THE NIH RECORD

Still The Second Best Thing About Payday

Budding Young Scientists Aim For the Stars

By Kimberly C. Mitchell

Ever heard a 10-year-old kid describe the mechanics of jet propulsion? Or the principles behind refracted light? That's what some youngsters can do after spending 6 months in the Adventure in Science (AIS) program. From October to March of each year, these young scientists, ages 8 through 15, attend Saturday sessions on such varied topics as heart function,

Dr. Rebecca Hackett helps a student prepare to measure the uptake of water and nutrients through the root system of a plant.

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Symposium Pays 'Glowing' Tribute To Inventor Robert Bowman

By Deborah Noble

Two and a half years after his death, Dr. Robert L. Bowman, former chief of the NHLBI Laboratory of Technical Development, is being honored for his most influential invention, the AMINCO-Bowman spectrophotofluorometer (SPF), which popularized UV-visible fluorometry. A permanent exhibit in the Clinical Center opened recently with a day-long symposium on the instrument's modern research legacy.

Dr. Bowman

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HIGHLIGHTS

U.S. Department of Health and Human Services
National Institutes of Health

November 3, 1998
Vol. L, No. 22

Life, Death and Everything in Between

Research Festival 12 a Big Draw

It was as if some giant had grabbed the NIH campus by the corner up near the firehouse on Old Georgetown Rd. and tilted it so that everything slid helplessly toward the Natcher Bldg. Oct. 6-9 as the twelfth version of Research Festival (originally only a daylong event) drew many hundreds of NIH'ers to a ravishing feast of intramural science. For a 3-day stretch, Natcher and its environs were to science what Bethesda is to restaurants—a teeming smorgasbord of tasty possibilities.

NASA Administrator Daniel Goldin opens session on origins of life.

It became almost comical, after a day or two, to see literally hundreds of pre-, post- and postpostdocs fleeing the crowded morning plenary sessions for one of dozens of workshops held in various nooks and warrens within the sprawling Natcher complex. All adopted

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President Signs '99 Budget, Big Increase for NIH

As the *Record* went to press, President Clinton had just signed an omnibus spending bill for fiscal year 1999 that increases NIH's budget by 14.6 percent, or almost $2 billion. The total for NIH is $15.612 billion. A series of 6 continuing resolutions had enabled the agency to remain open during budget negotiations since Oct. 1. A more detailed budget story will appear in the Nov. 17 issue.

SRO for Prions

Nobelist Prusiner Draws Homecoming Crowd

Fifteen minutes before he was to take the podium to deliver NIA's annual Florence Mahoney Lecture on Aging on Oct. 14, neurologist Dr. Stanley Prusiner, last year's winner of the Nobel Prize for physiology or medicine, had drawn so large a crowd that people were turned away at the Masur Auditorium door.

Dr. Stanley Prusiner

Inside the hall, the atmosphere attained the sort of warmth NIH manages maybe half a dozen times a year. Precipitating conditions include a big-name visiting alumnus (Prusiner was a scientist in the heart institute from 1969 to 1972—a PHS assignment he elected "instead of

SEE **PRUSINER**, PAGE 4

"Paperless" Council Meetings—The National Advisory Dental Research Council has begun conducting paperless meetings by having members refer to council materials online, essentially eliminating 10 books containing 500 pages of summary statements and other printed material. At the meetings, each council member is supplied with a laptop computer, part of a specially created temporary network that allows independent access to the Internet. By accessing a secure Web site called the NIDR Electronic Council Reference Page, members can retrieve the agenda, concept clearances, en bloc voting list, the NIH Electronic Council Book, and other materials. Summary statements are also available just by clicking on the corresponding project number from the en bloc list. The site also eliminates the need to mail printed materials prior to the meeting.

Day Care Board Seeks Nominations

Since its inception in 1992, the NIH day care oversight board has sought to: ensure that day care programs and access to day care facilities are fairly administered, identify areas of employee concern and recommend solutions and serve as a forum for discussion of NIH day care issues.

The board is seeking volunteers to serve for a 3-year term. Membership is open to federal employees who work on the NIH campus or off-site facilities. Currently, the board meets monthly for 2 hours. Attendance at these meetings is critical. Those interested in serving may self-nominate for membership by sending a letter cosigned by their supervisor to the Director, DSFM, EPS/Suite 200. Include your name, NIH mailing address, IC, branch, section, job title and a brief biographical sketch. Also, describe why you wish to serve on the board and specify any special concerns or interests related to day care.

Membership is an official duty and may be included as a noncritical element on an employee's performance plan. Members are selected to be representative of the diverse NIH population. Voting members may not have a financial interest in NIH-sponsored day care, except that they may have a dependent enrolled in NIH day care programs.

For more information, contact Chris Steyer, 496-0436 or Carol Wigglesworth, 402-5913. R

Eleven Named AAAS Fellows

Eleven NIH'ers are among the 283 scientists recently elected by their peers to the rank of fellow in the American Association for the Advancement of Science. They will receive a certificate and rosette pin at the AAAS annual meeting in Anaheim, Jan. 23, 1999.

The new AAAS fellows from NIH are: Drs. George W.A. Milne, Ira Pastan and Stephen J. O'Brien of NCI; Dr. Bernard Moss, NIAID; Dr. Anil B. Mukherjee, NICHD; Drs. Martin F. Gellert and David R. Davies, NIDDK; Dr. Story C. Landis, NINDS; Dr. Enoch Gordis, NIAAA; Dr. Lawrence E. Shulman, NIH/OD; and Dr. Alexa T. McCray, NLM.

The AAAS, founded in 1848, is the world's largest federation of scientific and engineering societies, with over 282 affiliated societies and 144,000 members. The "fellows" distinction began 124 years ago in 1874, and recognizes "efforts toward advancing science or fostering applications that are deemed scientifically or socially distinguished." R

Health Benefits Fair, Nov. 24

In conjunction with the 1998 Federal Employees Health Benefits Program Open Season, which runs from Monday, Nov. 9 through Monday, Dec. 14, the Retirement and Benefits Service Center is sponsoring a Health Benefits Open Season Fair. The fair will be held in Wilson Hall, Bldg. 1 on Tuesday, Nov. 24 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 about their 1999 benefits. R

Have Work-Related Pain?

