

"Still
The Second
Best Thing
About Payday"

The NIH Record

The Few, The Proud, The Fit

Bicyclists Solve Commuting Problems the Healthy Way

By Rich McManus

Let's just admit upfront that it takes plenty of courage most days just to haul one's carcass into work by any means possible, let alone by one mode—bicycling—that just happens to accrue great moral,

physical, and economic benefit to those hardy enough to adopt it. No matter how you got here today, you got here, end of discussion.

But consider for a moment the glory of the peddler. He or she rises in the morning with the prospect of invigorating exercise preceding the day's labor, not of soulless, semi-conscious journeying-by-rote that can all too often be the prelude to a dull work day. Granted, the cyclist may arrive in something of a lather, necessitating a change of clothes or shower, but he or she gets to work having failed to pollute any air, having gotten the vigorous exercise that cardiologists say prolongs healthy life (Harvard epidemiologist Dr. I-Min Lee recently reported that cycling for 1 hour four times a week achieves a level of caloric expenditure associated with the lowest death rate in a large-scale study of exercise and longevity), and, perhaps most important to colleagues and campus planners, having left unused the 0.5 parking space allotted to him or her.

"I definitely feel better at work on the days when I ride my bike rather than drive," says Dr.

(See **BIKE COMMUTERS**, Page 6)

'Telomere Queen'

NIH Lecture To Feature Elizabeth Blackburn

Australian native Elizabeth H. Blackburn, professor and chair, department of microbiology and immunology at the University of California, San Francisco, will present an NIH Director's Lecture on Wednesday, May 24, in Masur Auditorium, Bldg. 10, as part of the Wednesday Afternoon Lectures. Her talk is entitled, "Altering Telomerase RNA: Enzymatic and Cellular Consequences."



Dr. Elizabeth Blackburn

Telomeres are structures at the tips of all chromosomes and are composed of six DNA letters repeated from 1,000 to 3,000 times in human cells. Blackburn, who has been instrumental in the study of these structures, has been deemed the "queen of telomeres" by her colleagues. In some cells, with each cell

(See **BLACKBURN**, Page 4)



Biologist Janet Young of NIAID keeps her bike in her office in the Solar Bldg. Her 12-mile ride to work leaves her ready for challenges.

NIH's Invited to Master Plan Meeting, May 16

The Office of Research Services is currently revising the draft Master Plan and Environmental Impact Statement (EIS) for the Bethesda campus. The planning team, headed by the Facilities Planning and Programming Branch, Division of Engineering Services, will be presenting a preliminary draft of the revised Master Plan to NIH employees on Tuesday, May 16, 2-4 p.m. in Lipsett Amphitheater, Bldg. 10. Issues to be discussed include population and space projections, development concepts, the Clinical Center renewal program, transportation and parking issues, and community coordination.

The development of the revised Master Plan and final EIS is anticipated to be completed and ready for submission for public and agency review this summer. This is, therefore, an important opportunity for the NIH community to provide comment and input into the Master Plan, which will serve as a blueprint for development on the NIH campus over the next 20 years.

Carla Shatz To Give NIH Director's Lecture, May 17

By Norman Oliver

Dr. Carla J. Shatz, a neuroscientist from the University of California, Berkeley, will present the next NIH Director's Lecture. In her presentation, titled "Brain Waves and Brain Wiring," she will explore how the billions of neurons in the brain organize to form appropriate sets of connections. Her research shows that neural activity and stimulation, even before birth, are essential to the process. Shatz will present her talk on Wednesday, May 17, at 3 p.m. in the Clinical Center's Masur Auditorium.

Professor of neurobiology in the department of molecular and cell biology at Berkeley, she graduated *magna cum laude* in chemistry from Radcliffe College, earned a master's degree in physiology from University College, London, and received a Ph.D. in neurobiology from Harvard University. Her



Dr. Carla Shatz

(See **SHATZ**, Page 2)

NIAID Sponsors Program Helping Minority Students

By Ann London

Last year's participants braved ice, sleet, snow and freezing rain. For this year's group, there was no precipitation, but there were bone-chilling winds. These college and graduate students, however, would not have missed participating in this annual program for any reason.

Sixty minority students from 49 states, including Alaska and Hawaii, as well as from Puerto Rico came to the NIH campus recently to participate in NIAID's 4-day Introduction to Biomedical Research Program. They were selected on the basis of their grade point averages, career goals, and letters of recommendation. The students attended sessions where researchers discussed minority health issues, the immune system, viruses, genes, vaccines, and allergic, immunologic and infectious diseases. They also had opportunities for one-on-one discussions with researchers and other program leaders about career paths in biomedical research.

"NIAID's Introduction to Biomedical Research Program has been extremely successful in helping students to focus their career goals in biomedical research," says

(See **MINORITY**, Page 4)

SHATZ
(Continued from Page 1)

research into the sequence of early fetal events associated with the formation of connections in the mammalian visual system has won her many honors. Among other achievements, she is the recipient of a MERIT award from the National Eye Institute, a fellow of the American Academy of Arts and Sciences, and president of the Society for Neuroscience.

Shatz' research has been directed at understanding how the orderly connections found in the adult central nervous system are wired during development. Precise patterns of the more than 100 billion neurons in the human brain make possible memory, vision, learning, thought, consciousness and other properties of the mind.

Research over the last 10 years in laboratories headed by Shatz and others has profoundly challenged a commonly held notion of how brain organization occurs. This concept holds that the brain wires itself up during fetal life much the way a computer is assembled. According to this concept, the entire structure of the brain is contained in a biological blueprint, presumably the DNA. Once the assembly process is complete, a switch is thrown, and mental life begins.

Shatz' research reinforces an older notion that children must be stimulated, through touch, speech and visual images, to develop fully. For example, babies who spend most of their first year lying in cribs develop abnormally slowly. According to Shatz, some people favor enriched environments for young children believing this will enhance development. Scientific investigations, however, have yet to provide clear evidence that extra stimulation beyond normal levels is helpful.

Shatz and her colleagues use the development of the visual system in other animals, especially during prenatal and neonatal stages, as a model for understanding how the human brain develops. Visual systems differ little from one species of mammal to the next, and neurons in this system are essentially the same as other neurons in the brain. An advantage to using the visual system is that function has been well correlated to structure and the path from external stimulus to physiological response is well known. Results of these studies are likely to have wide application to other brain systems.

Observations in children who develop cataracts have shown that visual stimulus is necessary for development of normal vision. If such cataracts are not removed promptly, permanent blindness in the obstructed eye can occur. Cataracts, which occur in adults and are corrected by surgery, do not cause blindness. A critical period occurs in childhood during which use leads to correct wiring. Experiments in which one eye of a newborn kitten is closed have shown that as little as 1 week of sightlessness can alter the formation of brain connection for processing

sight in the visual cortex. A pattern of electrical signals from the eye is necessary for the brain to form the structures needed to process vision.

Thus, brain cells that fire together appear to wire together. Shatz and her colleagues have searched for prenatal patterns of electrical signals that might help the formation of visual system structures that are known to be in place even before birth. Technically sophisticated experiments have shown that neurons in the retina spontaneously produce regular bursts of activity, even before light sensitive rods and cones are formed. These spontaneously generated signals are necessary for the neurons from both eyes to wire with their targets correctly to form early circuits necessary for binocular vision. Disruption of these signals may explain some types of birth defects such as cerebral palsy or dyslexia.

For more information on Shatz' lecture or to arrange for sign language interpretation and reasonable accommodation, call 4-5595. □

Thrift Savings Plan Open Season

The Thrift Savings Plan is having another open season from May 15 through July 31. FERS employees who were hired before Jan. 1, 1995, as well as CSRS employees have an opportunity to change their current election, or make an initial election.

Eligible FERS and CSRS employees may elect to contribute to the G Fund (government securities), C Fund (stocks), and/or F Fund (bonds). FERS employees may contribute up to 10 percent of their salary each pay period and will receive matching agency contributions on the first 5 percent. CSRS employees may contribute up to 5 percent of salary, but do not receive any matching contributions. FERS employees who do not contribute receive an automatic 1 percent agency contribution each pay period. They may choose to distribute this contribution among the three funds.

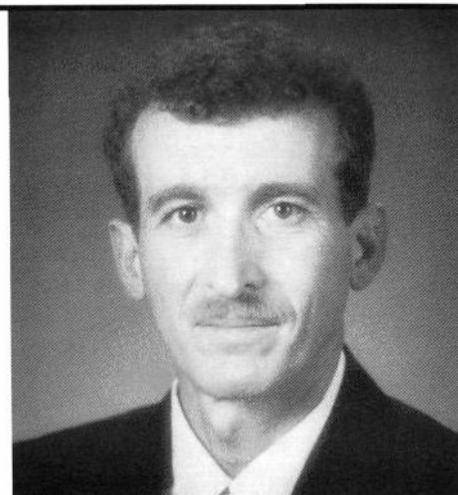
The features of the plan and directions on how to make a plan election or to change your current withholding are described in the *Thrift Savings Plan Open Season Update* pamphlet, which will be distributed to eligible employees by their ICD personnel office. More detailed information is provided in the Summary of the *Thrift Savings Plan for Federal Employees* booklet and is available in your ICD personnel office. □

Annual PEF Auction, May 23

The annual Patient Emergency Fund auction will be held on Tuesday, May 23 from 11 a.m. to 2 p.m. in the Visitor Information Center, Bldg. 10. Great merchandise, trips, discount coupons and other items have been

donated for the event.

