The NIH Record

U.S. Department of Health and Human Services

July 17 1984 Vol. XXXVI No. 15

National Institutes of Health

New On-Campus Metro Stn. To Hold Open House Aug. 1

Metro's Medical Center subway station, located on the NIH campus at South Drive and Rockville Pike, will hold an open house for NIH employees on Wednesday, Aug. 1 from 10 a.m. to 2 p.m.

Actual operation of the Metro Red Line extension from Dupont Circle as far as Grosvenor Park is scheduled to begin Saturday, Aug. 25.

No details on any events connected with the open house were available at deadline for this issue of *The Record*.

Ride-On buses will provide a free shuttle during the hours of the open house. Look for Metro Open House Ride-On bus signs at existing bus stops, on campus.

NIHers will have a long escalator ride (202 feet) down to the station platform since the Medical Center station has the third longest escalator in the Metro system. The longest is the Bethesda station which beats Medical Center by 11 feet. The Wheaton station, scheduled for 1990, eventually will be the longest in the system. □

(See METRO MAP on Page 12)

PHS Slates Public Hearings On Animal Care Proposals

The U.S. Public Health Service (PHS) will hold three public hearings on proposed policy changes relating to care and use of laboratory animals.

Representatives of the National Institutes of Health—the primary medical research arm of the PHS—will be receiving oral testimony in Kansas City, Mo., on July 19, in Boston on July 24, and in Seattle on Aug. 2.

The NIH released its proposed policy at a national symposium on "Imperatives in Research Animal Use: Scientific Needs and Animal Welfare" held in Washington, D.C. on Apr. 11-12. Copies have been distributed nationally with a call for written comments by July 15. The open hearings will offer the public additional opportunities for oral comment.

If adopted, the proposed policy would be stricter in some respects than the current one. It would require increased accountability on the part of institutions receiving PHS funds for medical research involving animals.

Under the proposed changes, the local institution's animal research committee would be required to review and approve the proposed procedures for care and use of animals described in each research application submitted to PHS agencies. □

Movement of Viral Molecule Videotaped For First Time by NINCDS Scientists

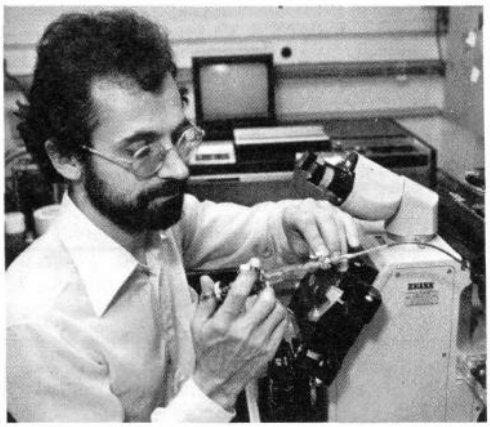
By Lynn J. Cave

The work has all the trappings of a major television production, straight from the special lighting down to the 3 months of rehearsal to get everything right.

Captured on video tape is a science docudrama about intracellular transport, a mechanism essential to a cell's normal functioning. What unfolds before the viewer is something that has never been seen before— the actual movement of viral molecules on their journey from the center to the periphery of a living cell.

In this production, the molecules are unassembled pieces that will make up part of the virus's outer covering, or envelope. But some day similarly produced video tapes may be used to examine how cells transport other molecules, such as neurotransmitters, which play a role in diseases like Parkinson's.

Directing this unusual experiment is Dr. Heinz Arnheiter, a Fogarty Interntional Center visiting associate who has worked in the NINCDS Laboratory of Molecular Genetics for the last 3 years. Collaborating with him on this work are Dr. Monique Dubois-Dalcq, also of the Laboratory of Molecular Genetics, and Dr. Bechara Kachar of the NINCDS Laboratory of Neurobiology.



Dr. Heinz Arnheiter prepares to do microinjection prior to videotaping molecule's movement.

(See MOLECULE, Page 12)

NICHD Researchers Refine Technique To Test Hearing in Sleeping Newborns

By Tineke Boddé

Using the body's eyeblink reflex, researchers have refined a technique that may lead to an accurate hearing test for 1-day-old infants. Working with NICHD support, psychologists Dr. Howard Hoffman and his colleagues Dr. Michelle E. Cohen, and Linda M. English of Bryn Mawr College in Pennsylvania, based their tests on the glabella reflex, an eyelid closure evoked by a tap on the area between an infant's eyebrows.

The technique circumvents two major problems usually encountered when testing babies: the changeability of their state (alertness, drowsiness and sleep), and the difficulty of learning a response that can be used to assess hearing acuity tests.

The researchers found that the size of an infant's eyeblink increased when a tone is presented simultaneously with the glabella tap. This unlearned change in the size of the response indicated that the baby being tested "heard" the tone.

An earphone with eyeblink monitoring device measures the hearing of this 26-hour-old infant. A tap unit in front of the child's forehead delivers a tap to its glabella. *Photo Courtesy of Bryn Mawr College, Pa., Department of Psychology.*

(See HEARING TEST, Page 12)

The NIH Record

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Training Tips

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

Executive, Management and Supervisory	*Course Starts*	*Deadline*
Communicating for Results	8/7	7/20
Effective Communications	9/11	7/24
The Federal Budget Process	9/17	8/31
Administrative Systems (IBM Display Writer): Open to all operators with 3 months experience		
Basic	8/6 8/13	7/23 7/30
Advanced	8/20	8/6
Specialized Needs	8/27	8/13
DELPRO (Delegated Procurement for new users only)	7/23	7/11

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

Financial Planning Workshops

Lunchtime financial planning workshops with American Financial Consultants will be held at noon on three consecutive Wednesdays: July 11, July 18 and July 25, in Wilson Hall, Bldg. 1.

To reserve a place in one or more of the free workshop sessions or to arrange a free half-hour consultation with a financial planner, phone 588-5000 or pick up an order blank at the R&W Activities Desk, Bldg. 31, Rm. B1-W-30. □

NIAID Honors Four Employees in EEO Ceremony

Attending the NIAID EEO ceremony were front row, l to r: Mr. Chestnut, Dr. Froehlich, Ms. Gaither, Mr. Twine and Jessalyn Pendarvis; back row: Frank Fountain, Equal Employment Opportunity Officer, NIAID, and Dr. Talbot.

Outstanding accomplishments by four employees of the National Institute of Allergy and Infectious Diseases (NIAID) were recognized last month during the Institute's Equal Employment Opportunity (EEO) Awards ceremony held at the NIH Stone House.

The four awardees for 1984 were Thelma Gaither, Dr. Luz Froehlich, Hercules Twine and Taylor Chestnut.

Dr. Bernard Talbot, NIAID Acting Director, congratulated the four recipients and thanked everyone who "contributed to the enhancement of equal opportunity." Jessalyn Pendarvis, Director, Division of Equal Opportunity, NIH, also stressed the importance of recognizing the accomplishments of employees who further the EEO effort.

The NIAID presents awards to employees who make outstanding contributions to the goal of equal employment opportunities for all employees and applicants regardless of race, color, religion, sex, national origin, age or handicap.

Ms. Gaither is a research biologist in the Laboratory of Clinical Investigation, Office of the Scientific Director, NIAID Intramural Research Program. She was recognized for continually providing "outstanding leadership, guidance, and support to employees at all levels in NIAID, NIH and beyond." Ms. Gaither helped guide the NIAID EEO Advisory Committee through its formative stages and continues to be sensitive to EEO issues.

Dr. Luz Froehlich is a medical officer and deputy director of the NIAID extramural activities program. As a delegate to the first NIH Women's Advisory Committee, she helped the group identify the extent and nature of EEO problems, the needs of NIH minority and women employees, and bring recognition and status to the committee as an instrument for change.

Hercules Twine, who recently retired from NIAID, was employed as a care work leader in the Animal Care Section, Office of the Scientific Director, NIAID Intramural Research Program. Mr. Twine was recognized for his "dedication and concern for the welfare of all animal caretakers, especially the handicapped."

Taylor Chestnut is a biological laboratory technician in the Laboratory of Infectious Diseases, Office of the Scientific Director, NIAID Intramural Research Program. Mr. Chestnut, in his quest to see equal opportunity become a reality, has "consistently communicated with employees and management to bring about a unity of purpose and understanding of actual employment conditions." □

Study Looking at Urban Stressors Needs Employees From Bldg. 10

As part of a study examining urban stressors, a team of Uniformed Services University of the Health Sciences (USUHS) researchers is interested in the relationship between commuting and health.

All commuters who are full-time employees (8:30 a.m.-5 p.m.) working in Bldg. 10, are needed to participate in the study, which will be conducted in Bldg. 10.

Participation in the study will require 20 minutes before arrival at work on three consecutive mornings. Participants will receive $15. If interested, call 295-3278 between 9 a.m. and 4 p.m., Monday through Friday, and ask for Stacey or Cheryl. □

Take You Out to the Ballgame

R&W will have tickets to see the Baltimore Orioles play the Toronto Blue Jays on Sunday, Aug. 5. This is "Kids' Jersey Day"—all youngsters 14 and under will receive a free jersey.

This game also includes a special attraction: the NIH Bullpen Party. Each person gets two hot dogs, peanuts, potato chips and unlimited beer and soda.

