

# The NIH Record

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Dr. James B. Wyngaarden, Director of NIH (l) greets Dr. Frank Young, Commissioner, Food and Drug Administration (r), prior to Dr. Young's tour of the Clinical Center and other key installations on the NIH campus on Aug. 23. The new FDA Commissioner, a distinguished pathologist and microbiologist, was vice president for health affairs and dean of the School of Medicine at the University of Rochester, N.Y., immediately prior to his recent appointment to the FDA.

## New Booklet on Cataracts Published by Eye Institute

The National Eye Institute has published a new booklet titled *Cataracts*. In simple language, the 24-page publication tells what a cataract is, how to recognize its symptoms, and what to do if you think you might have one.

The brochure also describes cataract treatments and answers questions people often ask about this eye disease:

Are cataracts contagious?

Does air pollution or hard work cause cataracts or make them worse?

Can you cure cataracts without surgery?

Can they grow back after surgery?

Can they be removed with lasers?

The answer to all these questions is NO.

The word cataract comes from the Latin for waterfall, because seeing through a cataract can be like trying to look through a waterfall. A cataract, the brochure explains, is a cloudy or dull area in the lens of the eye.

The lens helps focus incoming light rays onto the retina at the back of the eye. If the lens becomes cloudy, light cannot pass

(See CATARACTS, Page 10)

## Biological Abnormality—Brain Protein Deficit Studied as Key Clue in Alzheimer's Disease

Alzheimer's disease, the most common form of dementia among the aged, has attracted a great deal of research attention as scientists attempt to identify what causes the disease and how it can be treated or prevented. Now, researchers studying basic cell metabolism at the Harvard University Medical School and McLean Hospital may have uncovered one key to the mechanisms underlying this illness.

### Biochemical Abnormality

In a series of investigations supported by the National Institute on Aging, Drs. Charles Marotta and Elizabeth Sulkowska have found a biochemical abnormality that impedes production of new protein in Alzheimer brain cells. The results of this work were published in the Aug. 31, 1984 issue of *Science* magazine.

Alzheimer's disease affects some 2 million elderly Americans—many of whom are in nursing homes—at a cost of \$25 billion each year.

For some time it's been known that the most serious symptoms of the disease are closely correlated with the intracellular accumulation of abnormal protein structures called neurofibrillary tangles. But scientists have always been puzzled as to how these pathological changes relate to normal cell function.

Drs. Marotta and Sulkowska compared autopsied tissue from the cortex of six Alzheimer victims with that from four patients of the same ages who died of other causes. The Alzheimer brain tissue showed massive accumulations of neurofibrillary tangles.

In the diseased brains, the investigators found little more than half the normal amounts of ribonucleic acid (RNA). RNA is a key chemical in the production of protein, a process that is critical to the life of the cell.

### Decreased Protein Synthesis

A closer look linked the lower levels of RNA to the presence and uninhibited activity of ribonuclease.

In the healthy brain, ribonuclease breaks down RNA, but its activity is closely controlled by an inhibitor protein. In the Alzheimer brain, Drs. Marotta and Sulkowska found that ribonuclease is unchecked, freely destroys RNA and leads to decreased protein synthesis.

This work is an extension of earlier studies in which Dr. Marotta and his colleagues first showed that messenger RNA can be removed from the postmortem brain for scientific study. If the brain has been stored under routine laboratory conditions, RNA will synthesize protein as if in a living brain, even years after death.

(See ALZHEIMER'S, Page 11)

## NINCDS Scientists Study Former Polio Patients Who Experience New Symptoms Years Later

When Mary was 12, polio epidemics were sweeping the country. She and two of her neighbors were among an estimated 300,000 who caught the dread disease. Following months of rehabilitation and corrective surgery, Mary was left with a small, weakened left leg, but she was able to get around well using a brace.

About 3½ years ago, at the age of 44, Mary (her name has been changed to protect her privacy) began to experience weakness and pain in her right arm. A neurologic exam showed that some of her arm muscles, previously unaffected by her childhood bout with polio, had begun to shrink.

While most patients who have had polio stabilize and never have any additional muscle-related problems, Mary is among an increasing number of postpolio patients who are experiencing new symptoms, report NINCDS scientist Dr. Marinos Dalakas and

colleagues in the May-June 1984 issue of *Reviews of Infectious Diseases*.

Seventeen postpolio patients were examined by Dr. Dalakas and his coworkers who included Drs. John L. Sever and David L. Madden from NINCDS, Dr. Nicholas Papadopoulos from the NIH Clinical Center, and Dr. Paul Albrecht from the FDA Center for Drugs and Biologics.

"We found that those postpolio patients who do have new symptoms generally fall into two distinct groups," says Dr. Dalakas, a member of the NINCDS Infectious Diseases Branch.

The first group, to which Mary and nine of the other patients belong, exhibits specific, focalized muscle pain and weakness. The second group, which in this study is composed of the other seven patients, shows an

(See POLIO, Page 10)

# The NIH Record

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## TRAINING TIPS

The following courses sponsored by the Division of Personnel Management are given in Bldg. 31.

<i>Executive, Management and Supervisory</i>	<i>Course</i>	<i>Starts</i>	<i>Deadline</i>
Planning for Results		10/17	10/3
Manage Your Meetings		10/19	10/5
Successful Middle Management at NIH		10/9	9/29
<i>Technical</i>			
Effective English Workshop		10/15	10/1
*Secretarial Techniques		10/24	9/10
<i>Administrative</i>			
DELPRO (for new users only)		10/1	9/17
		11/5	10/22
Travel Orders & Vouchers		11/5	10/22
Basic Time & Attendance		10/9	9/24
		11/1	10/18

\*Course date is October not November as listed in last month's NIH Record.

To learn more about these and other courses, contact the Development and Training Operations Branch, DPM, 496-6371.

## Handicap Forms: Please Return

During August, a memo was sent to all NIH employees requesting completion of SF 256, Self Identification of Reportable Handicap.

A cut off date of Aug. 27, 1984 was established to meet a deadline set by PHS. The deadline is being extended to close of business Sept. 21 for NIH employees to submit these forms.

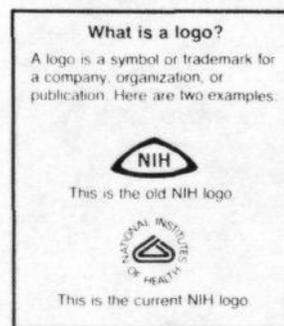
Please complete the form as soon as possible, and return it to the Division of Equal Opportunity, Bldg. 31, Rm. 2B40. □

All NIHers and Clinical Center Patients are eligible to enter this contest

# NIH 100<sup>th</sup> Anniversary\* Logo Contest

## Win \$500 for the best design

- No application necessary
- You need not be an artist
- Enter as many designs as you wish
- Entries must be received between now and October 31, 1984
- Be sure each design has:
  1. Your name (printed)
  2. NIH Address
  3. NIH Phone Number
- Deliver or mail your design(s) to:  
Office of Special Projects, NIH  
Shannon Building (1), Room 313  
Bethesda, MD 20205
- Winner will be announced in the November 8, 1984 NIH Record
- Questions? Phone 496-1776



NIH will celebrate its 100th Anniversary in 1987. NIH had its beginning as a one room, one man laboratory established by Dr. Joseph J. Kinyoun in the Marine Hospital on Staten Island, New York, where cholera and other infectious diseases were studied among the immigrants arriving in the New York Harbor.

\*NIH will celebrate its 100th Anniversary in 1987

## Mgmt. Intern Applications Accepted Through Oct. 9.

The NIH Management Intern Program is accepting applications through Oct. 9 at the GS-5, 7 and 9 levels. The program consists of four different on-the-job administrative training assignments over a 1-year period. Interns will also enroll in formal course work and attend seminars.

The program provides an opportunity for individuals demonstrating high potential to undertake a period of specialized training in preparation for a career in administrative management of the NIH. Graduates of the MI program have been and continue to be a primary source for future senior management and administrative positions at NIH.

### Eligibility Requirements

Recruitment is limited this year to DHHS employees. Eligible candidates must:

- Have a career or career-conditional appointment and have worked at HHS for 1 year immediately prior to Oct. 9, 1984;
  - Be willing to work fulltime.
- In addition, to meet eligibility requirements at the GS-5 level, employees must have:
- Successfully completed a 4-year course leading to a bachelor's degree at an accredited college or university; or
  - Three years of experience in administrative, professional, technical, investigative, or other responsible work that has

provided a general background for the position; or

- Any time-equivalent combination of such education and experience.
- At the GS-7/9 levels, employees must meet:
- Requirements for GS-5; and
  - Have additional education or experience for the GS-7 or GS-9.

### Information Sessions

Candidates are urged to attend one of the following two information sessions to assure that all their questions are answered:  
Sept. 19, Bldg. 31; Conference Rm. 3; 9:30 a.m.; Sept. 26, Bldg. 10; ACRF Amphitheatre, 2 p.m.

Application forms may be obtained from the Development and Training Operations Branch, DPM, Bldg. 31, B2C31, 496-6371. □

## Health's Angel Anniversary Run

The 9th annual NIH Health's Angel anniversary 10-mile run will be held Sunday, Sept. 16, at 9:45 a.m. All events are open to all comers. Registration will be on the day of the race with an entry fee of \$1 (50¢ for D.C. Road Runner Club members). □

## First American Indian Serves as Summer Intern At NINCDS in Minority Research Career Program

It was a summer of "firsts" for Mary M. Shuman. She performed her first rat embryo dissections, set up her first tissue cultures, and completed her first protein assays.

And she became the first American Indian student in the Minority Access to Research Careers (MARC) Program to hold a summer position with the National Institute of Neurological and Communicative Disorders and Stroke.

