pledged	Percent of Goal	Percent Participation
DEHS	\$1,111.00	133.7	86.5
NIGMS	5,227.00	125.8	105.2
NIDR	6,979.25	112.0	104.2
DRG	12,003.20	103.2	96.8
BHM	13,798.18	102.2	90.6
DRS	19,336.61	101.2	88.9
NLM	7,802.60	96.3	87.1
OAM	14,998.29	94.7	84.5
NICHD	5,925.25	92.0	82.7
OD	5,092.00	91.5	93.1
NIAMD	13,523.90	88.0	74.8
DRFR	2,732.50	87.7	102.2
NIAD	6,660.96	86.7	80.1
DBS	4,357.05	80.7	85.7
NHI	9,388.53	77.9	82.3
NCI	21,454.62	75.9	66.5
DCRT	5,131.00	74.9	87.9
CC	14,563.94	64.9	91.9
NINDB	9,074.30	59.8	61.7
NIH	179,160.18	86.2	84.1

Of the 19 NIH components participating in this year's CFC, six have exceeded their quotas with two of these having over 100 percent of employee participation. One other, while not yet reaching its quota in pledges and contributions, has over 100 percent employee participation.

Percentages for both monetary quotas and employee participation may exceed 100 percent. The base quotas assigned do not include research fellows, visiting scientists, part-time or w.a.e. employees.

Campaign Near End

Looking toward the end of the campaign scheduled to terminate Nov. 1, Dr. Kreshover said:

"I appreciate greatly everything that has been done to date for I know this has been a most difficult assignment, but in the interests of those who need your help the most, namely the beneficiaries of CFC contributions, I must ask those of you who have not yet made a pledge or a contribution to reconsider.

"Time is growing short. The need is great—I believe this sincerely—there is a greater need this year than ever before in the history of the Combined Federal Campaign for support from us all."

Dr. Seegmiller, NIAMD, To Get Gairdner Award

Dr. J. Edwin Seegmiller, National Institute of Arthritis and Metabolic Diseases, is one of five scientists chosen to receive a Gairdner Foundation annual achievement award for 1968.

Dr. Seegmiller, chief of the Section on Human Biochemical Genetics, was selected from 125 candidates from all over the world, for his work on the metabolic defects of Lesch-Nyhan disease. This disease is an hereditary neurological disorder appearing only in males, but carried genetically by the female.

Children Abnormal

Children with the disorder are mentally retarded, spastic, and afflicted with an aggressive behavioral abnormality.

Dr. Seegmiller has described the cause of the disease as an insufficiency of the enzyme hypoxanthine-guanine phosphoribosyltransferase (PRTase) in tissues of patients.

Recently, Dr. Seegmiller has found that Lesch-Nyhan disease can be detected in fetal cells obtained from amniotic fluid withdrawn in early pregnancy.

The technique makes possible the early *in utero* detection of a fetus that will be born a male baby afflicted with the disease. Other metabolic errors in a developing fetus may also be detected with this technique.

In states with liberalized laws on medical abortion, such detection will allow mothers the choice of terminating the development of an imperfect fetus.

The \$5,000 Gairdner award will

Sam, the Hamster



Sam says: If you've given, thank you! If you haven't, please do—TODAY.

The number of NIH employees using payroll deduction totals 2,692 or 30.5 percent of all contributing.

Two Employee Health Films Stress On-the-Job Safety

Two color films stressing safety will be shown to NIH personnel by the Employee Health Service.

The first movie (12 minutes), "Don't Push Your Luck," is a Golden Eagle award-winning film. It tells the story of a man blinded in an on-the-job accident, and the impact this accident has on his future and his family.

"You and Office Safety" (7 minutes), the companion film, deals with a serious subject in a humorous manner. The movie depicts safety hazards in offices, and offers suggestions toward preventing accidents.

These films will be shown at the following locations: CC auditorium, Tuesday, Nov. 12 at 11:30 a.m. and 12:15 p.m.; Westwood Bldg. Conference Room A, Wednesday, Nov. 13 at 1:30 and 2:15 p.m.; Barlow Bldg., Room 13C10, Thursday, Nov. 14 at 12 noon and 1 p.m., and the Tower Bldg., #1, Room 213, Friday, Nov. 15 at 12 noon, 12:30, 1, 1:30, and 2 p.m.

be presented on Nov. 22, at the National Club in Toronto, by the Right Hon. W. R. MacDonald, Lieutenant Governor of Ontario.

Dr. Mary Reid, NIAMD Lab. Researcher, Dies

Dr. Mary E. Reid, a nutritionist at the National Institute of Arthritis and Metabolic Diseases, died Oct. 7 at her home in Washington, D.C. She was 83.

Dr. Reid retired officially from NIAMD's Laboratory of Nutrition and Endocrinology in 1955, but remained as a laboratory research guest worker.

Joined NIH in 1936

She joined the staff of NIH in 1936 when it was located in Washington on a 5-acre tract at 25th and E Streets, N.W.

She had previously conducted research on plant nutrition with the U.S. Department of Agriculture and, prior to that, had taught high school biology and college botany.