Costs for this special event are $6 for the game ticket (upper reserved seats) and $5 for the Bullpen package. Tickets are available at the R&W Activities Desk, Bldg. 31, Rm. B1-W-30. □

From Science to Sheepherding: The Drs. Gardner Move From Laboratories to Sheep Sheds

How did Dr. Sara A. Gardner, director of the Pharmacological Sciences Program in the National Institute of General Medical Sciences, become interested in raising sheep?

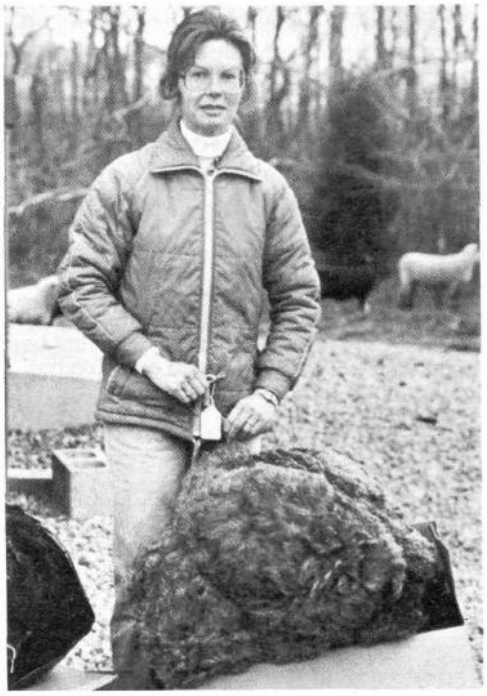
"Would you believe I don't know?" she joked.

For the past 2 years, Dr. Gardner and her husband, Clair, have bred natural-colored sheep on their farm in Dickerson, Md. They did consider raising horses, she said, and had also bought some goats, but eventually settled on the sheep.

"We found natural-colored sheep interesting and novel. The next thing we knew, we'd bought about eight," she said.

They added 14 more to the flock after a visit to the Maryland Sheep and Wool Festival, held the first weekend of May at the Howard County Fairgrounds. Their flock now numbers 76.

Natural-colored sheep have wool in a wide range of colors, Dr. Gardner explained, the most common being shades of silver, black and brown. Some of the sheep have variegated wool.



Dr. Sara Gardner with some of the wool produced by her natural-colored sheep.

Trial and Error

Raising sheep has been a sort of trial-and-error process, Dr. Gardner said. She and her husband have read books, asked advice from other sheep breeders and consulted with veterinarians. "I could write a book about what I've learned in the last 2 years," Dr. Gardner said.

She believes their medical backgrounds helped somewhat with such chores as worming. (Her husband is the former associate director of extramural activities in the National Institute of Dental Research.) Also, each has some experience with animals—Dr. Gardner worked with show dogs and her husband was raised on a cattle ranch.

Full-Time Job

Caring for the animals is a full-time job. The sheep must be wormed, fed in winter and their feet must be trimmed periodically.

Lambing time—January to mid-March—is especially rough. "It's more like 35 hours a day," Dr. Gardner said. "This year we had every malpresentation in the book."

The Gardners have installed an intercom system in the barn and their bedroom, so they'll know when the ewes are ready to give birth.

You also have to know your animals, she said, so you can tell if they are sick. They consider their sheep as individuals and have named each one.

Clair, Dr. Gardner's husband, with JR, the first lamb they bred.

Photos by: Carol Velisek, Delmarva Farmer.

Shearing the Sheep

Shearing time comes in the spring; however, long-wooled varieties must be shorn more than once a year. Dr. Gardner said they get an average of 10 pounds of wool per sheep, which they sell for spinning by hand.

This wool is priced from $1.50 to $6 per pound, depending on the color and quality.

Rolling Meadows Farm has had its share of tragedies too. On June 16, 1983, a tornado hit, and the sheep scurried behind the barn for protection from the winds. Unfortunately, a tree fell across the building, killing three sheep and injuring several others.

One ewe had to have a broken leg set. Another broke her jaw and had other injuries so severe the Gardners had to build a movable sling so the ewe could "walk." Both animals survived. The ewe that broke her leg has even produced a prizewinning offspring—Buster, twice awarded Grand Champion Ram titles.

In fact, the Gardners have racked up an amazing list of awards, considering their relatively short time in the business: four champions and premier exhibitors of natural colored sheep at the Maryland Sheep and Wool Festival, 1983 and 1984; one champion in 1982 and two in 1983 at the Frederick Fair, 1983; two champions at the New Jersey Shepherd's Festival, 1983; and grand champion fleece at the Howard County Fair, 1983.

Dr. Gardner also won the grand prize for homespun skein of yarn at the Howard County Fair in 1983—9 months after she first began using a spinning wheel.

Reducing the Flock

Dr. Gardner said they are now trying to reduce the size of the flock to a more manageable number. They've already sold several rams to farms for breeding stock, but that doesn't represent a sizable decrease.

"Part of the problem is that we're very attached to every one of them," she said.

So she can devote more time to the farm and other interests such as travel, Dr. Gardner retired from NIGMS on June 22. She first came to NIH in 1973 as a grants associate in the Division of Research Grants and eventually moved to the Pharmacology Program of NIGMS, becoming director of the Pharmacological Sciences Program in April 1979.

"I think the thing I'm going to miss most about my job is getting to know great scientific minds on a personal basis," she said.—**Susan Pierce** □

Joan Burnside, NLM, Dies In Sailing Accident June 24

Joan M. Connolly Burnside, 58, a technical information specialist and chemist with the toxicology information program of the National Library of Medicine (NLM), died of drowning June 24 as the result of a tragic sailing accident near the Chesapeake Bay.

Mrs. Burnside was born in New York City and earned a bachelor's degree in chemistry from Hunter College of the City of New York and took graduate training in chemistry at the Brooklyn Polytechnic Institute of New York. She held a New York State teaching license.

She came to NLM in 1971, joining the staff of the Library's toxicology information program. She helped design and implement NLM's chemical and toxicological online databases. Most notable was her work with the original design of the Toxicology Data Bank (TDB) and, more recently, with DIRLINE, NLM's new directory of online information resources.

From June 1968 to June 1971, Mrs. Burnside was a supervisory technical information specialist with FDA. Between 1960 and 1968, she was assistant head of medical information services at Lederle Laboratories in Pearl River, N.Y. There she designed systems for medical information, including literature and clinical reporting systems.

Her most recent publication was titled "NLM-CHEMSORT: An Algorithm and Computer Program for Sorting Chemical Names," which appeared in the *Journal of Chemical Information and Computer Science*.

Mrs. Burnside lived in Potomac, Md. with her husband, John O., and their two daughters, Joan and Susan.

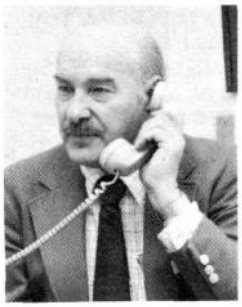
CC Chaplains Practice Noninvasive Theology To Brighten the Corners Where They Are

By Richard McManus

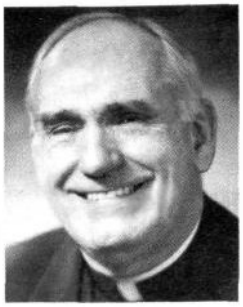
When it comes to the Spiritual Ministry Department at the Clinical Center, all of us are volunteers.

Life is our laboratory and, with any luck at all, we meet catalysts along the way who help mediate relations between God and man.

It would be wrong, however, to think of the men and women of the CC Spiritual Ministry Department simply as catalysts, because a true catalyst emerges unchanged from the reaction it helps create. And few changes are so complete as the one that resulted in Leroy G. Kerney's becoming chief of the department here.



Chaplain Kerney



Father Linehan

"My dad was a minister, and I vowed that I would never be one," he says. By the time Rev. Kerney completed college, that conviction had bitten his native Iowa dust.

Another change has occurred more slowly during Chaplain Kerney's 21 years here: "I used to think I had to help people all the time," the Protestant minister said. "The older I get, though, the fewer simple answers I have. A lot of times, patients need to help others, including chaplains."

This inversion of responsibility is not hard to fathom in Chaplain Kerney. In 1974, he suffered two heart attacks which changed his view of the world.

"It's different looking up from the bed than looking down on it," he said. "My doctors looked like they were 10 feet tall." He consequently makes an effort to meet CC patients on their own level these days.

"I try very carefully to respect a patient's religious point of view," Rev. Kerney said. "Patients and their families bring spiritual strengths and religious beliefs that need to be uncovered and used in the hospital setting. Any major change in religious orientation is encouraged to take place when a person is at home or with his or her own community."

Rev. Kerney tries consciously to remind himself, "What's my contract with the patient?" before visiting a unit.

Knock On Any Door

Knock on any patient's door in the hospital and the chances are 2 in 3 that you'll be answered by some form of Protestant—a Baptist, a Methodist, a Presbyterian, etc. One in four knocks will find you a Catholic, and three out of every 50 doors you try will yield a Jewish patient.

(Mrs. Pat Wessels, the department's secretary helps them to knock on the right doors, etc.)