"I know I would never have had these opportunities without the MARC program," Ms. Shuman said.

Ms. Shuman is participating in the MARC Honors Undergraduate Research Training Program, a support program of the National Institute of General Medical Sciences. The program is designed to help increase the numbers of minority students who can compete successfully for entry into graduate programs leading to Ph.D. degrees in the biomedical sciences.

"Indians Into Research Careers—the MARC program at my school—is opening up a whole new world for Indian students who want a career in research or academic medicine and who need financial help to get an education," she said.

Ms. Shuman, 21, is a member of the Chippewa tribe and is enrolled at the Lac Courte Oreilles Reservation in Wisconsin. A chemistry major in her senior year at the College of Saint Scholastica in Duluth, Minn., she takes several of her science classes from the University of Minnesota at Duluth, which participates in the MARC program.

Ms. Shuman, one of nine children including one foster sister, says she has always been interested in science and wanted a career in biomedical research. While talking with her chemistry advisor at St. Scholastica about her need for help with school expenses, she mentioned her Chippewa heritage, and was told about the Indians Into Research Careers and MARC programs, encouraged to apply, and was accepted in May 1983.

"The MARC program helps students pay their school expenses and allows us to work for two summers doing research," she said. "And the program gives you a goal: They say you can be a medical scientist one of these days if you keep plugging away. Then they make it possible for you to do the plugging."

As a MARC trainee, she must meet all standards set by her school for honors participation and must maintain at least a 3.0 grade average.

"When I started school, I had no idea that programs like MARC were available," Ms. Shuman noted. "There are a lot of people out there looking for financial help to go to school, especially Indian students. Making educational benefits programs more visible and more accessible is important, so I tell other students about MARC if I see any interest at all."

At the first MARC Indian Scholars Conference, held in Duluth in early August, Ms. Shuman met with other MARC trainees and spoke about the research she was involved with at NINCDS.

She spent her summer in the NINCDS Lab-



**Mary M. Shuman displays results from one of the gel electrophoresis procedures that she performed this summer.**

oratory of Neurophysiology, where the work centers on studies of the nervous system by looking at single cells. She has assisted Drs. Anne Schaffner and Gregory Kapatot with their efforts to isolate subpopulations of cells with specific chemical activity in the nervous system.

Dr. Schaffner says the experiments are intended to provide information about how cells respond to drugs and how cells differ among themselves. The scientific team is investigating whether receptors in the mammalian central nervous system for a snake toxin, alpha-bungarotoxin, have the same properties as the receptors in mammalian muscle and electric organ tissue of eels.

"Mary has been an important part of this work. Her contributions have helped us reach some preliminary conclusions this summer," Dr. Schaffner says. "She will be a coauthor when we are able to publish our results."

Working in the laboratory with neuroscientists, and having them accept her, Ms. Shuman said, was both a challenge and a rewarding experience.

"And it's helped me make my decision to do my undergraduate research in biochemistry," she said. "Now, with the help of the MARC program, I definitely want to continue my education, possibly aiming at a Ph.D. in pharmacology or biochemistry." —Ruth E. Brunstein

## NIMH Seeks Volunteers For Human Sperm Study

NIMH is looking for volunteers for an ongoing study on the motility of human spermatozoa. The study will be performed *in vitro* on seminal fluid samples. Each of the participants will receive a small fee. Those interested in applying should call Dr. Lucio Gnessi at 496-9167. □

## Professor Sherlock To Speak On Alcoholic Liver Disease

Professor Dame Sheila Sherlock will visit the National Institutes of Health Clinical Center and present a talk entitled "Alcoholic Liver Disease" in Rm. 117, Bldg. 30 at 2 p.m. on Sept. 19.

For more than four decades, Dame Sheila has been acknowledged as one of the most authoritative world figures in the field of hepatology and one of the most prominent women in medicine. Many of the patients she treats travel thousands of miles to avail themselves of her clinical expertise. Her contributions to the medical literature on liver diseases have been enormous.

She is the author of perhaps the best known and most widely read textbook on hepatology: *Diseases of the Liver and Biliary System*. The 6th edition of this book has been published and been translated into many languages. She was the key person responsible for founding the International Association for the Study of the Liver and is one of the association's past presidents.

She has always been a vigorous and leading proponent of internationalism in the study of liver diseases and has made significant contributions to the activities of the American Association for the Study of Liver Diseases ever since its inception in 1950.

As a professor of medicine at the University of London she built up a department of medicine which was for 25 years a mecca for training in clinical hepatology and research into diseases of the liver. Many of the world's prominent hepatologists were originally trained in hepatology by Dame Sheila.

In recognition of her outstanding contributions to medicine and medical research she has been awarded honorary degrees from universities in many countries including the USA. In 1982, the Queen of England bestowed upon her the title of Dame. □

## Old Red Rugby Club Seeks New Recruits

Rugby, a fast moving and exciting game long popular in Europe and some other parts of the world, has gained growing support in the Washington area and currently has about 30 local teams playing the game on a regular basis.

Among these teams: the Old Red Rugby Club, one of the top four teams, has attracted a number of NIH employees and foreign visiting scientists to its ranks. It invites new members.

The Old Red Club draws players from all professions and includes players from the whole Washington area.

Practices are being held Tuesdays and Thursdays on campus at Beach Drive and East-West Highway and games are played on Saturdays at a field at 16th St. and Kennedy St., N.W., in D.C.

If you are interested, the club invites you to come on out and give Rugby a try. You don't need any experience and present members are willing to teach newcomers the game.

If you'd like to know more about Rugby and the Old Red Club, you can call NIHer Neil Gibson at 496-5941 (Bldg. 37, Rm. 5D16). □

## Forum on Trans-NIH Issues To Begin 84-85 STEP Activities

"Trans-NIH Issues: Training, Disease Prevention, Nutrition" is the subject of the first 1984-1985 STEP (Staff Training in Extramural Programs) Forum Series lecture to be presented Thursday, Sept. 20, from 2 to 4 p.m. in Wilson Hall, Shannon Bldg.

The lecture panel will include Drs. Doris H. Merritt, research training and research resources officer; Robert S. Gordon, Jr., Special Assistant to the NIH Director; and Artemis P. Simopoulos, chairman, Nutrition Coordinating Committee. Dr. Thomas E. Malone, NIH Deputy Director, will give the summary remarks. The forum is open to all NIH staff.

Dr. George J. Galasso, NIH Associate Director for Extramural Affairs, directs the STEP program which is chaired this year by Dr. Anne P. Ball, National Heart, Lung, and Blood Institute. It is coordinated by Arlene M. Bowles, Office of Extramural Research and Training, OD, with a committee of 21 regular and 2 liaison members who plan and conduct the training sessions.

This year's modules and forum lecture series is designed to improve job skills as well as to expand horizons of the extramural staff through job enrichment offerings. The continued interest in computer usage at NIH stimulated development of Module 1, *Computers and Databases: Applications for Extramural Staff—A Module in Five Parts*, which will offer five seminars to be held Oct. 25, Nov. 8, Jan. 10, 1985, Mar. 14, 1985, and May 9, 1985.

This module will provide information about NIH computer capabilities and practical applications for NIH extramural staff, with on-the-job examples. It is intended to stimulate thinking about how readily accessible computer capabilities can make one's job more efficient.

Although not designed to provide hands-on experience, the module will help attendees learn to use the power of databases and other computer-based facilities. The five seminars will provide information about relevant available databases, the IMPAC Data Base and computer capabilities in review activities, program administration, and program direction. No application is needed for this module.

Module 2, *Issues in Peer Review*, will be held Dec. 4-5. The objectives of this module are to examine various issues which affect peer review, and to increase the participant's knowledge and awareness of differences in approach to the peer review process. Several issues which have an impact on the peer review process will be discussed, including psychological scaling; the effect of percentiling, the rebuttal process, and evaluating the effectiveness of peer review.

Module 3, *Extramural Clinical Trials, Support and Management*, will be held Feb. 6-7, 1985. This module will highlight the similarities and differences that exist among selected Institutes in their strategies for administering clinical trials.

Participants will examine the role of extramural staff in development and management of clinical trials supported through grants, cooperative agreements, and contracts. The module participants will explore, through specific examples from selected Institutes,

the role of the program manager in different situations such as concept development and clearance; protocol development; data and safety monitoring; termination of the study, and analysis and dissemination of study results.

*Program Management: Skills and Strategies*, Module 4, will be offered Mar. 12-13, 1985. This module will focus on the role and responsibilities of extramural program officials in managing and promoting scientific programs. Emphasis will be placed on identifying tools for effective management and discussing strategies for stretching funds for research.

*Biotechnology: Legal, Regulatory, Scientific, and Ethical Issues*, Module 5, will be held Apr. 16-17, 1985. The objectives of this module is to explore the legal, regulatory, scientific, and ethical issues associated with recent advances in biotechnology. The role of NIH in supporting biotechnology and in issuing safety guidelines for the conduct of this research will be examined.

Case studies and the functions of the NIH Recombinant DNA Advisory Committee (RAC) will be discussed.

Through a series of interactive presentations, participants will consider topics such as the origins of the biotechnology revolution; patenting life forms; philosophical/ethical considerations of biotechnology, and the impact of commercialization on the direction of science.

Module 6, *Effective-Talking: Techniques for Working It Out*, will be held May 1-3, 1985. This module is designed to explore effective strategies and techniques for achieving agreement in common work situations. Sources of conflict and stress in interpersonal interactions will be examined.

Approaches to improving communication and opportunities for negotiation will be demonstrated and practiced. Participants will gain an increased understanding of the value of open communication and learn negotiation styles that allow all parties to achieve positive results.

