

The NIH Record

Computer Helps Investigator Dig Tunes

Are Whales and Sparrows Musicians?

By Joyce McCarthy

Do whales and other animals have vocal signatures? How do sparrows learn their songs? These are questions asked by Dr. Christopher Clark of Rockefeller University who has been investigating how animals communicate through sound and has applied computer technology to map these results. Clark presented his findings recently at an NICHD-sponsored seminar held at the NIH Animal Center in Poolesville.

Clark studied the annual migration pattern of bowhead whales that live in the Bering Sea west of Alaska and how they communicate during their journey. He also studied swamp sparrows, who are tutored in song immediately after birth and develop and sing their lifelong song 10 months later.

Clark found that bowhead whales communicate with each other while migrating in small groups toward their feeding area. They call and counter-call among each other and holler back and forth between groups. His audio recordings of whale calls indicate that more whales are migrating toward their destination than was previously thought; old estimations were based on sightings alone.

Bowhead whales weigh approximately 1 ton per foot and usually are 45 feet long; there are an estimated 700 to 1,000 of them in the world. Their low-frequency calls usually range somewhere between 180 and 190 decibels. In other words, you wouldn't want one wailing in your office.

Beginning in the spring, the bowheads migrate from the Bering Sea up through the Bering Strait to Point Barrow at the top of Alaska. By July and August they reach Prudhoe Bay for feeding.

Clark and his team traveled to Point Barrow and set up camp on an ice field 30 kilometers wide. This vantage offered good views of open water, called leads or highways. There they counted the whales visually and acoustically, tracked their migration, and studied how the whales communicate.

The temperature at the ice field was -31° to -41° F. "It's so cold that you can't smell and the color is white on white. White sky, white snow," said Clark. Actual visibility for whale watching is only 30 to 40 kilometers (1 kilometer = $\frac{1}{1600}$ of a mile).

Traditionally, whale migration has been studied by visually counting each whale that swims by when the ice opens up. In addition to

(See WHALES, Page 2)

Westinghouse Science Talent Search Finalists

Two High School Students Studying at NIH Place Among Top Ten Westinghouse Finalists

By Anne Barber

Dr. Bryan Brewer has now had two former students, both from the same family, make the finals of the Westinghouse Science Talent Search. Maxwell Meng placed seventh in this year's finals; his sister, Margaret was a finalist in 1984. The contest has been held annually since 1940 with a \$20,000 scholarship as its top prize.

Brewer, chief of the Molecular Disease Branch, NHLBI, said both of the Mengs were interested in heart disease though, Maxwell had a more specific interest in patients with premature cardiovascular diseases.

"We have a summer program here at the lab for high school students such as the Mengs who want to do research projects or work on a special project as part of their course work," Brewer says. "In these cases, we assign the student to work with a preceptor in the lab and design a project with them which will allow

them to develop laboratory skills and obtain some interesting results. During the summer sometimes we have as many as four students at one time."

According to Brewer, some of the students learn about the NIH summer programs through a series of lectures, sponsored by the American Heart Association and the Montgomery County Heart Association, given each year in the Montgomery County high schools.

The series consists of four lectures, each given on Saturdays in the fall. After the lectures, about 100 of the students, take an examination. The top students receiving the highest scores are offered the opportunity to work in a laboratory at the NIH or other local research laboratories during the summer.

Dr. Harold Keiser, clinical director, NHLBI, has coordinated and arranged lectures

(See STUDENTS, Page 6)

Art Meets Science in CC Basement

By Rich McManus

The B2 level of the Clinical Center, to those who dare venture there, is a labyrinthine network of scuffed corridors, uncertain lighting, suspect ventilation, and general cacophony. Were Dante still around, it might qualify as one of the shallower rings of Hell. But to hundreds of researchers at NIH and to every institute information office, B2 is a jeweled cornice on an ivory tower, the single point on campus where art and science join in fruitful embrace.

The progeny of this conjunction are evident everywhere at NIH, from the Director's bulletin boards to tabletops in far-flung cafeterias. Any time you see an NIH tent card, poster, flyer, brochure or publication whose beauty steals your breath, chances are it came from B2, home of the Design Section, MAPB.