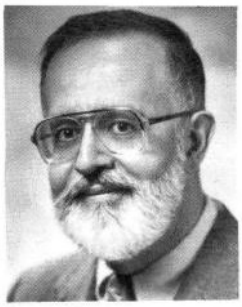
These ratios are reflected in the makeup of the Spiritual Ministry Department. The full-time chaplains are Protestant. Father Eugene Linehan, a Jesuit priest, spends four-and-a-half days a week visiting Catholics here and saying daily Mass in the 14th floor chapel. An assistant, Father Michael Griffin, fills in on weekends. Rabbi Joseph Levine, self-appointed cousin to every Jewish CC patient, splits a 40-hour week between here and St. Elizabeths Hospital in Washington.

Despite the department's variety in temperament and background, each chaplain has two ears and only one mouth.

"I often spend a long time listening to people tell me their story," Chaplain Kerney said. "The doctors take their special history, the social workers take their information, and we try to hear the whole person."

Spiritual Pharmacopeia

Rabbi Levine's spiritual pharmacopeia includes equal measures of laughter and listening, leavened with a blunt sense of reality. On being a patient: "Having a heart attack (he's had one) can't fail to deepen your sense of compassion. It helps to be able to say to people that they're not talking to Jack LaLanne or Charles Atlas. I've laid on my back and looked at the ceiling."



Rabbi Levine

Chaplain Stone

Like Rev. Kerney, Rabbi Levine thinks it important that people regard his visits as a pleasant surprise.

"I often tell people that being here is kind of a sabbatical of the soul," Rabbi Levine explained. "This is an opportunity to make a retreat. They may be able to grow in spirit if they commit themselves to let go (of the temporal world) and try to anchor themselves (in the eternal)—especially those patients who show up with attache cases."

Part of Rabbi Levine's ministry is music. "I think music is the voice of God," he says.

He adds, "I thoroughly enjoy my colleagues in the Spiritual Ministry Department. We laugh a lot together, and have a lot in common in spite of our different traditions."

Father Linehan is awfully down to earth for a man who only 5 years ago was proclaimed a saint by one of Washington's largest newspapers.

"That reporter (for the old *Washington Star*) followed me around for a week. She was driving me crazy," he laughs.

"As a Jesuit, my goal is to broaden people's view of life. All Jesuits (members of the Society of Jesus, a religious order for men founded by St. Ignatius of Loyola in the 16th century) are trained in hospitals," he said. "I first did this at Georgetown University in 1955. I feel very much at home here."

His sermons and conversation, punctuated with laughter and "gees," drive home two messages: God is a God of love, not a God of vengeance spreading cancer and heart attacks around; and men and women have a moral obligation to seek and follow the will of God.

In his 12th year as chaplain here, Father Linehan starts each day at 7 a.m. visiting all Catholic patients in the hospital. At 11:15 he says Mass, which he calls "the center of our lives as Catholics. I wish we had a closed-circuit TV for Masses here," he said. "It would be great."

Office Hours

Afternoons are reserved for office hours. During this time he can write letters to the families of patients who have passed away. "I think it's important to follow up with a letter. Even if I say something dumb or stupid, they can always rip it up."

Like Chaplain Kerney, he is leery of quoting chapter and verse to an ailing person. He saves his thunder for the pulpit.

Chaplain Alice Marie "Ami" Stone joins Father Linehan in bringing the Sacraments to Catholic patients, and makes visiting rounds as well.

"It's been a powerful thing to have a woman chaplain," he said. "Women have a great sense of prayer and great listening and compassion. It opens all kinds of doors."

Few have objected to women ministers, he said. "Sacraments are more important than the person giving them."

Regardless of their religious orientation, all members of the Spiritual Ministry Department practice noninvasive theology. □

O, P, Q, R Parking Permit Names Must Be Renewed in August

General parking permits for NIH employees whose last name begins with O, P, Q and R must be renewed during August.

Employees may renew their parking permits any workday at the NIH Commuter Assistance Office, Bldg. 31, Rm. B1C19, between 8:30 a.m. and 3:30 p.m. Parking permits will also be available as follows: Blair Bldg., Wednesday, Aug. 8, 1-2 p.m., Conf. Rm. 110; Federal Bldg., Wednesday, Aug. 15, 1-2 p.m., Conf. Rm. B119; Landow Bldg., Wednesday, Aug. 15, 2:30-3:30 p.m.; Conf. Rm. C; Westwood Bldg., Wednesday, Aug. 8, 9-11 a.m., Conf. Rm. 3.

Receive Memo

Affected employees will receive a memo reminding them of the upcoming renewal and providing specific instructions on obtaining replacement permits. Employees with preferential (red) or carpool parking permits whose last name begins with O, P, Q and R do not need to obtain new parking permits during August.

New August general employee parking permits must be displayed beginning Monday, Sept. 3. □

NICHD Moves to Remedy Lack of Studies and Knowledge On Safety and Effects of Exercise on Pregnant Women

What kinds of exercise are safe during pregnancy? What levels of different exercises are advisable? How does exercise affect a pregnant woman and her unborn child?

As the physical fitness movement attracts more and more women of childbearing age, these questions become increasingly important. Precise answers are seldom available, however, because few studies have been performed on exercise during pregnancy.

The National Institute of Child Health and Human Development is working to remedy this lack of knowledge. In a workshop sponsored by NICHD, pregnancy and exercise experts surveyed current research and outlined steps to resolve the unknowns. Next, the Institute plans to encourage research that will lead to a better understanding of pregnancy and physical activity.

"Pregnant women today generally are told that they should not take up a strenuous exercise regimen, but that they may safely continue a program started before pregnancy," according to the workshop's coordinator, Dr. Donald McNellis, medical officer in NICHD's Pregnancy and Perinatology Section. While this may seem a common sense approach, "at this time there is little research to back it up," said Dr. McNellis.

Studies of pregnancy and exercise in both humans and animals were examined in the workshop. The participants represented varied specialties: obstetrics and gynecology, exercise physiology, pediatrics, nutrition, ultrasonography, pathology, behavioral psychology, epidemiology, and bioethics.

"Only a few carefully controlled observations have been made in pregnant women," according to the workshop report, published in the April 1984 issue of the *American Journal of Perinatology*. It states that "no data are available concerning the effect of exercise upon first trimester events."

As for later pregnancy, one preliminary study of moderate bicycle exercise begun at the 20th week of pregnancy showed "no impact on the outcome of pregnancy," in terms of the length of pregnancy, the events surrounding delivery, or the birth weight of the infant. Nevertheless, the need for further research is clear, as shown by findings in animals.

The report states that despite the limitations of using animals as models for exercise during pregnancy, "several important conclusions have been reached" from animal studies. For example, in pregnant sheep, strenuous exercise such as running decreases blood flow to the uterus, causing oxygen levels in the fetus to fall. In addition, exercise raises body temperature in both the mother and the fetus, but in animals the temperature of the fetus remains high after the mother's temperature becomes normal.

The effects of these and other changes in the fetal environment during maternal exercise should be investigated in future animal studies, and in humans "when safe and feasible techniques become available," the report recommended.

For research with women, the report urged investigators to be specific when defining the nature of the exercise studied, to note the temperature in the exercise room, and to study changes in a pregnant woman's heart rate during exercise. Researchers were also advised to collect information on weight gain during pregnancy, dietary intake, complications of pregnancy, and infant health, including birth weight, growth and behavior.

Women who are not pregnant respond to exercise through hormonal, nutritional, metabolic and cardiovascular changes. Not enough is known about the ways in which pregnancy alters these responses. The workshop participants therefore concluded that future research should examine not only the effects of physical activity on pregnancy, but also the effects of pregnancy on physical activity. □

NIEHS' Dr. Schwetz, Named Councilor of Toxicology Group

Dr. Bernard A. Schwetz, chief of the Systemic Toxicology Branch at the National Institute of Environmental Health Sciences, has been elected a councilor of the Society of Toxicology. The SOT, an international organization with a membership of over 1,000 research scientists and other toxicological professionals, is headquartered in Akron, Ohio. He will serve a 2-year term, 1984 to 1986.

Dr. Schwetz joined the Toxicology Research and Testing Program at NIEHS in 1982, coming to the Institute from Dow Chemical's Toxicology Research laboratory in Midland, Mich., where he was director. Located in Research Triangle Park, N.C., NIEHS is the principal Federal agency for biomedical research on the effects of environmental agents on health.

Dr. Schwetz has published more than 100 papers in the scientific literature. The focus of his research has been on teratology (the induction of birth defects) and other toxicological endpoints of chemical exposures.

He received his doctor of veterinary medicine degree at the University of Minnesota, and his Ph.D. in pharmacology from the University of Iowa. □

Dr. Schwetz

Visiting Scientist Program Participants

Sponsored by Fogarty International Center

4/13—**Dr. Zhu Shi-ya,** China. Sponsor: Dr. Robert A. Goyer, Laboratory of Applied Pathology, NIEHS, Research Triangle Park, N.C.

4/15—**Dr. Philippe Lebrun,** Belgium. Sponsor: Dr. Harvey Pollard, Laboratory of Cell Biology and Genetics, NIADDK, Bg. 4, Rm. 312.

4/15—**Dr. Yves Martinet,** France. Sponsor: Dr. Ronald Crystal, Pulmonary Branch, NHLBI, Bg. 10, Rm. 6D06.

4/15—**Dr. Ugo Rovigatti,** Italy. Sponsor: Dr. John P. Bader, Laboratory of Molecular Oncology, NCI, FCRF, Bg. 469, Rm. 213, Frederick, Md.