After earning a Ph.D. in plant nutrition from the University of Wisconsin in 1923, Dr. Reid received a postdoctoral fellowship to work in animal nutrition with Dr. L. B. Mendel at Yale University.

One of Dr. Reid's accomplishments had been the development of a purified diet for guinea pigs. Using this diet, Dr. Reid explained the vitamin requirements of the guinea pig, and determined its re-

Dr. Sabin Will Lecture At Jules Freund Seminar In Clinical Ctr. Nov. 6

Dr. Albert Sabin, noted virologist who developed the oral polio vaccine, will be guest lecturer for the 8th annual Jules Freund Memorial Seminar to be held Wednesday, Nov. 6 at 12 noon in the Clinical Center auditorium.



Dr. Sabin

He will speak on "Whither the Search for Viral Etiology of Human Cancer."

The Freund lecture is the first of a series of seminars to be held this year under the auspices of NIH immunologists. Dr. Sanford Stone, head of the allergy and hypersensitivity section of NIAID's Laboratory of Immunology, is this year's host.

Dr. Sabin is the Distinguished Service Professor at the University of Cincinnati College of Medicine, and Chief, Division of Infectious Diseases, Cincinnati Children's Hospital Research Foundation.

He is known for his work in pneumococcus infection, experimental arthritis, toxoplasmosis, dengue, neurotropic viruses, and, most recently, for studies on the role of viruses in human cancer.

The Freund lecture is a memorial to Dr. Jules Freund, chief of NIAID's Laboratory of Immunology from 1957 until his death in 1960.

requirements for essential amino acids.

Also successful in the area of plant nutrition, Dr. Reid showed the importance of light in the synthesis of ascorbic acid in the plant.

Dr. Reid was a native of Oconomowoc, Wis. She was a member of the American Institute of Nutrition, the American Association for the Advancement of Science, and the Society for Experimental Biology and Medicine.



Dr. Reid, with NIH for more than 30 years, received laurels for her studies in plant and animal research.

NIAMD Produces Movie On Artificial Kidney Use With Aid From MAPB

"Gift of Life," a new public information film has been produced by the National Institute of Arthritis and Metabolic Diseases in collaboration with the Medical Arts and Photography Branch, NIH.

The film dramatizes the use of artificial kidneys and the mission of NIAMD's Artificial Kidney Program which involves research and development aimed at building simpler, more efficient and less costly dialyzers.

The 16-millimeter, 15-minute color motion picture is intended for use by television outlets, libraries, universities, civic and voluntary health groups, professional organizations, and school systems.

The film tells the story of "Jeff Winston" who is stricken with kidney disease and subsequent permanent loss of kidney function. He receives treatment with an artificial kidney and is able to lead a normal, active, and useful life.

Twice a week he is connected to



In the film "patient" is connected to an artificial kidney machine that provides long-term substitution for missing or nonfunctioning kidney organs which "cleanse" the blood.

an artificial kidney machine in his home to have his blood purified. Without such treatment he would not live.

Medical Arts and Photography Branch employee Elaine Hamilton, her husband Clifford, and their children play leading roles in the picture. Shown are several sequences filmed at the modern artificial kidney center of the Veterans Administration Hospital in Washington, D.C.

Dr. Ervin A. Gombos, chief of the Hemodialysis Center at the V.A. hospital, explains how the artificial kidney works in easy-to-understand terms.

At the film's conclusion, Dr. (See KIDNEY MOVIE, Page 5)

New Movie, 'Gift of Life,' To Be Shown Here Oct. 31

"Gift of Life," a new 15-minute film on NIAMD's Artificial Kidney Program, will be shown at the Clinical Center auditorium next Thursday, Oct. 31 at 10:30 a.m.



A HAPPY COUPLE. Words cannot possibly describe the pride and the feeling evident in this picture of Dr. Nirenberg and his wife and fellow scientist, Dr. Perola Zaltzman-Nirenberg at the press conference held at NIH.

DR. NIRENBERG

(Continued from Page 1)

ence by reading a letter of congratulations to Dr. Nirenberg from DHEW Secretary Wilbur J. Cohen.

In it, Mr. Cohen expressed the "deepest pride" of the entire Department. "Your career," he wrote, "represents public service at its best. Please accept my warmest congratulations on this singular and eminently deserved award."

Dr. Marston added, "On behalf of all of your colleagues at the National Institutes of Health, I would like to extend our warmest congratulations and also to take this opportunity to extend on behalf of NIH congratulations to Dr. Khorana and Dr. Holley."

Commenting on the award, Dr. Robert W. Berliner, Director of Laboratories and Clinics, said:

"Dr. Nirenberg's discovery of the key to translation of the genetic code has provided the cornerstone for one of the most important and fascinating developments in modern biological research.

Future Applications Promising

"It has made possible a major increase in our understanding of the way in which genetic information guides the synthesis of living cells and promises in the long run to have many important applications."