Proceeds benefit the PEF. Call the R&W, 6-6061, for more information.



Dr. Robert H. Stretch has recently joined the Grants Associate Program, Office of Extramural Research. He received his doctorate in family studies/social psychology from Purdue University in 1977 and completed additional academic training in clinical psychology from George Washington University in 1991. Following his release last September from active duty as an Army research psychologist for nearly 15 years, Stretch has been a research assistant professor of psychiatry at the Uniformed Services University of the Health Sciences. The major emphasis of his research has been on the etiology and epidemiology of post-traumatic stress disorder and other reactions to traumatic stress. Through the GA program, he will receive 1 year of training to become a health scientist administrator.

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NIAID Vaccine Protects Against Severe Diarrhea

More than 80 percent of the most severe diarrheal illnesses caused by rotaviruses were prevented among infants receiving a vaccine developed and patented by NIAID, according to trial results reported in the Apr. 19 *Journal of the American Medical Association*.

"Rotaviruses, first detected 21 years ago, are the single most important recognized cause of severe diarrhea among infants and children younger than 2 years the world over," says Dr. Robert Chanock, chief of the NIAID Laboratory of Infectious Diseases (LID). "Our goal with this vaccine is to prevent the most severe rotaviral diarrhea, which leads to dehydration and death."

An effective vaccine would prevent annually more than 1 million cases of severe rotaviral diarrhea in U.S. children younger than 5 years—including 65,000 hospitalizations, notes Dr. Albert Z. Kapikian, assistant chief of LID. In developing nations each year, moderate to severe rotaviral diarrhea affects 18 million infants and children, killing more than 870,000.

In the trial, researchers compared a placebo to two NIAID vaccines, one designed using four clinically important strains of human rotavirus (RRV-TV) and a second including only one of these strains, serotype 1 (RRV-S1). Chanock and Kapikian, with their NIAID colleagues, developed the RRV-S1 vaccine in 1985 and the RRV-TV vaccine in 1986. These vaccines were patented in 1987 and 1988, respectively.

Through a cooperative research agreement with NIAID, Wyeth-Ayerst Laboratories of Philadelphia holds an exclusive license for both vaccines and produced them for the study, conducted at 23 U.S. medical centers.

In the study, both vaccines protected against disease caused by serotype 1 human rotavirus, reports lead author Dr. David I. Bernstein, of the J.N. Gamble Institute of Medical Research in Cincinnati. However, only the RRV-TV vaccine protected against disease caused by the other rotavirus strains during the second year after immunization. The authors add that they do not know whether this finding represents a safeguard against a specific rotavirus strain or a difference in how long protection lasts.

Specifically, the RRV-TV vaccine protected against 57 percent of all cases of rotaviral diarrhea. When ranked by severity of illness, the RRV-TV's effectiveness ranged from 49 percent protection for less serious cases to 82 percent for the most severe cases. In fact, the RRV-TV vaccine protected against 92 percent of the diarrheal episodes lasting more than 3 days, and reduced by 78 percent the cases requiring medical visits.

In comparison, the RRV-S1 vaccine's effectiveness against diarrhea ranged from 40 percent protection against all rotaviral diarrheas, 31 percent for less serious cases and 73 percent for the most severe cases.

However, the RRV-S1 vaccine only prevented 36 percent of diarrheal episodes lasting more than 3 days. The vaccine reduced medical visits by 67 percent.

Researchers rated the severity of illness by noting dehydration, fever, medical intervention, how long diarrhea and vomiting lasted, and the number of stools passed and vomiting episodes during 24 hours.

The study investigators enrolled 1,006 healthy infants, ages 4 to 26 weeks, between August 1989 and February 1990. Of the children, 898 received three oral doses of one of the vaccines or the placebo at least 2 weeks apart, with the final dose given by age 30 weeks. The researchers followed the 898 children for 1 year, and 864 children through 2 years, until June 1991. The researchers, parents and children did not know which product a child received until the study ended.

The NIAID team designed the vaccines by substituting a gene from a human rotavirus strain for one in a weakened rotavirus that infects rhesus monkeys. The gene has instructions to make a protein on the virus' surface, where the immune system can easily recognize it and then tailor-make antibodies to fight that viral strain.

When making the RRV-TV vaccine, the NIAID researchers used this substitution strategy to create weakened forms of three of the four clinically important human rotaviruses. The fourth human strain was represented by a weakened, but unaltered rhesus rotavirus, which has a similar surface protein.

Rotavirus infects 90 percent of humans by age 3 years, regardless of hygiene standards, Chanock says. Even in areas where cholera is common, he notes, rotavirus causes severe illness more frequently in children younger than 2 years. Adults get rotavirus infections as well, but because of their previous rotavirus infections, most people do not become sick or have only mild illnesses.—
Marion E. Glick □

Atlantic City Trip, May 20

Join gamblers and sightseers on a bus trip to Atlantic City sponsored by the NIH chapter, Order Sons of Italy in America (OSIA). Be on the bus when it pulls out from the NIH campus at 8:30 a.m. Saturday, May 20. Bus will return that night before 11 p.m. Spend the day visiting Atlantic City and receive a casino \$8 bonus. Transportation, juice, bagels, doughnuts, and driver's gratuity are included for only \$25 per person.

Don't delay—call and reserve your seat. Contact Nina Baccanari, (301) 869-4045 to reserve your place. Make check payable to OSIA NIH Chapter #2547 and send to 8 Russell Ave #211, Gaithersburg, MD 20877. NIH'ers interested in joining the OSIA chapter should call Cathy Battistone for information, (301) 320-4529. □

Briefing on Cochlear Implants

Cochlear implants are the topic of an NIH Science Writers Briefing to be held Wednesday, May 10 from 9 a.m. to 12:15 p.m. in Bldg. 31, Conf. Rm. 10C.

The moderator will be Dr. James F. Battey, director of intramural research, NIDCD.

"How We Hear," the biology and physiology of hearing, will be described by Dr. Brenda Lonsbury-Martin, Chandler professor and director at the University of Miami Ear Institute.

Dr. John K. Niparko, director, division of otology, neurology, and skull base surgery and associate professor, department of otolaryngology-head and neck surgery, Johns Hopkins Hospital, will discuss surgical implantation of the device.

A description of the team approach to helping patients benefit from a cochlear implant will be given by Dr. Jon Shallop, director of clinical services and research at the Denver Ear Institute.

Loraine Di Pietro, director of the Information Center on Deafness at Gallaudet University, will speak about the deaf culture and the diversity of the deaf community.

The FDA approval process for devices and the status of cochlear implants will be discussed by Dr. Lillian Yin, director, Division of Reproductive, Abdominal, Ear, Nose and Throat, and Radiological Devices at FDA.

The briefing precedes the NIH Consensus Development Conference on Cochlear Implants in Adults and Children, which will be held May 15-17.

For more information, contact Bobbi Bennett, 6-8855.

NLM's 'Visible Human' Lauded

The editors of *Discover* magazine have selected "The Visible Human Project" as one of five finalists in the category "Computer Software," for the magazine's 1995 Discover Awards for Technological Innovation. The finalists were chosen from thousands of entries in seven categories.

The project officers for the "Visible Human," Drs. Michael J. Ackerman and Donald Lindberg, were cited by the magazine for developing "a complete human database...[to] simplify the study of human anatomy by providing a realistic reference guide to human physiology."

The winners will be chosen by a diverse panel of judges including film critic Gene Siskel, singer Ray Charles, astronaut James Lovell, and magicians Penn and Teller. The "Visible Human Project" will be featured in a special June 1995 awards issue of *Discover* and has already been the subject of several broadcasts on the Discovery cable TV channel. □

MINORITY STUDENTS VISIT NIAID (Continued from Page 1)

NIAID director Dr. Anthony S. Fauci.

Although most of the program's participants are undergraduates, Arnette Klugh III is a first-year medical student at Baylor College of Medicine in Houston. The U.S. Naval Academy graduate is interested in clinical research, possibly focused on asthma or prostate cancer, both of which disproportionately affect African Americans. He is passionate about improving access to health care for African Americans and feels that whatever focus his research has, it must also be geared to this problem. Although he has not yet done any research, he participated in the program "to find out first hand" about opportunities in biomedical research.

Yen Kim Bui, a junior at Pomona College in California, is majoring in molecular biology. She said that talking with NIAID scientists has firmed up her resolve "to do research and clinical medicine." Her goal before participating in the program was to study diseases at the molecular level. Because of the group seminars about the immune system and immunologic diseases, she has now refined her goal to focus specifically on those diseases.