4/15—**Dr. Hirofumi Terubayashi,** Japan. Sponsor: Dr. W. Gerald Robison, Jr., Laboratory of Vision Research, NEI, Bg. 9, Rm. 1E104.

4/16—**Dr. Hiroshi Imai,** Japan. Sponsor: Dr. Tsuyoshi Kakefunda, Laboratory of Molecular Carcinogenesis, NCI, Bg. 37, Rm. 3C11.

4/17—**Dr. Timothy Rutherford,** U.K. Sponsor: Dr. Arthur Nienhuis, Clinical Hematology Branch, NHLBI, Bg. 10, Rm. 7C103.

4/17—**Dr. Christopher A. D. Smith,** United Kingdom. Sponsor: Dr. Samuel Luborsky, Macromolecular Biology Section, NCI, Bg. 8, Rm. 107.

4/23—**Dr. Katsuya Nonomura,** Japan. Sponsor: Dr. Charles A. Strott, Endocrinology and Reproduction Research Branch, NICHD, Bg. 10, Rm. 8C410.

4/24—**Dr. Hannu E. J. Alho,** Finland. Sponsor: Dr. Erminio Costa, Laboratory of Preclinical Pharmacology, NIMH, WAW Bg., St. Elizabeths Hospital.

4/24—**Dr. Katsuhiko Yanagisawa,** Japan. Sponsor: Dr. Richard H. Quarles, Developmental Neurology Branch, NINCDS, PK5 Bg., Rm. 425.

4/25—**Dr. Peiro S. Tagliaferri,** Italy. Sponsor: Dr. Robert H. Bassin, Laboratory of Tumor Immunology and Biology, Bg. 10, Rm. 8B05.

4/26—**Dr. Hiroyuki Tsuda,** Japan. Sponsor: Dr. Michael J. Brownstein, Laboratory of Cell Biology, NIMH, Bg. 10, Rm. 4N320.

4/29—**Dr. Tsuyoshi Teranishi,** Japan. Sponsor: Dr. Richard Asofsky, Laboratory of Microbial Immunity, NIAID, Bg. 5, Rm. 235.

5/1—**Dr. Anna Aldovini,** Italy. Sponsor: Dr. Carl Saxinger, Laboratory of Tumor Cell Biology, NCI, Bg. 37, Rm. 6B04.

5/1—**Dr. Chen Zhang-qun,** China. Sponsor: Dr. Thomas Y. Shih, Laboratory of Molecular Oncology, NCI, FCRF 469/234.

5/1—**Dr. Elaine Lazar,** France. Sponsor: Dr. Michael B. Sporn, Laboratory of Chemoprevention, NCI, Bg. 41, Rm. D224.

5/2—**Dr. Rachel Galun,** Israel. Sponsor: Dr. Robert Gwadz, Laboratory of Parasitic Diseases, NIAID, Bg. 8, Rm. 305.

5/4—**Dr. David Landsman,** South Africa. Sponsor: Dr. Michael Bustin, Laboratory of Molecular Carcinogenesis, NCI, Bg. 37, Rm. 3D20.

5/4—**Dr. Carlo Rotello,** Italy. Sponsor: Dr. Leonard Kohn, Laboratory of Biochemical Pharmacology, NIADDK, Bg. 4, Rm. B1-31. □

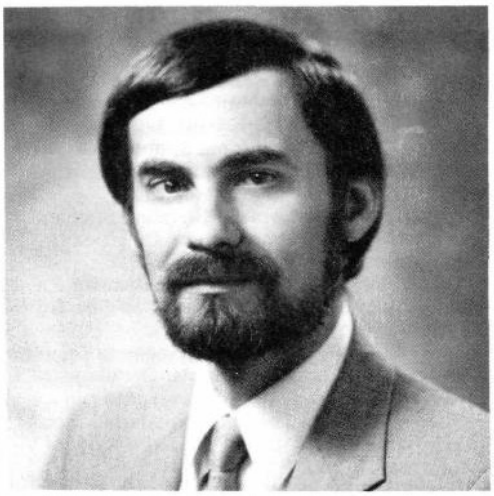
5/7—**Dr. Qian Ruo-Lan,** China. Sponsor: Dr. W. David Hankins, Laboratory of Carcinogen Metabolism, NCI, Bg. 37, Rm. 3B27.

5/10—**Dr. Kaza Suguna,** India. Sponsor: Dr. David Davies, Laboratory of Molecular Biology, NIADDK, Bg. 2, Rm. 316.

5/11—**Dr. Toshiharu Hayashi,** Japan. Sponsor: Dr. Abner Louis Notkins, Laboratory of Oral Medicine, NIDR, Bg. 30, Rm. 121.

5/13—**Dr. Kiran R. Bhutani,** India. Sponsor: Dr. George Hutchinson, Laboratory of Statistical and Mathematical Methodology, DCRT, Bg. 12A, Rm. 3045.

5/13—**Dr. Hisashi Narimatsu,** Japan. Sponsor: Dr. Ronald H. Schwartz, Laboratory of Immunology, NIAID, Bg. 10, Rm. 11D07.



Dr. Anthony E. Demsey recently was appointed chief of the Review Branch, Division of Extramural Activities, NIADDK. He will coordinate the review process for all grant applications and contract proposals submitted to NIADDK. He also will act as a consultant and advisor to the Institute's review groups throughout their grant and contract review sessions. Dr. Demsey came to NIH in 1979 and has been working in the grant and contract review process at NIGMS since 1981.

New Dental Posters Offered On Sealants and Fluorides

"Sealants + Fluorides = Maximum Protection Against Cavities" and "Sealants and Fluorides: A Winning Combination for Tooth Protection" are the titles of two new posters now available from the National Institute of Dental Research.

Children, especially between the ages of 5 to 17, are prime targets for tooth decay. While fluorides are the most effective and least expensive way of preventing decay, some 54 percent of the cavities found in children's teeth occur on the chewing surfaces where fluorides are least beneficial.

Research has proven that by using dental sealants along with fluorides, children receive maximum tooth protection. Dental sealants are safe and effective plastic films which are applied by dental professionals to the chewing surfaces of children's teeth. By sealing off the tooth's surface, sealants can prevent food and bacteria from becoming trapped, thus preventing the start and progress of decay.

NIDR seeks to eliminate tooth decay through research and public education. The sealant/fluoride posters are intended to create public awareness of the added benefits gained from the combined use of dental sealants and fluorides, particulary with children.

These posters are offered free from NIDR. They are brightly colored to attract attention and to create an awareness of these preventive measures among adults and children. For free copies of these posters, write to: National Institute of Dental Research, Bldg. 31, Rm. 2C33, Bethesda, MD 20205. □

The troubles of our angry dust are from eternity and shall not fail . . . Shoulder the sky, my lad . . .—*A. E. Houseman*

Combination Therapy—Surgery, Radiation, Chemotherapy—Averts Amputation, Prolongs Lives of Sarcoma Victims

Combined therapy can both avoid amputation and improve survival rates for soft-tissue sarcomas of arms or legs, Dr. Steven A. Rosenberg of the National Cancer Institute reported at the recent annual meeting of the American Society of Clinical Oncology in Toronto, Ontario.

Scientists from NCI have shown that combining limb-sparing surgery, radiation, and chemotherapy is an effective treatment for highly malignant soft-tissue sarcomas (cancers) of the extremities.

The group followed the disease-free and overall survival rates of adult patients from three randomized trials, the first begun in 1975. They found that the combination significantly increased survival rates while also sparing patients amputation.

A soft-tissue sarcoma is a cancer that arises in connective tissues such as muscle, fat, and nerves. These sarcomas aggressively invade surrounding tissues and spread rapidly to other areas, especially the lungs. Because the invasion of local tissues is often difficult to detect when the tumor is removed, recurrence rates after surgery have been high—from 30 to 50 percent.

When the sarcoma developed in an arm or leg, surgeons removed wide margins of tissue surrounding the sarcoma or often amputated the limb to prevent local recurrence. Although this procedure reduced recurrence, the patient's loss was severe.

The NCI team worked to develop a treatment that would prevent the tumor from recurring and spreading without sacrificing the arm or leg. The scientists designed studies to determine the best use of surgery and radiation to control local recurrence, plus chemotherapy to control tumor spread (metastases) to other areas.

In a trial conducted between 1975 and 1981, the group investigated the use of limb-sparing surgery followed by radiation therapy and chemotherapy.

Forty-three adult patients with high-grade (aggressive) soft-tissue sarcoma of the limbs were randomly divided into two groups.

In one group, the cancerous limb was amputated; in the second, only the sarcoma plus a margin of nearby tissue was surgically removed, but the entire area was also treated with radiation.

Both groups received a combination chemotherapy of doxorubicin (Adriamycin), cyclophosphamide, and high-dose methotrexate. After 6 years, the overall recurrence and survival rates for those with the limb-sparing surgery and radiation were the same as for those who had the amputation.

A second randomized trial of 65 patients (1977–1981) evaluated the role of chemotherapy. In both groups, patients had either amputation or limb-sparing surgery, but one group also received radiation and 14 weeks of chemotherapy while the other received radiation alone. The chemotherapy group, regardless of the type of surgery, had an overall 3-year survival rate of 95 percent in contrast to 74 percent in the nonchemotherapy group.

A third trial of 81 patients was set up to refine the chemotherapy dosage schedule. This trial started in 1981. Instead of the usual 14-month followup treatment period, the chemotherapy was shortened to 5 months, but with more aggressive early dosage.

