

# THE NIH RECORD

Still The Second Best Thing About Payday

## 'A New Kind of Science'

### Wolfram Goes from Simple Rules To Complex Forms

By Rich McManus

Sometimes, buzz alone can fill Masur Auditorium. Such was at least partially the case Sept. 17 when Dr. Stephen Wolfram—famous for hatching, out of more than a decade of relative solitude, what he calls "A New Kind of Science"—visited to explain his new book of that title, his new web site and his views on a mathematically contrived model system that appears to mimic, and perhaps underlie, forms found in nature.

"So, why did you come to this talk?" asked one guest, sitting in the fourth row, to his neighbor before the lecture began. "I don't know. Why did you come?"

"Because he's a famous guy."

So, in at least one neighborhood in the hall,  
SEE WOLFRAM, PAGE 6

### Another Kind of NIH Centennial

By Victoria A. Harden

In 1987, NIH observed the centennial of its founding as a one-room laboratory, but this year, 2002, marks another important anniversary: the creation of an organized research program.

When young Joseph J. Kinyoun was asked to set up a "laboratory of hygiene" at the Staten Island Marine Hospital in 1887, the United States was embarking on an experiment to see if the new science of bacteriology would really be helpful to the medical officers in the Marine Hospital Service. Within a decade, the U.S. Congress had found the laboratory to be extraordinarily useful. Kinyoun, however, was relieved of duty as director in 1899.

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## Turning Cultural Barriers into Bridges

### Surgeon General, Symposium Kick Off Hispanic Heritage Month Salute

By Carla Garnett

NIH director Dr. Lawrence Tabak recalls that in his early days of treating patients in New York City, his rudimentary Spanish language skills sometimes weren't enough to get the message across to the Latinos he encountered in the Columbia University neighborhood. At such times, he would call on a colleague—who happened to be Chinese and spoke Spanish fluently—for help. As the U.S. population becomes increasingly diverse, Tabak said the medical community must do whatever it takes to serve everyone.

That sentiment also could have served as the take-home message  
SEE HISPANIC HERITAGE, PAGE 8



NIH director Dr. Elias Zerhouni is greeted with a warm smile by his friend U.S. Surgeon General Richard Carmona.

## Guiding a 'Knowledge Enterprise'

### Zerhouni Shares Vision at Town Hall Meeting

By Rich McManus

At the first of what he hopes becomes a regular occurrence, NIH director Dr. Elias Zerhouni hosted a Town Hall Meeting on Oct. 4 before a packed Masur Auditorium crowd, reiterating his commitment to communicating openly with employees and pleading for input from the workforce: "I need to know where you are," he said. "The NIH can't evolve effectively unless the director is in touch with your concerns...This is as much my job as it is to advance research." He invited employees to write him at Director@nih.gov.

In opening remarks that preceded a dialogue with the audience, Zerhouni said he had visited 19 of NIH's 27 institutes and centers



Emphasizing open communication, Zerhouni presides over his first Town Hall Meeting at NIH.

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## NIH Grantees Win Nobel, Lasker Honors

Five NIH grantees were recognized with medicine's top prizes this fall; two won shares of Nobel prizes and three were among this year's winners of the Lasker Awards, sometimes called "America's Nobels."

Winning Nobel prizes were two grantees. Dr. John B. Fenn, who received support from NIGMS, shares half of the prize in chemistry. He is cited for refining an analytical technique called mass spectrometry, making it possible to analyze large molecules in biological samples. NIGMS provided more than \$1.5 million to support Fenn's research from 1984 to 1994, a period during which his prize-winning research was published. Fenn is professor of analytical chemistry at Virginia Commonwealth University. Also winning half of the prize was Koichi Tanaka of Shimadzu Corp. in Kyoto, Japan. He and Fenn are cited "for their development of soft desorption ionization methods for mass spectrometric analyses of biological macromolecules."

Sharing the Nobel Prize in Physiology or Medicine was Dr. H. Robert Horvitz, who was cited for characterizing key genes controlling cell death, which is essential for embryonic development and, when improperly controlled, is a hallmark of numerous diseases. NIH has provided more than \$7 million to support Horvitz's

research over the past 25 years; NIGMS was the principal source of funds, and NCI and NICHD also supported his work.

Horvitz, professor of biology at the Massachusetts Institute of Technology, shares the prize with Dr. Sydney Brenner of the Molecular Sciences Institute in Berkeley, Calif., and Dr. John E. Sulston, of the Sanger Centre in Cambridge, UK. The three, who worked independently, are recognized "for their discoveries concerning genetic regulation of organ development and programmed cell death."

The 2002 Nobel prize announcements bring the number of NIH-supported laureates to 106.

The Lasker awards are presented by the Albert and Mary Lasker Foundation in three categories: basic research, clinical medical research and special achievement in medical science.

Two NIGMS grantees, Dr. James Rothman and Dr. Randy Schekman, were honored with the 2002 Lasker Award for Basic Medical Research. They shared the award for their discovery of cellular membrane trafficking, a process that cells use to organize their activities and communicate with their environment.

Rothman is chairman of the cellular biochemistry and biophysics program at Sloan-Kettering Institute, and Schekman is a Howard Hughes Medical Institute professor in the division of

biochemistry and molecular biology at the University of California, Berkeley. Rothman is also an NCI and NIDDK grantee.

The Lasker Foundation recognized the two for "discoveries revealing the universal machinery that orchestrates the budding and fusion of membrane vesicles—a process essential to organelle formation, nutrient uptake, and secretion of hormones and neurotransmitters."

The 2002 Lasker Award for Special Achievement in Medical Science went to Dr. James Darnell, Jr., the Vincent Astor professor at Rockefeller University, for leading breakthroughs in the understanding of gene regulation and for fostering the careers of more than 125 scientists. Darnell is a long-time grantee of NIAID and NCI. He has also received funding from NIGMS and NIDDK.

He received the award for "an exceptional career in biomedical science during which he opened two fields in biology—RNA processing and cytokine signaling—and fostered the development of many creative scientists," according to the citation.

The Lasker Award has been given to 66 scientists who went on subsequently to receive the Nobel prize, including 15 in the past 10 years. NIH director Dr. Elias Zerhouni was the keynote speaker at the award presentation Sept. 27 in New York City. ■



Dr. H. Robert Horvitz



Dr. John B. Fenn



Dr. James Rothman



Dr. Randy Schekman



Dr. James Darnell, Jr.

## NIH RECORD

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## Kleinman To Give Second CAM Lecture

Complementary and alternative medicine (CAM) practices have gained popularity throughout the world. At the same time, biomedicine has also spread to all regions of the globe. How the convergence of these two approaches to medicine have affected the practice of health care will be the topic of the second lecture in the Distinguished Lectures in the Science of Complementary and Alternative



Dr. Arthur Kleinman

Medicine series, sponsored by the National Center for Complementary and Alternative Medicine. On Thursday, Nov. 7 at 10 a.m. in Masur Auditorium, Bldg. 10, Dr. Arthur Kleinman, will speak on "The Global Transformation of Health Care: Cultural and Ethical Challenges to Medicine."

He will discuss the issues, influences and impact that CAM has had on biomedicine and vice versa as both have attained a global reach. He will examine the professional, regulatory and ethical issues that have presented themselves as a result. He will also review how the resulting changes in public attitudes have implications for the practice of medicine, health research and health care.

Kleinman is a leading figure in medical anthropology and social medicine and one of the world's foremost researchers in cross-cultural psychiatry and global mental health. He is professor of medical anthropology and psychiatry at Harvard Medical School and is also the Esther and Sidney Rabb professor of anthropology at Harvard University.

For nearly 35 years, Kleinman has studied the relationship between culture, illness and health care in Chinese and American societies. He cites the spread of Chinese medicine—including its philosophy and use of herbs, drugs, acupuncture, exercise and massage—to the West as an example of CAM's global growth. He has conducted research on somatization, depression, schizophrenia and suicide in Chinese society. Some of his best known published works are *Patients and Healers in the Context of Culture*, *Rethinking Psychiatry* and *Social Origins of Distress and Disease: Neurasthenia, Depression and Pain in Modern China*.

Kleinman has received numerous awards and recognition for his work. He received an honorary doctorate of science from York University in Canada; he was the winner of the Wellcome Prize of the Royal Anthropological Institute; and he was the recipient of the highest honor, the Franz Boas award,

from the American Anthropological Association in 2001. From 1991 until 2000, he chaired Harvard's department of social medicine. He has also held numerous responsibilities on national and international levels, including co-chairing the Conference on Stigma for NIH, and the Study on Suicide for the National Academies' Institute of Medicine. In 2001, he was vice chair of the Commission on Global Psychiatry for the American Psychiatric Association.