"The work of Dr. Nirenberg will undoubtedly be long remembered as a landmark in the understanding of the genetic processes," said NHI Director Dr. Theodore Cooper. "While I am not a geneticist, I think we all share the belief that such information will ultimately have very meaningful application in the prevention of disease."

Dr. J. E. Rall, Director of Intramural Research at the National Institute of Arthritis and Metabolic Diseases, noted that "Dr. Nirenberg's accomplishments will doubtless be regarded in the history of science as one of the ma-

major achievements of the whole scientific enterprise.

"The NIAMD takes a sort of special pride in Marshall," Dr. Rall said. "He joined NIAMD in 1957 immediately after receiving his doctorate in biochemistry and was a senior scientist in our Laboratory of Biochemistry and Metabolism when he first reported the partial cracking of the code. Marshall is most deserving of the Nobel award."

Congratulated at White House

Rounding out an exceptionally busy but exhilarating period following announcement of his Nobel Prize, Dr. Nirenberg also went to the White House where he was congratulated by President Lyndon B. Johnson.

Drs. Nirenberg, Holley, and Khorana, working independently, have made major advances in understanding the chemical mechanisms by which genetic language or information is translated into various proteins that determine the nature and characteristics of all living things. Their work has cleared the path for investigators throughout the world to examine in detail many aspects of protein synthesis.

Although all three men are working in basic biochemical re-



Dr. Nirenberg, NIH's first Nobel Prize winner, is surrounded by radio-TV reporters and press photographers as he makes his way to press conference.

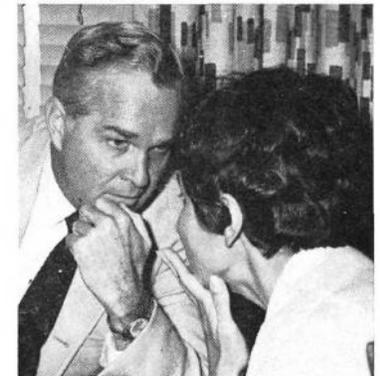
actions, the results may someday have unlimited practical application since, in Dr. Nirenberg's own words, "all forms of life on earth use essentially the same language."

In 1959 Dr. Nirenberg began studies at NIH on protein synthesis in cell-free systems, and with amazing rapidity reported a series of observations which are now known throughout the world.

He started by preparing from the bacterium, *E. coli*, a cell-free system which synthesized protein in the presence of amino acids and energy sources. Then, he showed for the first time that messenger RNA (ribonucleic acid) is required for cell-free protein synthesis.

Synthetic RNA and natural RNA prepared from a virus, greatly stimulated cell-free protein synthesis. Dr. Nirenberg discovered a synthetic RNA containing only a single pyrimidine, uracil, serving as a template for the cell-free synthesis of the protein containing only one amino acid, phenylalanine. This single experiment can be said to have "cracked the genetic code."

Further experiments with other synthetic RNAs containing various proportions of purines and pyri-



Dr. Marston and Dr. Zaltzman-Nirenberg share a quiet conversation.

midines revealed codes for essentially all the known amino acids normally present in protein.

Although the base composition of RNA codons and many properties of the genetic code were clarified with the use of synthetic polynucleotides, the sequence of the bases within each codon remains unknown.

Finds Simple Method

More recently, a general method of great simplicity for determining the base sequence of codons was found by Dr. Nirenberg and his coworkers.

With this they demonstrated directly that since tri- but not dinucleotides serve as templates in this system, a triplet code exists.

The sequences of virtually all codons have now been determined by Dr. Nirenberg's laboratory. It has been shown also that the patterns of synonym codons differ markedly in both template activity and specificity.

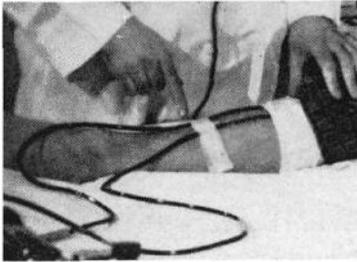
(See DR. NIRENBERG, Page 5)

KIDNEY MOVIE

(Continued from Page 4)

Benjamin T. Burton, NIAMD associate director for Program Analysis and Scientific Communication and chief of NIAMD's Artificial Kidney Program, discusses the Institute's expanded research and development program on artificial kidneys.

Prints of the film will be available from the National Medical Audiovisual Center (Annex), R. E. Sumpter, chief of Acquisition, Distribution and Reference, Chamblee, Ga. 30005.



Physician points to stoma of flexible plastic which remains in patient's arm or leg and is a major key to providing repeated dialysis therapy. Horseshoe shunt interconnects tubes for normal life, and is opened for attachment to hemodialysis machine whenever artificial kidney treatments are given.

Dr. Mueller Joins NIH's Grants Assoc. Program

Dr. Helmut Mueller has joined the Grants Associates program administered by the Division of Research Grants. The program prepares scientists for administrative positions in extramural research activities.



Dr. Mueller

Dr. Mueller comes to DRG from the Mellon Institute where he was a senior fellow conducting biochemical research on contractile proteins of muscle.

At the same time he was adjunct associate professor at the Graduate School of Public Health, Department of Biochemistry, University of Pittsburgh.