Do you have work-related pain in your neck, shoulders, arms or hands? Do you work in an office environment, and are you between ages 21-65? If so you may be eligible to participate in a study of a new approach to reduce symptoms and improve function. Study involves six visits to Georgetown University Medical Center and is free. You will also receive up to $100 for participating. If interested, call (202) 687-3076.

NIH RECORD

Published biweekly at Bethesda, Md., by the Editorial Operations Branch, Division of Public Information, for the information of employees of the National Institutes of Health, Department of Health and Human Services. The content is reprintable without permission. Pictures may be available on request. Use of funds for printing this periodical has been approved by the director of the Office of Management and Budget through Sept. 30, 1999.

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♻ *The Record is recyclable as office white paper.*

NIH Marks Quality of Work Life Week

It's been over a year since Secretary Shalala kicked off the HHS Quality of Work Life initiative, and over a year since NIH sponsored a Quality of Work Life (QWL) week devoted to raising awareness about work and family life issues. From Nov. 16-20, the spotlight will be on work and family life issues again when NIH hosts its second Quality of Work Life Week.

"The purpose of the first NIH Quality of Work Life week was to introduce the NIH QWL strategy and to elevate issues that employees face trying to balance work and personal responsibilities," said Marvene Horwitz, chair of the NIH QWL committee. "This year, the QWL week will not only feature activities that highlight the achievements of the past year, but also will give NIH employees a chance to learn how they can make a difference in their communities."

The week will begin with a Volunteer Fair on Monday, Nov. 16 from 10 a.m. to 2 p.m. in the Visitor Information Center at the Clinical Center. Over 30 agencies will be on hand to provide information about their organizations and volunteer opportunities. "We have selected a quote from Marian Wright Edelman, president of the Children's Defense Fund, as the fair slogan," said Corliss Taylor, director of the NIH Work and Family Life Center and chief organizer of the fair. "It is 'Service: The rent we pay for living on this planet.' We feel this quote captures the spirit of the fair and the week."

The week's other events include a simulcast of Secretary Shalala's Conference on Family Friendly Work Practices on Tuesday, Nov. 17, which will be shown in Bldg. 31, Conf. Rm. 7 from 9 to 11 a.m. Representatives from NIH will be participating in the secretary's conference, sharing the NIH experience with implementing family-friendly work practices such as alternative work schedules and flexi-place work arrangements. On Wednesday, NIH will host a reception from 10:30 a.m. to noon in Wilson Hall, honoring the most recent recipients of the NIH QWL Award. Dr. Ruth Kirschstein, NIH deputy director, will give opening remarks, and refreshments will be served. Finally, on Thursday, the NIH Work and Family Life Center will commemorate its 1-year anniversary by hosting an open house from 10 a.m. to 2 p.m. The center is located in Bldg. 31, Rm. B3C15. Once again, Kirschstein will speak at 11 a.m.

For more information about the NIH Quality of Work Life week and other QWL initiatives, visit the QWL home page at: http://www1.od.nih.gov/ohrm/qwl/default.

NICHD deputy director Dr. Yvonne Maddox (r) gives remarks at the NIH Management Cadre Program graduation ceremony held at the Lawton Chiles International House on Sept. 17. Administered by the Division of Workforce Development and the leadership development committee, MCP is designed to train highly motivated NIH employees currently at the GS 12, 13 or 14 level to help meet future leadership staffing needs at NIH. The 18-month program provides a combination of on-the-job training, academic courses, and selected assignments to prepare individuals to compete for advancement and/or career changes to leadership positions that are primarily administrative or managerial. Valeria Shropshire (below, c) a member of the MCP class of 1998, traveled from NIEHS's campus in North Carolina to receive her certificate. Congratulating her are Steve Benowitz, director of NIH's Office of Human Resources Management, and Dr. Ruth Kirschstein, NIH deputy director.

The 1998/99 MCP is now recruiting employees at grades 12, 13 or 14, who have been in a career or career-conditional full-time appointment for at least 1 year prior to Dec. 4, 1998. Application packages are available online at http://www-urc.od.nih.gov/dwd/mcp or by interoffice mail (to request a mailing, call DWD at 496-6211). Completed applications are due by close of business Dec. 4. For more information, contact Pauline Irwin, 402-3385 or email irwinp@odepsm1.od.nih.gov.

Designer Mice Offer New Look At Osteoporosis

Scientists at the National Institute of Dental Research have produced genetically engineered mice that mimic many of the symptoms of human osteoporosis. The mice are missing the gene that codes for a bone protein called biglycan. The animals form less bone than their normal counterparts, and eventually develop bone pathology similar to that observed in osteoporosis patients.

The animal model is significant in two respects—it identifies a gene that may be a risk factor for developing osteoporosis, and it provides a new testing ground for potential osteoporosis therapies. The study appeared in the September issue of *Nature Genetics*.

Osteoporosis is a disease marked by gradual bone loss and affects about 25 million Americans, 80 percent of whom are women. Postmenopausal women are particularly susceptible because diminished estrogen levels speed up bone loss.

PRUSINER, CONTINUED FROM PAGE 1

fighting in Southeast Asia") speaking on a hot topic, and the proud reunion of senior staff (NIH deputy director Dr. Ruth Kirschstein welcomed Dr. Joe Gibbs of NINDS—who helped lay the foundation for Prusiner's groundbreaking studies—with an open-armed hug) who played a role in the speaker's success.

At precisely 3 p.m., Prusiner, bearing a tall diet cola and sporting a thick cumulus of white hair, walked into the hall with NIA director Dr. Richard Hodes who, upon arriving at the reserved seats down front, joked to a colleague along the lines of, "And you thought we'd have trouble filling the hall?"

Prusiner (l) and NIA director Dr. Richard Hodes share a light moment before the Mahoney Lecture on Oct. 14. Hodes reported that the lecture's namesake, NIA benefactor Florence Stephenson Mahoney, is approaching her 100th birthday in April.