Principles and techniques involved in development of alternative approaches to resolving conflict situations such as dealing with unsuccessful applicants; dealing with program and administrative conflict; and dealing with politically sensitive issues and adverse determinations are some of the topics that will be discussed in this module.

In addition to the opening Forum on Trans-NIH Issues, the 1984-1985 STEP Forum lecture series will consider such topics as science in science fiction, the National Academy of Sciences study of NIH's organizational structure, use of animal models in research and biomedical research support systems in other countries.

Application deadline for modules 2-4 is Oct. 12. Deadline for Modules 5 and 6 is Jan. 11, 1985.

Participation in STEP modules is limited to NIH employees. Although extramural staff are given preference, other interested NIH employees are welcome to apply. Applications may be obtained from BID personnel offices, STEP committee members, or the STEP Program Office, Bldg. 31, Rm. 1B63; 496-1493. □

## Dr. Joe R. Held Honored By Amer. Veterinary Assn.

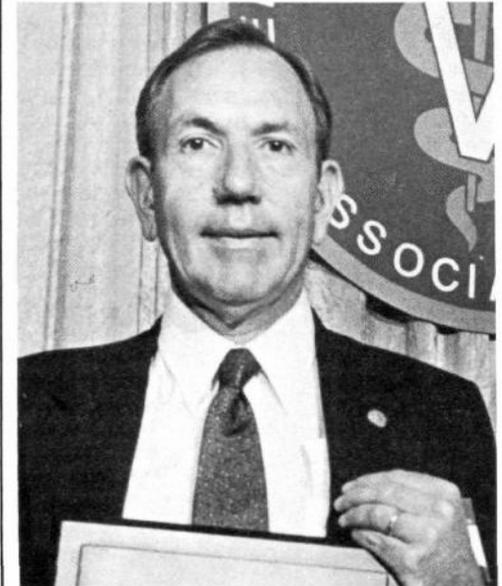
Dr. Joe R. Held, Director, Division of Research Services, received the 7th Charles River Prize at the 1984 annual meeting of the American Veterinary Medical Association. The prize is presented by the Charles River Foundation to a veterinarian selected by the AVMA for distinguished contributions to the field of laboratory animal science.

In addition to his duties as DRS Director, Dr. Held also serves as chief veterinary officer, PHS, and is involved in many activities related to the availability and proper use and care of animals in biomedical research.

Dr. Held is chairman of the Interagency Research Animal Committee, the focal point for Federal agencies' discussions of issues involving animals needed for biomedical research and testing.

He also serves on a committee of the Council for International Organizations of Medical Science (CIOMS) which is preparing a statement of principles on the use of animals in research, for adoption by CIOMS and probably also by the World Health Organization.

During deliberations of a Council of Europe Expert Committee preparing a "Draft European Convention for the Protection of Vertebrate Animals Used for Experimental and Other Scientific Purposes," Dr. Held served as American observer.

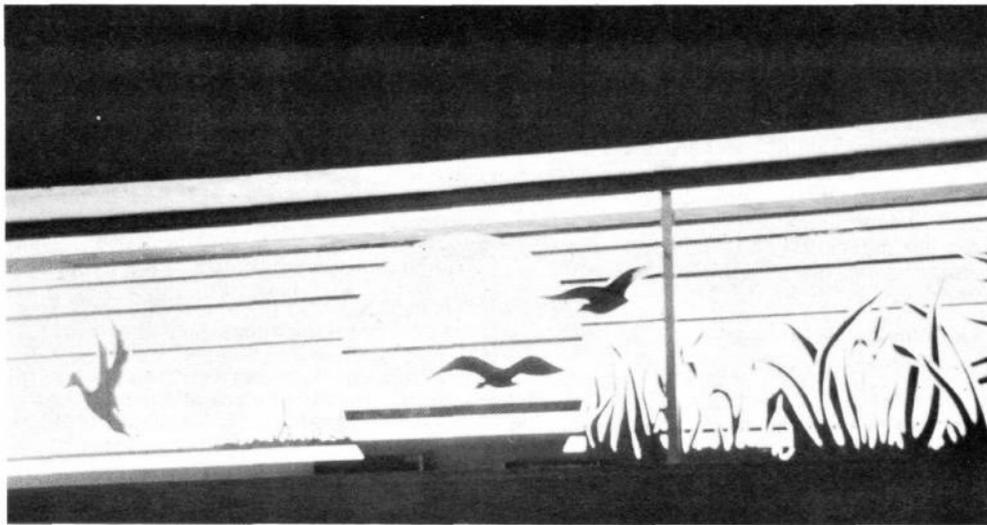


Dr. Held holds the plaque he received from the Charles River Foundation at the AVMA meeting.

## Volunteers Needed for NIA Study

The Laboratory of Neurosciences of the National Institute on Aging is seeking adult volunteers in good health, between the ages of 40 to 80 years, for a study of cerebrospinal fluid. This will involve a screening physical examination and a lumbar puncture. Volunteers will be paid.

Interested persons should call Dr. Conrad May, 496-4754. □



Glass etcher Thomas Ruttkay prepared this new window in the Clinical Center's second floor solarium. It matches other art previously placed on the floor all of which takes the Chesapeake Bay as its theme.

## Word Processor Users Forming Groups at NIH

Interested in improving your word processing (wp) skills? Want a chance to explore new and better ways of working on your wp equipment? If so, you'll want to join the new wp user groups at NIH.

User groups will help you become better acquainted and skilled on your wp equipment. By meeting just once a month for an hour you will not only learn new functions and applications for your wp equipment, but will also have a chance to exchange ideas with other wp users.

### Groups Forming

Users groups for Lexitron and IBM Displaywriter are forming now. User groups for other types of equipment will begin later in the year.

Lexitron users will meet on Monday, Sept. 24 at 10 a.m. in Bldg. 31, Conference Rm 10. IBM Displaywriter users will meet on Tuesday, Oct. 2 at 10 a.m. in Bldg. 31, Conference Rm 4.

At their first meeting information about user groups will be discussed and your ideas are needed. These meetings are open to all individuals including secretaries, scientists, managers, and administrators currently using the equipment.

If you have any questions please contact the NIH Office Technology Coordinator, Dona Lenkin, Division of Management Policy, on 496-2832. We look forward to hearing your ideas. □

## Assertiveness Training Course Offered

The Employee Counseling Services of the Occupational Medical Service will offer a 4-week Assertiveness Training Course starting Tuesday, Sept. 25, from noon to 1 p.m. The meetings will be held in Bldg. 31, Rm. B3C02C. The group will be limited to 15 participants.

Call Rachelle Selzer on 496-3164 for a brief, pre-group interview. □

## CFC Kickoff Will Feature Runners and Walkers

The Combined Federal Campaign (CFC) will be launched on Oct. 15, at noon, by NIH's most spirited runners and walkers. "Catch the Spirit," is the theme of both the CFC and the NIH 2nd Annual Walk/Run, cosponsored by NIH Health's Angels and the NIH Recreation and Welfare Association.

If you run or walk for fun, fitness, or competition, come join us and wear one of the specially designed T-shirts.

The 5,000 meters run (3.1 miles) and the 2,000 meters walk (1.2 miles) will start and finish in front of Bldg. 1. Registration will begin Sept. 10 and continue through Oct. 5 at the R&W Activities Desk (Bldg. 38A, B1, NLM) and the NIH Fitness Center (T39). The entry fee of \$3.50 per runner or walker covers a "Catch the Spirit" T-shirt.

First, second and third place awards will be presented to winners of the run in four different divisions: male, 39 and under; female, 39 and under; male, 40 and over; and female, 40 and over. An award will also be given to walkers.

The CFC-NIH Kickoff event is open to anyone who wishes to participate. □

## Atmospheric Scientist To Speak On Nuclear Climate Disasters

The FAES Lecture Series will sponsor a lecture entitled "Nuclear Winter: Physical and Biological Consequences" by Dr. Richard Turco on Thursday, Sept. 13 at 3:30 in the Masur Auditorium in Bldg. 10.

Dr. Turco, an atmospheric scientist at R&D Associates in Marina Del Rey, Calif., recently published startling predictions that the climatic effects of a hypothetical nuclear war could be as disastrous as the primary effects of the explosions and nuclear fallout.

Published jointly with a number of collaborators, including Carl Sagan of Cornell University, the studies use new mathematical models based on Dr. Turco's previous work with volcanic eruptions and major extinctions caused by meteor impacts. □

## Vaccine Against Tooth Decay Subject of Kreshover Lecture

Prospects for a vaccine against tooth decay and genetic properties of the chief decay-causing bacterium will be discussed during the second annual National Institute of Dental Research lecture Sept. 17 at 3:30 p.m. in the Lister Hill Auditorium.

Dr. Roy Curtiss III, chairman of the Washington University biology department in St. Louis, will deliver the honorary lecture titled: "Genetic Analysis of *Streptococcus Mutans*: Virulence and Prospects for an Anticaries Vaccine."

Beginning this year, the title of the annual lecture has been changed to the "Seymour J. Kreshover Lecture" to honor Dr. Kreshover who served as NIDR Director from 1966 until his retirement in 1975.

Dr. Kreshover is widely recognized for his dedication to public service and his contributions to dental medicine and research. He is scheduled to attend this year's lecture, which will be followed by an open reception.

The lecture series is designed to recognize outstanding scientific accomplishments in basic and clinical research and to honor distinguished scientists who have made important contributions in fields directly related to the research interests of the Institute.

The selection of Dr. Curtiss as the 1984 Kreshover Lecturer highlights the Institute's interest in developing an anticaries (tooth decay) vaccine.