Although the patients have been followed for only about 15 months, results show no difference in the disease-free and overall survival rates for the two chemotherapy schedules. Since most recurrences take place in the first 2 years after therapy, these results are very encouraging.

"Our studies reinforce the fact that careful application of the right combinations, sequences, and amounts of treatment can substantially improve patient outcome," commented Dr. Rosenberg, chief of the NCI Surgery Branch and principal investigator.

"We found that aggressive use of chemotherapy immediately after surgery can significantly reduce local recurrence and improve the cure of these patients. The chemotherapy was given, even when there was no clinical evidence of disease spread at the time of surgery.

"The new treatment strategies have significantly increased survival rates and have substantially improved the quality of life for the cancer patient." □

New Members Appointed To NIAID Advisory Council

The appointment of three new members to the National Advisory Allergy and Infectious Diseases Council was recently announced.

The new members are Nobel laureate Dr. Baruj Benacerraf, Dr. Dorothy Horstmann, and Dr. Sheldon Wolff. All three distinguished scientists have had a close association with NIAID over the years.

A renowned immunologist, Dr. Benacerraf is currently Fabyan professor of comparative pathology and chairman, department of pathology, Harvard Medical School. He shared—with Drs. George Snell and Jean Dausset—the 1980 Nobel Prize in physiology or medicine for their discoveries of how genetic makeup determines whether a person successfully combats cancer and other diseases. He was personally cited for his research in identifying immune responses determined by genetic factors.

Dr. Wolff is physician-in-chief, New England Medical Center and Endicott professor and chairman, department of medicine, Tufts University School of Medicine, Boston. Dr. Wolff is recognized internationally for his research in immunology and infectious diseases. He is considered an expert on the mechanisms of fever and host response to infection.

A distinguished scientist, Dr. Horstmann is a specialist in infectious diseases, with emphasis on poliomyelitis and rubella. She is John R. Paul professor of epidemiology and professor of pediatrics, emeritus, and senior research scientist (epidemiology), Yale University School of Medicine.

She has been a longtime grantee of NIAID, conducting research on responses to rubella virion and subunit vaccines as well as on the pathogenesis and biology of Epstein-Barr virus infections. □

Women Fill Engineering and Allied Positions At NIH's Division of Engineering Services

Though it may surprise many NIHers, women performing engineering and allied skilled tasks are no oddity in the 525-employee Division of Engineering Services headed by engineer Paul Jarvis.

Take for example, Cheryl Wells, who is a boiler plant operator in the NIH power plant. Her job deals with ensuring that heat and air conditioning are supplied to all buildings at NIH. This is accomplished through monitoring a complex electronic control panel and making repairs on equipment such as pumps, generators and air compressors.

Ms. Wells, who is from the Washington, D.C. area, spent 6 years in the U.S. Navy as an engineer yeoman and a recruiter. Following her discharge, she worked 4 years in the GSA heating plant where she was an apprentice boiler plant operator.

Presently studying for her 3rd class engineering license, she plans to return to school to complete her degree in mechanical engineering. Jogging, bowling, traveling, and outdoors are among her many interests.

In another skilled trade is Anita Biser, a carpenter in the Shops Branch. A former NIH apprentice, she performs various and diverse carpentry duties such as installing doors, partitioning rooms and installing shelves.

Ms. Biser learned her skills in carpentry from her father.

Such work is sometimes demanding and requires meticulous measurements. However, Ms. Biser, whose skills in carpentry were learned while working with her father, is accustomed to such demands.

Ms. Biser began her career at NIH 18 years ago as a laboratory aide and then worked as a laboratory technician in the Media Section doing tissue culture and bacteriological media. Though both jobs—lab worker and carpenter—bear no similarity to one another,

Painting is relaxing to Ms. White, who learned the trade through the NIH Apprentice Program.

they are occupations that fulfill her desire to work with her hands.

Carpenter Biser is also an avid reader and enjoys playing sports. In the future, she would like to remain in carpentry or some related area of the trades.

Another former NIH apprentice is Michelle White. Memories of painting with her father inspired her to enter the NIH Apprentice Program in 1978 as a painter. She graduated in 1982 as a journeyperson painter. Her job involves various kinds of painting, including spray painting, street line painting, mixing paints, sign painting, furniture refinishing, and wall covering.

Ms. White started at NIH in the mail room in 1971. Later she worked at the Clinical Center in the medical files and medical legal department. To Ms. White, painting is relaxing and it gives her a sense of independence. As for other interests, she likes reading and plays.

Deborah Alexander works in the Grounds Maintenance and Landscaping Branch as a mechanic. She maintains and repairs heavy mobile equipment including diesels, engines, pumps, and forklifts. Born on a farm in Arkansas, she learned mechanics from her father and eight brothers.

Later, she joined the U.S. Navy where she

As an engineer technician, Ms. Charuhas does surveys, cost estimates and reviews shop drawings.

became interested in working on various types of engines. Her 4-year tour earned her the rank of EN-2 Petty Officer.

Because of her background in math, Ms. Alexander hopes to become a mechanical engineer. Her other interests are karate, nature and outdoor sports.

Women also work directly in the field of engineering. One such person is Barbara Charuhas, an engineer technician in the Engineering Design Branch. Her job is in the heating, ventilation and air conditioning section where she does surveys, cost estimates, calculations, designs and reviews shop drawings. Ms. Charuhas, who is from Germany, received her training at a technical school in Munich.

She decided to move to the Washington metropolitan area where she worked for a number of years for two engineering firms: a consulting engineering firm where she prepared ventilating, plumbing and electrical drawings for residential and commercial buildings, and at another where she worked on a project for the Washington Metro station.

Ms. Charuhas speaks four languages and likes to swim and ski.

As a new (1982) apprentice, Maia Nordeen works in the Shops Branch preparing to be a

Ms. Nordeen is preparing to be a journeyperson electrician in the Shops Branch.

journeyperson electrician. Ms. Nordeen worked for the Department of the Interior as a clerk typist prior to coming to NIH as a library technician in the National Library of Medicine. She has also worked in major department stores in management.

Though Ms. Nordeen has done mechanical work, she did not have any previous experience in electricity nor did she perceive herself as having a talent for electrical work. Nevertheless, she is now doing well in her newly chosen occupation. She bases her success on hard work, study and a belief that she would succeed. Her other interests are designing clothes and painting.

Many women contribute to the fulfillment of the DES mission which covers such areas as skilled trades, engineering, architecture, planning, purchasing and procurement and drafting. Those mentioned here are but examples of the services and contributions made by them in DES.

More and more women are pursuing a future in positions previously not filled by women. □

Single Dose Radiation to Cancer Tumors Shows Promise; Less Damage to Healthy Tissue But Still Experimental

Most research in radiation therapy for cancer is focusing on ways to direct high doses of radiation to tumors while limiting exposure of healthy tissue.

Doctors in the United States and Japan are now reporting encouraging results with a technique called intraoperative radiation therapy (IORT), an old concept that has received renewed interest among surgeons and radiation oncologists.

Dr. William U. Shipley described progress with IORT to a workshop at the Fifth National Cancer Communications Conference. The meeting, sponsored by the National Cancer Institute and the American Cancer Society, was held earlier, in Washington, D.C. An associate professor of radiation therapy at Harvard Medical School, Dr. Shipley has participated since 1978 in developing the use of IORT at the Massachusetts General Hospital in Boston.

The IORT concept is simple. A large single dose of radiation is delivered to tumors and potential areas of cancer spread during surgery with low energy x-rays or with electron beams.

The use of high energy electrons takes advantage of a "flat" dose distribution (usually one-third of the maximum electron energy used) followed by a rapid fall off of dose.

For example, using a beam of 20 million electron volt electrons, a tumor depth of 7 to 8 centimeters receives a homogenous dose. Less than half of that dose is delivered at 9 centimeter depth and essentially no dose beyond 10 centimeters.

By proper selection of IORT electron energy, the radiation oncologist can effectively treat a large tumor mass while sparing normal tissue beneath the tumor from radiation damage. Adjacent normal tissue is moved out of the beam path or shielded, using customized lead wafers.

Though conceptually simple, the clinical use of IORT remains an experimental treatment. Many questions need answers. Information on how normal tissue tolerates large single doses of radiation is still quite limited.

The relationship between radiation dose and tumor response, especially for large single doses of radiation, also is not clearly defined, according to a pair of National Cancer Institute scientists.

Dr. Timothy Kinsella of NCI's Radiation Oncology Branch, and Dr. William Sindelar, Surgery Branch, are actively involved in both experimental and controlled clinical studies with IORT.

During the procedure, the radiation oncologist fits a special transparent plexiglass cone over the tumor site. The see-through cone is attached to the linear accelerator at the other end.

Members of the surgical team leave the room and a large dose of electron beam radiation is delivered through the cone to the tumor for a period of two to seven minutes.

The transparent cone serves several functions beyond lining up the tumor site with the radiation beam. The cone also keeps healthy tissue out of the IORT field and, because it is transparent, allows the surgeon to visually monitor the procedure.

"The chances of achieving local cure for most tumor types improve if larger radiation doses can be safely delivered to the tumor mass," Dr. Shipley said. "Using IORT is an attractive way to deal with tumors hard to handle with conventional radiation therapy."