PHOTOS: ERNIE BRANSON

Prusiner then launched into a talk—"Prion Biology and Diseases: A Saga of Skeptical Scientists, Mad Cows, and Laughing Cannibals"—that liberally credited his mentors, chiefly NHLBI's Dr. Earl Stadtman and NIMH's Dr. Louis Sokoloff, as well as a host of current NIH scientists including Drs. Ellis Kempner, Reed Wickner, Bruce Chesebro, Byron Caughey and others whose work is advancing the field.

"I consider NIH my second scientific home," said Prusiner, now professor of neurology at the University of California, San Francisco. He said he received "a really great education" at Stadtman's lab in Bldg. 3 that included three major lessons: "First, Earl taught me how to do simple experiments... then, when you get a result, you have to prove it five, six, seven, eight different ways, not just one—that's the second thing Earl taught me to do. Third, I learned to write scientific papers...The challenge is to delineate not only what you know—everyone does that—but also what you don't know. Explicitly stating what is uncertain allowed me to describe [the causative agent in scrapie]."

Ironically, Prusiner, whose prizewinning studies of prions (a new class of pathogens that replicate without DNA) was built on work done at NINDS by Gibbs and fellow Nobel laureate Dr. Carleton Gajdusek (who studied kuru and scrapie), says he "learned nothing about kuru at NIH" during his tenure as a clinical associate. "That's because Joe Gibbs and Carleton Gajdusek worked in Bldg. 36, and I was in Bldg. 3, which are a very great distance apart. I guess that's why I didn't know about their work." That comment drew chuckles from a crowd recently saturated in the campus-wide Research Festival.

Self-deprecating, low-key and funny, Prusiner presented a dense analysis of prion activity at the molecular level, positing five sites of possible treatment "interdiction" for a deadly pathogen that he first saw evidence of in a 60-year-old woman back in 1972. Those who missed his talk on Oct. 14 were able to see a rebroadcast on video Oct. 21 in Masur that included everything but the warm blush of the crowd.—**Rich McManus**

Osteoporosis Resource Center Funded

The NIH Osteoporosis and Related Bone Diseases~National Resource Center, which will amass, develop and disseminate information on a variety of bone disorders, was funded recently under a cooperative agreement with a consortium of three voluntary organizations by the National Institute of Arthritis and Musculoskeletal and Skin Diseases and six other agencies within HHS.

The agreement maximizes the government's osteoporosis and related bone disorder outreach efforts by linking with those of the National Osteoporosis Foundation, the Paget Foundation for Paget's Disease of Bone and Related Disorders and the Osteogenesis Imperfecta Foundation. In addition to NIAMS, partners include NICHD, NIDR, NIEHS, NIA, the Office of Research on Women's Health and the HHS Office of Women's Health. First-year funding of this 5-year agreement totals $600,000.

"With the 'graying' of our population, we may be staring at a steep rise in hip and other fractures," said NIAMS director Dr. Stephen Katz. "Better diagnosis, treatment, and especially prevention of osteoporosis are clearly needed. The resource center's educational potential in this task is enormous."

The center, headquartered in Washington, D.C., was first established 5 years ago in response to congressional interest, and will be led by Dr. Bess Dawson-Hughes of Tufts University, a bone endocrinologist and osteoporosis expert. It will carry out a national educational and information program. The center can be reached at (202) 223-0344.

FAES Concerts Set, Nov. 8, 15

The FAES Chamber Music Series will present the Vienna Virtuosi at 4 p.m. on Sunday, Nov. 8 in Masur Auditorium, Bldg. 10. On Sunday, Nov. 15 at the same hour and venue, FAES presents Trio di Parma. Tickets for each concert are $20 at the door; $10 for students and fellows. For more information call 496-7975.

Thrift Savings Plan Open Season

The Thrift Savings Plan is having another open season from Nov. 15, 1998, through Jan. 31, 1999. FERS employees who were hired before July 1, 1998, 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 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 leaflet, which will be distributed to eligible employees by their IC personnel office. More detailed information is provided in the *Summary of the Thrift Savings Plan for Federal Employees* booklet and is available in your IC personnel office. R

Tool Available for Selecting Health Plan

Decision Innovations, Inc., a health care technology company, has created a Web-based decision support tool for federal employees selecting health plans. NIH's Office of Human Resource Management, Work and Family Life Center, and OPM have joined forces to acquire access to PlanSmartChoice, which will be available to all federal employees in five locations: Maryland, Pennsylvania, Virginia, the District of Columbia, and North Carolina.

PlanSmartChoice allows users to select health plan features and benefits that are important to them. The program then asks the user to rate these attributes and make some trade-off decisions. As the user goes through this exercise, the software builds a profile of that person's needs and preferences. It then matches this "preference profile" to all plans available in that individual's zip code. PlanSmartChoice shows the users every plan available and, in priority order, tells which plans best match their needs. The tool then allows the user to compare any available plans in a matrix.

PlanSmartChoice will be available to NIH'ers during Open Season through the www.OPM.gov/insure Web site, under the button "Help Me Choose a Health Plan." It will also be available directly through www.PlanSmartChoice.com/FEHBP. R

Wednesday Afternoon Lectures

The Wednesday Afternoon Lecture series—normally held on its namesake day at 3 p.m. in Masur Auditorium, Bldg. 10—switches to Monday on Nov. 9 when Dr. James Watson gives the first Stetten Museum/NHGRI History of Genetics Lecture, "From the Double Helix to the Human Genome Project." Time remains 3 p.m., as does venue, Masur. Watson is president, Cold Spring Harbor Laboratory, New York.

A special Thursday lecture will be held Nov. 12 at 3 p.m. in Masur when Dr. Philip A. Beachy discusses "Hedgehog Protein Biogenesis and Signaling." He is professor, department of molecular biology and genetics, and HHMI associate investigator at Johns Hopkins University School of Medicine.

On Nov. 18, Dr. Carol L. Prives, professor, department of biological sciences, Columbia University College of Physicians and Surgeons, gives the NIH Director's Margaret Pittman Lecture: "Signaling to the p53 Tumor Suppressor Protein."

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

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 biweekly 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. 2, 1999.

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 rescheduled in writing. This year, your use or lose leave must be scheduled in writing not later than Saturday, Nov. 21.