### Surface Proteins

Dr. Curtiss, whose main area of research is the microbial and molecular genetics of bacterial pathogens, has evaluated the importance of several surface proteins on *Streptococcus mutans* (*S. mutans*), one of the chief bacteria that promote tooth decay.

The researcher has identified surface protein antigen A (SpaA protein) as the principal cell surface protein on *S. mutans* and has found that its absence leads to total avirulence in a rat model. He is now studying the ability of SpaA protein to induce immunity against dental caries caused by *S. mutans*.

Dr. Curtiss received his B.S. degree from Cornell University in 1956 and a Ph.D. from the University of Chicago in 1962. From 1963 to 1972, he was affiliated with the Oak Ridge National Laboratory in Tennessee, and the University of Tennessee's Oak Ridge Graduate School of Biomedical Sciences.

He joined the University of Alabama department of microbiology in 1972, and served as professor and senior scientist with the University's Institute of Dental Research until 1983 when he accepted a professorship at Washington University.

Active in numerous professional societies, Dr. Curtiss is a fellow of the American Academy of Microbiology and a member of the American Society for Microbiology, the American Association for the Advancement of Science, the Genetics Society of America, and the Society for General Microbiology. He served on the NIH Genetic Basis of Disease Review Committee and the NIH Recombinant DNA Molecular Advisory Committee. He has published numerous scientific articles, and served as editor of the *Journal of Bacteriology*. □

# New Technique Permits Analysis Of Whole Chromosomes

A new technique for analyzing the genetic material (DNA) has been developed by National Institute of General Medical Sciences (NIGMS) grantee Dr. Charles Cantor and David Schwartz, a predoctoral fellow in Dr. Cantor's laboratory at Columbia University in New York City.

Their method allows the separation of much larger DNA segments than was previously possible, and is expected to facilitate many genetic studies. For example, the approach will make it easier for researchers to examine the genetics of some parasites, algae, and fungi.

The new method is a form of electrophoresis, an analytical tool that has been in extensive use since the 1960s. Electrophoresis provides information about the nature of macromolecules—large molecules such as proteins and DNA.

Using electrophoresis, a scientist can determine a molecule's approximate weight and can separate mixtures of molecules into individual types which then can be analyzed one at a time.

How does this work? Most biological macromolecules—including DNA—are electrically charged and will move in an electric field toward the pole with the opposite charge. Electrophoresis is simply the movement of molecules due to the effect of such an electric field. Since the technique can be used for any type of biological molecule with a net charge, its application is very broad. Only its use for the study of DNA is discussed here.

## Electrophoresis

In the past, the procedure that provided the best available resolution of DNA was "zone" electrophoresis. In this technique, a thin layer of a solution containing the DNA molecules to be studied is placed on a semi-solid medium. Next, an electric field is applied and the molecules migrate across the supporting medium. Because the electric field is applied in only one direction, this procedure is a type of one-dimensional electrophoresis.

Following electrophoresis, the molecules appear on the medium as band-like streaks. The fastest moving (smallest) molecules are those in the bands furthest from the point of origin. Molecular weights of the samples can be assigned with reasonable accuracy by comparison of the samples' band locations (indicating degree of mobility) with those of DNAs of known molecular weight.

One problem with electrophoresis has been the frequency with which bands overlap on the medium, so that only a small number of molecules (usually less than 50) can be distinguished from each other.

Another problem develops when analyzing large DNAs (over 50 kilobase pairs [50 kb] in length), because their size makes them difficult to study with previously available electrophoresis techniques. (A base is one of the informational subunits of a DNA molecule; a kilobase equals 1,000 bases.)

Yet the smallest known eukaryotic chromosomes—those of yeast or small blood cell

parasites such as trypanosomes—are approximately 2,000 kb. (Eukaryotes are organisms, including humans, that have a membrane around the nucleus of each cell.) To study these chromosomes, researchers had to break them into fragments and later reconstruct them to get a picture of the intact chromosome.

## Two-Dimensional Method

Dr. Cantor and Mr. Schwartz have developed a pulsed two-dimensional gel electrophoresis method which extends resolution to 2,000 kb. In this range, many eukaryotic chromosomal DNAs can be separated and analyzed using recombinant DNA techniques so that the DNA bands can be assigned to their corresponding chromosomes.

The new method utilizes the "viscoelastic" phenomenon discovered previously by another NIGMS grantee, Dr. Bruno Zimm of the University of California, San Diego. This refers to the ability of DNA to be stretched out of a random coil shape and, when allowed to relax, to return to the coil shape.

Dr. Cantor and Mr. Schwartz embed the DNA under study in a block of solid gel and then expose it to two alternating electrical fields, one horizontal and one vertical to the gel. The horizontal field causes the DNA to stretch along the gel block, while the vertical field exerts pressure on the DNA to move downward in the gel. This process is repeated, causing each DNA molecule to inch across and through the gel from one corner to the diagonally opposite corner.

The time required for a particular type of DNA to make these maneuvers is closely related to its molecular weight and to anything else that affects its ability to relax, such as structural stiffness. As a result, the timing and spacing of the movements are characteristic for each molecule studied, which allow it to be identified and analyzed.

## Many Applications

There are many applications of this new type of electrophoresis. Many genetic characteristics of organisms such as yeast, algae, and fungi are unknown because their chromosomes are too small to be seen in detail by light microscopy but their DNA molecules are too large for other methods of analysis.

As for some other small organisms, "we don't even know how many chromosomes they have," said the two scientists. Because the method makes it possible to handle much larger pieces of DNA, it will also facilitate the analysis of human genes. "If you can identify the gene on a large piece of DNA [rather than a small fragment], you can clone it much more easily," they explained.

The technique also promises to have enormous importance in parasitology. Most parasite chromosomes are in the size range capable of being studied by this method, and currently, little is known about their genetic constitutions. Work is already under way to investigate how trypanosomes (one species of which causes sleeping sickness, an often fatal disease) can change their surface coat

# Visiting Scientist Program Participants

Sponsored by Fogarty International Center

7/22 **Dr. Graham P. Davey**, New Zealand. Sponsor: Dr. Donald J. LeBlanc, NIAID, FCRF, Bg. 550.

7/22 **Dr. Ehud M. Klein**, Israel. Sponsor: Dr. T. W. Uhde, Biological Psychiatry Branch, NIMH, Bg. 10, Rm. 3S239.

7/22 **Dr. Mervyn Smith**, New Zealand. Sponsor: Dr. Barrie Carter, Laboratory of Cell Biology and Genetics, NIADDK, Bg. 4, Rm. 316.

7/22 **Dr. Donatella Tombaccini**, Italy. Sponsor: Dr. Leonard Kohn, Laboratory of Biochemical Pharmacology, NIADDK, Bg. 4, Rm. B1-31.

7/31 **Dr. Jehoshua Katzhendler**, Israel. Sponsor: Dr. Daniel Camerini-Otero, Laboratory of Genetics and Biochemistry, NIADDK, Bg. 10, Rm. 9D08.

8/1 **Dr. Won-Gi Bang**, Korea. Sponsor: Dr. Sue Goo Rhee, Laboratory of Biochemistry, NHLBI, Bg. 3, Rm. 203.

8/1 **Dr. Duanmu Chi**, China. Sponsor: Dr. Ernest Hamel, Laboratory of Medicinal Chemistry and Biology, NCI, Bg. 37, Rm. 6D28.

8/1 **Dr. Stuart W. Evans**, United Kingdom. Sponsor: Dr. Luigi Varesio, Laboratory of Molecular Immunobiology, NCI, FCRF, Bg. 560, Rm. 31-73.

8/1 **Dr. Basiel Gabriel**, Ethiopia. Sponsor: Dr. David Danforth, Surgery Branch, NCI, Bg. 10, Rm. 2B38.

8/1 **Dr. Jaulang Hwang**, Taiwan. Sponsor: Dr. Ira Pastan, Laboratory of Molecular Biology, NCI, Bg. 37, Rm. 4B27.

8/1 **Dr. Luke Lee**, China. Sponsor: Dr. Donald I. McRee, Non-Ionizing Radiation Work Group, NIEHS, Research Triangle Park, N.C.

8/1 **Dr. Masami Niwa**, Japan. Sponsor: Juan Saavedra, Laboratory of Clinical Science, NIMH, Bg. 10, Rm. 2D43.

8/1 **Dr. Ernst P. Steller**, Netherlands. Sponsor: Dr. Paul Sugarbaker, Surgery Branch, NCI, Bg. 10, Rm. 2B05.

8/1 **Dr. Boris Tartakovsky**, Algeria. Sponsor: Dr. Joost Oppenheim, Laboratory of Molecular Immunoregulation, NCI, FCRF, Bg. 560, Rm. 31-73.

8/1 **Dr. Masami Yoshimura**, Japan. Sponsor: Dr. Takami Oka, Laboratory of Biochemistry and Metabolism, NIADDK, Bg. 10, Rm. 9B17.

8/1 **Dr. Jiri Venecek**, Czechoslovakia. Sponsor: Dr. David C. Klein, Laboratory of Developmental Neurobiology, NICHD, Bg. 6, Rm. 1A15.

8/5 **Dr. Menashe Marcus**, Israel. Sponsor: Dr. Michael Gottesman, Laboratory of Molecular Biology, NCI, Bg. 37, Rm. 2E22.

8/6 **Dr. Maria K. Yeung**, China. Sponsor: Dr. John O. Cisar, Laboratory of Microbiology and Immunology, NIDR, Bg. 30, Rm. 306.

rapidly enough to evade the body's immune defense system.

Using this method of electrophoresis, Dr. Cantor and other scientists have found the mechanism by which the trypanosome can rearrange its protein coat so quickly. These results, along with a description of the electrophoresis technique itself, have been published in the May 1984 issue of *Cell*.