Although the treatment approach to IORT may vary from center to center, successful use of IORT demands a coordinated effort from a multidisciplined team: surgeons, radiation therapists, anesthesiologists, nurses, radiation physicists, and hospital administrators. Active participation and communication between surgeon and radiation therapist is an essential ingredient, according to Dr. Kinsella.

Delivery of IORT can pose serious logistical problems, Dr. Shipley said.

Linear accelerators are needed to generate the electron beams used in IORT. These machines are large and cumbersome and, as yet, no American medical facility has an operating room within the normal operating room complex equipped with a linear accelerator.

Since most institutions performing IORT do not have dedicated facilities, patients must be transported from operating rooms to radiation treatment areas. At some hospitals this might mean a trip from one floor or even one wing of a building to another.

Such transport of anesthetized patients requires careful planning and appropriate precautions by both the anesthesiologist and surgeon. "Transport of patients is an energy and personnel intensive procedure," Dr. Shipley said. "At Massachusetts General, therefore, we offer the treatment only to patients we think we can cure."

When operating rooms equipped with linear accelerators become available, he added, doctors will be able to offer IORT to more patients, including those with advanced disease.

Construction of a dedicated IORT facility at the NIH Clinical Center was recently completed and Dr. Kinsella said use will begin sometime soon. Massachusetts General and the Mayo Clinic are now planning such facilities. Investigators at Howard University in Washington, D.C., have one room in the radiotherapy department there completely equipped as an operating room.

The renewed interest in IORT is based on the work of scientists at Kyoto University in Japan who pioneered the technique 20 years ago to treat stomach cancer patients.

Dr. Shipley said the Japanese have reported 5-year survival rates of 20 percent for stage IV stomach cancer patients treated with surgery combined with IORT. The figure is impressive when one considers that no patients with such advanced disease survived without IORT, he said.

Encouraging results have been seen in stomach, bladder, colorectal, and pancreas cancer patients treated with IORT. "Our experience to date is that surgery plus IORT is superior to the use of IORT alone," he said.

Investigators at NCI are cautious about making definitive statements about IORT because much information remains to be gathered. Therapeutic gains are difficult to measure because different institutions employ IORT in different ways.

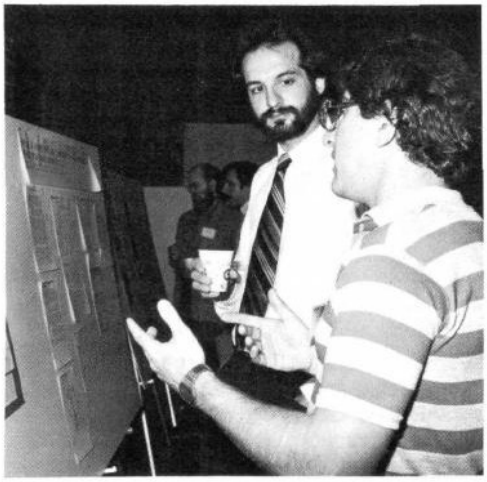
To date, more than 1,000 patients have been treated with IORT in 27 Japanese cancer centers, according to Dr. Kinsella. As of 1980, approximately 300 patients have been treated at five American cancer centers including 80 at the NIH Clinical Center.

Studies using various combinations of IORT, external beam radiation, and surgery are also being conducted by investigators at the Massachusetts General Hospital, Howard University, the Mayo Clinic, and the New England Deaconess Hospital in Boston. Many other American cancer centers have also gained IORT capability in the past 4 years.

"Much work remains to be done. But there appears to be much potential in the use of IORT for the treatment of many forms of cancer," Dr. Shipley said.—**Conrad Storad** □

Pharmacology Research Associate Program Holds Seminar

Dr. Sidney Nelson, associate professor of medicinal chemistry, school of pharmacy, University of Washington, Seattle, was a speaker at the seminar sponsored by NIGMS' Pharmacology Research Associate (PRAT) Program. Dr. Nelson is a former PRAT fellow who worked from 1974 to 1976 with Dr. James Gillette in the Laboratory of Chemical Pharmacology, NHLBI.



Following the lecture, 20 PRAT fellows presented posters describing their research projects. PRAT fellows Drs. Bill Simonds (l) and Charles Mantione, discuss Dr. Mantione's research on benzodiazepine (hypnotic) receptors.

Disablement Expert Begins Fogarty Scholarship Term

Sir John Wilson—senior consultant with International Initiative against Avoidable Disablement, IMPACT, a program promoted by the U.N. Development Program, UNICEF and the World Health Organization—arrived July 9, to begin his first term as a Fogarty Scholar-in-Residence. Sir John was accompanied by his wife Lady Jean, who is president of the British National Rubella Council.

Sir John has had a distinguished career as an international health administrator. Blinded as a schoolboy at the age of 12, he graduated in law and sociology from Oxford University with honors. Following his graduation he joined the staff of the Royal National Institute for the Blind where he served during World War II.

After the war he became active in studying the needs of the blind in Africa and the Near East. He founded the Royal Commonwealth Society for the Blind and became its first director in 1950. Since that time, the society has become a major force in the restoration and conservation of sight in the developing world.

In 1975, the International Agency for the Prevention of Blindness was established and chose Sir John to be its first president.

From his experience in developing strategies for the prevention of blindness and the restoration and conservation of sight, Sir John proposed a global program for the Prevention of Disablement.

The United Nations subsequently adopted this program and placed it in the U.N. Development Program, where it is cosponsored and supported by UNICEF and the WHO.

At the Leeds Castle International Seminar on the Prevention of Disablement in 1981, evidence was presented showing that a tenth of the world's population suffer from physical, mental or sensory impairment as a result of accidents, infectious diseases, malnutrition and congenital or hereditary impairment. The burden of supporting this large group of afflicted people falls largely on countries that are among the poorest in the world.

Drawing on his successful campaign to treat and prevent blindness, Sir John will devote his Fogarty Scholarship to studying the organization of a plan to use existing technologies to treat and prevent disablement. □

New Literature Searches

Seven new bibliographies on subjects of current interest are available without charge from the National Library of Medicine's reference section. The bibliographies were produced through NLM's computer-based system MEDLARS and contain references from recent medical journal literature.

A complete list of available Literature Searches is published each month in *Index Medicus* and *Abridged Index Medicus*.

When requesting Literature Searches, please include title and number, enclose a self-addressed gummed label, and mail to: Literature Search Program, Reference Section, National Library of Medicine, Bethesda, MD 20209.

The newly available bibliographies follow:

LS84-10 Fetal surgery. January 1980 through April 1984. 93 citations.

LS84-11 Premenstrual syndrome. January 1982 through May 1984. 155 citations.

LS84-12 Adolescent alcoholism. January 1980 through May 1984. 136 citations.

LS84-13 Posttraumatic stress disorder. January 1982 through June 1984. 105 citations.

LS84-14 The keratinocyte. January 1980 through June 1984. 115 citations.

LS84-15 Adolescent parenthood. January 1980 through June 1984. 129 citations.

LS84-16 Butylated hydroxanisole (BHA) or butylated hydroxytoluene (BHT). January 1977 through May 1984. 145 citations. □

R&W Offers Special Travel Discounts For Lodging

Special travel discounts are now available through R&W for Days Inns, Ramada Inns, and Stouffer Hotels. Check with the Activities Desk, Bldg. 31 or the Westwood R&W Gift Shop for further details. □

Four New Members Named To NIEHS Advisory Board

Appointment of four new members to NIEHS's National Advisory Environmental Health Sciences Council, for terms beginning May 1984 and ending September 1987 have been announced by Dr. David P. Rall, NIEHS Director.

• Dr. Carol R. Angle, chairman of the department of pediatrics at the University of Nebraska College of Medicine, has served as president-elect of the Metals Section of the Society of Toxicology. She is on the editorial board of the *Journal of Toxicology and Environmental Health* and is an associate editor of *Clinical Toxicology*.

• Dr. Earl P. Benditt, chairman of the department of pathology at University of Washington, has been a visiting scholar at the Sir William Dunn School of Pathology at Oxford University in England, an associate professor of Pathology at University of Chicago, and assistant director of Research at La Rabida Sanitarium at University of Chicago.

• Dr. Isadore M. Bernstein is professor of biochemistry, professor of environmental and industrial health and research scientist at the University of Michigan's Institute of Environmental and Industrial Health. He has served as Public Health Service Special Fellow, Visiting Professor at the Institute for Protein Research at Osaka University in Osaka, Japan and as a World Health Organization Traveling Fellow in Western Europe.

• Dr. James A. Merchant, professor of medicine and epidemiology at the University of Iowa, College of Medicine, is an internationally recognized researcher in the epidemiology of pulmonary disease, particularly occupational lung disease.

Before joining the faculty at Iowa, he was director of the division of respiratory studies and director of the Appalachian Laboratory for Occupational Safety and Health for the Department of Health and Human Services in Morgantown, W. Va. □

NIEHS Lab Technician Retires After 30 Years

A trip to Jamaica and time for piano lessons and practice are two of the new goals of recent retiree Minerva T. Fields, who this month rounded out 30 years as a laboratory technician, the last 16 at the National Institute of Environmental Health Sciences.

For the last 14 of these years, she worked as a laboratory technician with Dr. H. B. "Skip" Matthews, a senior scientist, who said, "Minerva will be sorely missed. She trained all the people who came to our laboratory." Only half in jest, he added, "She trained me."