Not a very creative moniker, MAPB (Medical Arts and Photography Branch a part of the Division of Research Services). For the quality of the work they do, you might expect a jazzy name, a spiffy logo, carpet thick enough to Toro once a week. But because the section resembles much of workaday NIH, researchers from most of the 1,000 labs in Building 10 and from other labs on campus feel at ease

walking into section chief Linda Brown's office. To Brown, the only important decoration is the smile on a client's face as he or she walks out the door.

(See ART, Page 8)

Cell and Molecular Biological Approaches to Learning and Memory



Eric R. Kozicki, M.D.

WHALES

(Continued from Page 1)

watching, Clark and his team used three hydrophones (microphones that work in water) hung in or over the ice to record whale sounds. The sounds were then transmitted to a nearby hut crammed with a computer and graphics terminal powered by a generator.

When a whale makes a call, the sound is registered in three ways; time, frequency and amplitude, which together form a triangular matrix. The whale is positioned in the center of the matrix. This three-dimensional measure of sound is calculated by computer to produce a spectrogram. When a sound is picked up on the three different hydrophones, the investigators can determine the whale's location.

Having figured the location, investigators can construct tracks by merging data from visual and acoustic sightings. This method enables them to count whales seen but not heard, those heard but not seen, and those both seen and heard. Clark's team heard many more whales than it saw, and learned that whales continue to migrate even under severe weather conditions when they cannot be seen by humans.

What do whales sound like? On Clark's tapes the low tenor moans of the bowhead whales compete with the spiral-sounding squeals of bearded seals; his tape sounds much like a record being played backwards.

Bowhead whales usually travel at a distance of at least several kilometers from each other. They swim in a procession of small groups, calling and counter-calling between individuals in the groups. The whales usually limit the loudness of their sounds so they can be heard only to the local audience; once in a while intergroup calling results in a very loud scream that travels a great distance and is easily picked up on the hydrophones. The screams have been a great aid in determining the whales' locations. Clark estimates that, during migration, there are 200 to 400 animals in small groups all traveling in the same direction.

The whales employ the same type of call within their group for 3 to 4 hours. One whale will use an upswEEP call and be answered within 20 to 30 minutes by a downswEEP call. After 3 to 4 hours, there's a dynamic change in sound and the whales switch to another type of call, all without the services of AT&T, Sprint or MCI.

Clark has also found that bowheads sing, which is a new finding. Researchers have long known that humpback whales sing; in fact their tunes are featured in the recent film, "Star Trek IV." Clark discovered that bowheads change their song about every 6 months and at least once a year; they have their own song track, a sort of whale Top 10. Clark can do a

NIDDK Centennial



It was hardly an impediment to Dr. Hiroshi Taninchi, Laboratory of Chemical Biology, to explain his poster over the music of a jazz group that played in honor of Dr. Gordon Tomkins, an NIDDK mentor and part-time jazz musician.

Photos by Rich McManus

pretty good imitation of a whale song through his own moaning guttural exclamations.

He has also applied his computer mapping technique to the study of swamp sparrows and song development. Baby swamp sparrows are given song lessons by adult sparrows within 10 days after birth. They are taught between 12 and 16 songs that they internalize over a period of months. At about 10 months of age, they come up with two of their own final crystallized songs; at this point you might call one of them Bird Bacharach.

Clark investigated how these birds copy songs, examined the progression of notes, and wondered how the swamp sparrow's final song matches what it heard when it was tutored.

Song development in a swamp sparrow consists of units of notes repeated with precise timing. Investigators have found that there are six different note types. Notes II through IV are long sliding notes that are unique to each bird. In song, they are followed and preceded by rapid note types I and VI, which are species-specific and repeated over and over. All swamp sparrows innately know notes I and VI.

Clark found that notes are paired and happen within milliseconds of each other. He found that there's a 55 percent correlation between what the bird has been taught and what is crystallized. The classic template is memorized and the bird diverges from the original and improvises its own song. This improvisation brings to mind an expression honoring a deceased jazz great—Bird, indeed, Lives!