Members of the NIH community and the public are invited to attend. The lecture will also be webcast on <http://videocast.nih.gov>. For reasonable accommodation, call Valeria West, 402-9686.—

Laura Anthony ■

## Institute of Medicine Elects 4 NIH'ers

Sixty-five new members—including four NIH'ers—have been elected to the Institute of Medicine (IOM) of the National Academies, raising the total active membership to 1,358. Current active members elect new members from among candidates chosen for their major contributions to health and medicine or to related fields such as social and behavioral sciences, law, administration and economics. IOM's charter requires that at least one-fourth of the members be drawn from other than the health professions. Election to the IOM is both an honor and an obligation to work on behalf of the organization in its governance and studies.

Newly elected IOM members from NIH are Dr. Harvey J. Alter, chief, infectious disease section, and associate director for research, department of transfusion medicine, Clinical Center; Dr. Gerald T. Keusch, director, Fogarty International Center, and NIH associate director for international research; Dr. Allen M. Spiegel, director, National Institute of Diabetes and Digestive and Kidney Diseases; and Dr. Lawrence A. Tabak, director, National Institute of Dental and Craniofacial Research.

## Chamber Music Concert, Nov. 10

The Rock Creek Chamber Players will give a free public concert at 3 p.m. on Sunday, Nov. 10 in the Clinical Center's 14th floor assembly hall. The concert, sponsored by the recreation therapy section, will include Grieg's sonata for violin and piano in F major; Saint-Saëns' septet for trumpet, string quartet, double bass and piano; and Dvorak's string quartet in E flat major, Op. 51. For more information about this program of Romantic-era music, call (202) 337-8710. ■

## Health Benefits Fair, Nov. 7

In conjunction with the 2002 Federal Employees Health Benefits (FEHB) Program open season, which runs from Monday, Nov. 11 through Monday, Dec. 9, NIH is sponsoring an FEHB Open Season Fair. The fair will be held in Wilson Hall, Bldg. 1 on Thursday, Nov. 7 from 10 a.m. to 2 p.m. Representatives from most of the plans that are available to NIH employees will be on hand to answer questions on their 2003 benefits. Sign language interpretation will be available for those who need it.



## CENTENNIAL, CONTINUED FROM PAGE 1

The reason remains a mystery, as no explanatory documents survive. Kinyoun was not a "scientist's scientist," however, and the Surgeon General, Walter Wyman, who appointed the Hygienic Laboratory's director at that time, may have wanted a director more skilled in laboratory practices.

The person named as second director was Milton J. Rosenau. Thirty years old when he assumed leadership, the young physician stressed the need for an organized program of scientific research in his first *Annual Report* in 1900. He recommended, for example, a longer period of study for fewer officers in the bacteriological course. He also requested the outfitting of two portable laboratories in order to do good laboratory work at the site of epidemics, and he launched publication of the *Hygienic Laboratory Bulletin*. The first bulletin dealt with studies on bubonic plague, newly arrived from Asia on the west coast of the U.S.

In 1902, Congress enacted a law that, among other items, reorganized the Hygienic Laboratory into four divisions, adding the cutting edge scientific disciplines of that time—zoology, pharmacology and chemistry—to the original work on infectious diseases, which was placed in a division called "bacteriology and pathology." With the addition of the new areas, it became evident scientists who had more specialized training—a Ph.D. instead of an M.D.—would also be needed in the research program. An advisory board of non-federal scientists was established for the laboratory, and the first members included the leaders of medical research at that time such as William H. Welch of Johns Hopkins University and Simon Flexner of the Rockefeller Institute.

The previous year, Congress had allocated \$35,000 for a separate building for the laboratory, and as the new director, Rosenau oversaw every detail of the construction. He designated that the building contain a scientific library large enough to hold 10,000 volumes. Workrooms were to be 20 x 40 feet with 15-foot ceilings and lighted from at least 3 sides, with most light coming from the north. The area should also contain "an incubator and a cool chamber."

How productive was the new research program in its early years?

#### Infectious Diseases

In the area of infectious diseases, cholera, typhoid fever, bubonic plague, smallpox, yellow fever and Rocky Mountain spotted fever were all investigated. In 1908, George McCoy—later a director of the laboratory—discovered a new bacterium, which he named *Bacterium tularense* after Tulare County, Calif., where he first identified it as the cause of a "plague-like disease of rodents." In 1911, one of

his colleagues, Edward Francis, picked up McCoy's work and subsequently demonstrated that the bacterium also caused a disease in humans, tularemia. The causative microorganism was later renamed for Francis and is now known as *Francisella tularensis*. Today, NIH continues to conduct research on it because of its threatened use as a bioterror agent.

#### Zoology

In August 1902, Charles Wardell Stiles became the first director of one of the newly created divisions, zoology. He came to the post from the Bureau of Animal Industry in the Department of Agriculture, where 3 months earlier he had described a new species of hookworm, *Necator americanus* (Stiles). Stiles served as scientific advisor to the Rockefeller Hookworm Commission during its public health campaign to eradicate hookworm. He also prepared an *Index Catalog of Medical and Veterinary Zoology*, a monumental reference work published by the Hygienic Laboratory, and served on the International Commission of Zoological Nomenclature, which negotiated internationally recognized scientific names for various species.

#### Chemistry

The first chief of the Division of Chemistry was Joseph Hoeing Kastle. Trained at Johns Hopkins University, Kastle was representative of the chemists at that time who were adopting the then-new methods of biochemistry. He published two *Hygienic Laboratory Bulletins* on the oxidases. He also worked on a chemical method to identify and estimate the amount of hydrochloric acid in the stomach and worked on the development of a "hemoglobinometer" for measuring the amount of hemoglobin in the blood.

#### Pharmacology

Reid Hunt, another Hopkins-trained scientist, was named the first chief of the Division of Pharmacology. In 1903 and 1904, while his new laboratory at the Hygienic Laboratory was being prepared, Hunt worked in Germany with the distinguished chemist Paul Ehrlich. Hunt's major interest was the powerful biological action of acetylcholine on blood pressure. He was also interested in the effects of alcohol and in 1902 alerted the American medical profession to the toxicity of methyl alcohol. ■

#### Adults Needed for Study

College-educated, middle-aged adults are needed for a 2-day outpatient study at NIMH. Involves blood draw and routine clinical, neurological and cognitive procedures. A stipend is available. Inquire at 435-8970. ■



NIH's second director, Dr. Milton J. Rosenau, stressed the need for an organized program of scientific research.



Exit SunTrust, Enter NIHFCU

## Bldg. 10 To Lose Commercial Bank, Credit Union to Take Space

After 52 years of hosting a commercial bank, the NIH campus will lose its lone banking company, SunTrust, when the branch on the B1 level of Bldg. 10 closes permanently on Nov. 27.

The space occupied by the bank, just outside the B1-level cafeteria, will reopen early next year as a branch of the NIH Federal Credit Union, which is expanding its range of services to meet the needs of the private bank's clients, chiefly patients, visitors and employees.

SunTrust has been on campus for 4 years, according to K. Mark Steigerwalt, assistant vice president/NIH branch, but before that was called Crestar Bank, and before that, the Bank of Bethesda. The bank's customers were primarily patients and visitors, many of whom took advantage of its services over the years, said Steigerwalt, who has been at the NIH branch for the past 5 years. "I have loved working here," he said. "I've gotten to know many patients, and many international visitors. It's been a real treat."

He notified NIH customers in a letter dated Aug. 27 that the bank is set to close at 3 p.m. on Nov. 27. Staffing at the bank, once at seven employees, had dropped to four by mid-September. All of the SunTrust employees have been told they will be relocated within the company.

According to Lindsay Alexander, chief executive officer of the NIH Federal Credit Union, her organization will remodel the SunTrust space and reopen sometime in January 2003. Because credit unions have not traditionally been able to offer the same range of services as private banks, the NIHFCU is "devising some means and methods of serving (nonmember) patients" in the coming months, Alexander said. "There have been some changes in the rules...the credit union is in the midst of creating a service organization that can serve nonmembers. We'll be able to handle foreign currencies, patient accounts and NIH cashier accounts," she said. "We'll offer basically all of the services that SunTrust offers."

For the moment, the credit union cannot handle business accounts, including commercial checking and business loans, Alexander explained, "but we will be able to do those things in the near future."