Served as Research Fellow

He also served as an American Heart Association Research Fellow at the Marine Biology Laboratory, Woods Hole, Mass.

Dr. Mueller received his M.D. from the University of Wurzburg, Germany in 1952, and his Ph.D. degree from the University of Birmingham, England in 1961.

He completed his internship at Mountainside Hospital, Montclair, N.J. and his residency in internal medicine at Northwestern University.

Coffee Break, Research in Cattle Barn Seen as Influencing Nirenberg's Career

Dr. Marshall W. Nirenberg can recall a coffee break and research conducted in an old cattle barn as turning points in his life, according to a University of Florida news release.

These events—on the university campus in the early 1950s—encouraged him to enter the field of genetics and led to his achievement in deciphering the "genetic code" in living cells.

Dr. Nirenberg was awarded a share in the 1968 Nobel Prize for Physiology or Medicine on Oct. 16.

Dr. Nirenberg received two of his degrees from Florida, a B. S. from the College of Arts and Sciences in 1948 and an M. S. in 1952, before going on to obtain his Ph.D. in biochemistry from the University of Michigan. He was elected to Phi Beta Kappa while at Florida.

"Grew Up" in Florida

Dr. Nirenberg "grew up" in Florida. Born in New York City on April 10, 1927, his family moved to Orlando in 1939, where he was graduated from high school in 1945.

Drs. Lewis Berner, George K. Davis and R. L. Shirley—three scientists still on campus—were influential in shaping Dr. Nirenberg's career there, the university reported.

Dr. Berner, chairman of University College's Department of Biological Sciences, was Dr. Nirenberg's faculty advisor in graduate school.

In an article published several

DR. NIRENBERG

(Continued from Page 4)

The biological consequences of these and other findings remain to be assessed. It seems logical, however, that some synonym codons must play special roles in protein synthesis, such as instructing the cell when to begin translating and, when the job is done, to stop. They may also influence the rate of protein synthesis.

At present, Dr. Nirenberg is interested in basic research in neurobiology, attempting to answer some questions on how the mind works at a biochemical level.

To honor him for his achievements, a reception was held for Dr. Nirenberg last Wednesday in the Clinical Center auditorium. The reception, to which all NIH employees were invited, was given by Dr. Cooper.

As a Postdoctoral Fellow of the American Cancer Society from 1957-1959, Dr. Nirenberg worked at the National Institute of Arthritis and Metabolic Diseases and from 1960 to 1962 he was a Postdoctoral Fellow in the Section of Metabolic Enzymes. In 1962 he joined the NHI staff as head of

years ago in "Floralumnus," Dr. Nirenberg credited Dr. Berner with encouraging him "during a coffee break" to take courses in chemistry and later "go for a Ph. D. in biochemistry."

Dr. Davis, director of the Division of Biological Sciences, used grant money to award Nirenberg an assistantship in the University nutrition laboratory "in an old converted beef cattle barn" where he worked under Dr. Shirley, now head of the lab.

There, Dr. Nirenberg worked with enzymes, cultivating an interest in cell biochemistry. Later, Dr. Davis persuaded him to accept a fellowship which was available at the University of Michigan.

One of the men who knew him best—Dr. Berner—recalls Nirenberg as "a quiet young man, studious and sort of a gentle person in many ways. I always liked him. He was reliable and a good, hard worker."

Curiosity Aroused

Dr. Davis recalls "he had a very great curiosity for cell biochemistry. When I visited him in Bethesda several years ago, he told me it was because of his contacts with us in the nutrition laboratory that he was influenced into pursuing research in genetics."

"I believe I can remember all my jobs in the labs," Dr. Nirenberg was quoted as saying in the *Floralumnus* article. "One of the things that first attracted me toward biochemistry was working with Dr. Davis and Dr. Shirley of



A pensive Dr. Zaltzman-Nirenberg listens intently to proceedings of the news conference.

the Section of Biochemical Genetics.

Dr. Nirenberg is married to Perola Zaltzman who was born in Brazil and received a Doctorate of Science from the University of Brazil.

Other Awards Received by Dr. Nirenberg Since 1962

Molecular Biology Award, National Academy of Sciences, 1962;

Award in the Biological Sciences, Washington Academy of Sciences, 1962;

Modern Medicine Award, 1963;

Paul Lewis Award in Enzyme Chemistry, American Chemical Society, 1964;

Award from the Department of Health, Education, and Welfare, 1964;

Harrison Howe Award, Rochester Branch of American Chemical Society, 1964;

National Medal of Science, 1965;

Hildebrand Award, American Chemical Society, Washington, D.C., 1966;

Research Corporation Award, 1966;

American College of Physicians Award, 1967;

Gairdner Foundation International Award, Toronto, Ontario, Canada, 1967;

Joseph Priestly Award, Dickinson College, Pa., 1968;

Franklin Award, University of Pennsylvania, 1968, and

The Louisa Gross Horwitz Prize, Columbia University, N.Y., 1968.

the Nutrition Laboratory.