The next time you hear a sparrow singing, realize that what you're hearing is an original. As for the whales, there are a lot more of them out there than we thought. And that's the name of that tune. □



Leading a jazz quartet that played a noon-hour concert in the Visitor Information Center as part of the NIDDK centennial celebration was Dennis Johnson. Behind him is Dr. Allen Minton, a bass guitarist and biophysical chemist in NIDDK's Laboratory of Biochemical Pharmacology.

Volunteers Needed at NHLBI

The Cardiology Branch, NHLBI, needs normal volunteers between the ages of 20 and 70 to participate in a study assessing the causative mechanisms of certain cardiovascular diseases.

Volunteers must not be taking medication. The study includes placement of a small needle in the brachial artery (the main artery of the arm), and takes approximately 2 hours. Participants will be paid, call 496-3013. □

The NIH Record

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Evelyn Laten Retires With 32 Years' Service

by Wanda Warddell

Evelyn Laten, secretary to the director of NIGMS' Biophysics and Physiological Sciences Program, recently retired after 32 years of government service, the last 16 with the institute.



Evelyn Laten

"The office will be in a state of shock for some time without Mrs. Laten," said the program director, Dr. Marvin Cassman. "I'm sure that her transition into retirement will be easier for her than it will be for the rest of the office."

Laten joined the NIGMS staff in 1970 as a secretary in the Fellowships Branch, and

shortly thereafter became secretary to the branch chief. In 1975, she was appointed secretary to the director of the Physiology and Biomedical Engineering Program, and continued in that position after the program was reorganized and named the Biophysics and Physiological Sciences Program.

Her government service began during World War II, when, from 1943 to 1946, she served in the United States Coast Guard as a petty officer first class. After discharge from the service, she accepted a secretarial position with the Legislative Branch of the Department of the Army. In 1952, she spent several months with the Department of Commerce before resigning to have her three children.

In 1963, Laten returned to government service at NIH with the then National Institute of Neurological Diseases and Blindness.

During her years with NIGMS, she received several cash awards, two quality increases, and in 1984, an NIH Award of Merit.

Laten was active in promoting equal employment opportunity at the NIGMS, NIH, PHS and DHHS levels. From 1980 to 1984, she served as vice chairman of the NIH Committee on Handicapped Employees, PHS representative to the DHHS Committee on Handicapped Employees, and secretary and chairman of the PHS Committee on the Handicapped.

For her significant contributions toward furthering EEO goals, she received the NIH Harvey J. Bullock, Jr. Award for Equal Opportunity Achievement in 1983.

In retirement, Laten plans "to have fun" with activities that she had little time for before such as swimming, visiting with her children and grandchildren, and taking art classes. □

ORAL HEALTH

(Continued from Page 3)

is the most comprehensive of its kind ever done, and the first to look at the prevalence of root caries and periodontal disease in detail. During the survey, NIDR-trained dentists performed oral examinations on almost 21,000 adults ages 18 to 103, a sample population representing the majority of employed adults and older Americans. Exams were conducted at 800 businesses and 200 senior centers located throughout the country.

Toothlessness has been almost eliminated in middle-age adults. Only 4 percent of employed adults surveyed were missing all their teeth, and half had lost at most one tooth. This represents a significant drop in tooth loss from what was seen in a 1971-74 survey. Toothlessness remains a major problem among the elderly, however; 42 percent of the seniors surveyed were missing all their teeth, and only 2 percent still had all 28 permanent teeth.

Both young and old adult groups continue to suffer from decay on the crowns of teeth, with a slightly higher rate in females than in males. But almost 95 percent of the coronal lesions in both groups had been filled. "This is an extraordinarily high level of dental care," said Dr. James Carols, NIDR epidemiologist.

Decay of tooth roots was three times more extensive in seniors than in working adults. Tooth roots can become exposed when gums recede over time or as a result of periodontal dis-

ease. Once exposed, they are vulnerable to decay. Root caries was found in 21 percent of the employed adults and 63 percent of the seniors surveyed.

Most adults surveyed showed signs of periodontal disease, with increasing prevalence and worsening of symptoms with age. Periodontal diseases destroy the supporting tissues that attach teeth to the jaw.