Should you or your supervisor have questions regarding use or lose leave, contact your human resource office or other official designated by your institute or center. R

Dr. Arnold Revzin has recently become a scientific review administrator at the Center for Scientific Review. He is in the biophysical and chemical sciences initial review group, and will be involved with reviewing program project, research resource, and instrumentation applications, along with small business innovation research grant proposals. He spent the past 23 years at Michigan State University, where he advanced through the ranks to full professor in the department of biochemistry. His research specialties are in the area of the physical biochemistry of DNA-protein interactions, and he is well-published in peer-reviewed journals. While at Michigan State he developed the "electrophoretic mobility shift assay," which is now widely used in studies of many nucleic acid-protein systems.

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postures of predicament as they scanned the glossy 83-page menu of choices, brows knit in concentration. What if, by chance, you were interested in both "Characterization of Biologic Mediators by Spectroscopic Methods" and "Gene Regulatory Proteins," both fighting for your attention from 10:30 a.m. to half past noon on the festival's last day? Attendees sometimes solved the problem by flitting from room to room, finding some darkened by slide projections, others hampered by misbehaving sound systems. By the third and final day of the fest, technicians handling lights and sound were no longer masking their frustration as they bustled to please lengthy rosters of presenters.

The NIH Chamber Singers (above) entertained in the picnic tent on the first day, followed by Scott Durum's rock trio from NCI on day 2, and the Paulverizers, led by NIMH's Charles Havekost, on day 3. It was an all-intramural music fest.

PHOTOS: ERNIE BRANSON, RICH MCMANUS

The lead topics themselves could produce anxiety. The plenary sessions kicked off Wednesday, Oct. 6 with speculations on cosmology and the origins of life, introduced by NASA Administrator Daniel Goldin. The final plenary session Friday was on apoptosis—programmed cell death—and included detailed description of molecular "death domains." Concluding a discussion of ALPS—autoimmune lymphoproliferative syndrome—NIAID's Dr. Stephen Straus quoted Ecclesiastes: "For everything there is a season, and a time for every matter under heaven: a time to be born, and a time to die."

But that sentiment, combined with leaden skies for two of the festival's three days, did nothing to dampen the enthusiasm of attendees, one of whom, NIH director Dr. Harold Varmus, exited the apoptosis session beaming and waving, invigorated, not bedimmed, by his encounter with the biological enforcers of cells' demise.

A symphony of gestures and expressions helps convey the content of the posters in the series of photos below and at right.

Teetering, perhaps unironically, between the opening session on life's cosmic origins and the final, apoptotic (if not apocalyptic) session, was "Insight from the Bedside," which offered hope for the still-living, including insights into AIDS pathogenesis and description of a new vaccine to prevent severe diarrhea in infants and youngsters.

For those addled by the possibilities, there were massive tents outside the Natcher center offering diversions of a sort: on the southeast side were two tents housing the Technical Sales Association's annual exhibit of scientific equipment, and to the northwest sat a picnic tent, including a stage where some intramural performers entertained.

The TSA tents were a swarming bazaar of scientific supplies presented by a slew of manufacturers, each offering such freebies as dishes full of hard candy, pens, coffee, mousepads, drink cups, and raffle chances on items ranging from cell phones to Polartec fleece outerwear. Almost everyone trekking back to their labs on campus after a trip to Research Festival bore a plastic shopping bag stuffed with giveaways.

Seventeen-month-old Karl Philip Mellen was one of the younger attendees at poster day. His mom is NIAID's Kimberly D. Dyer.

Organizers called the twelfth festival a success and are already critiquing their efforts in preparation for lucky 13, a 3-day swath of fall 1999 wherein the Yellow Sheet gets carried, once again, to the 10th power.—**Rich McManus**

BOWMAN, CONTINUED FROM PAGE 1

Bowman's widow, Alice, and family members attended the symposium, part of NHLBI's yearlong 50th anniversary celebration.

Two of the symposium's organizers, Drs. Robert Berger and Jay Knutson, worked closely with Bowman on research instrumentation design in NHLBI intramural laboratories. The third, NIH historian Dr. Victoria Harden, interviewed Bowman before his death and conducted the historical research for the exhibit. Harden is also director of the DeWitt Stetten, Jr., Museum of Medical Research, which cosponsored the exhibit and symposium with NHLBI.

"The story of the SPF reveals the serendipitous path of medical research," said Harden. The spectrophotofluorometer was originally designed to quantitate antimalarial drugs, but its commercialization in the 1950's has led to innumerable contributions in protein and DNA research. Harden added that one of her most important resources for the historical exhibit was Bowman's early notes on instrument design. "Hold onto your laboratory notebooks," she cautioned symposium attendees.

In his keynote address, Dr. Robert Berliner, former NIH deputy director for science, explained how Bowman came to invent the SPF. Although Bowman had served in the medical corps during World War II, he was more interested in designing and building instruments to solve research problems. He kept a full-scale machine shop in his basement at home and had a great appreciation for the hidden potential of spare parts. In later years, his love of salvaged equipment led to the acquisition of a Norton bomb sight and the inclusion of periscope prisms recovered from army tanks in some of his spectroscopic inventions.

Just after the war, Bowman joined Dr. James Shannon's research team, which included Berliner, at Goldwater Memorial Hospital in New York. The SPF grew out of the laboratory's wartime research on antimalarial drugs. One colleague, Dr. Bernard B. "Steve" Brodie, was using the Coleman filter fluorometer to measure quinine concentrations in plasma, but many candidate drugs were undetectable in the visible region. A few had been reported to fluoresce in the ultraviolet, but at the time, commercial UV fluorometers were nonexistent, and even quartz optics were scarce. Bowman, Brodie, and Sidney Udenfriend decided to build a practical fluorometer that would span the UV and visible regions. When Shannon moved to NIH, they followed, and in the early 1950's, Bowman designed the prototype.

The standard visible-range fluorometer demanded a separate filter for each wavelength of interest. Such a design would be prohibitively expensive for UV work, because no one knew which wavelengths were critical. UV grating monochromators had just come on the market, but they cost $5,000 apiece—about $100,000 in today's money. Shannon originally denied the purchase, but later relented and allowed Bowman to buy just one of the two he needed. Undaunted, Bowman contacted sources in his network of instrument manufacturers and junk shop scavengers back in New York. They sent him a Steinheil quartz prism spectrograph that had been "liberated" from Germany during the war, and he used parts of it to build the second monochromator at considerably lower cost than the grating.