Alexander predicted that customers of her new branch "won't see much difference" between the credit union and what SunTrust offered. "Most of the people who bank there are probably eligible to be credit union members anyway," she said.

Customers who had safe deposit boxes with SunTrust won't be able to carry that service over, Alexander cautioned, but once customers close those accounts with SunTrust they will be able to reopen

them under credit union auspices.

SunTrust's decision to leave NIH was the result of several factors, according to bank spokesman Hugh Suhr. "We're constantly evaluating our branch system, including transaction patterns, market growth and potential," he said. With two other SunTrust branches close by (at Wildwood and in Bethesda), and a big increase in phone and Internet banking, the bank decided to close the NIH branch.

The Bank of Bethesda's original campus branch opened Apr. 10, 1950, on the third floor of Bldg. 1. Its first depositor was Mrs. Luke I. Wilson, who with her husband donated, in five segments, their 92-acre Bethesda estate to NIH. Hours back then were 9 a.m. to 2 p.m., hence the term "banker's hours."

According to the Apr. 24, 1950, *NIH Record*, the bank was allowed to open on campus by special permission: "The Treasury Department authorized the permanent banking facility because of the growing importance of NIH and as a service to the large number of NIH employees..."

It isn't clear just when the Bank of Bethesda migrated from Bldg. 1 to the Clinical Center basement, but by March 1955, according to the *Record*, its safe deposit boxes had been relocated there. Because the bank has a dedicated vault, it is thought that the branch opened when the Clinical Center did in 1953. The credit union, by contrast, had been established in 1939 and for years had a branch in Bldg. 10, although there hasn't been a credit union presence, other than two ATM machines, there in recent years. "The credit union has not had a presence in Bldg. 10 because we were not permitted once the bank moved in there," Alexander noted.

She concluded, "The credit union is absolutely delighted to be able to assume the bank branch space and provide in-person service to our members, potential members and patients of NIH in the Clinical Center. This move further solidifies our commitment to the NIH community, where we have been considered to be an employee benefit for over 60 years."—Rich McManus ■

## Celebrate Halloween with the CFC

All NIH'ers are invited to celebrate Halloween with the Combined Federal Campaign on Thursday, Oct. 31, from 11:30 a.m. until 1:30 p.m. on the Bldg. 31 patio. To highlight the joy of giving, treats and door prizes will be given out. There will be ice cream from Ben and Jerry's and lunch from the Hard Times Café, at a nominal charge. WBIG 100 will entertain and CFC charities also will be there to distribute information and answer questions. Details are available at <http://cfc.nih.gov>. ■



*Dr. Joanna Pyper is now the scientific review administrator for the virology study section at the Center for Scientific Review, after participating in the CSR Review Internship Program. She received her Ph.D. in virology from Johns Hopkins University, constructing a molecular clone of the caprine arthritis encephalitis virus. She continued her research there as a postdoctoral fellow before moving to the NCI Laboratory of Tumor Virus Biology. Pyper returned to Hopkins and received an NINDS grant to characterize the Borna disease virus, which causes neurological disease in many species. Prior to coming to CSR, she was a research fellow in the Picornavirus virus replication section of NIAID's Laboratory of Infectious Diseases.*



WOLFRAM, CONTINUED FROM PAGE 1

folks had come simply to see what all the fuss was about. In a way, the rows of guests, some of whom communicated with neighbors to the side and rear, formed a kind of pattern of association, the sum of which could be represented by a series of black boxes and open boxes. Let black boxes indicate those who knew of Wolfram's work directly and open boxes represent those who knew him but

barely, or only by reputation (Wolfram, a native of London, owes at least part of his fame to having been named a professor at Cal Tech at age 21, and for having won a MacArthur Foundation "genius" award early in his career; he is now CEO of Wolfram Research, Inc.). If you went row by row, all the way to the rear of the hall, applying the simple rules of "degree of familiarity with Wolfram," then the resulting matrix would either be interesting or not, depending on whether it was A) aesthetically pleasing in its own right, say, a nice sort of quilt pattern, or B) potentially meaningful to biology, because it resembles a form found in nature.

That's a simplified way of presenting Wolfram's thesis, which he illustrated with

an elementary example: from a simple row of 7 boxes (meant to resemble a line of cells, though it could be of any length)—the center one black and the three on either side open—one can generate successive rows by applying easy rules governing the color of neighboring boxes. For example, one rule might be that if there's a black box in the line above, there must be a black box below it. Or, if the box above is open, but adjacent to a black box, the box below must be black. Wolfram has elucidated some 256 "rules" based on eight available options governing the color of boxes; the options themselves rely on simple if/then rules of coloration based on proximity. Each rule spawns so-called "cellular automata," or successive generations that obey the rule in each iteration (see box).

One rule that Wolfram demonstrated produces, quite reliably, a pyramid shape. But once you get up around Rule 30, fascinating forms result—highly irregular and utterly random to the naive eye. Other rules create odd structures that proliferate awhile then die out, say after 3,000 steps or so. Fascinatingly, some of Wolfram's models are dead ringers for such natural forms as the variation seen in mollusk shell pigmentation patterns, and the forms taken by snowflakes and tree leaves. What so tantalizes Wolfram is that his models, which require such simple rules to generate, can result in such rich complexity; the math seems a good metaphor for rules embedded in nature. Or, in his words, "We've put so little in, but we've gotten so much out. It seems to violate our prejudices—that incredibly

simple rules can produce incredibly complex phenomena."

Wolfram said he spent most of the past decade working on a "big intellectual structure," that has resulted in his new 1,200-page book, only 59 of whose pages deal specifically with biology. "During the past 300 years, mathematics and equations have been used in a serious way in science," he said, citing particularly apt applications in physics, such as determining the orbits of planets. "But (math)



Dr. Stephen Wolfram, CEO of Wolfram Research, Inc., brought his "New Kind of Science" to NIH on Sept. 17.

PHOTOS: ERNIE BRANSON

### Build Your Own Cellular Automaton

If Dr. Stephen Wolfram's "New Kind of Science" intrigues you, then the following brief primer in building cellular automata can be a place to start deeper investigation. While his example, given in his talk Sept. 17 at NIH, involved a simple 7-cell system, things needn't be that elementary.

According to Todd Rowland of wolframscience.com:

- 1.) The row of boxes can be of any length.
- 2.) The cellular automaton rules dictate how to go from one row to the next.
- 3.) The color of a box on the next row depends on the color of the box on the previous row and the color of its two immediate neighbors.
- 4.) The cellular automaton rule tells what the next color will be based on the color of three cells, those being the previous cell and its two neighbors.
- 5.) A cellular automaton rule needs to dictate a color in 8 possible cases, covering all variations for three ordered cells ( $2 \times 2 \times 2 = 8$  possible neighborhoods): {0,0,0}, {0,0,1}, {0,1,0}, {0,1,1}, {1,0,0}, {1,0,1}, {1,1,0}, {1,1,1}.
- 6.) Since there are 8 cases for a neighborhood, there are  $2^8 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 256$  possible elementary cellular automata.

Rowland adds, "In case you were wondering: There are several ways to deal with the boxes on the edge of the rows, each of which is missing one of its neighbors. In most of the pictures shown (in Wolfram's lecture), the idea is to consider the missing neighbor as a white cell. Alternatively, one can make the row wrap around, like on a cylinder, but making the ends neighbors. This is more of a technical detail since the sizes of the pictures were chosen so that the interesting behavior would not depend on the choice of convention.

"This notion can be generalized," he continued, "by adding more colors, or using larger neighborhoods, in which case it would be called a one dimensional cellular automaton." For more basic information, visit [mathworld.com/ElementaryCellularAutomaton.html](http://mathworld.com/ElementaryCellularAutomaton.html).



hasn't worked out so well in other areas...traditional mathematics has not been well used in biology. We might not be using the right building blocks for our models or descriptions of things."

The dearth of good math-based models prompted Wolfram to spend the past 15 years building the cellular automata concept so that "mathematics can be used like a microscope pointed at various objects—various flora and fauna. After all, look at all the stuff that's happening from one black box (or cell)."

That cellular automata can mimic forms in nature is evidence of "a very robust phenomena,"

Wolfram said. "Something very basic and fundamental is at work."

He pointed to the sequence of prime numbers, or the digits flowing forth from calculations of pi as something science has heretofore regarded as "a nuisance, or a distraction or a bug of some sort—not an important basic phenomenon." But the apparent randomness of these numbers has at least one satisfying aspect: the more complicated things look, the more we are likely to ascribe "naturalness" to them.