Two measures were used to assess periodontal health: gums were gently probed at 28 sites to check for bleeding, which could be an early indicator of periodontal problems, and the sites were examined for loss of attachment of supporting tissues from the teeth.

"The information from this survey will enable us to target our research and education efforts where they are needed most," Loe said. "Clearly, the worst problems are in the older segments of the population. This group has high rates of caries, periodontal disease, and tooth loss, with all the attendant pain and suffering, plus the need for dental services."

With the adult survey results in hand, NIDR now has reliable data on the oral health of Americans from age 5 to 85-plus. In 1980, the institute conducted a national survey of dental health in school children. That survey revealed a dramatic drop in the rate of tooth decay over the previous decade. More than a third of the youngsters surveyed were caries-free, attesting to the effectiveness of fluoridation programs and improved oral hygiene practices. A followup survey of oral health in school children is under way. □



Dr. Harald Loe, NIDR director, was recently honored by Alpha Omega at its 79th annual convention and reception held in Washington, D.C. Alpha Omega is an international Jewish dental fraternity comprised of 118 chapters with representation from 15 countries. Loe was presented the fraternity's Achievement Medal for his "extraordinary accomplishments in periodontal research and dedication to his profession as educator, clinician, scientist and author."

NCI Journal Wins Award

The staff of *JNCI—Journal of the National Cancer Institute*—recently won the Distinguished Technical Communication Award in the category of complete periodicals in the annual publications competition sponsored by the Washington, D.C., Chapter of the Society for Technical Communication (STC).

This award is the highest given in the annual STC competition and is the highest that *JNCI* has ever received. Winners of the award are qualified for the STC international competition to be held in Detroit in May, where they will compete with other regional winners.

JNCI, which has been in existence since 1940, is published by the Publications Branch of the International Cancer Information Center. Dr. Peter Greenwald, director of NCI's Division of Cancer Prevention and Control, is editor in chief, and Edwin Haugh is managing editor. The staff includes Pamela Allen and Joan O'Brien Rodriguez, senior editors; Dorothy Katz and Constance Stonestreet, editors; and Sandra Ott, editorial assistant. □

Newborn Screening for Sickle Cell Disease Considered

Infants with sickle cell disease are at risk for a sudden, severe, potentially life-threatening blood infection. This infection can be prevented with regular doses of oral penicillin if infants are diagnosed and treatment is started by 4 months of age. Yet although tests to diagnose sickle cell disease in newborns have been available for 10 to 15 years, newborn screening for sickle cell disease is still not widely used.

Should all newborns be screened for sickle cell disease to prevent illness and death from sudden, severe infection? That issue and related questions will be debated at an upcoming NIH Consensus Development Conference on "Newborn Screening for Sickle Cell Disease and Other Hemoglobinopathies," to be held Apr. 6-8, in Masur Auditorium.

Cosponsors of the conference are the National Heart, Lung, and Blood Institute, the National Institute of Child Health and Human Development, the Genetic Diseases Branch of the Health Resources and Services Administration, and the NIH Office of Medical Applications of Research.

For more information, contact Nancy Cowan, 468-6555. □

Learn to Draw

The Laboratory of Socioenvironmental Studies, NIMH, is seeking healthy normal volunteers between the ages of 18 and 60 (with no previous experience using computer drawing programs) for a study of factors influencing the learning of a microcomputer drawing program. Participants will be paid. Call 496-3383. □

Ninth Annual Biomedical Science Program



Some 22 of the 34 smiling young faces in this picture will be on view again this summer when NIAID follows up on its ninth annual "Introduction to Biomedical Research," by hiring minority students for 10-week summer posts. Welcoming the group during a winter orientation were (front row, from l) Dr. John Gallin, Michael Goldrich, Lennita Lawson, Dr. Katherine Jaouni and Vincent A. Thomas Jr., all of NIAID.

Scientists Clone Gene Related to Alzheimer's Disease and Down Syndrome

By June Wyman

An NIH research team has cloned a normal human gene involved in making amyloid, the abnormal substance in the brains of Alzheimer's disease patients, and mapped the gene's location to human chromosome 21.