Dr. John Ruffin, NIH associate director for research on minority health, was keynote speaker at the banquet session. He told the

students, "As a minority student, you are rare in the field of science...NIH will do everything it can to help you succeed in biomedical research." He added, "You are living in a time when you are lucky to have so many programs to take advantage of through NIH as well as private foundations."

Ruffin informed the students about NIH programs as well as those for pre- and



Students from around the country meet for NIAID's 1995 Introduction to Biomedical Research Program.

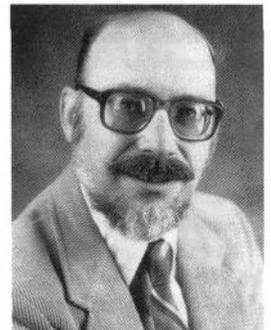
postdoctoral studies in other organizations. He also told them about NIH-funded programs available for junior and senior high school students. He charged the students to "give something back" to NIH for the interest and help it is providing for their future careers in biomedical science by "being a role model for your younger brothers and sisters and friends and stimulating their interest in science." □

NCI's Shopland Honored With 1995 Cullen Award

The American Society of Preventive Oncology has awarded the 1995 Joseph W. Cullen Award to Donald R. Shopland, coordinator of the National Cancer Institute's Smoking and Tobacco Control Program.

An international authority on smoking and health with NCI since 1987, Shopland has participated in the compilation of every *U.S. Surgeon General Smoking and Health Report* since the first report was issued in 1964 by Surgeon General Luther Terry.

Shopland was honored with the Cullen Award in recognition of his lifelong contributions to the field of smoking and tobacco control. In 1987, Surgeon General C. Everett Koop presented him with the Surgeon General's Medalion for his contribution to the reports. Shopland was director of the Office on Smoking and Health (OSH) for the assistant secretary for health from 1985 to



Donald R. Shopland

1987. He had been director of OSH's Technical Information Program from 1978 to 1984.

Shopland's latest award honors the memory of the late Dr. Joseph W. Cullen, who developed NCI's current antismoking programs while deputy director of the Division of Cancer Prevention and Control. Cullen died in 1990 of a brain tumor while serving as director of the AMC Cancer Center in Denver. Shopland took over as coordinator of the Smoking and Tobacco Control Program in 1991. □

Camp Fantastic BBQ Set, June 6

The 13th Annual Camp Fantastic Barbecue to benefit NIH's camp for children diagnosed with cancer will be held on Tuesday, June 6 beginning at 11 a.m. Tickets are \$5 and can be purchased at any R&W location or at the door. On the menu this year will be BBQ chicken, applesauce, chips, baked beans, soda and dessert. The band Streetlife will be performing, and radio personality Barbara Britt of MIX 107.3 will be the host. If you are interested in volunteering or need more information, call Jodi, 6-6061. □

BLACKBURN TO GIVE NIH DIRECTOR'S LECTURE (Continued from Page 1)

division a bit of the telomere is lost. In these cells this mechanism is thought to act as a time piece connected to cell aging and eventual cell death. It is conjectured that in the uncontrolled cell division characteristic of cancer, cells are not given the cue to cease dividing. In these cells the enzyme telomerase, which was discovered in Blackburn's laboratory, allows telomeres to rebuild, in effect turning back the clock on cell aging and delaying cell death. Further studies in her lab showed that telomerase contains an RNA template, which gives the enzymes properties similar to the enzyme reverse transcriptase.

Blackburn, a past member of the molecular cytology study section and ad hoc member of the National Institute of General Medical Sciences Council, is currently an associate editor of *Molecular Biology of the Cell*, and a member of the editorial board for *Genes and Development* and *Molecular and Cellular Biochemistry*.

Educated on three continents (Australia, England and North America), she earned bachelor and master's degrees in biochemistry at the University of Melbourne, Australia, and her Ph.D. in molecular biology at the

University of Cambridge, England. She performed her postdoctoral work at Yale University in molecular and cell biology. She has taught at all levels of post-secondary education.

A foreign associate of the National Academy of Sciences and a fellow of the Royal Society of London, Blackburn has received numerous awards including the Eli Lilly Research Award for Microbiology and Immunology, Australian Society for Microbiology prize and the National Academy of Science Award in Molecular Biology. She has authored and coauthored many papers in the areas of telomere and telomerase, microbiology and genetic sequencing.

This lecture has been approved for continuing medical education credit. □

Managers' Meeting Set, May 24

There will be a special Federal Managers Association (FMA) presentation for NIH federal supervisors and managers on Wednesday, May 24, from noon to 1 p.m. in the Natcher Bldg. auditorium. FMA is the oldest and largest professional association of managers and supervisors in government. The group's executive director, Bruce Moyer, and its director of membership services, Frances Webb, will address issues of concern to all federal managers. Topics will include reinventing government, workforce downsizing, civil service reform, federal pay and retirement benefits, and FMA's mission. The meeting will also offer the opportunity to learn about the NIH chapter of FMA and how to join. For more information, call Stella Serras Fiotes, 6-5037.

Beyond Genetic Engineering

NIGMS Workshop Unveils Promise of Metabolic Engineering

By Alisa Zapp

Selective breeding gave us seedless bananas. Genetic engineering gave us Flavr Savr tomatoes. Now a new field, metabolic engineering, promises such extraordinary advances as vaccines from plants and plastic from bacteria.

Metabolic engineering was the focus of a recent 1-day workshop sponsored by NIGMS. The workshop's eight-member panel consisted of university and industry scientists with

backgrounds in such diverse fields as enzymology, molecular genetics, chemical engineering, and organic synthesis.

The panelists discussed how metabolic engineering combines techniques from all these disciplines to control

product synthesis in bacteria, animal cells in culture, or plants.

"The goal of metabolic engineering is to manipulate cell metabolism purposefully to produce a valuable product," said NIGMS' Dr. Warren Jones, one of the workshop organizers. "By linking together a number of biosynthetic steps, you can start with a cheap material—glucose is very popular—and come out with something more complex and more valuable." Metabolic engineers are already working out how to produce new antibiotics, food additives, and industrial chemicals.

"In a global sense, this is not different from what genetic engineers have been doing for years with proteins," Jones said. "Like genetic engineers, metabolic engineers insert foreign genes into an organism to promote synthesis of desired products. But with metabolic engineering the focus is on small molecules that range in size from catechol [a precursor to vanilla that has only 14 atoms] to molecules 10 to 20 times larger, like antibiotics and taxol [an anticancer drug]."

Because even small molecules frequently require many steps to synthesize intracellularly, metabolic engineering is more complex than most genetic engineering, Jones said. "To get an antibiotic like avermectin, there are more than 35 chemical steps involved," he said. "And each step has at least one enzyme and at least one gene associated with it."

Because metabolic engineering is so involved, the technology will most likely be used to obtain high-value products that cannot be easily produced using other techniques, the panelists acknowledged. The value of metabolically engineered products, however, is judged by more than monetary standards. In addition to making some items more cheaply—such as silk from soybeans—

metabolic engineering offers the hope of producing medical and industrial compounds that are purer, have fewer hazardous byproducts, or are unobtainable by traditional methods.

For example, according to a paper published in *Chemistry in Britain* (March 1995: 206-210) by Dr. John Frost, one of the panel members, *E. coli* bacteria can be engineered to produce adipic acid, a component of nylon. Adipic acid is currently produced

Metabolic engineering promises such extraordinary advances as vaccines from plants and plastic from bacteria.

industrially from benzene, a known carcinogen and air pollutant. The manufacture of adipic acid accounts for about 10 percent of the annual increase in atmospheric nitrous oxide, a compound that destroys stratospheric ozone, has been implicated in global warming, and is a respiratory irritant. Frost's engineered bacteria use glucose as a starting material and do not synthesize any environmental pollutants.

But don't count on an immediate surge of metabolically engineered adipic acid. Although bacterial production would be cleaner and "greener" than the current industrial process, metabolically engineered adipic acid must also be able to compete in the global market. With words like "profit margin" and "market forces," the panelists made it clear that metabolic engineering is as much about economics as it is about science.

And, all too frequently, insufficient science is as much of a barrier to advances in metabolic engineering as are market concerns. Currently, scientists know too little about the metabolism of common model organisms and next to nothing about the metabolism of many other potentially useful organisms, according to the panelists. Progress in metabolic engineering depends on understanding enzymatic reactions and regulatory mechanisms well enough to manipulate them to synthesize new products.

That's where NIGMS comes in. The workshop opened with an explanation of why NIGMS, an institute that primarily funds basic research, would be interested in an area so driven by market forces.