"Biochemistry was almost unknown to the undergraduate courses then, and I got a good introduction to things like radioisotope techniques that were so important in following the metabolism of these organic compounds."

4 Doctors Named DRFR Scientist Administrators

Drs. Charles M. Balch, John J. Gleysteen, Meyer D. Lifschitz, and John P. Kinney have been appointed scientist administrators within the Division of Research Facilities and Resources.

They will be involved in the planning and administration of Division programs for biomedical research.

Dr. Balch is serving as a program specialist in DRFR's General Clinical Research Centers Branch, which funds 91 patient-centered clinical research facilities.

Drs. Gleysteen and Kinney are assisting in the Health Research Facilities program, which awards a percentage of Federal funds for construction, renovation, and equipping of biomedical research facilities.

Dr. Lifschitz is working with the Special Research Resources program, which supports resources used for research on an institutional, regional, and national basis.

DR. MARSTON

(Continued from Page 1)

sources to achieve a short-term goal here, a medium-term goal there," he said. "And there is serious danger of disassembling a remarkable apparatus designed to benefit the American people."

National support of medical research, medical education and medical service is not easily interchangeable, Dr. Marston commented, because of the difference in magnitude of the resources needed for each.

Total cost of health care in the Nation is about \$55 to \$60 billion but the portion devoted to medical research is only about \$2.5 billion or 5 percent, of which two-thirds is the Federal share, and the amount spent for medical education, while somewhat larger, is still only a small portion of the total expenditure.

Fund Shift Unhelpful

"Thus, it is clear that the need for additional funds in health services cannot be met by movement of dollars out of research and education," Dr. Marston said.

"Even a billion dollars shifted to our health service bill, though ruinous to medical research and education, would contribute little to the service problems."

The real problem, he added, is one of "foreseeing the type of health universe we want for tomorrow. If indeed we should seek a system for merely dispensing known skills and knowledge—an auctioning of available resources on the basis of current demands—the price will be very high in terms of what could be achieved in the future. . . .

"... the process of borrowing from Peter to pay Paul, or of playing a game of musical chairs in which one resource has been removed or a player added each time the music stops, can only succeed in disrupting the impressive health organization and mechanisms that have been built up so laboriously over generations."

Drs. Seal, Masur Honored

Two representatives of the NIH also were among those honored by the association at award ceremonies.

The prestigious Founder's Medal was awarded to Dr. Jack Masur, Director of the Clinical Center, for his "outstanding contributions to military medicine and meritorious service to the Association."

Dr. John R. Seal, Director of Intramural Research, National Institute of Allergy and Infectious Diseases, was presented the association's first annual Special Award "for his continuing service to the Association" and for his "special contributions as scientific program chairman" for the 1968 meeting.

Swedish Council Offers Two Fellowships to U.S. Biomedical Scientists

The Swedish Medical Research Council is sponsoring two postdoctoral research fellowships in 1969. The Council requested NIH to announce the fellowships which will be awarded to qualified biomedical scientists who are citizens of the United States.

The fellowships will cover maintenance for 12 months of research training in basic or clinical sciences in a government supported institution in Sweden.

In order to prove their eligibility, candidates must have engaged in independent research in one of the health sciences for at least 2 of the last 4 years, and show aptitude in their chosen field.

Such evidence may be submitted in the form of a scientific bibliography, reports of scientific publications, and references from persons familiar with the applicant's background.

Applicants must also show that they have been accepted by a Swedish training institution and a preceptor.

Arrangements may be made through correspondence between the applicant and a scientist in Sweden, or instead, a senior scientist in the United States may write in the applicant's behalf.

A Facilities Commitment Statement, a required part of the Fellowship application, must clearly state that a Swedish institution has accepted the applicant and

DR. HUEBNER

(Continued from Page 1)

ies will now be under his supervision.

A native of Cheviot, Ohio, Dr. Huebner was educated at Xavier University and the University of Cincinnati. He received his M.D. degree from St. Louis University School of Medicine.

Dr. Huebner has served as consultant to the World Health Organization Expert Committee on Virus Research, and other national and international advisory groups.

Dr. Carl Moore Named To Arthritis Council

Dr. Carl V. Moore, Chairman of the Department of Medicine, Washington University, has been appointed to the National Advisory Arthritis and Metabolic Diseases Council.

The 4-year appointment was announced by Dr. Robert Q. Marston, NIH Director.

Dr. Moore is also the Associate Editor of the *American Journal of Medicine*, a position he has held since 1955.

Clinical Center Blood Bank Reports September Donors

The Clinical Center Blood Bank reports that 228 units of blood were received from NIH donors in September, and CC patients received 2,026 units.

Two staff members joined the Gallon Donor Club. They are: Sheila Hollies, NICHHD, and Roy F. Foster, CC.

More blood is needed. Make an appointment to donate now by calling Ext. 64506.

will provide all materials for the duration of his stay.

Depending on the scientist's qualifications and experience, the stipend will amount to \$5,500 or \$6,000. Fellows will also receive an additional \$500 per year for each dependent whether that dependent goes to Sweden or remains in the United States.