"We want (model) systems whose behavior we can readily predict and see," Wolfram said, "but nature operates under no such constraint." What models of natural systems can mathematics potentially evoke, he wondered? "I happen to think all of the universe and physics, but that's another lecture."

Wolfram was careful to acknowledge the limits of mathematical modeling. "Modeling is always a difficult business," he said. "It takes a lot of knowledge of specific characteristics and essential features." His snowflake models were successful in that they "captured the basic morphology," but to get a closer approximation of the "thing itself," one needs to consider more factors that add detail and complexity. Biology is another order of magnitude harder to model than a two-dimensional crystal, he said. Yet if one looks at morphological structures and how they form in biology, there is "lots of regularity on a microscopic scale...growth processes in biology may actually be very simply described."

The most convincing evidence of his thesis were comparisons of mollusk shell pigmentation patterns, and even shell shapes, with patterns and shapes



Wolfram addresses crowd.

generated by cellular automata. The shells, it could be seen, "seem to be sampling simple cellular automata rules randomly...All cases get sampled in nature," Wolfram asserted.

Leaf shapes, too, in their huge diversity, can be mimicked by cellular automata. By dissecting leaf pods, Wolfram constructed models based on their branching, size and angles, then applied cellular automata to approximate a virtual forest of recognizable leaf types.

Wolfram claims no more than insight into how nature makes its choices, and leaves further exploration of how cellular automata may benefit biology to interested biologists. But he did offer some consolation: those provoked by the power of his models are invited to visit his web site ([wolframscience.com](http://wolframscience.com)) to tinker with a program launched there just recently—A New Kind of Science: Explorer. "It's really best to learn on one's own," he counseled. ■

#### FAES Holds Insurance Open Season

The FAES Health Insurance Program is conducting open season from Nov. 1-30. The program is open to those who work for or at NIH in full-time positions but are not eligible for government plans. This includes NIH fellows, special volunteers, guest researchers, contractors and full-time temporary personnel. The minimum enrollment period is 3 months. Benefits and/or changes take effect Jan. 1, 2003.

Open season is for those who did not enroll when first eligible and for current subscribers to make changes. Appointments are required. FAES offers CareFirst BlueCross/Blue Shield PPO and a voluntary health maintenance organization (HMO) dental plan through Cigna.

More information may be obtained from the FAES website at [www.faes.org](http://www.faes.org) or from the FAES business office, Bldg. 10, Rm. B1C18. To schedule an appointment, call 496-8063. FAES is open Monday-Friday from 8:30 a.m. to 4 p.m. ■

#### Lecture on 'Poor Whites and Health'

Dr. J. Wayne Flynt, distinguished university professor at Auburn University, will present a talk titled, "Poor Whites and Health," on Tuesday, Nov. 5 at 2 p.m. in Masur Auditorium, Bldg. 10. His talk is the second in a series of lectures examining health disparities sponsored by the NCI Center to Reduce Cancer Health Disparities.

Flynt is the author of 10 books, including *Dixie's Forgotten People: The South's Poor Whites* and *Poor But Proud: Alabama's Poor Whites*. His talk will offer insight into the impoverishment of whites in America and the resulting implications for their medical care.

If you are interested in attending, contact Tara Grove at [Tgrove@novaresearch.com](mailto:Tgrove@novaresearch.com). Sign language interpretation will be provided. For reasonable accommodation, contact Grove at least 5 days before the event at (301) 986-1891 ext. 129 or for TTY users, 1-800-877-8339. ■



## HISPANIC HERITAGE, CONTINUED FROM PAGE 1

from "Salud! To Your Health!"—NIH's annual Hispanic Heritage Month observance.

"There's no question that a month like this is an opportunity for everyone to reflect on where we are as a society and where all the components of our society contribute," said NIH director Dr. Elias Zerhouni, in opening remarks. "We want—all of us in our multicultural, diverse society—to contribute to the maximum extent possible to all activities of the country. Research is no exception. Public service is no exception. Public health is no exception. The National Institutes of Health would like also to promote all minorities to positions where they can be effective and able to effect change."

Citing census information that identifies Hispanics as the fastest growing population in the U.S., Zerhouni said predictions indicate that one in four Americans will be of Hispanic descent by 2050.

"So, are we [at NIH] doing well?" he asked. "Is the Hispanic minority represented well? The data is not as good as the growth. [Hispanics] are the most severely underrepresented minority group in the federal government. Hispanics comprise only 6.7 percent of the total federal workforce, compared

with 11.8 percent of the civilian workforce—a difference we need to address. They account for only 2½ percent of Senior

Executive Service employees. I'm really concerned about the Hispanic representation at NIH. Out of a total workforce of approximately 18,000, only 538 are Hispanic. So clearly we have work to do and I'm going to count on you to help me do it."

Zerhouni said improving diversity is important to him not only as the NIH director, but also as a direct beneficiary.

"I come from an institution that embraced diversity, embraced people from different walks of life," he explained. "I am an immigrant. I was embraced and given chances. This is our job. Our job is to give the opportunities. I would like you to help me identify the best and brightest Hispanic scientists, Hispanic administrators, the best leaders. Identify them and be our best agents. Sell NIH to them."

There is a limit to what brochures and programs can accomplish, Zerhouni said. "At the end of the day, it's the one-to-one relationships that make the difference. It's not the programs, it's not speeches by the director of NIH. It's who you know and how you can convey to them the outstanding nature of NIH, the incredible morale that we have here, the

spirit of excellence and the spirit of being special."

Stressing the importance of the issue, Zerhouni told the audience of his determination to attend the program, despite a previous engagement. "I told Larry [Self, director of NIH's Office of Equal Opportunity and Diversity Management] that I need to be here, so that they will know that under my tenure, openness and opportunity will be the operating words."

In a heartfelt testament to the value of opportunity, Dr. Richard Carmona, newly appointed U.S. Surgeon General, offered an inspiring account of his journey



NIH HEO president Dr. Marta Leon-Monzon, who emceed the program, gathers participants (from l) NIDCR director Dr. Lawrence Tabak, Carmona and Zerhouni.

PHOTOS: ERNIE BRANSON



The program offered three scientific presentations by Dr. Thomas Münte (l) of Otto von Guericke University Magdeburg in Germany, Dr. Nilda Peragallo of the University of Maryland-Baltimore and Dr. Carlos Zarate of NIMH.



to "an incredible career he never imagined having." (See sidebar, p. 10)

Themed "Language and Access to Care," the kickoff also featured remarks by two institute directors. NIDCR's Tabak discussed the need to eliminate gaps in health, particularly in oral health. Citing a 2000 Surgeon General's report, Tabak stressed one of the document's key messages: "Oral health is essential to the general health of all Americans and can be achieved. However, all Americans are not able to take that to heart."

He said data from the report show "profound and consequential oral health disparities in our population." For example, he continued, poor people—regardless of racial or ethnic background—have a higher percentage of untreated decay in their primary teeth.

Tabak said research can address the needs of the nation's changing demographics on several fronts: Increasing the research capacity by finding, training and empowering young Hispanic investigators to pursue careers in dentistry; accumulating more data on the widely heterogeneous Latino population; and stepping up health promotion and disease prevention efforts in affected communities.

"The best way to predict the future is to invent it," Tabak concluded, quoting computer science visionary Alan Kay. "What I would ask each of you to do is to help us invent a far better future."

In his remarks, NIEHS director Dr. Kenneth Olden, too, sought help in moving from what has been to what will be. "Occasions such as Hispanic Heritage Month are important because they provide us an opportunity to recall and celebrate successes of the



past," he acknowledged, "but these events also give us an opportunity to anticipate the future. I want to look forward."

Addressing what he called "the unfinished business of building a biomedical research and healthcare enterprise that is more representative of the diversity of our society," Olden said closing health gaps will require innovative ways to involve everyone in the country. "We as leaders have to step out of our comfort zones and try some new approaches."

As examples, Olden described a few of NIEHS's success stories, including community-based priority setting that uses town hall meetings to brainstorm with local citizens on ways to tackle difficult health issues, and ARCH (Advanced Research Cooperation

process languages the same way.

Peragallo, in her first public appearance as president of the National Association of Hispanic Nurses, provided a snapshot of the multifaceted obstacles faced by patients as well as caregivers who do not speak the same language. She said the impact of these barriers must be addressed when developing a healthcare agenda that serves all of the nation's residents.



NINR director Dr. Patricia Grady (c) and NINR deputy director Dr. Mary Leveck (l) chat with Peragallo, president of the National Association of Hispanic Nurses.