"We don't have a direct interest in production, but we have a very vested interest in understanding metabolism," said Dr. Jim Anderson, who helped organize the workshop. "From NIGMS' point of view, we're in business to understand fundamental life processes. You don't get much more fundamental than understanding the basic metabolism that underlies all forms of life. And the fact that this understanding is also 'commercializable' is a bonus." □

Grantees Win Gairdner Award

Three NIH grantees, Dr. Bruce Alberts, Dr. Arthur Kornberg, and Dr. Roger Tsien, were recently selected to receive the Gairdner Foundation International Award. Alberts and Kornberg were cited for their contributions to the understanding of DNA synthesis, while Tsien was recognized for his work on designing methods to measure the levels of calcium and other chemicals in cells.

Alberts, a former NIGMS grantee who is currently supported by NCI, serves as president of the National Academy of Sciences. Kornberg, a current NIGMS grantee who won the 1959 Nobel Prize in physiology or medicine, is an emeritus professor in the biochemistry department of Stanford University. And Tsien, a former NIGMS grantee who is now funded by NINDS, is a professor of cellular and molecular medicine at the University of California, San Diego.

The award, which is sponsored by the Gairdner Foundation, is given to reward and encourage researchers "who have made significant contributions to the medical sciences." Each of the recipients will receive \$22,500, a framed inscription, and a sculpture at an October 1995 ceremony in Toronto, Canada.

The Gairdner award is frequently considered a "Nobel predictor" since 43 out of 238 Gairdner recipients have gone on to win a Nobel Prize. □



Evelyn R. Burrell was recently appointed chief, Administrative Management Branch, Division of Intramural Research, NICHD. She joined NIH in 1979 as a "floater secretary" with what was then NIADDK. In 1983, she joined NICHD as a secretary in the Office of the Scientific Director, Intramural Research Program, and 3 years later moved into the position of administrative assistant. Now, 12 years later, she heads the office that provides services and support to NICHD's Intramural Research Program.

BIKE COMMUTERS

(Continued from Page 1)

Janet Young, a biologist and program officer in NIAID's Division of AIDS. Her 12-mile commute three times a week to the Solar Bldg. in Rockville from her home on 31st St. NW gives her "an hour to get energized. It makes me feel good about starting work in the morning."

At NIH for the past 3 years (before that she pedaled almost 20 miles to a job in Gaithersburg), Young embodies the sensible answer to most any objection to bike commuting one could raise.

Is your route to work too knotty and dangerous to permit cycling? She'll meet with you and plan a workable alternative.

Are you afraid the paperwork you lug home every evening is too great a burden? She straps a knapsack on her back, and most bikes can be outfitted with panniers—baskets to hold the palpables of your career.

Is it going to rain on the way home? Foul-weather gear for bike riders is easily obtained. In addition to wearing rain gear, Young wraps important papers in large ziplock baggies to keep them dry inside her daypack.

Did you overdress in the a.m. for the p.m. cruise? Young, who on the day we interviewed her was fresh back in the saddle since a tumble on the ice outside the Solar Bldg. doors broke her wrist Feb. 15 (she *drove* to work that day, you cynic!), displays earmuffs and single removable sleeves that cyclists can don or doff as the temperature dictates; the layered look is as given on a bike commuter



NIH Bike Commuter Club President Jay Miller works at his instruments in the Bldg. 6 Laboratory of Physical Biology, NIAMS.

as those form-fitting Lycra shorts cyclists wear, and there are any variety of accoutrements.

Will my executive power suit sustain a crinkle if worn (gasp) or stowed while pedaling? Young drives in twice a week to stock her office with work attire and remove clothes that need cleaning.

What if there's no safe place to put my fancy-schmancy 6-pound gold-g geared European touring bike? And what if it rains? During renovation of Solar Bldg. space, Young specified a cubby hole large enough to fit both her and her mountain bike, and that's just what she has. One more pound of air in the tires and she's in the hallway. As for safety, she lugs the machine indoors to her second-floor office, a luxury many NIH'ers are admittedly denied. However, new, safer bike racks are being installed on campus, as are some bike lockers—large, mailbox-like affairs that can hold your two-wheeler.

Regarding bad weather, Young won't start in by bike if it's pouring. And if a gullywasher blows in on a day when she did pedal, Young cools it at work until after rush hour, then hops aboard Metro, where it is legal to stash bikes in the last car on the train during nonrush hours (and any time on weekends), provided you have a special pass.

What if it's dark out at the beginning or end of my ride? Young has a headlight on her bike and most cyclists interviewed for this story say taillights and reflective clothing are *de rigueur* even for the weekend rider, let alone the seasoned bike commuter.

What if my kid gets sick and I need to rush to school and get him? Okay, you've got her there. Overall, however, Young declares, "The reasons for [biking to work] certainly compensate for the difficulties. For me, biking only adds another half-hour to the commuting process, and it's great to incorporate exercise into my lifestyle."

A game, amiable sort who gives one a certain measure of comfort in knowing people like her are trying to crack the nut of AIDS (she admits to actually enjoying riding up hills, because of the challenge), Young laughs off the trials of bike commuting.

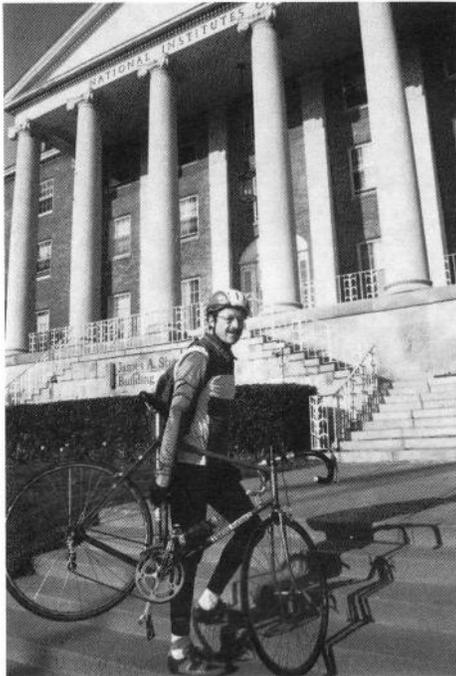
"When I first started, there were no showers in the building. I would sponge off in the bathroom. Not many people here knew me then, and one day someone asked, 'Are you one of the homeless people who sleep in cars outside the building?'"

The reaction among coworkers to her commuting exertions "is probably mixed," she says. "Some think it's kind of crazy. Others feel it's healthy, and very good to do. I know I have the support of my program people," who helped garner space for her mount during office revamping.

Several other Solar Bldg. employees bike to work, including Dr. Karl Western, director of NIAID's Office of Tropical Medicine and International Research. "I commute daily, year-round, weather-permitting from my home in northwest D.C.," he said. "The round-trip is 21 miles, mostly through Rock Creek Park. I have commuted by bike to the main campus or here (Solar Bldg., last 3 years), since I came to NIH in 1979."

Other Solar riders include Carl Henn, who does his 4-mile round trip to work three times a week by bike, and Lew Barker, a regular pedaler whose only hiatus came after hip replacement surgery.

Perhaps the best known cyclist on campus is NIH director Dr. Harold Varmus, who has been a bike commuter "for as long as I can remember. Certainly all the time I have lived in San Francisco...23 years, plus a year and a half here." He pedals in "nearly every day when the weather is good, both ways when it



BIG WHEEL—NIH director Dr. Harold Varmus hauls his bike up the steps of Bldg. 1 on a recent morning. On May 10 he'll receive the Montgomery County Government's "Biker of the Year" award for "significant contributions and participation in promoting transportation alternatives in Montgomery County."

A Word from WABA

Several NIH bike commuters say WABA—the Washington Area Bicyclist Association—is the area's best advocate for safe pedaling to work and other places. From the group's "Fact Sheet on Bicycle Transportation in the Metropolitan Washington Region":

🚲 The switch from single occupancy vehicle to bicycles relieves congestion and reduces the demand for new road construction.

🚲 Bicycling makes transit more accessible in low-density suburban areas.

🚲 Physical fitness benefits resulting from bicycling include reduced health care costs, decreased absenteeism, as well as increased productivity.

🚲 Bicycling can replace the second car in some households, saving families up to \$4,000 a year.

🚲 The 1990 Census reported that bicycling accounted for three-tenths of 1 percent of trips to work in the metro area.

🚲 A 1990 Harris poll found that 20 percent of respondents to a national survey would be willing to bike if there were safer routes and adequate facilities. The same poll revealed that 50 percent of all trips, including work commutes, are 5 miles or less. This is an easy bicycling distance.

For more information about WABA or to join the organization, call (202) 872-9830.

is light until 7 p.m., then home by Metro, with my bike, if it is dark. In January and February, I ride only when the road is ice-free and the temperature is over 25 or 30 degrees in the morning."

His route is "about 11 miles, slightly variable depending on details of the route. It takes 35-45 minutes, depending on whether I stop at Uptown Bakery, head north (uphill to work) or south (to home) or feel especially energetic...Nearly all of my ride is against the traffic, through Rock Creek Park and along Beach Drive [which is] perhaps the best urban cycling in America."