The Swedish Medical Research Council will reimburse Fellows with round-trip travel costs for themselves and immediate families from the United States to the Swedish institution.

During their stay at the Swedish training institute Fellows may accept sabbatical salary, royalties, or other income if reported in the application.

Scientists may obtain application forms and further information from the International Fellowships Section, Fogarty International Center, NIH, Bethesda, Md. 20014. Forms must be completed and returned to the Fogarty Center on or before Feb. 1, 1969.

Final selection will be made at the April 1969 meeting of the Swedish Medical Research Council. Nominees will be notified of the results soon after that date.

New Endocrinology Index Developed by NIAMD

A new bimonthly publication, *Endocrinology Index*, has been developed by the Scientific Communications Office of the National Institute of Arthritis and Metabolic Diseases.

The publication facilitates communication, integration of research and clinical efforts, and literature retrieval in the field of endocrinology.

Based on the National Library of Medicine's Medical Literature Analysis and Retrieval System (MEDLARS), the index was made possible with contract support of Vanderbilt University under the direction of Dr. Grant W. Liddle.

The *Endocrinology Index* contains an organized listing of references to recently published endocrinology articles from all over the world. It provides a key-word abstract of each citation.

Prevents Information Loss

The new index will serve to prevent endocrinology-related literature from becoming lost in the outpouring of biomedical information.

It also will permit research workers in endocrinology to readily locate the current published work and findings of other investigators in their field.

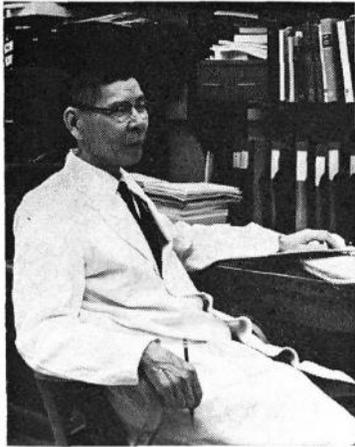
NIAMD had prepared several experimental issues of current bibliographies in this field. On the basis of the experience and evaluations given by an advisory committee, the present format of the index was developed.

The new publication is the latest in the series of periodicals established by the NIAMD Scientific Communications Office.



Dr. Keatha K. Krueger, Dr. Benjamin T. Burton, and Victoria Ragin of NIAMD examine copies of the new *Endocrinology Index*. Dr. Burton is associate director for Program Analysis and Scientific Communications, Dr. Krueger is Scientific Communications officer, and Miss Ragin edits the new publication.

Dr. C. P. Li, Noted DBS Virologist, to Retire



Dr. C. P. Li is co-developer of the LSc (Li-Schaeffer) virus strain used in commercial production for Type I live polio vaccine.

Dr. C. P. Li, chief, Virus Biology Section of the Division of Biologics Standards' Laboratory of Virology and Rickettsiology, retires Oct. 31 after nearly 20 years of service with the Federal government.

Dr. Li first joined NIH in 1949, when he received a 2-year fellowship in the National Microbiological Institute.

From 1951 to 1955, he served as a medical bacteriologist in the Communicable Disease Center's poliomyelitis research program. During that time, he conducted studies on the development of attenuated poliovirus strains for possible live polio vaccine production.

Developed Virus Strain

In 1954, with Dr. Morris Schaeffer, he developed the LSc (Li-Schaeffer) virus strain, later selected as the commercial production strain for Type I live polio vaccine.

In 1955, he returned to NIH as a medical bacteriologist in DBS, where he continued his poliomyelitis vaccine studies.

In 1956, Dr. Li undertook research on natural antimicrobial agents from sea mollusks. He has since published numerous papers on this subject, including his studies on the antiviral, antibacterial, and antitumor activity of certain marine fauna. He is internationally recognized as an authority in this field.

Dr. Li was born in Hsiang-Hsiang, Hunan, China. He received his M.D. in 1925 from Yale-in-China, and served his internship at the Hunan-Yale Hospital.

During the ensuing 24 years, he held various teaching and research posts in Chinese medical colleges and universities; served for 3 years as Expert in Bacteriology with the National Health Adminis-

Creation of Active Artificial Ribosomes May Increase Understanding of Cancer

Ribosomes that perform just like the ones in living cells have been created artificially for the first time by scientists partially supported by the National Institute of General Medical Sciences.

Two University of Wisconsin geneticists have produced active hybrid ribosomes by combining separated parts of ribosomes taken from different kinds of bacteria. In doing so they may have opened a new road toward better understanding of diseases such as cancer.

Ribosomes are submicroscopic protein-making "machines" inside all cells. Proteins, in turn, are "building blocks" that enable organisms to grow and develop.

Earlier this year, these same researchers—Masayasu Nomura and Peter Traub—reassembled an active ribosome after breaking it down into its molecular components—that is, RNA and protein macromolecules.

In that experiment, only ribosomes from one kind of bacteria were involved.

When they reported their first ribosome reassembly, Nomura and Traub noted that macromolecules from yeast or rat liver ribosomes would not work in place of similar macromolecules from bacterial ribosomes. Because of this finding, production of "artificial" ribosomes seemed highly unlikely.