Mrs. Fields

For years Mrs. Fields worked with Dr. Matthews in the Laboratory of Pharmacokinetics, which was later incorporated into the Systemic Toxicology Branch of NIEHS' Toxicology Research and Testing Program. The group's research has focused on the metabolism and disposition of a variety of industrial and environmental chemicals by higher animals.

Some of their most exiciting studies were on various polychlorinated biphenyls and how they are distributed, metabolized, and excreted in laboratory rats.

Lifelong Resident of Durham

Before joining NIEHS, Mrs. Fields worked first at the Duke University Hospital, doing cancer research with the staff there under a grant from NIH. She then moved to the Veterans Administration Hospital in Durham, before coming to NIEHS in 1968.

At the same time Mrs. Fields retired, her husband Odel retired after 30 years as a watchman and 43 years as an employee at the American Tobacco Company in Durham. Mr. and Mrs. Fields were both born in Durham and are lifelong residents.

Once back from the Jamaican trip, Mrs. Fields plans to take up the piano. "When I was a child, my parents wanted me to take piano lessons, and I didn't enjoy it much then. But now I have come to realize how much I love music." She smiles and shrugs, saying, "I don't expect to play like Liberace, but it's something I enjoy." Her future plans also include volunteer work. □

Lyle D. Thomas, Ex-NIEHS Construction Chief, PHS Commissioned Officer, Dies of Cancer

Lyle D. Thomas, the first employee assigned to work at what is now the National Institute of Environmental Health Sciences in Research Triangle Park, died recently of cancer after retiring from the Public Health Service 21 months ago.

Mr. Thomas, a PHS commissioned officer, was tranferred in 1966 from Washington, D.C. to North Carolina where he became chief of the Research Services Branch of what was then the Division of Environmental Health Sciences.

Later Mr. Thomas was also made acting chief of the Environmental Biophysics Branch after the Division was elevated to an Institute in 1969. As chief of the Research Services Branch, Mr. Thomas was basically responsible for the Institute's construction activities.

Under his direction the buildings constructed and completed by 1971 on the NIEHS North Campus virtually doubled the Institute's capacity.

In 1974 Mr. Thomas, a civil engineer, became actively engaged in the design of the Institute's new South Campus facilities, particularly Bldg. 101 which has been described by many as the most modern and up to date toxicology research center in the world.

This $70 million research facility dedicated to environmental health sciences was guided through planning, development, construction and utilization phases under his watchful eye.

In 1977 when construction was actually begun, Mr. Thomas was transferred from NIEHS to the Regional Offices Facilities Engineering and Construction (ROFEC) in Atlanta, Ga., but remained at the NIEHS site as project director for the new construction until his retirement in 1982.

At the time of his death, Mr. Thomas was employed as a consultant by ROFEC.

Mr. Thomas

Dr. David P. Rall, NIEHS Director, said "Lyle was a good friend, and without his efforts the Institute would not now be in its new South Campus buildings. He was liked and admired by all who knew him."

Born in Cairo, Iowa in 1933, Mr. Thomas received a BS in civil engineering from the State University of Iowa in 1956 and a Master of Science degree in Hygiene from the University of Pittsburgh in 1960. He joined the PHS in 1956.

The family requests that memorials be made to the Soapstone United Methodist Church in care of Ben White, 3715 Horseshoe Bend, Raleigh, N.C. 27612 or to the American Cancer Society, Wake County Chapter, 425 N. Boylan Ave., Raleigh, N.C. 27603.

Trials of Inner-Ear Implant Slated for Adult-Onset Deaf

Scientists are now ready to begin human trials on a new inner ear prosthesis after more than 8 years of research conducted at the Washington Primate Research Center and the University of Washington Otolaryngology Department in Seattle. The implant should restore some hearing to selected patients.

Dr. Josef Miller and his colleagues conducted their research on rhesus monkeys and guinea pigs by implanting cochlear electrodes and measuring sound thresholds, range of hearing, and hearing discrimination abilities. (The cochlea is a spiral-shaped canal in the inner ear.)

The primate facility is funded by the Division of Research Resources. The National Institute of Neurological and Communicative Disorders and Stroke funded most of the specific cochlear implant research at the primate center.

Dr. Robert Dobie, associate professor of otolaryngology at the University of Washington, said it is very difficult to test and rehabilitate individuals who have been deaf since birth. Therefore, only persons who became deaf in their adult years will participate in the human trials.

Cochlear implants excite the auditory nerve cells by stimulating them with minute electrical currents. When researchers stimulate small groups of nerve cells, implanted patients experience sounds with a variety of rhythms and pitch.

"To help patients hear we have to encode an amazing amount of information for the nervous system," said Dr. Miller. "With a coordinated approach between clinicians and basic researchers to find the fundamental elements of speech that we must encode, we'll get to the final goal of restoring hearing to the deaf with less damage to the ear. We'll also contribute basic information about the way the auditory system works."

Primate research coordinated by Dr. Francis Spelman of the Washington Primate Center will be done in tandem with Dr. Dobie's clinical trials. □

Floating Down the River

You can escape the summer heat on the Shenandoah River July 28 with the R&W tubing activity.

Cost is $20.00, which may be paid at the R&W Activities Desk, Bldg., 31, or the Westwood R&W Gift Shop. □

Stress' Role in Peptic Ulcers Studied by NIADDK Grantee

Stress often is implicated as a possible cause of peptic ulcers, yet the relationship between stress and ulcers remains a topic of continuing controversy.

New findings that may someday resolve that controversy have been recently reported by research scientists supported by the National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases.

Drs. Mark Feldman and Pamela Walker of the Veterans Administration Medical Center in Dallas have linked peptic ulcer disease to a number of psychosocial factors, including stress.

The research team conducted a series of psychological tests on two groups of men—an experimental group with peptic ulcers and a control group with either kidney stones or gallstones.

Patients with and without peptic ulcers reported having experienced relatively equal numbers of stressful events in their lives. However, the ulcer patients more frequently suffered from feelings of emotional distress from these events, including physical symptoms such as headaches, anxiety and obsessive worry and, especially, depression.

"A significant number of ulcer patients had reduced abilities to cope with stress, higher levels of dependency on others, and a greater lack of social support which marriage or other intimate relationships can provide," Dr. Feldman said.

Although several hundred other studies have examined the possible effects of stress on peptic ulcers, Dr. Feldman described this study as unique in that it used a control group of equally sick nonulcer patients who might also have been vulnerable to the effects of stress.

"Unlike previous studies in which all the subjects were known to have ulcers," Dr. Feldman added, "we scored the tests blindly without knowing the diagnosis of each patient."

According to the research scientists, although the results do not prove conclusively that people who cope poorly with stress are more vulnerable to peptic ulcer disease, it appears likely that psychological factors do precede the condition.

The scientists are planning a followup study of whether psychological therapy for ulcer patients can reduce their vulnerability to stress and, in turn, significantly reduce the recurrence of peptic ulcers.

"If we can prevent the recurrence of ulcers through successful therapy on patients exhibiting these psychosocial problems," Dr. Feldman said, "we will have strong evidence for a connection between ulcers and stress."—**Bill Hall** □

NIGMS Deputy Director Leaves

Dr. David P. Beck, Deputy Director of the National Institute of General Medical Sciences (NIGMS) Genetics Program and special assistant to the Director, NIGMS, for legislative affairs, will leave the Institute this month to take a position as associate director for administration of the Public Health Research Institute of the City of New York. □

Insomnia: "To Sleep, To Sleep, Perchance ..."

Serious insomnia is typically a symptom of some underlying medical or psychiatric problem and signals the need for a complete diagnostic evaluation before treatment is rendered, a consensus panel at the NIMH-NIH conference on drugs and insomnia reported recently.

When a sleep-promoting medication is indicated, benzodiazepines (hypnotics) are the preferred treatment, the panel declared, but such treatment should involve "the smallest effective drug dose for the shortest time necessary."

Moreover, the experts emphasized that a comprehensive treatment plan should consider both psychotherapeutic and behavioral approaches.

The conference sought consensus, based on the latest research, to guide physicians in the day-to-day treatment of insomnia.

After 1½ days of reports on research from 13 scientists and much discussion, the 13-member panel labored through a sleepless night to produce the consensus statement on insomnia.

Their efforts were greeted with rousing applause when the statement was read to conference participants by Dr. Daniel Freedman, director, division of adult psychiatry, and vice chairman, department of psychiatry, Neuropsychiatric Institute, UCLA, who chaired the meeting.

Defining Insomnia

The panel defined three broad categories of insomnia—transient, short-term, and long-term. The meaning of transient insomnia had been debated throughout the conference.

- Transient insomnia, the panel concluded, afflicts "normal sleepers who experience acute stress for *several days*—such as a brief hospitalization—which then affects their sleep adversely."
- Short-term insomnia, on the other hand, may last up to *3 weeks* and is typically related to a stressful situation, such as loss of a loved one, work or family problems, or medical illness.
- Long-term insomnia was seen in terms of months and years by the researchers. This category includes people with underlying psychiatric and medical conditions, those who abuse or depend on alcohol or drugs, and those with sleep disorders such as myoclonus (periodic leg movement), 24-hour rhythm disturbances (advanced or delayed sleep phase), or psychophysiological insomnia (no apparent psychiatric or medical syndrome).