Varmus says he "would love to see an underpass or overpass that allowed runners, walkers, and cyclists to cross Rockville Pike safely to the campus. I am campaigning for more bike racks with roofs—I would not leave my bike outside if there were a chance it would be rained on."

Also campaigning for such amenities is the man who may be NIH's second most famous cyclist, Jay H. Miller, president of the NIH R&W Bike Commuter Club. A technician in the Laboratory of Physical Biology, NIAMS, for the past 35 years, he has commuted "virtually every day, even in the rain," by bike for the last 14. Though his ride is only 1.5 miles, he is one of the very few of the estimated 50 percent of the total workforce here that lives within 5 miles of campus who actually pedals to work.

"These people have no business driving to work," he declares. "We have to find ways of getting people out of their cars and onto public transportation, bikes, or even walking."

Though there are only about 30 members of the bike club, founded in 1981, Miller guesses there are more than 100 regular bike commuters here. He knows this because occasionally he will leaflet every parked bike on campus when he wants to get a message out.

A longtime runner who helped found, in 1971, NIH's running club (now called Health's Angels), Miller used to drive to work, then decided "it was ridiculous to drive, so I started walking. Then I began to bike." A simple enough choice for most folks, but hard for Miller, who "never had a bike as a kid. Starting to ride a bike as an adult was very difficult for me."

He borrowed a bike one day from his boss, but "it took me a while to get up the nerve to use it."

Nowadays, he can be seen on campus pedaling his lightweight British touring trike—that's right, a 3-wheeler. "It's better for balance," he says. "It's very nice for bike commuting. When I come to a stop, the bike's ready to go again. I don't have to put my foot down, or get off the saddle. I've got a 10-minute ride to work. It's literally no sweat."

Like NIAID's Janet Young, Miller counters every objection to bike commuting with a solution. He himself overcame a serious bike accident (on a weekend ride, not while

commuting) in July 1987 in which he sustained half a dozen broken bones and spent 2 months in the hospital. While mending, he never considered quitting biking. "The problem now is I can't run," he chuckles.

The accident brought home to him the importance of safe cycling. "I absolutely wear a helmet now, and regularly holler at people who don't wear them. I'm a firm believer in helmets. I would have been dead or a vegetable without the helmet when I had my accident."

As bike club president, Miller is involved in a number of issues including replacing "the old schoolyard-style bike racks" on campus with new inverted-U style racks that permit use of the most secure bike locks. "We want

to locate the new racks in high-traffic areas so there's lots of people around," reducing the chance of theft. "Eventually there will be rack space for about 300 bikes." Canvas covers over the racks to protect them from rain are also a priority, he said.

A test project to build bike lockers on campus is also planned for NIH, he reported.

"We also want showers. When Bldg. 2 is refurbished, at least two showers should be included, one for men and women," he said. "We also need a room inside buildings where you can bring your bike and lock it. But I know this is NIH, and we need all the lab space we can get."

The Natcher Bldg. wasn't originally designed with showers for employees in
(Continued on Page 8)

Where I Like To Bike

Let's assume for just a moment that work isn't your favorite place to bike to. Where do NIH'ers with wheels go when the open road beckons?

NIH director Dr. Harold Varmus was fond of tagging a pleasure cruise onto work commutes during his 23 years as a scientist at the University of California, San Francisco.

"I lived very close to work in San Francisco—about a mile away—so many of my rides [to work] were not significant. But in decent weather, very common in San Francisco, I usually began the day with a 5-mile spin through Golden Gate Park, around Stow Lake, or ended it with a trip to the ocean—about 9 miles. I did more weekend riding there—Marin County or Berkeley Hills, less often Skyline Drive—largely because I had more time. That is dramatic hill riding, but I have found places here—Poolesville, Potomac, rural Virginia—that are also very nice. But France is still the best place to ride—and there is no work to ride to."

NIH Bike Commuter Club President Jay Miller likes to ride along Beach Drive, and is anxious for the Capital Crescent Trail linking Silver Spring with Georgetown to be completed, but would be most happy to complete "a century," a 100-mile ride, no matter where.

NIAID biologist Dr. Janet Young and her husband are members of the Potomac Pedalers Touring Club, and occasionally lead trips around the area. They usually log more than 100 miles by bike on summer weekends, she said. In 1992, she and her husband—who also commutes by bike to his job at the University of the District of Columbia—cycled in Katmandu.

"It was full of trucks and rickshaws, cars and bikes," she remembers, "but they all look out for one another. The big difference over there is that they're more aware of bicyclists, so they take precautions and have fewer accidents. They expect to see bikers on the road."

Every summer, she and her husband ride



Dr. Norm Braveman (r) of NIDR checks out Lake Tahoe by bike with brother-in-law.

in the CAM—Cycle Across Maryland—a week-long trek that covers a different part of the state each year; in July 1995, the route will be through Western Maryland, ending in Baltimore.

NIDR's Cindy Walczak and Jim Tomlin of DCRT say they "dream of going to Europe or New England or Nova Scotia, or crosscountry, but settle for really nice local rides on the C&O Canal, western Montgomery/eastern Frederick counties, and on the Delmarva peninsula."

NIDR's Dr. Norm Braveman says one of his favorite recent rides was along the Tahoe Rim Trail in the Sierras. "It was my first off-road biking experience...biking on a trail and through fields, as well as [seeing] the scenery, was spectacular."

He also fondly recalls a family bike-camp vacation through the Amish country in southern Pennsylvania.

Family also figures prominently in the bike journeys of NCI's Donald E. White: "I don't do a lot of cycling other than commuting, but I'm happy to see the new [Capital] Crescent Trail from Bethesda to Georgetown and look forward to its completion to Silver Spring. My daughter, son-in-law, and new granddaughter live adjacent to it near Jones Mill Road. I look forward to being able to cycle over to see them."

(Continued from Page 7)

mind, reports another bike commuter, Dr. Norm Braveman, assistant director for program development at NIDR, but that need is being addressed. "Now they are retrofitting the building for showers and lockers, which will take a year," he said.

Braveman, an NIH'er since 1980 who has worked at NIA, NHLBI and OD in addition to his current post, is a born-again bike commuter. "I began bike commuting in 1983. Between 1986 and 1992, when I was in OD, I didn't bike commute at all. I started again in 1992 when I joined NIDR. I ride every day as long as it's not raining in the morning, and only between the middle of March through the end of October.

"Even though I live only about 4 miles from campus, I take a route that allows me to ride 17 miles each way. Every morning I see deer and other animals along the bike path portion of my route." Braveman also likes the exercise. "I get my daily workout coming to work and going home. It also cuts down on car expenses."

Saving gas money, if not time, are Cindy Walczak and Jim Tomlin, computer scientists at NIH.

Twice a week during spring, summer and fall, they ride 19.1 miles back to their home in Olney—a 2-hour jaunt.

"Our normal routine is to carpool and bring our bikes in by car one day, ride the bikes home and leave the car at NIH overnight, and drive a second car to work the next day, driving both cars home at the end of the second day," says Tomlin. "Our major fear is that we will someday mess up and end up with all of our cars at NIH and be home with only bicycles!"

The two wish NIH would relax its restrictions on allowing bikes into buildings: "[NIH should] allow people to bring bicycles into the buildings if they are able to be stored in such a way as to not inconvenience anyone," Tomlin argues. "There are many places I could keep my bike out of the rain, and away from thieves, in my building, but I'm not allowed to bring it in."

Donald E. White, a computer specialist at NIH for the past 20 years who bikes in 2 miles from his home in Chevy Chase, thinks NIH ought to "offer a financial incentive" to bike commuters, "some reasonable percentage of what it costs to maintain a parking space."

White, who works in NCI's Surgery Branch, "began biking to work every day as a lab technician at the University of Iowa Medical Research Center in September 1959, and have been ever since...It was a conscious



NIH's best-known bike commuter prepares to hit the ground running after an 11-mile uphill charge to work.

decision whenever we moved to locate near enough to my place of employment so that I could bike to work." Among biking's many benefits, he says, is renewed vigor. "After a day at the office dealing with computer problems, the bike ride home provides a renewing stimulus for mind and body."

Dr. Carl Frasch, chief of FDA's Laboratory of Bacterial Products, and a former leader of the NIH R&W Bike Commuter Club, has biked to work almost daily for 20 years. His 14-mile round trip from Aspen Hill, mainly through Rock Creek Park, yields nothing but benefits.

"There's less hassle than driving, it's much cheaper, I get a lot of exercise at the same time as getting to work, and I don't worry where I'll find a parking space," he says. "Access to NIH is really excellent for anyone who lives in an area with residential access to Rock Creek Park, either north or south of NIH."

Jay Miller, one of Frasch's successors as leader of the bike club, is NIH's representative to the Montgomery County department of transportation's Bicycle Action Group, which is designing bike routes around the entire county, in addition to planning bike paths. He also attends meetings of Bethesda Evergreen, a group interested in carless access to Bethesda.