A native of Chile, Peragallo recalled living in Germany for 2 years as a nurse anesthetist. She said it took 6 months before she would attempt to speak German, but that she never had too much difficulty using gestures and other non-verbal signals to communicate with her patients.

"That was pretty easy because they were all going to sleep," she quipped. "All I had to say was, 'Schlafen sie gutes' [sleep well]. But my point is that there are ways and ways to communicate and language is only one of them."

Finally, Zarate described a successful Hispanic Research Initiative, which garnered kudos for its developers from the NIH Hispanic Employees Organization. Noting that the Hispanic patient population at the Clinical Center has grown steadily in each of the past 3 years, Zarate said, "There is an increased need for resources to be able to treat and evaluate these patients for research."

Zarate briefly addressed several valuable insights gained from developing the initiative: Race and ethnicity should not be overlooked in any psychiatric research; such demographics of potential subjects as education level and unemployment status must be considered; the language and cultural sensitivity of the study's staff is crucial; participants' adherence to the study may depend on any combination of these considerations.

Lastly, Zarate said conclusions regarding participation should encourage other investigators to plan studies in Latino populations.

"The Hispanic community is very receptive to and motivated for research as a whole," he concluded. "When asked why they agreed to take part, over and over we heard from patients: 'Because my participation will help other people.'"

A videocast of the program is archived at <http://videocast.nih.gov/ram/hispanic091902.ram>. A reception and exhibit followed the program in the Visitor Information Center.

NIH's Hispanic Employee Organization recognized Dr. Robert Desimone (third from l), director of NIMH's Division of Intramural Research Program, and Dr. Susan Koester (second from l), associate director for science in that division, for successfully implementing a pilot Hispanic Research Initiative on mood disorders. Offering congratulations are (from l) Leon-Monzon, NIH deputy director Dr. Ruth Kirschstein, Tabak and NIEHS director Dr. Kenneth Olden.

in Environmental Health), which establishes partnerships between research-intensive universities and minority-serving institutions.

The program's three scientific presentations focused on "How to Handle Two Languages with One Brain: A Neuroscience Perspective" by Dr. Thomas Münte of Otto von Guericke University Magdeburg in Germany, "Language and Culture: Bridges or Barriers?" by Dr. Nilda Peragallo of the University of Maryland-Baltimore and "Pilot Hispanic Research Initiative in Mood Disorder Patients," by Dr. Carlos Zarate of NIMH.

According to recent data, about half the world's population is at least somewhat bilingual. In the U.S., approximately 32 people million speak a language other than English at home. Bilingualism includes two extremes—knowledge of some words, perfect command of primary and secondary languages—and everything in between. "Most of us are somewhere in between," Münte said. He described three types of bilingualism: dominant, in which a person is good at one language and "really miserable at the other"; additive, in which the person is proficient at both; and subtractive, in which a person isn't very good at either language.

His research uses temporal and spatial neuroimaging to examine how the brain stores multiple languages, whether and to what extent multiple languages interfere with each other in the brain during processing, and whether all bilinguals



*'Story of Hope'***New Surgeon General: 'Still a Tourist' Living the American Dream**

By Carla Garnett

Young Richard Carmona was just 12 years old when he first had the sense knocked into him. His startling moment of clarity—provided inadvertently by his mother—occurred on a day when he and his three siblings were hungry. Poor and struggling, living in a tiny apartment with bare

cupboards, four kids and an absentee alcoholic husband, Carmona's mother, also addicted to alcohol, had "come home not with food but with a bottle of rum."

After an argument, Carmona took it upon himself to pour the contents of her brand new bottle down the sink. Outraged, his mom swatted him across the legs with a broom. Carmona said the lash—the only time his mother ever struck him—served solely to reinforce a harsh lesson he had already begun learning: "I

started to understand then how this substance can assist in destroying a family. We made up and everything was fine, but I decided then that I wasn't going to do that."

If Carmona had squandered the rest of his life—ending up in the streets, in jail or worse—few would have been surprised. After all, not many high school dropouts from poor Latino families living in the Washington Heights part of Harlem go on to exemplary military service careers, graduate from college, ace medical school and find themselves as the nation's top doctor.

"The first time I met Dr. Carmona, I thought, 'wow, what an energetic man,'" remarked NIH director Dr. Elias Zerhouni, who introduced Carmona at the Hispanic Heritage Month observance on Sept. 19. "The second time I met him, I said, 'This guy is energizing!' The third time I saw him, I said to him, 'Can you give me some of your energy?' He has an amount of enthusiasm and commitment to his mission that is absolutely remarkable. He is a dynamic leader with a remarkable background. He has dedicated his life to serving his patients, community and country in ways that few can match."

Zerhouni and Carmona were announced as potential presidential appointees at the same time last spring and both navigated the congressional confirmation process together.

Carmona's story may sound like the American dream now, but it didn't start out that way. His father was the youngest of 27 children and his mother was the daughter of an alcoholic. The word poverty might have been used to define his neighborhood. No one in his family had ever completed higher education; in fact, finishing high school was not a priority in most of his community. The most many in his family could predict for him and his

siblings was a life spent in a spare apartment doing an ordinary, but steady job.

Recalling how his uncle rapped him—physically as well as verbally, "Our people don't do that"—for turning down a job as an electrician in favor of attending college, Carmona said, "I learned another lesson: Culture is wonderful, but it also binds you."

Nevertheless, his mother—who Carmona describes as "a single mom before the term was coined"—had a dream to see one of her children graduate before

she died, and she tried to instill in them an appreciation for learning. "Get an education, because an education will set you free," she would say. If she was concerned about his future, it was his grandmother who wanted him to remember his roots.

"My *abuelita* tried to perpetuate our culture,"

Carmona explained. "She came to the country in her 60s and she would always tell me, 'I'm too old to learn English, you gotta talk to me in Spanish.' I didn't understand at the time the importance of the culture and how my grandmother wanted me to maintain that culture, through the food we ate, through the traditions that would be perpetuated, through the understanding of the importance that Latinos have had in our country—she used to talk to me about the explorers and my ancestors—and the important contributions they have made."

Despite what he had told his uncle, Carmona admitted that the thought of college was more frightening to him than combat had been. "I was afraid of failure," said the former Special Forces medic who served in Viet Nam and was awarded the Bronze Star, the Purple Heart and a combat service medal. "I knew there were a lot of smart people in college. But, as you all must know, without accepting some risk there usually isn't any progress, so I said, 'Okay, I'm going to give it a shot.'"

Carmona undertook higher education with a sense of purpose, vowing to give back to the community. "It was a commitment I made to myself that if I ever made it," he said, "I wouldn't forget where I came from. I always had this idea that I would go back and stamp out disease and famine and pestilence and save the world after I got my education. The Lord didn't see it that way for me, as far as going back to Harlem, but I did get the education. I put those tools to use in other places."

These days, Carmona joked, he is often so busy in his new role that he needs handlers to point him in the direction of his next appointment and that he



NIH HEO president Dr. Marta Leon Monzon welcomes guest speaker Dr. Richard Carmona, U.S. surgeon general.



Carmona tells his story.

PHOTOS: ERNIE BRANSON



often sneaks away from them for restroom breaks, which they never seem to schedule for him.

"This is absolutely the most phenomenal job I could have ever envisioned," he said, "but the enormity of the job, the responsibility...I feel every day as if the weight of the world rests on my shoulders, because at times the world hangs on your every word. I don't take that responsibility lightly. To be honest with you, it scares me. I get up every day thinking, 'How can I be sure I'm doing the best job I possibly can?'"

If his words indicate the keen sense of duty he feels, Carmona insists all leaders should feel that way about their jobs, and that all meaningful work is accompanied by a measure of obligation to past, present and future generations.

"I never used to talk about my story," he admitted, "but people encouraged me to, because it was a story of hope for those trying to find their way out. I recognized that it did provide a horizon for some young person to say, 'If he did it, I can do it.' Leadership is a very important quality and we need to embrace it and teach it. Mentorship is just



Carmona and Leon-Monzon greet Dr. Nilda Peragallo of UMD.-Balt.

looking over your shoulder to see who's behind you, and bringing them with you. Everybody behind you can profit from your experience and your education."