Macromolecules Interchangeable

Now, in an extension of their original work, Nomura and Traub have found that similar macromolecules from ribosomes of distantly related bacteria are often interchangeable.

This was demonstrated when several different artificial ribosomes were produced by blending ribosome parts from different species of bacteria.

With this technique researchers can now test directly how different parts of ribosomes are involved in the cell's protein-making process.

In addition, a long-range result of this research may be a more complete understanding of diseases caused by unregulated growth of cells.

For example, a deeper knowledge of protein production and its regulation by normal cells could possibly be carried over to a study of unregulated protein production by ribosomes of cancer cells.

tration, Nanking, China; and spent 2 years as a volunteer research worker at the Rockefeller Institute for Medical Research in New York. He received the Distinguished Service Award from the Chinese Army Medical College, and military honors from the Chinese Nationalist Government.

Dr. Li is a fellow in the New York Academy of Sciences, and has been active in a number of

Latest Participants in NIH Visiting Scientists Program Listed Here

10/3—Dr. Richard G. Hansford, England, Section on Intermediary Metabolism. Sponsor: Dr. Bertram Saktor, NICHD, Baltimore City Hospitals.

10/3—Dr. Stephen Shaw, England, Section of Neurophysiology. Sponsor: Dr. Eldon L. Eagles, NINDB, Bldg. 31, Rm. 8A52B.

10/3—Dr. John Utting, England, Laboratory of Physical Biology. Sponsor: Dr. Leonard D. Kohn, NIAMD, Bldg. 4, Rm. B11.

10/7—Dr. Armando M. Albert, Spain, Section on Cellular Physiology. Sponsor: Dr. W. Wayne Kieley, NHI, Bldg. 3, Rm. 4.

10/7—Dr. David H. Christopher, England, Laboratory of Technical Development. Sponsor: Dr. Robert L. Bowman, NHI, Bldg. 10, Rm. 5D18.

10/7 — Dr. Angelo Fontana, Italy, Laboratory of Biomedical Sciences. Sponsor: Dr. Joseph C. Robinson, NICHD, Bldg. 12A, Rm. 3063.

10/8—Dr. Takehiko Amano, Japan, Laboratory of Biochemical Genetics. Sponsor: Dr. Marshall Nirenberg, NHI, Bldg. 10, Rm. 6D20.

10/14—Dr. Nikolaus Kaubisch, West Germany, Laboratory of Chemistry. Sponsor: Dr. Bernhard Witkop, NIAMD, Bldg. 4, Rm. 330.



The four seated employees, all with Housekeeping Service Section, have been cited for their sustained superior performance. (L to r) William Noble, foreman; Samuel Byrd, Sylvester Gatewood, and Clinton Jameson. (Standing) Grover Fletcher, head, HSS, and D. R. Cushing, chief, OSB.

other professional organizations.

The author of 50 scientific papers, Dr. Li plans to continue his writing at home.

Engineering Symposium To Hear Dr. Lee, DHEW And Dr. Goodman, DRS

A 2-day symposium of the National Academy of Engineering will open in Washington tomorrow and continue through Thursday.

The meeting will be held in the International Conference Suite of the Department of State and is open to the public.

Speakers on the program include Dr. Philip R. Lee, Assistant Secretary for Health and Scientific Af-



In his opening speech Dr. Goodman describes technology in medicine as tools to perform medical tasks.

fairs, DHEW; Dr. Ivan L. Bennett, Jr., member NAS Board on Medicine, and Deputy Director, Executive Office of the President, and Dr. Michael E. DeBakey, Professor and Chairman, Department of Surgery, Baylor University College of Medicine.

Dr. Lester Goodman, chief, Biomedical Engineering and Instrumentation Branch, Division of Research Services, will give the opening speech on the "Intersection of Technology with Medicine."

Dr. Goodman describes technology in medicine as tools to perform medical tasks.

In his concluding statement Dr. Goodman said, "these are most exciting times in which to be a member of the engineering and scientific community. To be actively involved with the care and well-being of one's fellowman is challenging, fulfilling, and rewarding."

Dr. Leroy C. McLaren Appointed To NIGMS Training Committee

Dr. Leroy C. McLaren, professor of microbiology and Chairman of the Department of Microbiology at The University of New Mexico School of Medicine, has been appointed to the Microbiology Training Committee of the National Institute of General Medical Sciences.



Dr. J. Thomas Grayston (right), University of Washington, discusses encouraging results of his trials in Taiwan of an experimental vaccine against rubella with Dr. Daniel I. Mullally, chief of the Vaccine Development Branch.

VACCINES

(Continued from Page 1)

He used three strains of a live attenuated (weakened) vaccine HPV-77, developed by Drs. Harry M. Meyer, Jr. and Paul D. Parkman of the Division of Biologics Standards.

One-half of Dr. Grayston's study group, composed of Taiwanese children in the first through fourth grades, received no vaccine. One-fourth received one of three strains of the vaccine, produced by 3 different pharmaceutical companies.