"We'd like to see bike lanes added to all new road construction," Miller says. The county department of transportation, he reports, plans to add racks for two bikes on the front of Ride On buses to encourage bike commuting.

Among Miller's long-term interests are a proposed bike path along the route of the old Tenleytown Trolley line, which would connect Bethesda with Rockville, completion of the Capital Crescent Trail between Bethesda and Silver Spring, and more bike racks in front of stores.

"I want to see lots of people using bike

paths and [cycling on] roads," Miller declares. Virtually all the cyclists interviewed for this story said the more common the sight of a bicyclist on the road, the safer and more respectful drivers will become.

"Basically, I want people out of their cars," he concludes. "Any other way of getting around is preferable."

To learn how to shed the tyranny of your automobile, call Miller, 6-6941. □



Dr. Susan Streufert was recently appointed director of the Division of Scientific Review, NICHD. She joined the NICHD scientific review program as a health scientist administrator in 1985. Since that time, she has also served as both deputy director and, most recently, acting director of the Division of Scientific Review. Before joining NICHD, Streufert held a position with the Division of Research Grants as a health scientist administrator. She has a Ph.D. in social psychology from Purdue University.

DCRT Training Classes

Unix Pine Mail	5/17
Principles of Regression Analysis	
Using SAS/STAT	5/17-19
Central Computing Services at NIH	5/18
Database Technology Seminar	5/19
Beyond Basic WYLBUR	5/22-26
Introduction to the Reconstruction	
Algorithms	5/23, 30
Unix Commands	5/23
Chemical Reaction Mechanisms Studied	
w/Quantum Mechanical/Molecular	
Mechanical Potentials	5/24
Experiments in Protein Folding	5/26
Windows for Workgroups	5/31
Medical Image Reconstruction	5/31
JMP for the Macintosh	5/31
Data Desk for the Macintosh	5/31

All classes are on the NIH campus and are given without charge. □

Orioles Tickets In at R&W

The R&W has tickets to all 1995 home games of the Baltimore Orioles. If you purchased tickets at R&W, you may pick them up at the Bldg. 31 gift shop. Bring your yellow voucher and ask for Pam. For more information, call 6-6061. □

NIH Recognizes Support Staff and Secretaries Week

NIH celebrated Support Staff and Secretaries Week at an observance in Wilson Hall on Apr. 21. This year's theme, "Traveling the Superhighway to Success," was highlighted in welcoming remarks by Shirley Everest, acting Federal Women's Program manager. She said success and a professional status can be achieved by all employees, regardless of job series or grade. NIH deputy director Dr. Ruth Kirschstein thanked the NIH support and secretarial staff for their dedication and perseverance in furthering the biomedical research mission at NIH. She stated that the support and secretarial staff members are indispensable, and proof of this is when they are away from the office, the daily routine comes to a grinding halt and is usually accompanied by chaos.



Shirley Everest

Mary Langford, program chair and member of NIH's advisory committee for women (ACFW), said she takes pride in working as a professional secretary in the National Institute on Deafness and Other Communication Disorders. She introduced the featured panelists, all of whom began their careers in a support role: Diane Shartsis-Wax, director, NIH Office of Legislative Policy and

Analysis; Beverly Lott Wyatt, chief of NCI's treatment contracts section; Elsa B. Carlton, NCI contract specialist; and Felicia S. Brice, NEI administrative officer.

The panelists talked about their individual career paths, highlighting their times of progress, frustration and achievement. They challenged everyone to work very hard at whatever job they hold, to look for opportunities where skills and talents can be practiced, and to participate in formal training and educational courses whenever possible.

Following a question and answer period, several managers and supervisors publicly acknowledged and thanked their support and secretarial staffs.

Jean Harris, ACFW chair, closed the program by thanking Langford and Dorothy Sanders, chair and cochair for the event; Mark Langer of NIH's Office of Equal Opportunity, for designing the flier; and Angela Mease of ACFW, for designing the program.



Participants in NIH's salute to support staff and secretaries include (top, from l) Dorothy Sanders, Beverly Lott Wyatt and Diane Shartsis-Wax; (bottom, from l) Felicia Brice, Elsa B. Carlton, Mary Langford and Jean Harris.

NIAMS' Privot Retires After 30 Years in Federal Service

Edith Privot recently retired after a 30-year career with the federal government. For the past 6 years, she had worked as a secretary in NIAMS' Office of Prevention, Epidemiology, and Clinical Applications (OPECA). Privot was born in Poland and came to the United States in 1939, just before the



Edith Privot

Germans invaded the country. The ship that brought the family here was torpedoed by a German submarine on its return voyage. Privot said that until she came to America, she had never been to a movie or a department store, and never had been able to acknowledge her religion. "Americans don't realize how lucky they are," she said. Dr. Stephen Heyse, OPECA director, said,

"Edi was a standout as a secretary and will be sorely missed. Each project was special. She cared about the welfare of everyone in the office and did the worrying for all of us."

Before this position, Privot had worked as a secretary in NIDDK and its predecessor institutes for 24 years. She said she was fortunate to have such exceptional bosses and friends at NIH.

"I have enjoyed my years at the NIH," she said. "America has been good to me and I feel privileged to be a part of it. However, I haven't done anything for myself in such a long time that I plan to enjoy retirement to the fullest." □

Study Requires Women

NIMH is seeking volunteers to participate in a study investigating the cause of menopause-related hot flashes. Volunteers must be medication-free. Hormonal evaluation will be performed and payment is provided. For information, call Jean Murphy or Nazli Haq, 6-9675. □

NIA Holds 20th Anniversary Symposium, May 25 in Lipsett

The National Institute on Aging will hold a 20th anniversary symposium on Thursday, May 25 from 8:30 a.m. to 4 p.m. in Lipsett Amphitheater, Bldg. 10. It will present to the NIH community and the public recent biomedical, social, and behavioral research accomplishments.

The symposium will feature distinguished scientists whose works span a wide spectrum of discoveries. They will present and discuss their current and projected research aimed at understanding the aging process, and the diseases and other special needs and problems of the ever-growing older population.

8:30-9 a.m.

Introductory Remarks

Dr. Richard J. Hodes

Dr. Harold E. Varmus

Historical Perspectives

Dr. Robert N. Butler

Dr. T. Franklin Williams

Dr. Gene D. Cohen

9-10 a.m.: "Beyond Gompertz and Buffon:

Trajectories of Mortality at Advanced Ages"

Dr. James W. Vaupel

10-11 a.m.: "Aging and Hypertension in African

Americans: Current Research in Behavioral Medicine"

Dr. Norman B. Anderson

11 a.m.-noon: "The Healthy Aging Heart"

Dr. Edward G. Lakatta

1-2 p.m.: "Alzheimer's Disease: A Model of Molecular

Gerontology"

Dr. Allen D. Roses

2-3 p.m.: "Regeneration in the Adult Nervous System"

Dr. Fred H. Gage

3-4 p.m.: "Telomeres and Telomerase in Cellular

Immortalization"

Dr. Carol W. Greider

PC Topic Session, May 11

DCRT's Distributed Systems Branch holds regular PC Topic Sessions—open to all NIH'ers—designed to keep employees up to date on rapidly advancing PC technology.

Featured Thursday, May 11, from 9:30 to 11 a.m. in Bldg. 10's Lipsett Amphitheater will be Meeting Maker XP. Keeping track of one's schedule can be a challenge. Coordinating schedules among a group of people can be a nightmare. ON Technology's Meeting Maker XP is a network-based calendar/scheduler for individuals or groups that's designed to take the pain out of scheduling. It handles personal calendars, group meetings, even room bookings. With Windows, Macintosh and DOS versions available, and support for TCP/IP-based networks, Meeting Maker XP is an option for most networked PC users. □

Normal Volunteers Sought

Subjects are needed for NIMH studies of visual processing and memory. Participants in these PET/MRI studies should be right-handed, in good health, and in the age range of 20-40. Call Jill, 2-0869, or Trina, 2-0416, for more information. □

Muscle Physiologist Richard Podolsky Retires from NIH

By Elia Ben-Ari

Dr. Richard J. Podolsky, a muscle biologist who served as chief of the Laboratory of Physical Biology (LPB) at NIH for 20 years, has retired. Podolsky, who was appointed scientist emeritus upon his retirement, devoted his career to understanding the mechanism of skeletal muscle contraction. His versatile use of different techniques to pursue the fundamental question of how muscle contracts led to many seminal discoveries in this area.

"Dr. Podolsky is an internationally revered investigator of muscle contraction," said Dr. Henry Metzger, NIAMS scientific director. Podolsky's first major scientific achievement was his groundbreaking study of mechanical transients of muscle using intact frog muscle fibers. This research led to seminal papers in *Nature* in 1960 and the *Journal of Physiology* in 1966, and opened the way to describing muscle cross-bridge mechanics in a quantitative manner.