The finding makes it possible to search for a genetic defect that could predispose people to Alzheimer's disease. If a defect is found, it might be used as a diagnostic tool to identify people at risk for Alzheimer's.

"Alzheimer's is not a simple genetic disease," warned Dr. Dmitry Goldgaber of the research team. "But some people may well be genetically predisposed to it."

According to Goldgaber, the scientists' specific achievements were:

- Cloning a gene that directs cells to manufacture a large protein whose function is unknown. This protein somehow forms amyloid. Amyloid is the starchy substance that forms plaques—patches of degenerating brain tissue—in Alzheimer's disease, as well as in the brains of adults with Down syndrome and normal old people.

- Mapping this "amyloid gene" to chromosome 21, thus providing evidence for a long-suspected genetic link between Alzheimer's disease and Down syndrome. Down syndrome, which causes mental retardation and other abnormalities, is caused by an extra chromosome 21. The discovery that this chromosome carries

the amyloid gene explains why Down syndrome patients, if they live to adulthood, usually develop the same brain plaques found in Alzheimer's patients.

- Establishing that the gene carrying the information for amyloid is a normal gene, active in human brain, heart, lung, muscle, and many other tissues as well as in several mammals. The fact that it is so common means that its initial product, the large protein, must play some fundamental role, as yet unknown, in the normal work of cells, Goldgaber said.

How does a normal gene make an abnormal product? Goldgaber speculates that the normal protein made by this gene is metabolized differently in Alzheimer's patients than in healthy people. That metabolic mistake could happen because there is something wrong with either the amyloid gene, genes that lie near it on chromosome 21, or other aspects of the chromosome itself.

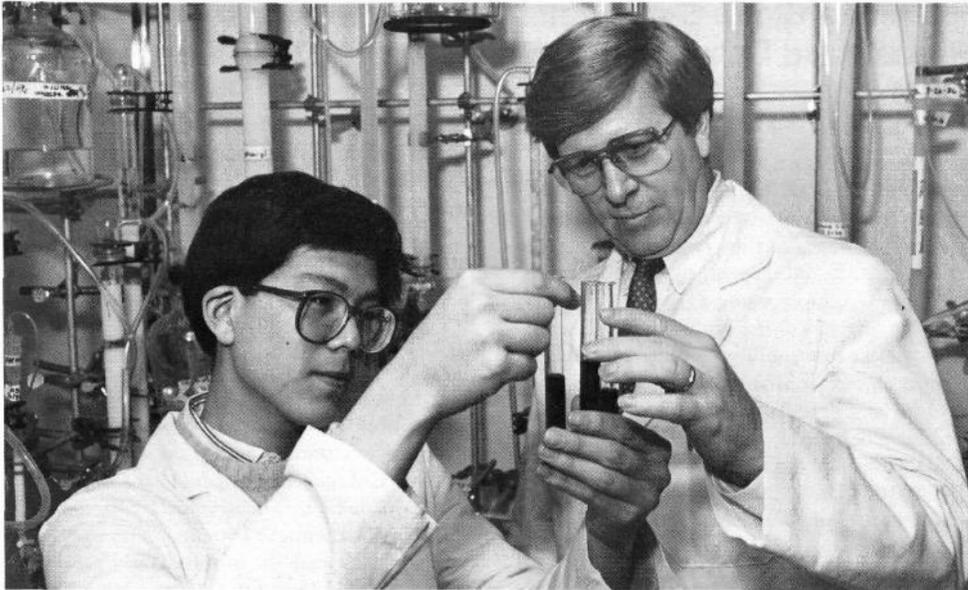
Whatever the causes of amyloid production, the results are two distinct abnormalities: tangles and plaques. Plaques are cores of amyloid surrounded by degenerating bits of nerve cells. These deposits clog spaces between nerve cells in the brain, interfering with normal nerve signals. Inside some cells, signals are jammed by tangles, twists of fine nerve fibers. The tangles block tubes in the cell bodies, called neurofilaments, and message-sending projections called axons.

"It's chaos," said Goldgaber, describing what Alzheimer's brain tissue looks like under microscope. "The axons get blocked, and the neurons look like balloons, with jammed neurofilaments."