Because sleep disorders have many causes, the panel emphasized the need for careful diagnoses with assessments of sleep habits, daytime sleepiness and functioning, and physical and psychological conditions. In certain cases, referral to a sleep clinic for laboratory tests would prove useful, they said.

Treatment Strategies

For transient and short-term insomnia, the panel recommended that doctors acquaint patients with "good sleep hygiene," such as increased *daytime* exercise, and reduced use of caffeine, cigarettes, and alcohol. They also suggested relaxation/biofeedback training and other nondrug procedures which can help promote rest.

While they felt that "sleep-promoting medications may be considered" for *transient* insomnia, the panel noted differences of opinions among sleep experts about the use of drugs.

Sleep Promoting

For example, Dr. William Dement, director, Sleep Disorders Center, Stanford University School of Medicine, said that the use of hypnotics (sleep-promoting medications) could be helpful when daily performance suffers from sleep loss caused by jet lag, change in work shift, or short-term stress. Others held that such medications should be reserved for more serious sleep problems.

For long-term insomnia, the panel recommended nondrug strategies (sleep hygiene and behavioral approaches) be used initially, perhaps with a short trial (less than 1 month) of a hypnotic drug. If patients respond well to the medication, intermittent use (such as one night in three) and gradual discontinuance after 3 or 4 months was suggested.

When 24-hour circadian rhythm or work-shift problems put individuals out of sync with the general population, the panel advised chronotherapy, a treatment designed to shift patients' sleep patterns gradually.

When an underlying psychiatric or physical condition is identified, treatment should be targeted to the primary disorder, such as depression, anxiety, or ailments involving circulation, arthritis, metabolism, kidney, or heart. Such treatment often clears up the insomnia, but if sleep problems persist, sleep-promoting medication may be required.

Antidepressants may provide a useful alternative to benzodiazepines in some cases of long-term insomnia, according to the consensus report. Dr. Robert Rakel, professor and head of the department of family practice, University of Iowa, suggested that antidepressants, which are less addictive than benzodiazepines, may be increasingly useful for aging patients with chronic diseases that prevent sleep.

Dangers of Drug Therapy

Benzodiazepines, when used properly, are safe for most people, particularly compared to barbiturates, but there are situations when their use should be avoided. These drugs can be dangerous for people with sleep apnea, a condition in which the sleeping person actualy stops breathing for short periods and then resumes breathing. Symptoms of this disorder include daytime drowsiness and heavy snoring. Apnea is most often found in the obese and the elderly. Laboratory tests in a sleep clinic are recommended.

Benzodiazepines should be prescribed for the elderly only with great care, warned Dr. John Rowe, associate professor and director, division on aging, Harvard Medical School. He pointed out that sensitivity to hypnotics tends to increase as aging triggers changes in metabolism and renal function and "poorly understood changes in the brain." He particularly warned against prescribing long-acting hypnotics for older patients.

—**Marilyn Sargent** □

Dr. Arnold Brossi, chief of the Medicinal Chemistry Section, Laboratory of Chemistry, NIADDK, received an honorary doctorate from Bowdoin College, Brunswick, Me., during its 179th commencement exercises. Dr. Brossi, a native of Switzerland, assumed his current position in 1976. Prior to that time he was a director of chemical research at Hoffmann-LaRoche Company.

NIA Director Receives Geriatrics Society Award

Dr. T. Franklin Williams, Director of the National Institute on Aging, was recently presented with the Edward Henderson Award in Denver, Colo. The award is presented annually by the American Geriatrics Society for "eminent and exceptional contributions to a better understanding of the problems of health care for the aging and aged through research and published works in the field of life sciences relating to the aging of man."

Accepting the award, Dr. Williams stressed the immediate and pressing need to train doctors, nurses, dentists, researchers and support staff in the fields of gerontology and geriatrics. Studies have shown a severe shortage of trained personnel exists in all areas and, without immediate action, the situation will become increasingly severe.

Reliable estimates are that 1,350 faculty members will be needed by the year 1990 to staff medical schools and guide medical residence programs.

Since being sworn in as NIA Director in July, 1983, Dr. Williams has emphasized the increased training of gerontologists and researchers as a priority for the Institute. □

Supply Operations Branch Sponsors Products Exhibit

The Supply Operations Branch, OD-DAS, is sponsoring a scientific products exhibit to be held in the Visitor's Center of the Clinical Center Ambulatory Care Research Facility (ACRF) on July 19, from 10 a.m. to 2 p.m.

Technical representatives from the Millipore Corporation and Waters Product Divisions will be available to discuss membrane separations, water purification and HPLC.

Scientific personnel are invited to attend. □

MOLECULE

(Continued from Page 1)

By manipulating cells with a technique called microinjection and watching the activity with a low-light-intensity video camera, Dr. Arnheiter has made cells into living test tubes.

"As soon as you can do something in a test tube, you can control the experimental conditions very carefully," says Dr. Arnheiter.

Dr. Arnheiter's living test tubes are laboratory-grown cells in which a virus related to the rabies virus is living and making copies of itself.

To perform the microinjection technique, Dr. Arnheiter uses the visual control of a microscope to position a fine-tipped glass pipette over a slide containing the virus-infected cells. The cells are illuminated by a light source that has been carefully adjusted so that the cells don't dry up and die.

Dr. Arnheiter selects a cell and pierces it with the pipette, injecting antibodies that attach only to the virus component he is interested in. The antibodies are tagged with a fluorescent dye, which allows the viral molecules to be seen as bright white spots on a television screen.

Because of the exacting nature of the technique, it will take Dr. Arnheiter, a cell biologist, half an hour to microinject 100 cells—this is about 10,000 times less than the number of cells most biochemists use in their experiments.

Since perfecting the technique earlier this year, he has taped a total of 7 hours of viral molecules moving from the inside of cells, where they are synthesized, to the outer membrane, where, along with other components, they are assembled into viruses. Although the actual assembly cannot be seen, the tapes show a definite accumulation of viral components at the membrane, Dr. Arnheiter says.

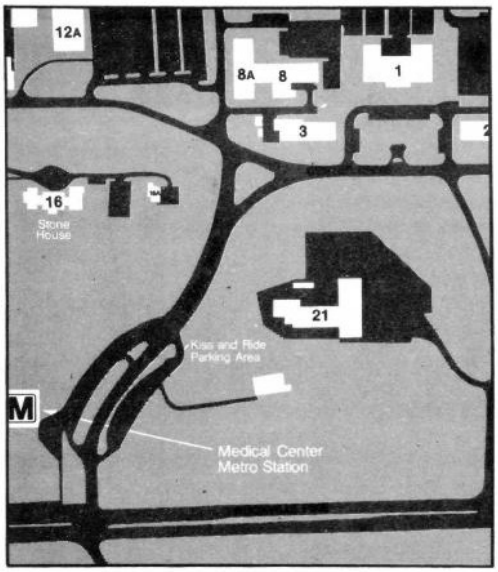
Cells are constantly moving molecules around, he says. And that movement is not random. "Cells have a way of determining up and down and left and right in order to direct the transport of components to specific locations," he says. "Often there is a long distance between where important molecules are made and where they are finally deposited."

An extreme case of such long-distance transport occurs in the neuron. Neurotransmitters made in the cell body must be transported to the tip of the axon, a length that could be up to one meter in some human nerve cells.

Transport of molecules occurs in more than one direction, but like a divided highway, one pathway may be used for conveying substances in one direction and another used for movement in the opposite direction.

"We are interested in determining how the cell directs all this movement without mixing up the traffic lines," the NINCDS-supported scientist says. "We are also interested in how the cell decides where to put certain molecules."

By watching the transport as it occurs, Dr. Arnheiter hopes to find the answers to these basic questions. He will continue this work in his native country, Switzerland, at the University of Zurich, to which he recently returned. □



HEARING TEST

(Continued from Page 1)

Dr. Hoffman and his associates found that the eyeblink reflexes of sleeping babies increased when tones of 70, 80 and 90 decibels were used with the reflex modification procedure. Newborns were more sensitive to the tone stimulus than adults.

"Our research is designed to find out how early this change in eyeblink shows up in babies," Dr. Hoffman said. "Our long range goal is to be able to use this phenomenon to detect hearing losses in newborns."

"It is well known that hearing impairment in children often goes undetected. In such cases the child may be thought to be uncooperative or even disturbed or retarded when, in fact, the problem is one of sensory loss. The availability of an easily administered, objective test for hearing could be of considerable value in such cases," Dr. Hoffman said.

An estimated 70,000 children under age 5 suffer some degree of hearing loss. "Measures to correct their deficiencies are most effective if the impairment is diagnosed and treated early," said Dr. Norman A. Krasnegor, chief of NICHD's Human Learning and Behavior Branch which administers Dr. Hoffman's grant.

The infants tested in the experiments ranged in age from 13 to 90 hours., The eyeblinks were measured by a miniature photo-reflective densitometer placed in front of the baby's eye and attached to an earphone through which the tones were presented. The equipment was found to be acceptable to parents, neonatologists, pediatricians and nurses who observed the test sessions, according to Dr. Hoffman.

The children themselves usually slept through the entire test "which shows the utility of this type of methodology," Dr. Krasnegor said.

The reflex modification technique will also be very useful in testing older children who have been identified as mentally retarded, brain damaged or emotionally disturbed. It will help specialists determine whether the youngsters' frequent failures to show normal language development is related to loss of hearing, Dr. Krasnegor said. □

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