These initial studies in trypanosomes, along with others in yeast, are indicative of the power of this technique. Further refinement of experimental conditions should enable scientists to analyze chromosomes or DNA segments of up to 2,000 kb. When combined with recombinant DNA techniques, rapid gene mapping should be possible. It is conceivable that the technique might eventually allow scientists to study intact chromosomes of higher organisms such as fruit flies, mice, and even humans.—**Sandy Hecker** □

## NIADDK Lecture Series Resumes in September

NIADDK has announced the resumption of its Tuesday morning lecture series with two topics, *Hormone Resistant Disease States* and *DNA-Binding Proteins*. The series is scheduled to alternate between these two topics.

The format of the series is designed to encourage an exchange of ideas between young investigators and senior scientists. It is aimed at broad general appeal to scientists and physicians rather than for the specialist.

A lecture will be presented on Tuesday mornings, from 8:15-9:15 a.m. in Bldg. 10, ACRF Amphitheater starting Sept. 18. Discussion and topical presentations over coffee will follow from 9:15-10:15 a.m. in Bldg. 10, ACRF Medical Board Rm. 2C-116.

### Hormone Resistant Disease States

Diverse metabolic abnormalities at the receptor level or beyond cause clinical disease states characterized by resistance to normal concentrations of circulating hormones.

Recent laboratory discoveries that explain several of these defects form the subject matter for the Hormone Resistant Disease States series. The series includes the following lectures: Sept. 18: *Hormone Resistance in Man Caused by Defects in the Receptor-Adenylate Cyclase Complex*, Dr. Allen M. Spiegel, Metabolic Diseases Branch, NIADDK; Oct. 22: *Receptor Defects in Syndromes of Insulin Resistance*, Dr. Simeon I. Taylor, Diabetes Branch, NIADDK; Oct. 23: *Vitamin D Resistance In Vivo and In Vitro*, Dr. Stephen J. Marx, Metabolic Diseases Branch, NIADDK; Nov. 13: *Glucocorticoid Resistance as a Model for the Steroid Resistant Syndromes*, Dr. D. Lynn Loriaux, chief, Section on Steroid Hormones, Developmental Endocrinology Branch, NICHD.

### DNA-Binding Proteins

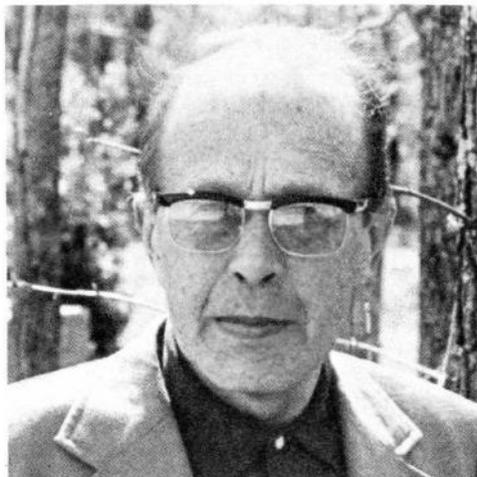
DNA-binding proteins possess widely divergent biological activities. Significant advances are currently being made in studies of the structure, function, and genetics of many such proteins.

The present state of knowledge of several DNA-binding proteins that are intimately involved in nuclear and cellular function will be discussed on the following dates: Sept. 25: *DNA Gyrase and DNA Supercoiling*, Dr. Martin Gellert, chief, Metabolic Enzymes Section, Laboratory of Molecular Biology, NIADDK; Oct. 16: *DNA Replication by the Bacteriophage T4 Multi-enzyme Replication System*, Dr. Nancy Nossal, chief, Nucleic Acid Biochemistry Section, Laboratory of Biological Pharmacology, NIADDK; Oct. 30: *Functional Activity in Affinity Labeled Glucocorticoid Steroid Receptors*, Dr. S. Stoney Simons, Jr., Laboratory of Chemistry, NIADDK; Nov. 20, *Sequence Specific DNA-Histone Interactions*, Dr. Robert T. Simpson, chief, Laboratory of Cellular and Developmental Biology, NIADDK.

For additional information on either of these series, contact Dr. S. Stoney Simons, Jr., at 496-6796. □

## Dr. Velimir B. Vouk Dies

Dr. Velimir B. Vouk, an internationally recognized scientist and expert in the study of the relationship between chemical agents and environmental health, died of cancer



Dr. Velimir B. Vouk

July 23 at North Carolina Memorial Hospital in Chapel Hill, N.C.

Dr. Vouk was appointed director of the Office of Health Hazard Assessment (OHHA) at the National Institute of Environmental Health Sciences in February 1984. He had previously served as acting director (OHHA) since March 1983, and as a visiting scientist since 1980.

A native of Yugoslavia, Dr. Vouk came to NIEHS from the World Health Organization in Geneva, Switzerland, where he was manager of the Environmental Health Criteria and Standards Unit, in the Division of Environmental Health.

At NIEHS, Dr. Vouk was instrumental in

1980 in coordinating the international meeting of the program advisory committee of the International Programme on Chemical Safety, a cooperative effort of the United Nations Environment Program (UNEP), the International Labour Organization (ILO) and the World Health Organization (WHO).

In the NIEHS Office of Health Hazard Assessment, Dr. Vouk was concerned with the evaluation of human health hazards from chemical, physical or biological factors, and the compilation of reference documents which brought together data from the scientific literature on human health effects from exposure to environmental agents. He played a key role in the area of international agreements for environmental health sciences.

Before joining WHO, Dr. Vouk was a professor of environmental hygiene at the University of Zagreb, Yugoslavia. In addition to his academic duties there, he undertook to master a number of different languages. His office library included dictionaries for Polish, Dutch, Russian, Czechoslovakian, German, Greek, French, Portuguese, and Swedish, and as a young student he had studied Latin and ancient Greek as well. This gave him a rare capability in dealing with the international scientific and medical communities.

He later served as director of the Institute of Medical Research and Occupational Medicine at the Yugoslav Academy of Sciences and Arts in Zagreb. Later, from 1965 to 1967, he was visiting professor and scientific advisor at the Atomic Energy Establishment in Cairo, Egypt. In 1967, he joined the World Health Organization, first as a consultant, then in 1969 as a staff member.

Dr. David P. Rall, NIEHS Director, said, "The sense of shock can be felt tangibly among his colleagues at NIEHS. All of us feel privileged to have worked with this exceptional scientist, who was also a fine human being and a friend." □

## Dr. Norman Hayes Retires Following 22 Years in PHS

Dr. Norman R. Hayes, veterinary director in the PHS Commissioned Corps who has served for 11 years in the Veterinary Resources Branch (VRB), Division of Research Services, has retired after 22 years of PHS service.

Dr. Hayes came to NIH in 1973 as chief of the surgery unit in the VRB veterinary medicine and surgery section. In 1976 he became deputy chief of that section.

Dr. Hayes volunteered in 1980 for a detail to Howard University, to provide the expertise needed to open and operate the university's new research animal facility, part of Howard's Comprehensive Cancer Care Center. The center had recently been funded by the Public Health Service through the National Cancer Institute.

During his service at the university, Dr. Hayes also acted as a consultant for the completion of a second Howard animal research facility, located on the Beltsville campus.

Before joining NIH, Dr. Hayes served at the Centers for Disease Control as chief of the Research Animal Unit, Laboratory Division. He received his DVM in 1962 from Tuskegee Institute and the MPH degree in 1972 from



Dr. Hayes

the University of Michigan.

Dr. Hayes is continuing his veterinary career in the private sector. He has opened a clinic for small animals, the Ambassador Animal Hospital, in Greensboro, N.C. □

## Sheryl Melvin Leaves NIH For New York's Opera Center



Ms. Melvin

NICHD's own opera singer, Sheryl M. Melvin, is well on her way to launching her career from singing in the Washington metropolitan area to the stages of New York City—the major opera arena in the United States.

The clerk-typist in NICHD's Office of Research Reporting recently left NIH for New York City to accept a scholarship to the American Opera Center, an apprentice program for young singers housed at The Julliard School.

This 30-week advanced training program is designed for singers who have mastered vocal technique and other basic studies. The curriculum concentrates on all facets of opera production.

In addition, she will take classes in opera theater, lyric diction, Italian diction, body movement, stage makeup, fencing, acting, and dramatic analysis and interpretation. She will continue to be coached by soprano Phyllis Bryn-Julson at the Peabody Conservatory in Baltimore.

"I'm looking forward to participating in the program," says Sheryl. "It will give me the opportunity to perform for New York area operatic directors, add more roles to my repertoire, and work with internationally-known performers."

The 24-year-old singer has sung all over the Washington metropolitan area in operas, recitals, churches and special events.

In February, Sheryl was one of the eight finalists in the National Symphony Orchestra's Young Soloists Competition and last November Sheryl sang various roles in Shakespeare's "As You Like It" at the Arena Stage in Washington, D.C. She also sang the national anthem at the NIH awards ceremony, and yuletide carols at the NICHD Christmas party.

Sheryl earned her bachelor's degree in opera performance from the University of Maryland, College Park, in 1981. She has also taken graduate courses in voice performance.

(See previous story on Sheryl in the *NIH Record*, Nov. 8, 1983.) □

## New Prenatal Test for Fetal Abnormalities Will Be Evaluated in Major Clinical Trial

A multicenter clinical trial to evaluate the safety and accuracy of a new method to detect fetal abnormalities, chorion villus sampling (CVS), has been launched by the National Institute of Child Health and Human Development. More than 4,500 pregnant women who are seeking prenatal testing for genetic defects will participate in the 4-year study.