Throughout his remarks, Carmona commented on the rapport he has established with Zerhouni, HHS Secretary Tommy Thompson and the President. Recently while at the White House, the surgeon general was privately marveling at the incredible circumstances he now finds himself in, frequently mingling with people he had only read about or seen on TV. He confided the substance of his musings to President Bush. "I said, 'You know, I still feel like a tourist.' And he said, 'Well, that's good. So do I. If you ever you lose that, I probably don't want you working for me anymore. That's the kind of people we need in our administration, [people] who see the gravity and enormity, the immense responsibility you have inherited in this position.' I realize I have a finite amount of time to do the very best job I can, to leave a legacy of change that is positive, to leave this office with the President and the secretary saying, 'He was the right one for the job,' and most importantly, to have the 300 million people that I represent say, 'He cared about us, he made a difference, he did the right thing'...I'm elated, I'm overwhelmed, I'm humbled to be serving on this team with great people like Dr. Zerhouni, our President and the secretary." ■

## Free Flu Immunizations Offered

The annual "Foil the Flu" program for NIH employees begins Nov. 7. The vaccinations will be given in the Occupational Medical Service offices in Bldg. 10/Rm. 6C306 and the schedule is based on the first letter of the employee's last name. The program is for employees and NIH identification cards must be presented. Contractors are not permitted to receive the flu vaccine through this program.

The schedule and more information is available at <http://www.nih.gov/od/ors/ds/flu>.

### On Campus: Bldg. 10/ Rm. 6C306

First Letter Last Name	Date	Morning	Afternoon
WXYZ	Thursday, Nov. 7	7:30-11	1-2
AB	Friday, Nov. 8	7:30-11	1-3:30
CD	Tuesday, Nov. 12	7:30-11	1-3:30
EF	Wednesday, Nov. 13	7:30-11	1-3:30
GH	Thursday, Nov. 14	7:30-11	1-2
IJK	Friday, Nov. 15	7:30-11	1-3:30
LM	Monday, Nov. 18	7:30-11	1-3:30
NOPQ	Tuesday, Nov. 19	7:30-11	1-3:30
RS	Wednesday, Nov. 20	7:30-11	1-3:30
TUV	Thursday, Nov. 21	7:30-11	1-2
WXYZ	Friday, Nov. 22	7:30-11	1-3:30
ABCD	Monday, Nov. 25	7:30-11	1-3:30
EFGH	Tuesday, Nov. 26	7:30-11	1-3:30
IJKLM	Wednesday, Nov. 27	7:30-11	1-3:30
NOP	Monday, Dec. 2	7:30-11	1-3:30
QRS	Tuesday, Dec. 3	7:30-11	1-3:30
TUV	Wednesday, Dec. 4	7:30-11	1-3:30
Open-Any Letter	Wednesday, Dec. 11	7:30-11	1-3:30
Open-Any Letter	Thursday, Dec. 12	7:30-11	1-2
Open-Any Letter	Friday, Dec. 13	7:30-11	1-3:30

Beginning Dec. 16, influenza vaccinations will be by appointment only. Call OMS at 496-4411 to make an appointment.

### Off Campus Sites

Locations	Date	Morning	Afternoon
RKL I, Rm. 5054	Friday, Dec. 6	8:30-11	1-3
EPN, Rm. 103	Monday, Dec. 9	8:30-11	1-3
NSC, Conf. Rm. D	Tuesday, Dec. 10	8:30-11	1-3

## Wednesday Afternoon Lectures

The Wednesday Afternoon Lecture series—held on its namesake day at 3 p.m. in Masur Auditorium, Bldg. 10—features Dr. Henry Masur on Nov. 6, speaking on "AIDS: A Window on Infectious Diseases." Masur is chief, critical care medicine department, Clinical Center.

On Nov. 13, Dr. Danny F. Reinberg gives the NIH Director's Fifth Astute Clinician Lecture on "Chromatin and Its Impact on Gene Expression and Cellular Memory." He is HHMI investigator and professor, department of biochemistry, Robert Wood Johnson Medical School, University of Medicine and Dentistry of New Jersey.

For more information or for reasonable accommodation, call Hilda Madine, 594-5595. ■



## TOWN HALL, CONTINUED FROM PAGE 1

in his first 4 months on the job and been impressed by a widespread "commitment to excellence" here. "People think of us as an outstanding federal agency," he observed. "You play a critical role. My job is to enhance that, and make sure there are no obstacles to your achievement."

Zerhouni said, "I really think that the life sciences are a top national priority for the first half of the 21st century...It's an area where we know the least, and it is still the number one scientific challenge for mankind."

"We do not exist in a stable relationship with our environment," he continued. "There are emerging and reemerging diseases...We need to establish our research priorities in order to accelerate our efforts. We've been generously supported, and now the challenge is what to do with it."

During a series of "roadmap" meetings this past summer, Zerhouni collected the concerns of both the extramural and intramural communities regarding NIH's future, and boiled down a central concern of all: "Are there areas of science that can't be taken on by any

one institute, but are nonetheless NIH's overall responsibility?" He also mused about the scientific team of the future, which will certainly be multidisciplinary. "Is the NIH focused on that?" he asked.

The process of defining a vision will continue, he said. He never wants to be without a forceful answer to the question, "What did you do with the budget?"

Prior to the meeting, the director's staff opened a web site where employees could submit questions and identify issues for the director to address; the site garnered some 401 queries, falling into four broad themes: the director's vision for NIH, personnel, quality of life and security. Of the latter topic, Zerhouni laid bare his feelings about a fence: "I love the campus and the open atmosphere, and I came here with a bias against the fence," he said. But after briefings by experts and a careful review, he concluded "it is very hard to ensure that this national asset can be protected effectively without a fence." He wants it to be as unobtrusive as possible, and to reflect the concerns of both external and internal communities. And because, only a day earlier, a sniper had gone on a rampage in Montgomery County, Zerhouni felt even more obliged to err on the side of more security: "Not having security yesterday..." he began gravely, "it might have been a very different story, I can assure you."

Updating the audience on the fence, construction of which is slated to start in November and end sometime late next year, was Stella Serras-Fiotes of

ORS. Once built, the fence will allow freer access inside campus, she said, although some facilities will still require added security. "All current vehicle entrances will remain, both for cars and pedestrians," she noted, and another six gates will be built in areas that currently see abundant foot traffic. ORS, she added, is currently developing an evacuation plan—to be uninhibited by the new fence—in case employees are sent home during an emergency such as 9/11.

She finished her presentation by listing four assets of a fence: it better defines the campus perimeter, provides focused entrances, does little harm to collegiality (NIH will simply resemble many universities, she said), and protects a national asset.

To which the first questioner disagreed, at length. Zerhouni listened to some familiar objections, then said, "We do not want NIH to be taken by surprise in any way. Yesterday (the first day of the sniper's attacks) people said to me that they were thankful that we have the gates." He said NIH must achieve a balance of competing interests, and conceded that the fence is "a no-win situation. We can't please all of the needs of all of the constituencies...This is a very visible agency. We are known worldwide. What could be better for front-page impact than to have something happen here?"

Asked about an alleged slowness to develop stem cells, Zerhouni argued that stem cell research is still in a very early stage, and that it is too early to say whether adult stem cells are less valuable than those harvested from human embryos. "It would be presumptuous to guess where therapeutic advances will be made," he said. "We need to walk before we

run. We need to pursue the field, and invest in it because disease knows no politics. I believe that we at NIH must be factual, not factional."

Another attendee asked about OMB Circular A-76, a Bush administration effort—now more than a year old—to identify federal positions that could be outsourced at a savings to the government. Chick Leasure, NIH deputy



*A question from the audience*

director for management, explained that only a limited number of NIH jobs are targeted for cost comparison (the outsourcing must save the government a minimum of 10 percent, he said), but assured the audience that no one will lose their job. "We believe we will be able to offer early-outs (to those potentially affected by outsourcing), but there is no indication of buyouts," he said. He returned to the



*Zerhouni answers question at his first Town Hall Meeting in Masur Auditorium.*

PHOTOS: BILL BRANSON



topic later, adding that of roughly 18,000 workers here, only about 8,000 work in jobs that could be outsourced, but that only a tiny subset of positions (not people) are under review: 460 in 2002 and 930 in 2003. Leasure asked interested parties to consult the A-76 portion of the Office of Management Assessment web site (<http://oma.od.nih.gov/>) for more information.

Questions arose about health and safety on campus, specifically the plan to erect Bldg. B for infectious diseases work. Meeting moderator Dr. Michael Gottesman, NIH deputy director for intramural research, said no BSL-4 (highest level of protection required) work is done at NIH, despite a capacity for it in Bldg. 41. The proposed Bldg. B will have some BSL-3 areas, he said, as do some other campus facilities. He then tapped NIAID



Dr. Thomas Kindt

scientific director Dr. Thomas Kindt for comment. "Let me dispel confusion," Kindt said. "We will not accumulate large amounts of any agent. We are just going to expand programs we've been doing for years. We are not doing any biowarfare work here, just work on countering such an attack."