Other wartime instruments also found their way into the SPF. Bowman chose a xenon arc lamp from a German searchlight as the source because it provided a nearly continuous spectrum far into the UV region. Photomultiplier tubes, modified during the war as high-noise generators to jam enemy radar, had originally been designed for high-sensitivity, low-noise light amplification. When substituted for the more common vacuum tubes, they greatly enhanced UV fluorescence detection.

Attending the ribbon-cutting ceremony for the AMINCO-Bowman Spectrophotofluorometer exhibit outside Lipsett Amphitheater in Bldg. 10 are (from l) Alice Bowman, widow of Dr. Robert L. Bowman; former NIH deputy director for science Dr. Robert Berliner; NHLBI Division of Intramural Research director Dr. Edward Korn; NHLBI deputy director Dr. John Watson; and NIH Historian and DeWitt Stetten, Jr., Museum of Medical Research director Dr. Victoria Harden.

The optics were stuck to a benchtop with wax and used successfully for in-house experiments. Soon the SPF attracted the attention of the American Instrument Co. (AMINCO), which cooperated with NIH to bring it into commercial production and marketed it successfully to laboratories nationwide.

Since then, new optical configurations and fluorescent dyes, coupled with advances in computing, have spawned an incredible variety of UV-visible fluorescence techniques. Symposium speakers presented recent work, including time-resolved spectrofluorometry, which permits observation of molecular flexibility and interactions between proteins, membranes and DNA molecules; and two-photon fluorescence microscopy, which provides sharp confocal images and allows 3-D optical reconstruction of cell contents. One of the more eye-popping new developments is the use of green fluorescent protein (GFP) gene expression in transgenic animal models as an internal fluorescent "tag" for a protein of interest. Production and migration of the GFP-coupled protein can be monitored in tissues and cells, and as an added benefit, GFP gene splicing makes it easy to tell transgenic and control mice apart—the transgenic mice turn bright green under a UV lamp.

Perhaps what survives most in the memories of Bowman's successors and former students is his cheerful hands-on approach to analytical problems. Knutson remembers a typical incident. "I was hired by Dr. Bowman and Ray Chen as a staff fellow in 1984. A few weeks after I arrived, Dr. Bowman appeared in my lab with an imposing piece of optical equipment mounted in a large aluminum box. It was secured by dozens of screws, all covered with a label that said "DO NOT OPEN! NO USER SERVICEABLE PARTS INSIDE." He asked me what that meant. I paused a moment, then declared "We open it!" He straightened up with a big smile and proclaimed, "You pass the test! We'll get along just fine." ■

ADVENTURE, CONTINUED FROM PAGE 1

electricity and magnetism, optics and telescopes, human and animal anatomy, DNA and genetics, and microscopic life.

The droves of excited young participants who come to these Saturday workshops have already shown evidence of a burgeoning interest in scientific careers. Margaret Dunham, a 12-year-old who has participated in the program for the past 2 years, claims it has had a tremendous impact on her career plans. "I didn't know much about science before I started; my friends and I wanted to be actors like in the movies," she says. "Then I started AIS and it shifted my goals. It made science appear fun to me for the first time."

Originally conceived in 1973 by Dr. Ralph Nash, a NASA scientist who wanted to make science more exciting for his young daughter, the Adventure in Science program attempts to give science new life for students by allowing them to participate actively in science demonstrations and experiments. The program has grown phenomenally from its modest beginnings in Nash's basement, and now includes approximately 180 students who take classes concurrently at four sites every Saturday. Three of the sites are devoted to students ages 8 through 11: NIH, Bechtel in Gaithersburg, and Comsat in Clarksburg, Md. The fourth site, the National Institute of Standards and Technology in Gaithersburg, is for students ages 12 through 15. The NIH site enrolls 30 to 50 students each year.

Many see the program as a much-needed tool to raise students' interest and achievement in science. The hands-on structure enables young people to experience science firsthand and make their own discoveries. "These sessions need to be 'minds-on' and not just hands-on," says Dr. Edward Max, who manages the NIH site along with Blanche O'Neill. "We want to promote lessons that actively involve the kids' thinking."

Tonya Torres and Yasmeen Brown measure the vitamin C content of sample foods and beverages.

By engaging children's minds in scientific inquiry, the program can provide just the sort of impetus that many educators believe may begin to address the deficiencies in U.S. students' performance in the sciences. According to the results of the Third International Mathematics and Science Study, U.S. students' knowledge in the physical and life sciences declines rapidly as they progress from 4th through 12th grade. The study suggests there is a need to find better ways to sustain young people's interest in science as they advance through secondary school.

Kristen Seaman learns how to pipet DNA with a little help from Dr. Kathy Kelly.

Many people believe the AIS program and others like it have the potential to transform textbook memorization assignments into vibrant experiences of discovery, and to make kids want to pursue science as a career or at least as fun exploration. One such believer is Dr. Bruce Fuchs, director of the NIH Office of Science Education. "One of the most important aspects of the program is that it can have an impact of immense proportions on kids, since many of them do not perceive science as fun," he says. "The neat thing about AIS is that each Saturday kids get together with adults who are engaged and excited about science. The adults are having fun with their work and the kids are reaping the benefits."

Paul Su and Sean Kelly test principles of architectural physics using straws, rubber bands and paper clips.

Many of the AIS teacher-volunteers agree that the best part of teaching is the opportunity to work with enthusiastic, highly motivated students who are eager to learn. "For me the best part is seeing kids get the concept of how a chemical assay works," says Dr. Steven Bauer, a scientist at the Food and Drug Administration who has taught in the program for about 5 years. Bauer, whose class teaches how to measure the amount of vitamin C in foods and beverages, sees the program as an excellent opportunity for young people to gain practical science and math skills. "The students like it because it's hands-on, they get to measure the amount of vitamin C in things like orange juice and HiC, and they learn how to do quantitative analysis and look at data from their experiments."