The other fourth received an injection of Salk polio vaccine (which would not affect the course of rubella) to serve as an injected control group.

Participants Not Immune

Since the last rubella epidemic on Taiwan had occurred in 1957, the participants could not have built up previous immunity to the disease.

Examinations three times a week after inoculation revealed that during the epidemic rubella rash had occurred in half of the unvaccinated children.

Children vaccinated prior to exposure, however, received more than 90 percent effective protection against clinical rubella. No virus spread from a vaccinated person to an unvaccinated one.

Since the length of protection afforded by the vaccine remains to be determined, according to Dr. Grayston, girls were not included in the testing. It was felt that it was best for them to contract the natural disease which is known to confer immunity through the child-bearing years.

The antibody levels of the Taiwan children will be tested for several years to determine the length of protection.

Drs. Meyer and Parkman devel-

oped the H-I (hemagglutination-inhibition) test which detects immunity to rubella for years after infection. They previously reported finding antibodies (produced in the blood by the vaccine to ward off the disease) for at least 3 years after injection of the vaccine.

Dr. Krugman expressed the hope that the rubella vaccine, when licensed, will be as effective as the vaccine introduced in 1963 to com-



Dr. Krugman said the German measles vaccine would probably be administered to children over one year of age in a single inoculation.

bat measles. He said there had been a remarkable decline in the number of measles cases since that time.

Dr. Krugman said a German measles vaccine would probably be administered in a single inoculation to children over one year of age. It would not be given to pregnant women.

Dr. Liehaber also discussed rubella vaccine trials conducted by Drs. Dorothy Horstman and Robert McCollum at Yale.

Researchers hope that the vaccine, now and as later modified will produce the same long-lasting immunity as does the natural disease. In addition, they hope that by vaccinating the child and adolescent population no rubella will be

NHI, Cited for Its 'Medical Leadership,' Receives Hemophilia Foundation Award

The National Heart Institute received the National Hemophilia Foundation's Research and Scientific Achievement award for 1968 at the Foundation's annual Trustees Dinner in New York, Oct. 26.

In making the presentation, Dr. Kenneth M. Brinkhous, chairman of the Medical Advisory Council for the Foundation, cited the Institute for its "medical leadership . . . tremendous stimulation and support of research activities directly related to the study and treatment of hemophilia."

Dr. Brinkhous observed that without the overall interest and support of NHI, much of the important work in the study of coagulation and in the development of the newly available blood products might have never been done.

In accepting the award for the Institute, NHI Director Dr. Theodore Cooper pointed out that there was still a tremendous effort that must be made in the area of blood and blood products. The mechanisms of blood coagulation are still poorly understood, and much basic work needs to be done.

New Treatments Predicted

When the clotting process is clearly understood, noted Dr. Cooper, new treatments not only for hemophilia but for scores of other diseases associated with abnormal clotting, including perhaps coronary heart disease, may be in the offing.

With specific therapy available for hemophilia, the nation's total supply of donated blood would be increased by one-sixth since at present this amount must be used to prevent or treat crises in the hemophiliacs, Dr. Cooper added.

A new program begun in 1966, the Institute's National Blood Resources Program, is committed to finding ways to meet the steadily

around to infect pregnant women.

Rubella causes only a mild illness in children with subsequent immunity. However, it has caused death or defects in a high proportion of infants born to mothers contracting the disease during pregnancy.

As a result of a rubella epidemic in this country in 1964-65, 20,000 malformed infants were born. Also, there were 30,000 stillbirths and miscarriages.

Since a rubella epidemic occurs every 7 to 10 years, doctors hope to have a working vaccine before the next epidemic, expected in the early 1970's.

A concentrated effort to find a rubella vaccine began in 1965 when Congress authorized one million dollars for use by NIH researchers and grantees.

Participating in the project were eight leading pharmaceutical companies, 12 university medical centers, and four industrial re-

HEW Film Forum Features Programs on Racial Issues

The HEW Film Forum has started a series of documentary films to be shown every other Wednesday in the Main Auditorium, HEW North, from 12 to 1 p.m.

The first film, a CBS documentary, *Of Black America*, was shown last Wednesday.

The topic of the series is *Race in America: Conversations Between Black and White*.

accelerating demands for blood and blood fractions through improvements in technology that will make possible the more efficient production, storage, and distribution of blood products.

The program is a cooperative endeavor involving NHI and other Federal and non-Federal agencies concerned with the acquisition, processing, distribution, usage, or study of blood.

Other Awards Made

In addition to the principal award made to NHI, the Behavioral Sciences Award was presented to Dr. Frances P. Connor, Department of Special Education, Teachers College, Columbia University, and the Dr. Murray Thelin Award was presented to Dr. Judith G. Pool, Stanford University.

Last year the Research and Scientific Achievement Award was given jointly to the American Red Cross and the American Association of Blood Banks.



Dr. Liehaber discussed other rubella vaccine trials conducted by investigators at Yale University.

search laboratories, in addition to the DBS, National Institute of Neurological Diseases and Blindness, and the NIAID.