"This study is being conducted because more scientific data is needed on chorion villus sampling before it becomes a standard clinical practice," according to Dr. Felix de la Cruz, the study's project officer in NICHD's Center for Research for Mothers and Children. "No major studies have been done to determine if this new technique is accurate and safe for the mother and the fetus," he said.

The \$2.2 million project was awarded to seven medical centers around the country. The research teams will be headed by Dr. Robert J. Desnick at the Mount Sinai School of Medicine of the City University of New York; Dr. Mitchell S. Golbus at the University of California Medical Center in San Francisco; Dr. Laird G. Jackson at the Jefferson Medical College in Philadelphia; Dr. David H. Ledbetter at Baylor College of Medicine in Houston; Dr. Maurice J. Mahoney at Yale University School of Medicine; Dr. Eugene Pergament at the Michael Reese Hospital & Medical Center in Chicago, and Dr. Joe L. Simpson at Northwestern University Medical School in Chicago.

Women who desire prenatal diagnosis because they are at risk of bearing a child with a genetic defect will be invited to participate in the study. During their 8th week of pregnancy, the women will be randomly assigned to receive either CVS by the 11th week of pregnancy or amniocentesis, the standard technique for diagnosing fetal abnormalities, in the 16th week of pregnancy.

Both techniques can detect chromosomal abnormalities like Down syndrome and biochemical disorders such as Tay-Sachs disease, but CVS has some major advantages. CVS can be performed much earlier in pregnancy and the results of the procedure obtained much faster than amniocentesis.

With amniocentesis, a doctor inserts a needle through the woman's abdomen and into the uterus to remove a sample of the amniotic fluid that surrounds the fetus. Floating in the amniotic fluid are fetal cells, which are the basis for diagnostic testing. The procedure cannot be performed until the 16th week of pregnancy and the results are not available for another 4 weeks.

By contrast, CVS can be performed as early as the 6th week of pregnancy and, in most cases, the results are available within 24 hours. With this procedure, a small tube is inserted through the woman's vagina and into the uterus.

At around the 8th week, the fetus is surrounded by a membrane called the chorion, which eventually develops into the placenta. Numerous fingerlike projections, the villi, cover the chorion and contain cells that arise from the same cells as the fetus. Several of the villi are gently suctioned away to remove some of the cells for testing.

Because the procedure is new, possible complications associated with CVS are not yet known. However, preliminary studies from a number of centers show that the risks are close to those of amniocentesis.

The study will compare the rate of maternal complications such as spontaneous abortion, pelvic infection, abnormal bleeding and amniotic leakage in both techniques. The newborn will be examined for congenital malformations, low birth weight, and developmental abnormalities to determine if CVS poses a greater risk to the developing fetus than amniocentesis.

The researchers will also determine if CVS is as accurate in diagnosing fetal abnormalities as amniocentesis. This will be done by comparing the initial diagnosis performed using CVS for the presence or absence of chromosomal or biochemical abnormalities with the outcome of pregnancy.

A data collection center will join the project in the near future to assist in analyzing the results. According to Dr. de la Cruz, the findings from this study will provide a basis for establishing risk factors associated with CVS.—**Patricia Blessing**. □

## Two Scientists to Speak on Argentine Human Rights Groups

Dr. Mary-Claire King, a geneticist from the University of California at Berkeley who is using genetic techniques to reunite Argentine grandparents with the children of their murdered sons and daughters, will speak on her work at 11 a.m. Sept. 18 in the ACRF Amphitheatre of Bldg. 10.

Dr. King visited Buenos Aires in June as a member of a scientific delegation sent by the American Association for the Advancement of Science. The delegation came at the request of Argentina's National Commission of the Disappeared.

Dr. Christian Orrego, an NIH visiting associate and another member of the AAAS delegation, will also speak on the work of the Grandmothers of the Plaza de Mayo and the

National Commission on the Disappeared, both human rights groups in Argentina.

The Grandmothers of the Plaza de Mayo has documented 145 cases of children either abducted with their parents or born in detention. Many of these children were taken to be raised by members of the military forces.

Dr. King's and Dr. Orrego's reports at NIH are jointly sponsored by the Foundation for Advanced Education in the Sciences, the Amnesty International Medical Scientists Committee and the American Association for the Advancement of Science's Committee on Scientific Freedom and Responsibility. For more information, call Dr. Patricia E. McKinley at 496-9285. □

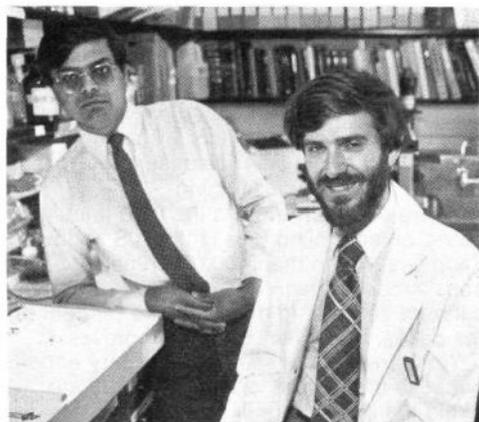
## Two NCI Researchers Get Clinical Research Awards

Drs. Warren J. Leonard and Ajay Bakhshi of NCI's Metabolism Branch, received 1984 trainee awards of \$1,000 each from the American Federation for Clinical Research for their research achievements. The Metabolism Branch is part of the Division of Cancer Biology and Diagnosis.

The awards are given yearly to recognize outstanding clinical research conducted by young investigators. Dr. Leonard was honored for his work in helping to characterize the human interleukin-2 receptor on activated T lymphocytes, and in the cloning and expression of the gene for encoding the receptor.

This receptor plays a critical role in a normal immune response. The receptor is not expressed by normal, resting T lymphocytes, but it is uniformly expressed by T lymphocytes infected with human T-cell leukemia/lymphoma virus-I, the first retrovirus associated with a human cancer.

Cloning the gene for this receptor should help to clarify the early events of T-cell activation and the relationship between HTLV-I infection and receptor expression.



**Drs. Bakhshi (l) and Leonard in their laboratory in the Metabolism Branch of NCI's Division of Cancer Biology and Diagnosis.**

Dr. Leonard joined NCI in 1981 as a senior staff fellow in the Metabolism Branch. In 1980 and part of 1981, he was a research associate in the departments of biological chemistry and medicine, Washington University School of Medicine, St. Louis, Mo. He received an A.B. in mathematics from Princeton University in 1973, and his M.D. from Stanford University in 1977. He did his internship at George Washington University Hospital and his residency at Barnes Hospital in St. Louis; both were in internal medicine.

Dr. Bakhshi's award is in recognition of his role in the molecular genetic analysis of immunoglobulin genes, resulting in the discovery of specific gene defects in human B-cell leukemias. Normal B cells produce antibodies, which are immunoglobulins.

Dr. Bakhshi contributed to a new typing of B-cell leukemias by identifying gene defects linked with changes in immunoglobulins produced by the leukemia cells. A defect in RNA splicing is linked with a specific defect found in the mu heavy chain proteins of immunoglobulins, in these patients with heavy chain disease.



**The Camera Unit of the Photography Section, Medical Arts and Photography Branch, DRS, recently received a group award for outstanding achievement. This unit provides consultation and production services to 21 Bureaus, Institutes and Divisions of NIH to visually communicate program efforts and research results. Recipients of the award were (l to r) front row: Wayne Randolph, Larry Ostby, Kathryn Hutcherson, Mary King; second row: Ron Winterrowd, chief of MAPB; Donald Jones, supervisor, Camera Unit; B. J. Collier, administrative officer, MAPB; Gary Best; and John Ward. Not pictured: John Crawford.**

## Division of Safety Course Schedule

The Division of Safety, OD/ORS, has announced its 1984-85 schedule of training courses.

Three of the four courses, "Biosafety Awareness," "Chemical Safety in the Laboratory" and "Radiation Safety in the Laboratory," are aimed at laboratory personnel and all other NIH employees who are interested in learning more about how to assess the need for safety practices and implement them in a variety of laboratory settings.

The fourth course, "Radiation Safety for Authorized Users," is more specialized. Course participants must obtain a recommendation from his/her scientific director before enrolling.

The course schedules follow:

Biosafety Awareness, Lister Hill Auditorium, 8:30 a.m.-12 p.m., Sept. 27, Nov. 21, Jan. 24, Mar. 27, May 23, June 27.

Chemical Safety in the Laboratory, Lister Hill Auditorium, 8:30 a.m.-12 p.m., Oct. 18, Dec. 20, Feb. 21, Apr. 25, June 20.

Radiation Safety in the Laboratory, Bldg. 21, Classroom, 8:30 a.m.-4 p.m., Sept. 25, Nov. 1, Dec. 4.

Radiation Safety for Authorized Users, Bldg. 21, Classroom, 8:30-4 p.m., Every Tuesday and Thursday, Oct. 2-30.

On the first two courses, call 496-2346 for more information; on the second two courses, 496-2255. □

In cases of B-cell leukemia where there is a defect in the gamma heavy chain proteins, a gene deletion in the DNA is seen. Improved understanding of the specific defects may have important implications for advances in diagnosis and treatment.

Dr. Bakhshi came to NCI in 1981 as a medical staff fellow in the Metabolism Branch and, in 1983, became a senior staff fellow. He holds his B.Sc. in premedicine from Delhi University, and his M.D. from All-India Institute of Medical Sciences in New Delhi. He did both his internship and residency in internal medicine at State University of New York at Stony Brook. □

## Clifford E. Lee Dies at 52; NIH Technician for 28 Years

Clifford Eugene H. Lee, 52, a physical science technician at NIH for 28 years, died recently at Frederick Memorial Hospital. He was the husband of Mary C. Lawson Lee, an employee in the NIH Office of Research Services.