Dr. Allen Barnett, a physicist at the National Institute of Neurological Disorders and Stroke, voices a similar sentiment: "The AIS classes excite kids' interest in science, get them interested and make them ask questions about the world around them." He teaches two classes: one in magnetic resonance imaging and the other on polarized light. And while he finds the experience enjoyable, he is sometimes plagued by the challenges and limitations of being a volunteer educator. "I enjoy doing it, but the major difficulty is my inexperience with kids, not

knowing what to expect them to understand at different levels," he explains.

Most volunteers overcome such obstacles through experience and find that the rewards of teaching in the AIS program outweigh the occasional challenges. Dr. Christine Kozak, a section head at the National Institute of Allergy and Infectious Diseases, teaches a course on telescopes and optics. She considers the program's greatest asset to be its impressive array of volunteer teachers. "The teachers have a wide range of interests and expertise," she says. "I love to sit in on other classes when I'm not teaching my own. I think the teachers make the subjects interesting."

The classroom is not the only place students get exposed to outstanding scientists and researchers. Each year, the program culminates with a Parents' Day/student recognition event in mid or late March, when the students present their projects to parents and invited guests. This is their time to shine: the young scientists astound their audience with creative visual displays and in-depth descriptions of complex scientific mechanisms that often boggle the minds of adults. Another highlight of the event is the keynote address given by a prominent scientist in the physical, life or Earth sciences. In previous years, guest speakers have included two Nobel Prize winners in physics—Clifford Shull and William Phillips, who won the 1994 and 1996 prizes respectively, and Joel Achenbach, a former staff writer for the *Washington Post* who is best known for his "Why Things Are" column.

Margaret Dunham gets up close and personal with a live chick embryo that has just been released from an egg.

Becoming an AIS volunteer instructor is easier than one might think. Prospective instructors must meet only two criteria: they must be able to communicate the fun and excitement of science, and they must enjoy working with children. AIS volunteers need not be scientists or even NIH employees.

"Science didn't appeal to me at first because it was all textbooks, and textbooks are just a weight in my backpack," Margaret Dunham explains. "Now it's something real that I can use, and I enjoy it." The fact that AIS could change her mind, and the minds of other young people like her, makes this a program that might be worth checking out.

A variety of volunteer opportunities are available. If you are interested in finding out more about the Adventure in Science program or would like to become a volunteer, call Dr. Edward Max at (301) 827-1806.

CIT Courses and Seminars

All courses are on the NIH campus and are given without charge. For more information call 594-3278 or consult the training program's home page at http://livewire.nih.gov.

Year 2000 Concerns for Researchers and Clinicians	11/5
NIH Data Warehouse Travel Mini Session	11/5
Parachute Startup for Windows 95/Windows98	11/6
LAN Services and Email from Parachute	11/6
NIH Data Warehouse Procurement & Market Requisitions Mini	11/6
DB2 and Oracle Data Definition, Control, and Advanced Manipulation	11/9-10
WIG - World Wide Web Interest Group	11/10
PC Hardware Concepts and Usage	11/12
Troubleshooting PC Hardware	11/12
NIH Data Warehouse Advanced GQL	11/12
NIH Data Warehouse Research Contracts and Grants Mini	11/12
Producing Tables with SAS	11/13
Applied Statistics and the SAS Programming Language	11/12-13
PC Hardware Concepts and Usage	11/13
Troubleshooting PC Hardware	11/13
Oracle SQL Plus	11/16-17
C Language Fundamentals	11/16-20
Oracle PL/SQL for Application Developers	11/18-19
Introduction to the Macintosh Operating System	11/20
NIH Data Warehouse Procurement & Market Requisitions	11/20
Database Technology Seminar	11/20

DWD Training Tips

The Division of Workforce Development (DWD), OHRM, will offer the courses listed below. Hands-on, self-study, personal computer training courses are available through the DWD's User Resource Center at no cost to NIH employees. For details, visit DWD online at http://www-urc.od.nih.gov/dwd/dwdhome.html or call 496-6211.

Administrative Systems	
Travel for Administrative Personnel	12/1
Domestic Travel	12/7
Basic Time and Attendance Using ITAS	12/9
Foreign Travel	12/10
Career Transition	
NIH Retirement Seminar - CSRS	12/8
Computer Applications and Concepts	
Introduction to Corel WordPerfect 8.0	12/1
Introduction to Windows	12/3
Upgrading to Windows 98	12/8

Meeting on Gene Therapy for Arthritis

Gene Therapy of Arthritis and Related Disorders 1st International Meeting will be held Dec. 2-3 at the Natcher Conference Center. Organizers include Dr. Chris Evans of the University of Pittsburgh and Dr. Susana Serrate-Sztein, NIAMS. The meeting will convene a group of international scientists working on the development and application of gene therapy technologies for the treatment of arthritis and related disorders.

The deadline for submitting abstracts is Nov. 6, and the registration deadline is Nov. 20. NIH'ers are not required to pay the registration fee, but will be asked to pay $15 for food and beverage. For information and to register, call Dr. Joan Chapdelaine at (717) 585-2211, fax (717) 585-2383. For the preliminary agenda, see the NIAMS Web site at http://www.nih.gov/niams/news/genethp.htm.

Aldrich, First NICHD Director, Dies

Dr. Robert A. "Bob" Aldrich, NICHD's first director, died on Sept. 16 at age 80 from complications of diabetes. He served as NICHD director from March 1963 to October 1964.

"During his brief tenure here, Dr. Aldrich helped chart the course for the NICHD," said Dr. Duane Alexander, current institute director. "I am deeply saddened by this loss and offer my sincere condolences to his friends, family and colleagues."

Dr. Robert Aldrich

In 1962, Aldrich was asked by the Kennedy administration to help found and staff NICHD. While at the institute, Aldrich helped establish NICHD's research centers on the prevention and treatment of congenital and acquired disorders that cause mental retardation and other disabilities.

"The new institute is one of the most sophisticated efforts any nation has ever made in studying the progress of growth," Aldrich said in a February 1963 article in the *Seattle Post Intelligencer*.