Dr. Leepo Yu, a former postdoctoral fellow of Podolsky's, is now acting chief of the LPB. According to Yu, "He was the first to study the transient behavior of muscle contraction. In these experiments, the muscle is held at a fixed length, and then released abruptly while it is generating force." From the muscle's behavior under these conditions, explains Yu, "one can study the kinetics of the interaction between actin and myosin proteins in muscle." Podolsky's studies of transient muscle behavior stimulated a great deal of work in the field of muscle biology by other researchers.

Skeletal muscle has a highly ordered structure made up of multiple repeats of the basic unit, the sarcomere. The contractile machinery of the sarcomere consists of alternating rows of thin actin filaments and thick myosin filaments. During contraction, a portion of myosin (the "head" or cross-bridge) that sticks out from the thick filament grabs onto a neighboring thin filament and pulls, acting like a lever and causing the sarcomere to shorten. The motion of individual actin and myosin proteins generates forces that add up to produce whole body motion and strength. Activation of this process is controlled by movement of calcium between an internal membrane system of the muscle cell and the space containing the filaments.

Podolsky was the first in this country to use a muscle preparation known as the mechanically skinned muscle fiber to examine how cross-bridges respond to changes in various conditions such as pH or ionic strength. In this preparation, the outer membrane of the muscle fiber is removed by microdissection, but the internal membranes and the contractile proteins are fully functional. "This technique was invented by Reiji Natori in Japan," says Yu. "But Richard had the perception and insight to see that this was a good preparation, and he used it. Because of

him, it's now a very common preparation for studying muscle activation and contraction."

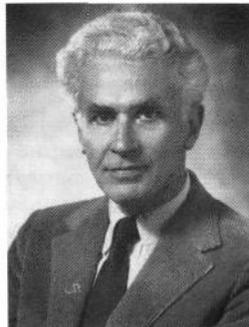
In 1969, Podolsky and Dr. Duane Hellam published a key paper in the *Journal of Physiology*, in which they reported the use of skinned muscle fibers to establish the amount of force generated in response to increasing concentrations of calcium. According to Yu, "these studies would not have been possible without this skinned muscle preparation." Podolsky and his colleagues also used electron microscopy to visualize calcium in the internal membrane system of muscle cells, and developed microtechniques to follow the movement of calcium into and out of these membranes.

Podolsky received his Ph.D. in biophysics from the University of Chicago in 1952. From 1953 to 1956 he worked as a postdoctoral research fellow, first at the Naval Medical Research Institute in Bethesda and then at University College, London. In 1957, he took a position as a biophysicist at the Naval Medical Research Institute.

In 1962, he was asked to set up a section on muscle research in the Laboratory of Physical Biology at NIH. His initial appointment was as chief of the section of cellular physics in the LPB, which was then part of the National Institute of Arthritis and Metabolic Diseases.

In 1974, he was appointed chief of the LPB, which in 1986 became part of NIAMS. In a brief history of the LPB written by Podolsky, he says: "The LPB has its roots in one of the oldest laboratories at the NIH... From the outset, LPB investigators had a strong interest in the physicochemical approach to biological problems with expertise in fields such as crystallography, x-ray diffraction, spectroscopy, electron microscopy, and radiation and membrane effects."

Throughout his career, Podolsky emphasized an approach using multiple techniques to get at the mechanism of muscle contraction. In the past decade, he and members of the LPB used techniques such as electron microscopy, radiation inactivation analysis and x-ray diffraction to study the structure and function of contractile muscle. He collaborated with Dr. Alasdair Steven, chief of NIAMS' Laboratory of Structural Biology Research, Yu and others to examine the finer details of the interactions between myosin cross-bridges and actin by ingeniously combining mechanical measurements with electron microscopy and x-ray diffraction.



Dr. Richard J. Podolsky

In other work, Podolsky, LPB section chief Dr. Ellis Kempner, and Dr. Robert Horowitz—a former postdoctoral fellow of Podolsky's—used radiation inactivation to identify the physiologic role of a muscle protein called titin. This huge protein forms an elastic filament that generates most of the resting tension in the fiber. The titin filament also positions the myosin filament in the middle of the sarcomere, which maximizes force output.

Podolsky also conducted research with more direct clinical applications, including collaboration with Horowitz and others to study the cause of muscle weakness in people with Duchenne muscular dystrophy. He also patented a piece of equipment that enables hand surgeons to adjust muscles to optimum length more reliably during surgical procedures.

Another major contribution of his career was training close to 30 postdoctoral fellows, most of whom became successful scientists, many in the field of muscle biology. The LPB grew under his mentorship, and several of his postdoctoral fellows—Yu, Horowitz, and Dr. Mark Schoenberg—became senior staff in the laboratory.

Podolsky served on the editorial board of several journals and belonged to several scientific societies, including the Society of General Physiologists, for which he served as president in 1971-1972. He was honored with the NIH Director's Award in 1978 and received several honorary lectureships. □

Forum on Computers at NIH

Now that NIH is moving onto the information highway, individual offices are also trying to move forward and keep up to speed on changing technologies. On Thursday, May 25, a 1-day forum will provide demonstrations on some computer applications, especially database applications, that are currently being used by extramural staff. The forum will also provide information on what will be available in the near future.

In the morning, there will be a brief demonstration of a few currently available database systems at some institutes. NHLBI, NCI, NIAID, and NEI will be presenting systems they use to help manage review, program, contract and grant responsibilities. Time will be set aside at the end of each demonstration for questions and answers.

The afternoon will be devoted to initiatives at the NIH level that will affect the extramural community. DCRT will present connectivity information, including the Internet. There will also be a presentation on IMPAC II and the Electronic Research Administration.

Forum hours are 8:30 a.m. to 4:30 p.m. in Lister Hill Auditorium, Bldg. 38A. This forum is open to all NIH personnel. No advance registration is required. Attendance will be on a first-come, first-served basis. For reasonable accommodations, call the STEP office, 6-1493, on or before May 9. □



TRAINING TIPS

The Division of Workforce Development, OHRM, offers the following courses:

<i>Courses and Programs</i>	<i>Starting Dates</i>
Management and Supervisory	
Introduction to Supervision	5/15
Managing Stress Maximizing Effectiveness	5/17
Attitudes: How They Affect Productivity	5/23
Effective Presentation Skills	6/6
Report Writing	6/12
Recognition Secrets: Rewarding Workers	6/15
Performance Appraisal Workshop	6/21
The Winning Leader	6/21
Practical Approaches to Stress Mgmt.	6/27
EEO Training	
Managing Workforce Diversity	5/24
Preventing Sexual Harassment at NIH for All Employees	6/20
Special Courses	
NIH Retirement Seminar	6/14
Planning Early for Retirement	6/8
Administrative Systems	
Domestic Travel	6/5
Buying from Small and Large Businesses on the Open Market	5/31
Consolidated Purchasing Through Contracts	6/1
Federal Supply Schedules	6/2
Administrative and Skills Development	
Increasing Your Word Power	6/8
Personal Computing	
Excel 4.0 for Windows	6/13
Intro to Windows	6/9
WordPerfect 5.2 for Windows	6/20
Intro to Paradox 4.0 for DOS	6/13
MS Access 2.0 for Windows	5/15
Intro to Lotus 123 Rel 2.4 (DOS)	5/8
Lotus 4.0 for Windows	6/5
Intro to Harvard Graphics Rel 3.0	5/17
Macintosh Courses	
Excel 4.0	5/22
MS:Mail Macintosh	6/9

Personal computer training is available through User Resource Center self-study courses. There is no cost to NIH employees for these hands-on sessions. Additional courses are available by completing the "Training By Request" form in the back of the DWD catalog. For more information, call 6-6211 or consult the catalog. □

Free Concert of Dance

The Feet First Adult & Teen Student Dance Companies will hold their annual concert at NIH on May 10 at 7:30 p.m. in Masur Auditorium, Bldg. 10. This is a free concert and all are welcome to attend.

The jazz and tap program encompasses the spectrum of dance from "Magic to Do" adapted from *Pippin* to "They All Laughed," a tap piece inspired by Fred Astaire.

The Feet First Dance Studio is a nonprofit center for dance located in Bethesda. The dance companies perform throughout the community at retirement centers, hospitals, nursing homes and arts festivals. □

NIDR's Small Retires After 47 Years in Government

By Mary Daum

When NIDR's John Small celebrated his 25th year with the Public Health Service, he decided to get a vanity license plate. "I thought for sure that the Surgeon General or somebody else had already taken my choice," he said. "But they hadn't. I applied for and received a Maryland license plate that said USPHS." He still has the license plate, and, he says, the same pride he had then in working for the PHS.

After 47½ years of federal service, almost 30 of them with PHS, Small retired at the end of April.

A public health advisor in NIDR's Disease Prevention and Health Promotion Branch, he spent most of his PHS career focused on fluoride. Documenting the element's health benefits and the efficiency of fluoride delivery techniques, and advising personnel about the legalities of water fluoridation were some of his duties.