Dr. Edward Steers Jr. of the Laboratory of Chemical Biology in the National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases, said, "Mr. Lee was well-known and well-liked as a person and fellow employee."

Mr. Lee was a member of the Pleasant View United Methodist church and a member of the Usher Board of the church.

He was a veteran, having served with the U.S. Army during the Korean War.

Besides his wife and mother, Mr. Lee is survived by one son, Clifford E. Lee II of Frederick and two daughters, Mrs. Carolyn C. Lee Boyd of Gaithersburg and Christy M. Lee at home.

## Teach an Adult to Read

Thousands of adults in Montgomery County cannot read or write well enough to follow medicine directions, complete job applications, read street signs, or help their children with homework.

Hundreds of foreign-born residents cannot speak English well enough to tell you their name and address. How do they cope? They "fake it" or depend on other people all of the time. It's not easy.

What can be done to help? Become a volunteer tutor.

The Literacy Council of Montgomery County offers free one-to-one tutoring services to non-reading and non-English-speaking adults. They have a growing list of students who want to learn. Will you volunteer to teach just one?

For information and training, call the Literacy Council at 762-6800. □

*He who does not punish evil commands it to be done.*—Leonardo Da Vinci

## POLIO

(Continued from Page 1)

overall general decrease in stamina.

"The decline seen in both groups is neither life threatening nor debilitating," Dr. Dalakas says.

The first group generally includes postpolio patients who were left with little to moderate residual disability after the initial bout with the polio virus, the investigators report.

These patients experience 30 to 40 years of stability before the new symptoms begin. Groups of muscles start to ache and lose their strength. The patients frequently drop objects or find it difficult to climb stairs.

"The patients in group one are developing new muscle weakness and wasting, which we call 'late progressive postpoliomyelitis muscular atrophy,'" Dr. Dalakas says. The atrophy, or shrinkage, which for these patients is slight, can occur both in muscles that were affected by the original disease and in those that were previously spared. Characteristically, the affected muscles are focalized—patients can say, for example, that their upper left leg or their lower right arm is weaker.

"Unlike the initial polio attack, which could debilitate patients within days, this new muscle weakness is mild and develops more slowly," Dr. Dalakas says. "Typically, new changes are noticeable only every 1 to 3 years."

Some patients have been worried that they have amyotrophic lateral sclerosis (ALS), a neuromuscular disorder sometimes known as Lou Gehrig's disease. Although the new postpolio muscle weakness probably results from a loss of movement-controlling neurons, the same cells affected in ALS, the new weakness is "definitely not ALS," Dr. Dalakas says.

The cause of the suspected neuron loss, and subsequent muscle weakness, is unclear. Some evidence suggests that the new weakness may involve a defect in the im-

mune system. "The body," Dr. Dalakas explains, "may be reacting against its own nerve cells."

Other possible causes include reactivation of the original polio virus or the death of overburdened anterior horn cells.

Anterior horn cells are nerve cells of the spinal cord that control muscle movement, and polio can kill or damage them. Theoretically, damaged anterior horn cells, compensating for cells destroyed by the original polio infection years ago, could start to die from overwork. If the nerve cells controlling a particular muscle die, the muscle deteriorates.

The second group of patients with new symptoms primarily includes people who had been more severely disabled by polio—those who have relied on wheelchairs or crutches since contracting the disease. These postpolio patients also experience a long period of stability before the new signs of decline begin.

The new symptoms include joint pain, as opposed to muscle pain, decreased endurance, and frequent falling. "Most likely these symptoms are caused by accelerated aging, rather than a disease process," Dr. Dalakas says.

"A patient who pushes himself in a wheelchair puts a lot of wear and tear on his arms—such overuse could cause the deterioration we see in this group of patients."

Although postpolio decline of either type is not new, the majority of cases have been recognized within the last 4 or 5 years. Scientists are still unsure how many postpolio patients are experiencing new muscle weakness or a premature decrease in stamina.

To determine how many patients do experience a decline and to find out how many patients fall into each of the two groups, Dr. Dalakas is conducting a mail survey of 2,500 patients with a history of polio. "My mail box is full every day," he says.—**Lynn Cave** □

## Albert Berkowitz, NLM Reference Chief, Retires

Albert M. Berkowitz—chief of the NLM's Reference Services Division for 13 years—has retired.

Mr. Berkowitz came to NLM in 1966 as head of the division's Loan and Stack Section (now Circulation and Control). He became deputy chief of the division in 1969, and chief in 1971. RSD is the Library's principal public service component for the provision of reader, reference, and bibliographic services and interlibrary loans, and is responsible for maintaining and preserving the Reference and General Collections of monographs, serials, and audiovisual media.

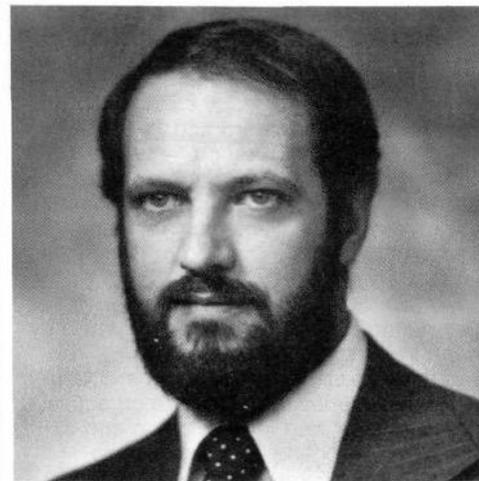
During his tenure as RSD chief, Mr. Berkowitz's special interest in copyright issues, preservation of the collection, and public service gained him recognition and respect throughout NLM and the general library community.

In 1976 Dr. Martin M. Cummings presented the NLM Director's Honor Award to Mr. Berkowitz. In words that sum up his career at the Library, Dr. Cummings cited Mr. Berkowitz for his "superb utilization of expert librarianship and unique personal sensitivity in serving the diverse needs of the community of users of the National Library of Medicine."

Mr. Berkowitz's early career, after earning a B.S. in business administration from New York University, was in the field of concert management. He worked in that area for the National Symphony Orchestra and the Patrick Hayes Concert Bureau (now the Washington Performing Arts Society), before obtaining his M.S.L.S. from the Catholic University of America. Before coming to the NLM, he was a branch librarian in the D.C. Public Library System. □

## Blood Donor Appreciation Day

The NIH Blood Bank will hold its 5th annual Donor Appreciation Day for NIH blood donors at the Clinical Center, 14th floor auditorium, Sept. 12, from 1 to 3 p.m. Door prizes will be given out. □



Robert M. Namovicz was recently appointed executive officer, NHLBI. Previously, he served as deputy executive officer of NCI. He received two awards during his tenure with NCI—the NIH Director's Award in 1979 and the PHS Award for Exceptional Achievement in 1984. He also received a Special Achievement Award in 1972 from NIEHS in N.C.

## CATARACTS

(Continued from Page 1)

through, and vision may be mildly to severely impaired.

Scientists do not know what causes the chemical changes that cloud the lens, but they do know that cataracts are associated with diabetes and other diseases, drugs, eye injuries, and especially aging.

Senile cataract remains the third leading cause of legal blindness in the U.S. today. Each year, more than 400,000 Americans—most of them over age 50—undergo cataract surgery. In more than 90 percent of the cases, the patient's vision improves.

Yet many people still avoid surgery either because of the cost, or because they are afraid the operation will be painful or cause permanent blindness. Others fear hospitalization or doubt the surgery will restore their vision.

An important goal of the new booklet is to provide information that will reassure people facing cataract surgery and help them think of the operation as an opportunity to regain lost sight.

Treatment of severe cataracts involves two steps. The first is surgical removal of the clouded lens by an ophthalmologist. Surgery is the only proven, effective way to treat cataracts.

The second step is replacing the natural lens with an appropriate substitute—eyeglasses, a contact lens, or an intraocular lens implant (a clear, plastic lens implanted in the eye during the cataract operation).

Scientists at the National Eye Institute in Bethesda, Md. and at medical centers throughout the country are continuing to conduct laboratory and clinical research that eventually could improve people's ability to deal with cataracts.

For single copies of this brochure, write to "Cataract/HL"; Information Office; National Eye Institute, Bldg. 31, Rm. 6A32, Bethesda, MD 20205; or telephone (301) 496-5258.

—Maureen Mylander □



Mr. Berkowitz

## Kidney Stones Can Be Pulverized by Shockwaves Using New Non-Surgical, New-Invasive Technique

Kidney stones that once would have required surgery now can be pulverized, using a new, noninvasive shock-wave treatment known as extracorporeal shock-wave lithotripsy (stone crushing from outside the body) the body).

ESWL, developed and tested in West Germany, is now being used at the Massachusetts General Hospital in Boston and at Methodist Hospital in Indianapolis. The procedure also is scheduled to become available during 1984 at four additional U.S. medical centers.

The passing of kidney stones is one of the most painful afflictions known to medicine. Frequently, kidney stones are passed spontaneously through the urinary tract, but many stones must be removed by surgery. Urologists and scientists have long searched for alternatives to surgical removal of stones.

Drug therapy can be effective in diminishing the size of the stone or in preventing recurrence of some types of stones. Invasive methods, such as ultrasound and electrohydraulic waves, can be used in some cases when stones are lodged in the urinary tract or the kidney.

Unlike all previous techniques, ESWL allows removal of kidney stones without any intrusion into the body at all. Dr. Christian Chaussy and his colleagues at the Department of Urology and the Institute of Surgical Research at the University of Munich, West Germany, conducted the initial clinical trials that demonstrated that pelvic kidney stones can be effectively and safely pulverized through repeated blasts with high energy shock waves.

The investigators say that in many cases the procedure can be performed with peridural (local) rather than general anesthesia. Side effects reported to date have been blood in the urine of some patients and, occasionally, pain during passage of the pulverized fragments.