Born in Evanston, Ill., he graduated from Amherst College in 1939, and received his doctor of medicine degree in 1944 from Northwestern University. After 2½ years in the U.S. Navy during the Second World War, Aldrich served 3 years as a resident at the University of Minnesota hospitals, and served from 1949 to 1951 as an associate and consultant in the section on pediatrics of the Mayo Clinic. After teaching pediatrics at the University of Oregon, he moved to Seattle to chair the University of Washington Medical School's department of pediatrics in 1956, where he remained until becoming NICHD director.

After leaving NICHD, he returned to the University of Washington Medical School in 1964, to head the division of health resources and serve as president of the university's faculty senate in 1968. In 1970, he became vice president for health affairs at the University of Colorado, then returned to the University of Washington in 1980 to work in the Graduate School of Public Affairs.

He is perhaps best known for founding the organization "KidsPlace," dedicated to making cities more hospitable to the needs of children. He also wrote on the topic of making classrooms more suited to children's needs.

Aldrich was also an avid camper and steelhead angler. He is survived by his wife of 58 years, Marjorie Aldrich, his sister, Cynthia Rowe, his brother Stephen Aldrich, two sons, and eight grandchildren.

Memorial contributions can be made to the Aldrich Professorship, Department of Pediatrics, University of Washington School of Medicine, 1959 N.E. Pacific Street, Seattle, WA 98195.

Auction Donations Sought

The Clinical Center department of clinical pathology has hosted a holiday fund-raiser auction to benefit the Patient Emergency Fund and Friends of the Clinical Center for 26 years. NIH'ers are asked to volunteer their services or donate items to this annual event. All donations are tax deductible. This year's version will be held Friday, Dec. 4 in Bldg. 10, Rm. 2C310 conference room and library. A coffee and bake sale begin the event at 9 a.m., followed by a silent auction and white elephant sale at 11, and pizza on sale at 11:30. The silent auction ends at 2 p.m. To make donations call Sallie Seymour, 496-3386, or Norma Ruschell, 496-4473.

Open Season for FAES Insurance

The FAES Health Insurance Program is holding an open season Nov. 2-25. 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. Open season is for those who did not enroll when first eligible and for current subscribers to make changes. FAES offers two programs this year: Blue Cross/Blue Shield Select Preferred Provider Plan, and Innovation Health, a health maintenance organization. Information about rates and benefits, effective Jan. 1, 1999, may be obtained from the FAES business office, Bldg. 10, Rm. B1C18.

NCMA Holds Seminar

The Bethesda/Medical chapter of the National Contract Management Association is hosting a "FAR Part 15 Rewrite Seminar" on Tuesday, Nov. 10 from 8:30 a.m. to 5 p.m. in Natcher Conf. Rm. C 1/2. Speakers include Melissa D. Rider, Department of Defense, and Ida M. Ustad, General Services Administration. Registration is required. For more information call Karen Padmore, (301) 299-8655.

Fellowships Offer Opportunities for Research in Japan, Deadline to Apply is Jan. 15

Through arrangements made with the Fogarty International Center, the Japan Society for the Promotion of Science (JSPS) is offering fellowships for American researchers in the biomedical and behavioral sciences to pursue collaborative research in Japanese universities and other eligible institutions and laboratories.

The JSPS Short-term Fellowship provides for research visits of 7 to 60 days; the JSPS Short-term Postdoctoral Fellowship provides for research visits of 3 to 11 months. Applicants must be U.S. citizens or permanent residents and research plans must be arranged in advance with the Japanese host. The application deadline is Jan. 15, 1999.

Full announcements, application instructions and more information may be found on the FIC Web site at: http://www.nih.gov/fic/opportunities/ff.html#japan. Information is also available from Dr. Kathleen Michels at email: jsps@nih.gov, fax: 402-0779.

Research Pioneer Huebner Mourned

The NIH community mourns the passing of Dr. Robert J. Huebner, a pioneer contributor and award-winning scientist who helped shape research agendas in virology, microbiology and epidemiology during a distinguished 40-year career in the Public Health Service at NIH. Huebner, who had suffered from Alzheimer's disease for 16 years, died on Aug. 26 in a hospital in Coatsville, Pa. He was 84. He had been in a Pennsylvania nursing home since 1991.

"We are saddened by the death of Dr. Huebner," said NIAID director Dr. Anthony Fauci. "Under his leadership, the institute's Laboratory of Infectious Diseases became a world center for discovery and investigation of respiratory tract viruses and for the study of the oncogenic potentials of certain viruses. He was consistently in the forefront of the search for the basic causes of disease."

Dr. Robert Huebner

Huebner left NIAID as chief of the Laboratory of Infectious Diseases in 1968 to become chief of NCI's Laboratory of Viral Carcinogenesis.

A native of Ohio, he earned his medical degree from St. Louis University School of Medicine in 1942. During World War II, he joined the Public Health Service as a medical officer and served on a Coast Guard vessel in Alaska.

During his career at NIH from 1944 to 1982, Huebner helped isolate and describe many important microbial causes of human disease. He isolated the etiological agent and defined the epidemiology and natural history of rickettsialpox; conducted important studies of the epidemiology and transmission of Q fever; and defined coxsackie A viruses as the causative agent of herpangina.

With his colleagues, Huebner discovered and defined the hitherto unknown adenoviruses group and devised a unique concept for an oral, enteric-coated, live virus vaccine that proved highly protective against disease caused by adenovirus type 4 and type 7. He also explored viruses that cause cancer in animals in research that stimulated his formation of concepts that led to the present understanding of oncogenes.

"Working with Dr. Huebner was extraordinarily exciting," recalls Dr. Robert Chanock, chief of the Laboratory of Infectious Disease in NIAID's Division of Intramural Research. "Dr. Huebner was a risk taker. He was always willing to take huge leaps to gain scientific knowledge. He had an open mind and would listen to anyone who had an idea, no matter what station in life that person might hold. That kind of scientist is rare." Chanock was hired by Huebner in 1957 and succeeded him as laboratory chief in 1968.

"He made sure he had people in the laboratory who could fill in the gaps," adds Dr. Janet Hartley, who also came to NIAID in 1953 under Huebner's tutelage. "His knowledge and his unshakable belief in the promise of science inspired many young scientists during his long NIH tenure. The list of people he mentored forms the nucleus of science departments and medical institutions all over the world—in Europe, Japan, Taiwan, Korea, Israel and Turkey."