The scarcity-of-parking issue came up, and Zerhouni assured all that there is no one in the upper reaches of American academia who is not intimately familiar with the problem. "This is no different than what I am used to," he quipped. "We had the same thing at Hopkins—been there, done that."

The latest twist in that field is that ORS has been compelled to reissue contractor permits owing to abuse of the system. "We're just trying to fix the problem," assured Steve Ficca, NIH associate director for research services. "The idea is to be fair to all who have a right to park on campus."

Late in the hour-long session, someone asked about Zerhouni's management philosophy, and the director was typically forthcoming: "I don't have any gelled philosophy," he began, "but let me share with you some of my biases. I believe in shared governance, fair policies, and I try to avoid micromanaging. I'd rather leave it to the front line to do that. To my mind, the unique character of NIH is that it is a knowledge enterprise, not just a huge manager of grants...This is a government institution, but it is like academia. It has structures that are different than a corporation or a university. I'm starting to learn that there needs to be a balance between centralization and decentralization."

"Because we've grown so much," he continued,

"we need to learn how to coordinate efforts. But I don't want us to lose our innovation, our autonomy or our spirit—those are the virtues of decentralization. I don't know how [my vision] will be implemented in detail, but that's my philosophy." To which the audience responded with sustained applause that sounded like assent. ■

### Annual Leave: Use It or Lose It

Annual leave in excess of the maximum carryover balance (in most cases 240 hours) is normally forfeited if not used by the end of the current leave year. If you have not already planned to take those excess hours of annual leave, you should discuss your leave with your supervisor now while there is still time to schedule it. Your bi-weekly Earnings and Leave Statement tells you how much annual leave you must use so that you will not lose it when the leave year ends on Saturday, Jan. 11, 2003.

In spite of planning, circumstances sometimes arise that prevent you from taking leave that has been scheduled and approved earlier during the leave year. In such cases, you and your supervisor are jointly responsible for ensuring that any "use or lose" leave is officially rescheduled. This year, your "use or lose" leave must be scheduled not later than Saturday, Nov. 30. If you or your supervisor have questions about "use or lose" leave, contact your human resource office or other program official designated by your institute or center.

### STEP Session on Science Education

The Staff Training in Extramural Programs (STEP) committee will hold a Science in the Public Health session on the topic, "Science Education: Rugsrats to Researchers," on Thursday, Nov. 14 from 8 a.m. to 12:30 p.m. in Wilson Hall, Bldg. 1.

What are we doing to encourage and sustain our children's interest in science? What is NIH's role in supporting this effort? How can NIH staff become involved? The seminar will explore novel and creative strategies that are being used to nurture kids' interest in science. Come hear about successful efforts and see demonstrations of some programs used in our schools. Participants will include staff from the Office of Science Education, university researchers and educators who are leading advances in science education. The forum is offered for ESA credit. ■

### HRDD Class Offerings

The Human Resource Development Division supports the development of NIH human resources through consultation and provides training, career development programs and other services designed to enhance organizational performance. For more information call 496-6211 or visit <http://LearningSource.od.nih.gov>.

IMPAC II Grants Management	11/6
Federal Budget Process	11/12-13
IMPAC II Peer Review Module	11/13
Introduction to NIH Property Management	11/13-14
NIH Retirement Seminar—CSRS	11/13-15
Introduction to MS Excel 2000	11/14



*Working the Gold Mine***Wilcox Still Finding Nuggets After 20 Years****By Colleen Chandler**

It's not your typical gold mine, but it's a gold mine nonetheless. And NIEHS' Dr. Allen Wilcox has been discovering gold nuggets in this mine since he began collecting data some 20 years ago.

The gold found here, though, is liquid—30,000 little jars containing urine samples from 221 women who in the early 1980s hoped to become pregnant. The institute had to build a walk-in freezer to hold all the samples.

The Early Pregnancy Study entailed collecting urine samples from women going off birth control to get pregnant. Researchers collected samples and other data from November 1982 until July 1986, going to the women's homes every week to swap full jars with empty ones, and replace completed survey forms with blank ones. The

data collected has become fodder for 40 papers and book chapters over the last two decades.

It took 3 years to finish the first batch of urine assays. A second batch has since been completed, and a third one is planned.

The study utilized local women, located through posters and ads in local newspapers. The best response, Wilcox said, came from the *Village Advocate*, a Chapel Hill, N.C., shopper popular for its garage-sale ads.

The sample jars were distributed to participants in small boxes. Since seven jars—one for each day of the week—did not fit snugly into the boxes, researchers came up with the idea of adding an extra jar, with two jars for every Monday. Lo and behold, the beginnings of the gold mine.

Since researchers wanted to be able to measure pregnancies that were lost very early after conception, the trick was to begin collecting samples from women before they even became pregnant. To see how hard it was to be consistent in providing the samples, Wilcox subjected himself to the same daily regimen for 3 months.

"I missed 5 days out of about 100...The average woman in our study missed only 2," Wilcox said.

Clarice Weinberg collaborated with Wilcox and Donna Baird on the Early Pregnancy Study, which she said was and is "a marvel of synergistic interaction."

"He was able to keep track of the details of the enormous EPS undertaking, to prove that such a study can be done, to keep the staff committed and enthusiastic and at the same time not lose sight of the big-picture science issues we needed to think about. Somehow we also had a lot of fun doing it."

Weinberg said Wilcox has a terrific sense of humor and recalls that during the study, he was affectionately dubbed "The King of Pee"—a designation that came with a crown of little vials of yellowish liquid.

In July 1988, Wilcox' research made the cover of *Newsweek* magazine. Among their findings, researchers were able to show that the specific hormone that indicates pregnancy could be detected just 9 days after conception. They found that 22 percent of the pregnancies ended before women even knew they were pregnant, while another 11 percent ended in miscarriage a little later. In all, these data miners discovered, one third of pregnancies were lost before birth.

Most recently, an article from this team published in the *Journal of the American Medical Association* in October 2001 showed that home pregnancy tests may not be able to detect pregnancy as early as their advertisers claim. With more than \$200 million of these kits sold annually in the U.S. alone, the researchers' latest findings have been widely cited.

But that is not the only research in the pipeline for Wilcox. A 6-year study of cleft lip and palate is concluding in Norway, which has one of the highest cleft rates in the world. Researchers are looking at agricultural and other sources of pollution as possible environmental causes that may interact with genetic factors. Questionnaires and biological samples were collected for the 600 babies with clefts and their parents, as well as for 800 healthy control babies and their parents.

Wilcox came to NIEHS in 1979, right after the pollution of the Love Canal became common knowledge. This was a time when reproductive effects of pollution had become a hot topic for the American public. One of the first noticeable effects of Love Canal was increased miscarriage in women who lived near the toxic dumpsite in New York.

NIEHS, with its mission of studying environmental agents and disease, was the perfect place for the young researcher who already had an interest in reproductive issues. He describes NIEHS as a land of "freedom and opportunity" for a young investigator.

"It was a place where I could do what I wanted and still fit with the needs of the institute," Wilcox said. NIEHS provided the stability to focus and build a research program without having to worry about funding. "And, I'm glad to say, it's still a great work environment today."

Weinberg described Wilcox as a "an incredibly talented person—both a brilliant and thoughtful epidemiologist and a warm, funny and compassionate person" who has touched the lives of many people in so many ways. ■



Affectionately dubbed "The King of Pee" during the Early Pregnancy Study that included the collection of 30,000 urine samples from women who went off birth control to get pregnant in the early 1980s, Dr. Allen Wilcox has published more than 40 papers and book chapters based on data from the samples. The women who participated in the study contributed photos of children they conceived during the study and presented Wilcox with a collage of those photos. Also visible is the July 1988 issue of *Newsweek* magazine featuring a cover story on Wilcox's research.





An alumni reunion to celebrate the first 5 years of the Clinical Research Training Program (1997-2002) was held at the Cloister the weekend of Oct. 4-6. Attendees included (above, from l) Dr. Charles A. Sanders, chairman of the board of directors, Foundation for the NIH; Dr. Barbara A. DeBuono, Pfizer Pharmaceuticals Group (supporter of CRTP through the FNIH), and Dr. Frederick P. Ognibene, director of CRTP, who works in the Clinical Center's critical care medicine department.