In rare cases, large stones of staghorn calculi could not be passed in the urine, and surgical removal of fragments was necessary following pulverization.

Patients with various kinds of kidney stones have experienced successful results through ESWL. The procedure is performed using the Dornier Kidney Lithotripter.

The shock waves are produced by an underwater high voltage condenser spark discharge that causes an explosive evaporation of water surrounding the condenser.

This action in turn leads to generation of shock waves through the surrounding water. The waves enter the patient's body, bombarding the stone.

Before treatment, the patient is anesthetized and positioned in a water bath so that the kidney stone is targeted by X-rays to receive the highest energy of the shock wave. Each session involves use of approximately 1,000 single shock wave exposures.

Each shock wave lasts less than 1 microsecond, penetrates the kidney stone and shatters it as the waves bounce back from the surrounding soft tissue of the body and collide with oncoming waves.

The entire procedure, including positioning the patient, adjusting the equipment, and actual shock wave exposure of the stone, lasts 30 to 45 minutes.

Following treatments, the patient remains in the hospital for several days while the fragments of stone are eliminated along with the urine. Convalescent disability is minimal and patients are often able to resume their normal activities within a few days.

ESWL promises to reduce the need for surgery in many cases of kidney stone disease. The Dornier Kidney Lithotripter, registered as an Investigational Device Exemption under regulation of the Food and Drug Administration, will be used to test the new therapy at six medical centers in the U.S. under protocols conducted by the following clinicians:

Dr. Stephen Dretler, Massachusetts General Hospital, Boston, Mass., 02115: (616) 726-3512; Dr. Daniel Newman, Dr. James Lingeman, Methodist Hospital, Indianapolis, Ind., 46202: (317) 927-8663; Dr. Birdwell Finlayson, University of Florida, Gainesville, Fl. 32610: (904) 392-2501.

Dr. Robert Riehle, Dr. William Fair, New York Hospital, N.Y., N.Y., 10021: (212) 861-0834; Dr. Jay Gillenwater, Dr. Allen Jenkins, Dr. Arthur Wyker Jr., University of Virginia, Charlottesville, Va., 22908: (804) 924-2224; Dr. D. P. Griffith, Methodist Hospital, Houston, Texas 77030: (713) 797-9264.

—James Fordham, NIADDK

## NIH Library Presents Bioscience Lecture

The NIH Library, DRS, will present the third of its 1984 lectures on current topics in the biomedical sciences for medical librarians and information specialists.

This series has been approved by the Medical Library Association for continuing education credit.

The lecture, "NLM's Involvement in Integrated Academic Information Management Systems Planning," will be given by Dr. William G. Cooper, associate director, Division of Extramural Programs, National Library of Medicine, at 2 p.m. Tuesday, Sept. 18, in Bldg. 10, Rm. 2C116 (Medical Bd. Rm.).

Since seating will be limited please call Sarah Log, 496-2398, or Kathie Vashaw, 496-1156 to make arrangements to attend. □

## Annual MBRS Symposium

The 13th Annual Minority Biomedical Research Support Symposium (MBRS) will be held Mar. 31 through Apr. 3, 1985 in Miami, Fla. at the Omni International Hotel and the Biscayne Bay Marriott Hotel and Marina. The 1985 event is being coordinated by Florida A & M University at Tallahassee and sponsored by the NIH Division of Research Resources.

The NIH MBRS program was established in 1972 to increase the pool of minority biomedical research scientists and to strengthen the capability of minority institutions to conduct quality biomedical research.

MBRS abstracts must be received by Mr. Guy I. Hudgins, MBRS Symposium Manager, Ebon Research Systems, Inc., 1118 Ninth St., N.W., Washington, D.C. 20001, no later than Dec. 1. □

## ALZHEIMER'S

(Continued from Page 1)

As the investigators point out in their *Science* article, their work on autopsied brain tissue has already been corroborated in living patients.

Using positron emission tomography, a noninvasive technique which monitors metabolic activity in living tissue, a group of French scientists have found a 65 percent drop in brain protein synthesis in patients in the later stages of Alzheimer's disease.

### A Fundamental Defect

It is not possible to state if this change marks the onset of Alzheimer's disease, or if it is just one of a series of events that takes place as brain cells begin to die.

At the very least, Drs. Marotta and Sulkowska have identified a fundamental defect in Alzheimer's which may have implications for improved diagnosis and treatment.

If, as the investigators speculate, decreased protein synthesis results in the chemical changes and brain cell death characteristic of Alzheimer's disease, then we might be one more step closer to finding out what causes this debilitating illness.—Marian Emr □

## James E. Critz Joins NIEHS



Mr. Critz

James E. Critz was recently appointed chief of the NIEHS Office of Facilities Engineering. He came to NIEHS from the Office of the Secretary, Department of Health and Human Services, where he was executive assistant to the director of the Office of Facilities Engineering.

Mr. Critz served 21 years in the Air Force, first as a fighter pilot, later as a transport pilot and civil engineer, including World War II and the Korean War.

He joined the Federal Civil Service after retiring from the Air Force. He has been a managing and supervisory engineer for the government in the Washington, D.C., area and in Chicago, for more than 20 years. □

*The desire to take medicine is perhaps the greatest feature which distinguishes man from animals.*—Sir Wm. Osler

## William Weiss, Innovator in Biostatistics and Computers, Retires From NINCDS After 36-Year PHS Career

William Weiss, a statistician who pioneered the use of biostatistics and computer science to further medical research in the neurological and communicative disorders, retired July 27, ending a Public Health Service career that lasted 36 years.

Since 1967, Mr. Weiss had been chief of the office of biometry and field studies, National Institute of Neurological and Communicative Disorders and Stroke.

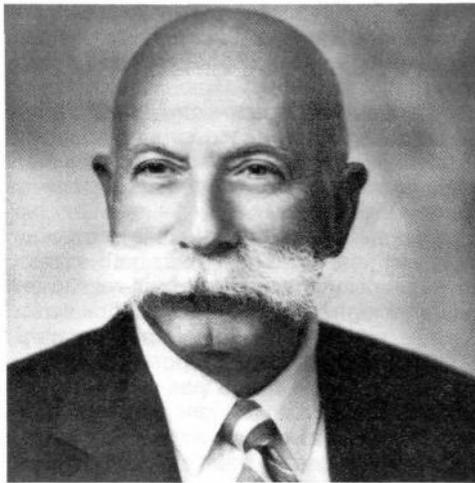
As chief, Mr. Weiss developed an innovative program of large-scale national health surveys that produced the first reliable statistics on incidence, prevalence, and economic costs of stroke, multiple sclerosis, head and spinal cord injury, and intracranial neoplasms.

Mr. Weiss, who served 22 years at NINCDS, was a prime force in organizing and developing the computerization and analysis of the data from the collaborative perinatal project, at the time one of the largest prospective medical studies ever undertaken.

In a data collection effort lasting 15 years, some 50,000 pregnant women participating in the study were monitored extensively throughout their pregnancies, and their children were followed through the eighth year of life. The data bank from this project contains approximately 75 million pieces of information.

Findings from this research project led to changes in obstetric and pediatric care. Based on project data, obstetricians now advise patients against excessive weight gains during pregnancy, and pediatricians have been able to improve the treatment of children with febrile seizures. The investigation also resulted in the publication of more than 450 articles in seven books.

Before joining the NIH, Mr. Weiss served



**Mr. Weiss' achievements in statistics were honored by his election to two American statistical associations.**

as a chief statistician at the U.S. Food and Drug Administration.

In May 1984, he received the Superior Service Award, PHS's highest award for civil service employees, in recognition of his work in developing the national health surveys and for his "outstanding leadership in the conduct of large-scale clinical studies." He was also honored with a PHS Special Recognition award in 1977.

Mr. Weiss' scientific achievements have also been acknowledged by his election to the status of fellow in both the American Statistical Association and the American Association for the Advancement of Science, two of the highest honors that can be bestowed upon a statistician. □

## Drs. Shawker and Sonies Receive Holmes Award

Two CC staffers have won the 1983 Joseph H. Holmes Award for excellence in ultrasound research.

Dr. Thomas H. Shawker of the Diagnostic Radiology Department and Dr. Barbara C. Sonies of the Rehabilitation Medicine Department won the award for their collaboration on an article entitled, "Tongue Movement During Speech: A Real-Time Ultrasound Evaluation." The article appeared in the *Journal of Clinical Ultrasound*.

"This award is given for their outstanding work in extending the use of ultrasound to the evaluation of tongue function during speech," said Dr. Russell L. Deter, general editor of the journal. "An estimated 10 million people in the United States are affected by speech disabilities, many of which are due to malfunction of the tongue. A safe, inexpensive means for evaluating tongue function has not been available previously and, as a result, the direct detection of speech abnormalities due to dysfunctions of the tongue has not been possible in most clinical settings.

"Drs. Shawker and Sonies have shown that such abnormalities can be detected with

standard ultrasound scanners, thus opening the way to an extensive study of this important clinical problem." □

## Conference on Frozen Plasma Scheduled for Sept. 24-26

The National Heart, Lung, and Blood Institute, the Center for Drugs and Biologics of the Food and Drug Administration and the NIH Office of Medical Applications of Research are sponsoring a consensus development conference on the indications for and risks of treatment with fresh frozen plasma. Conference sessions will be held in Masur Auditorium, Warren Grant Magnuson Clinical Center (Bldg. 10), Sept. 24-26.

Fresh frozen plasma is prepared from whole blood of a single donor and promptly frozen to preserve labile clotting factors. The use of fresh frozen plasma has increased dramatically during the past decade. In 1980, more than 1.5 million units were infused. □

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