Huebner was the recipient of the Presidential National Medal of Science, the PHS Distinguished Service Award, the Rockefeller Public Service Award, the Kimble Methodology Research Award and the Pasteur Medal. He was elected to the National Academy of Sciences in 1961 at a time when biomedical scientists were significantly under-represented in the academy.

Survivors include his wife, Harriet of Rockville, Md., 8 children and 11 grandchildren; 3 brothers and 4 sisters. ■

Attention All NIH Fellows

Did you know that NIH has a graduate school on campus? It's part of the Foundation for Advanced Education in the Sciences—FAES. Did you also know that NIH fellows are encouraged to teach courses at FAES?

This is an excellent opportunity to share your knowledge with the NIH community. FAES offers a broad range of courses that you can teach, from basic and clinical sciences to languages and photography (for a complete list of FAES courses, visit http://faes.org/academic.htm).

The FELCOM subcommittee on teaching is prepared to help those interested in teaching, whether you'd like to teach an entire course yourself or be a guest lecturer. To add your name to the list of possible instructors, email Kathleen Kerr (kerrk@nih.gov) with your areas of interest. FELCOM will use this list to organize ideas for teaching opportunities for fall 1999 and spring 2000 semesters at FAES. "We will be making suggestions to groups of fellows with similar interests and supplying possible guest lecturers," Kerr said.

NIAAA's Keller Lecture, Nov. 19

The third annual Mark Keller Honorary Lecture Series will be held Thursday, Nov. 19 from 1:30 to 3:30 p.m. in Masur Auditorium, Bldg. 10. Dr. Ting-Kai Li, distinguished professor and associate dean for research, Indiana University School of Medicine, is this year's award recipient and lecturer. His speech is entitled, "Pharmacogenetics of Responses to Alcohol and Genes That Influence Alcohol Drinking." For more information, see the NIAAA Web site at: http://silk.nih.gov/silk.niaaa1/conference/keller.htm.

Past, Current Directors Speak At NIAID's 50th Anniversary

Advancing Knowledge and Improving Health" is the theme of NIAID's 50th anniversary scientific symposium to be held on Thursday, Nov. 19 from 9 a.m. to 5 p.m. in Natcher Conference Center auditorium. All NIH staff are invited. Distinguished investigators from NIH and elsewhere will speak about current knowledge and future research goals of the major emphasis areas supported by NIAID—allergy, immunology and infectious diseases.

NIH deputy director Dr. Ruth Kirschstein will open the event with welcoming remarks. NIAID director Dr. Anthony Fauci will then give a historical perspective of the institute's research accomplishments. Dr. Richard Krause, senior scientific advisor of the Fogarty International Center and immediate past NIAID director, will speak on "Microbes Evolving and Emerging Infectious Diseases: The Compulsion to Become Something New." Following Krause, Dr. Jeffrey Bluestone, the Virginia and D.K. Ludwig professor at the University of Chicago, will address "Organ-Specific Tolerance: Achieving the Holy Grail of Transplantation!" The morning program will end with Dr. Robert Gallo, director of the University of Maryland's Institute of Human Virology in Baltimore, giving a personal perspective on HIV/AIDS research.

Dr. Richard Krause (l), NIAID's fourth director (August 1975-July 1984) appears in this 1988 photograph with the institute's fifth and present director, Dr. Anthony Fauci.

After lunch, Dr. Max Cooper, an investigator with the Howard Hughes Medical Research Institute and a professor of medicine, pediatrics, pathology and microbiology at the University of Alabama at Birmingham, will lecture on "Immune System Development and Human Well-Being," followed by Dr. Louis H. Miller, chief of NIAID's Laboratory of Parasitic Diseases, who will discuss "The Modern Pasteurians: From Science to Control and Eradication of Malaria." The program will close with Dr. K. Frank Austin, professor of medicine at Harvard University, who will address "The Biosynthesis of the Cysteinyl Leukotrienes, Mediators of Bronchial Asthma," and Dr. R. Gordon Douglas, Jr., president of Merck Vaccines, who will talk about "The Future of Vaccines: Science, Public Health and Medicine."

No registration is required. Seating is available on a first-come, first-served basis. For more information, call 496-5717.

NIH Funds Support Nobel Laureates

The three 1998 Nobel laureates in physiology or medicine—Drs. Robert Furchgott, Louis Ignarro and Ferid Murad—all enjoyed, like many of their predecessors, years of NIH grant support for their prizewinning investigations.

The trio were recognized for basic discoveries about nitric oxide, a gas the body uses in many physiological functions ranging from dilating blood vessels (its actions led to the creation of Viagra to treat impotence), to regulating blood pressure, to sending signals to the nervous system.

Furchgott, 82, is distinguished professor of pharmacology at the State University of New York Health Science Center at Brooklyn. His first NIH grant was in 1958, from the National Institute of General Medical Sciences, and he remains a grantee today, from the National Heart, Lung, and Blood Institute. NIH grant data indicate Furchgott and his collaborators have received some 67 awards, mainly from NHLBI, but also including NIGMS and what is now NINDS.

Ignarro, 57, is at the University of California, Los Angeles. His NIH funding history began in 1967 with an award from NHLBI to study the "biochemical nature of adrenergic receptor sites." He and his team have won a total of 44 awards, again chiefly from NHLBI, though also including what is now NIAMS, and NICHD.

Murad, 62, now at the University of Texas Health Science Center at Houston, first won an NIH grant in 1974 while at the University of Virginia. The 44 awards made since to him and his colleagues at U.Va., Stanford and Abbott Laboratories have come from NIAMS, NIGMS, NHLBI and NIDDK.

In addition to their funding connection to NIH, two of the laureates served on study sections: Ignarro was a member of the pharmacology study section during 1982-1985 and Murad served the same section from 1984 to 1987.

Of the 75 American Nobel laureates in physiology or medicine since 1945, 56, or more than two-thirds, either had worked at or were supported by NIH before winning the prize. Since World War II, 118 scientists worldwide have been awarded the Nobel prize in physiology or medicine. More than half of them (66) had prior support from, or worked at NIH before the honor.