Also attending were 60 medical students, residents and fellows who flew in post-call, from rotations in the ICU, from vacations and on the tail of Hurricane Lili to reunite with mentors and tutors from NIH. An academic program of scientific updates on Saturday included lectures by Dr. Anthony Fauci, Dr. Andrew von Eschenbach, Dr. King Li, Dr. Judith Rapoport and Dr. Griffin Rodgers, as well as an ethics panel headed by

Dr. David Wendler of the CC. The keynote speaker at the Saturday dinner, Dr. David G. Nathan (l), president emeritus, Dana-Farber Cancer Institute and Robert A. Stranahan distinguished professor of pediatrics at Harvard Medical School, addressed "Clinical Research: Past, Present, and Future." In his welcome to the returning CRTP fellows, NIH deputy director for intramural research Dr. Michael Gottesman quipped, "If I am one of the founding fathers of CRTP...then you are all my children."

### Native American Heritage Month Program Set

All employees are invited to attend the NIH Second Annual American Indian and Alaska Native Heritage Month Program on Thursday, Nov. 21 from 11:30 a.m. to 1:30 p.m. in the main auditorium of the Natcher Conference Center, Bldg. 45. Opening remarks will be given by NIH director Dr. Elias Zerhouni. Keynote speaker A. Paul Ortega, a traditional healer from the Mescalero Apache Tribe, will address the theme of this year's program, "Embracing Traditions for a Brighter Future: A Bridge to Scientific Research." For more information, contact Frank GrayShield at 594-2373 or William Reeves at 435-1203. Sign language interpreters will be provided. For other reasonable accommodation, call Michael Chew at 402-3681 or by Federal Relay Service (TTY) 1-800-877-8339. ■

### CIT Computer Classes

All courses are on the NIH campus and are given without charge. For more information call 594-6248 or consult the training program's home page at <http://training.cit.nih.gov>.

LocusLink Quick Start	10/30
Creating Presentations w/PowerPoint for Mac	10/30
.NET for Developers	10/30-31
Writing for the Web	10/31
Intermediate FileMaker Pro 5	10/31
Introduction to FrontPage 2000	11/1
Practical Web Page Development for NIH Researchers	11/1
Avoiding Pitfalls in Statistical Analysis	11/1
Statistical Analysis of Microarray Data	11/4
Creating Presentations w/PowerPoint for PC	11/4
Data Warehouse Orientation	11/4
SAS Day at NIH	11/5
Data Warehouse Query: Property Management	11/5
Genetics Computer Group (GCG) Sequence Analysis	11/5-7
Titan Transition - Where's My Keyword?	11/6
SAS Programming Fundamentals I	11/6-7
Basic Security for Unix Workstations	11/7
Data Warehouse Query: Human Resources Fellowship Payment	11/7
AFNI Hands-On: Transforming Datasets to Talairach-Tournoux Coordinates	11/8
Outlook 2000 Tips and Tricks	11/8
Hands-On PC Upgrading and Security	11/12
Budget Tracking	11/12
Data Warehouse Analyze: Budget & Finance	11/12
RACF on South and Titan Systems	11/13
Getting Started with GCG and Other Sequence Analysis on the Helix Systems	11/13
SAS Programming Fundamentals II	11/13-14

### Management Cadre Program Graduation

The NIH Management Cadre Program graduation ceremony was recently held at the Lawton Chiles International House. The newest MCP graduates from NIH are: Dr. Krishna "Balki" Balakrishnan, OD/OTT; Lisa Coronado, OD/RSC; Claire T. Driscoll, NHGRI; Marianne Glass Duffy, NICHD; Ricardo Gomez, OD; William Jirles, NIEHS; Dr. Dionne J. Jones, NIDA; P. Christine King, CC/DLM; Laina Ransom, NHLBI; Alison W. Reinheimer, NIAAA; Angela M. Magliozzi, NIAID; Lisa Strauss, NIAID; Corliss Taylor, OD; and Dr. Paula S. Strickland, NIAID.

The certificates were presented by Dr. Ruth Kirschstein, NIH deputy director, and Dr. Yvonne Maddox, NICHD deputy director and co-chair of the leadership development committee and Steve Ficca, NIH associate director for research services and co-chair of the leadership development committee. Kirschstein was the keynote speaker.

The 18-month program is designed to enhance career growth. ■

### Salzman Virology Symposium, Nov. 7

The third annual Norman P. Salzman Symposium Award in Virology will be made on Thursday, Nov. 7 at the Cloister. Presentations begin at 8 a.m. and the event ends at 12:30 p.m. Keynote speaker is Dr. Patricia G. Spear, Guy and Anne Youmans professor of microbiology and immunology and chair, department of microbiology and immunology, Northwestern University Medical School, whose topic is "Cell and Viral Determinants for Entry of Herpes Simplex Virus." Registration is free. For more information call Carla Robinson, 402-5311.



*Piecing it Together***NIEHS Group Focuses on Puzzle of Autoimmune Diseases**

Just behind heart disease and cancer, immune-mediated diseases are the third most common group of diseases in the United States today. Although they are becoming more and more prevalent, they are still mysterious to much of the medical community as well as the public.



*Collecting Pieces of the Puzzle—NIEHS has established the environmental autoimmunity group at the Clinical Center to begin piecing together the existing evidence and collecting new pieces of the puzzle. Members include (front, from l) Laura James Newton, Kakali Sarkar, Mehmooda Maeem, Lisa Rider and Tina Sanghvi. At rear are (from l) Adam Schiffenbauer, Bhanu Koneru, Fred Miller, Ejaz Shamim, Mark Gouley, Terry O'Hanlon and Rohanda Atkinson.*

Unlike heart disease and cancer, this group of diseases has not had much scrutiny and has not generated the same level of funding or interest among members of the scientific community.

Immune-mediated diseases encompass several hundred acquired disorders characterized by immune responses that cause pathology. The diseases are highly underdiagnosed and treatment is often substandard, said Dr. Fred Miller, director of the environmental autoimmunity group, or EAG, which is NIEHS'

first clinical research program at the Clinical Center.

Miller is obviously not one to shy away from a challenge. Even as a young doctor, he was intrigued by the complexity of autoimmune diseases. For nearly two decades he has been piecing together this complex puzzle. He and a core group of researchers have learned much about this perplexing group of disorders, but their hypotheses have generated a lot more questions in a field already riddled with them.

The EAG will apply a multi-dimensional approach to the old problems associated with systemic autoimmune disease.

Miller said maintaining national and international networks of collaborators optimizes use of existing clinical databases and other resources, and could prompt development and validation of more accurate environmental exposure assessment tools.

The EAG already has one study under way that focuses on childhood-onset myositis. Myositis is a chronic, incurable and potentially fatal disease that strikes adults and children, incapacitating them with muscle inflammation and weakness. There are an estimated 30,000 cases in the U.S. The average myositis patient has seen seven doctors before he or she is diagnosed, Miller said. The EAG is collaborating with NIDCR on a study that will examine the composition of calcium deposits in the skin of childhood myositis patients. In another study, the group is collaborating with NIAMS to study new

biologic therapies in adult myositis.

The EAG lab facilities in Bldg. 9 include sequestered environments for pre- and post-polymerase chain reaction testing to avoid contamination, a tissue-culture facility that includes a quantitative fluorescent microscope and a digital molecular imaging station.

Among the challenges Miller plans for the group is identifying individual elemental disorders that are commonly lumped together as a single autoimmune disease. Miller believes there are many such syndromes, and he says lumping them all together is like comparing apples and oranges.

He intends to begin separating the apples from the oranges. A proposed study in the early stages of review will recruit people with rheumatic disorders as well as a twin or other sibling who does not have disease in an attempt to understand why one developed disease and the other did not.

"We're just getting started on what will prove to be a long but exciting journey with many surprises along the way," Miller said.—Colleen Chandler



*Dr. Fred Miller*

**SDP Gets New Name, Added Features**

NIH customers and other HHS participants can now purchase certain hardware and other services at significant discounts thanks to CIT's recent expansion of its popular Software Distribution Project. SDP will continue to offer an extensive menu of discounted software titles.

To reflect this change, SDP has a new name—Information Systems Designated Procurement (ISDP), and a new web site address: <http://isdpcit.nih.gov/>.

New hardware and services include: BlackBerry handheld devices; iDefense security services; and Gartner research services.

Other recent additions to the program include SAS, SPSS and S-Plus statistical software programs and an open agreement with Peregrine Systems. Many more products and services will be added in the future.

ISDP will continue to take advantage of large volume purchasing agreements to provide significantly discounted software, hardware and services to its customers. Visit the ISDP web site for more information.