"I feel that we're here to improve the health of the American people. Water fluoridation has done that," he says. "It is a classic example of improved health through research." Small points to NIDR research conducted in the 1950's showing that when fluoride was added to community water supplies, tooth decay rates dropped dramatically.

By working with other federal agencies and with local, state, and national organizations, Small has provided much-needed information to towns and cities around the United States for the implementation of fluoride-based dental public health programs—especially water fluoridation. He has also cooperated with the World Health Organization on various fluoride issues and with health authorities in other countries interested in gaining the benefits of adding fluoride to drinking water.

"Of course, you develop friendships through working with people for such a long time," he says. "I will certainly miss being in contact with all the community health people I've gotten to know over the years."

A native of Maryland, Small started his federal service with the Coast Guard during World War II when he went to work as a shipboard radio operator. He was assigned to the Seventh Fleet and traveled to the Western Pacific, Australia, the Philippines, Indonesia, and Alaska and the Aleutians.

He arrived at NIH in 1949, working first as a messenger assigned to NIDR and then as a library clerk, GS-2, in Bldg. 1. He left NIH in 1951 to join the National Bureau of Standards (now the National Institute of Standards and Technology), where he had been offered a GS-4. "I thought my fortune was made," laughed Small, "getting a two-grade promotion just like that!"

For the next 10 years, he worked for NBS

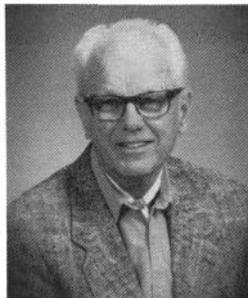
and then the Army, where he eventually became a technical writer-editor focused on health topics, having earned a string of promotions along the way.

In 1966, Small returned to PHS. He joined the Division of Dental Health, where he began his work on fluoride and health. He stayed until Dr. David Scott, then NIDR's director, asked if he would consider transferring to the institute; he signed on with NIDR in 1977.

Small belongs to the American Association for Public Health Dentistry and serves on the American Dental Association national fluoridation advisory committee. He has also served on fluoride committees for the Surgeon General and on the PHS-ADA fluoridation liaison committee. He is the recipient of the Distinguished Service Award from the American Association of State and Territorial Dental Directors and the Special Merit Award from the American Association of Public Health Dentistry.

Small is looking forward to retirement and will keep very busy. One project, already under way, is his work with the planning board for an aviation technology museum in College Park. The funding is in place, and the groundbreaking is scheduled for this summer.

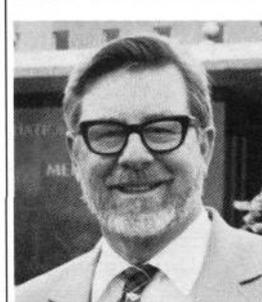
He will also have more time to devote to his family, his antique car, and his hobbies, especially photography and dancing. "And travel," said Small. "It will be nice to travel without having to be concerned with my leave balance!" □



John Small

NLM's Norman Smith Dies

Long-time staff of the National Library of Medicine were saddened to hear of the



Norman Smith

death, on Apr. 10, of Norman K. Smith. Smitty, as he was known, retired 10 years ago as administrative officer of NLM's Library Operations Division. He served Lois Ann Colaanni, NLM associate

director for library operations, and for many years her predecessor, Dr. Joseph Leiter, as a chief administrative assistant.

Smith first came to NIH in 1942, and he served in the Division of Industrial Hygiene, the National Cancer Institute, and the National Institute of Allergy and Infectious Diseases before coming to NLM in 1966. He will be missed by the many friends who kept in touch with him, and his wife Clare, in retirement.

Ho, Verma, Suzuki To Speak

Dr. David Ho of the Aaron Diamond AIDS Research Center in New York and Dr. Inder Verma of the Salk Institute in San Diego are among the featured speakers at a scientific symposium to take place Thursday, May 25 at 9 a.m. in Masur Auditorium, Clinical Center.

Ho will review his latest research on HIV titled "Kinetics of HIV and CD4 Lymphocyte Turnover." He is currently the scientific director and chief executive officer of the Aaron Diamond AIDS Research Center for the City of New York and director of the Center for AIDS Research at the New York University School of Medicine. He is also a member of the President's National Task Force on AIDS Drug Development.

Also speaking at the symposium is Verma, an acknowledged leader in the growing field of gene therapy. At the symposium, he will present an overview of the field of human gene therapy research, titled "Human Gene Therapy: Perspectives and Problems." Verma was recently appointed by NIH director Dr. Harold Varmus to chair an ad hoc working group that will review NIH's methods for approving gene therapy trials.

Finally, Dr. Bob Suzuki, president of California State Polytechnic University in Pomona, will be speaking on "Affirmative Action: Benefit or Liability for Asian/Pacific Americans." During the past 15 years, he has published and presented numerous papers and lectured extensively on multicultural/international education, educational equity, and on Asian Americans.

The symposium is being sponsored by the Asian/Pacific Islander American advisory committee and the Office of Equal Opportunity. Sign language interpretation will be provided. For reasonable accommodation, call 6-2906 (V/TTY). □

Next Director's Seminar Set

The next speaker in the NIH Director's Seminar Series will be Dr. Arlyn Garcia-Perez, whose topic will be "Osmotic Regulation of Gene Expression in the Renal Medulla: Physiology to Molecular Biology." The talk will be held Friday, May 26 at noon in Wilson Hall, Bldg. 1.

Study Recruits Southpaws

Is human hand utilization specified genetically or culturally? To answer this question, scientists need to know the hand utilization of children and grandchildren of biological grandparents, where both members of the grandparental couple are left-handed. You can help this study by providing the address and phone number of any couples (grandparents) that you know of who are both left-handed. Respond by mail, phone or by email to: Dr. A. Klar, P.O. Box B, Bldg. 539, Frederick, MD 21702-1201, (301) 846-5916 or -1638, klar@fcrfv2.ncifcrd.gov. □



Platelet donor Bruce Borchardt, an employee at NIST who recently won more than \$54,000 on the Jeopardy TV show, is surrounded by NIH Platelet Center staff who congratulate him. They are (from l) Sandra Bangham, Jeanette Rothberg and Rolande Grammont. A donor since July 1984, Borchardt, a metrologist (expert in the science of measurement) won the game show five nights in a row recently and will compete in the show's Tournament of Champions in November. With his winnings he plans to buy a telescope, go to Alaska, and visit France with his wife. A bicyclist, he pedals 16 miles to donate platelets at NIH, then rides back to NIST afterward.

Recording for the Blind Needs Volunteers

Recording for the Blind of Metropolitan Washington needs volunteers who can help record computer programming and user books and all of the natural and physical sciences. Slots are open for daytime and Saturday programs, but the need is most urgent for the evening recording program.

As an RFB volunteer, you can help open up a world of books for blind and dyslexic students. You will also have a chance to read books you'd never see otherwise, find out what's new in your field, and meet people who share your interests. Scientists, lawyers, mathematicians, medical professionals, linguists, and other specialists usually record books in their fields. Other volunteers work on general texts like spelling, literature, psychology, history and political science.

Monday through Thursday, RFB has three 2-hour sessions during the day and two 1.5-hour evening sessions. Daytime sessions begin at 9 a.m. and end around 3 p.m. Evening sessions start at 5:30 and end at 8:30.

Orientation sessions are scheduled during day and evening hours. If you are interested, call (202) 244-8990. RFB is located at 5225 Wisconsin Ave. NW, directly across from the Jenifer St. exit of the Friendship Heights Metro stop—two stops from NIH on the Red Line. There is also parking nearby. □

Symposium on Atomic Architecture, Molecular Modeling

The DeWitt Stetten, Jr., Museum of Medical Research will cosponsor a symposium, "Atomic Architecture: Modeling Molecular and Macromolecular Structures," on Wednesday, May 17 at 2 p.m. in Lipsett Amphitheater, Bldg. 10. Eric Francoeur, the DeWitt Stetten, Jr., Memorial fellow in the history of 20th-century biomedical sciences and technology, will present an historical discussion on the development and use of mechanical molecular models, and Richard Feldmann, Laboratory of Structural Biology, DCRT, will discuss his current work on the computer simulation of protein folding. A reception will follow the symposium, which is cosponsored by DCRT and the postdoctoral Structural Biology Interest Group. For more information contact Dr. Victoria A. Harden, 6-6610. □

William Catterall Gives FAES' Solowey Lecture, May 25

Dr. William A. Catterall will present the 21st annual Mathilde Solowey Award Lecture in the Neurosciences. The lecture, sponsored by the Foundation for Advanced Education in the Sciences, will be held at 3 p.m. on Thursday, May 25 in Wilson Hall, Bldg. 1.

Catterall, chairman of the department of pharmacology at the University of Washington, Seattle, is an acknowledged world leader in the nature and function of ion channels. His presentation is titled, "Molecular Mechanisms of Sodium Channel Inactivation, Modulation, and Local Anesthetic Block." He will be introduced by NINDS director Dr. Zach Hall.

For more information, call 6-7975. □