What goes wrong? The next step is to see whether the newly found gene is indeed different in Alzheimer's patients than in normal people. Goldgaber and his colleagues are now doing just that. They are using their new genetic probe to screen DNA from Alzheimer's patients, trying to learn whether there is a genetic defect.

However, "Alzheimer's disease cannot be explained by genes alone," Goldgaber cautions. More likely, the disease is triggered by a combination of a predisposing genetic defect, environmental stresses, and the normal aging process.

The discovery was reported by Goldgaber and Dr. D. Carleton Gajdusek of the National Institute of Neurological and Communicative Disorders and Stroke with coauthors Drs. Michael I. Lerman, O. Wesley McBride, and Umberto Saffiotti of the National Cancer Institute. Other research teams have arrived at similar results independently. □



Meng (l) and Brewer evaluate column practums containing proteins isolated from a patient with low high density lipoproteins and early heart disease.

Photo by Bill Branson

Meng Places Seventh

Maxwell Meng, 16, a senior at Centennial High School in Columbia, Md., placed seventh in this year's Westinghouse Science Talent Search finals and is the proud winner of a \$7,500 scholarship.

"I am really happy and surprised that I finished in the top 10 in the finals," Meng said. "But," he continues, "there is no way I could have done this without Dr. Brewer's help. This is a pretty specialized field."

His project involved studying proteins in a patient with an inherited disorder of high density lipoproteins linked to premature heart disease. He found that while the patient's proteins looked normal, they breakdown at a much faster rate than in normal subjects.

"This leads to further research as to what caused the proteins to breakdown faster," Meng says. "NIH is a really good place—so many doctors, so much experience—and they were really good about helping me with my project."

Meng, who skipped 8th grade, has been accepted to Princeton but hasn't heard yet from Harvard. "I'll probably go into medicine, but I'm not sure whether it will be research or practicing," he said.

Meng was born in California and moved to Maryland in 1978. His parents, both scientists, emigrated from Taiwan in the 1960's. His sister Margaret, who also worked in Brewer's lab, is studying electrical engineering at Stanford University.—Anne Barber □

STUDENTS

(Continued from Page 1)

for the American Heart Association for a number of years. Brewer has participated in these lectures for the past several years.

"NIH provides a unique opportunity for these students because we have the best medical research environment in the world," Brewer adds. "Students who live in this area have a unique opportunity to develop skills and knowledge in the field of science."

Originally from Wyoming, Brewer has been at NIH since 1967. He received his undergraduate degree at Johns Hopkins, M.D. degree at Stanford, and completed his internship residency at Massachusetts General Hospital.

Another NIH intramural scientist, Dr. Susan Gottesman has also had several part-time students enter the Westinghouse National Science Talent Search. This year, Todd Waldman was selected as one of 40 finalists and finished in the top ten. Gottesman, acting chief of the Biochemical Genetics Section in the Laboratory of Molecular Biology, NCI, has in the past, had two other students make the honor list of the top 350 selected by Westinghouse.

It is unusual to see high school students working in labs around NIH; graduate students are a far more common sight. Gottesman selects the few students in her lab on an individual basis.

"Not all labs or projects are conducive to part-time studies or allow for time lapses," she said. "Our lab can adapt because we work with nonpathogenic bacteria. Our work involves the

basic mechanism of turning genes on and off. So a student can do a lot in his or her time without getting into a lot of difficulty.

"The students I choose have to be bright, interested in science, and highly motivated," she continues, "because it is their time they are giving up with no monetary reward."

Gottesman met Waldman when he attended elementary school with her kids. She and her husband, Michael, a physician also in the same lab, went to the Burning Tree Elementary School and gave a minicourse on microbiology.

"Todd is a terrific source of information for me regarding school, teachers, and other activities that my kids don't tell me about," said Gottesman. "I find out from Todd."

Waldman has been working in the NCI lab for the past two school years and a couple of summers. He will continue through this summer also.

"I use each of my students in a different way. I like to try to come up with a special project that is theirs alone; that way it is more interesting for them," she says.

The first student Gottesman received years ago was through a teacher at Walter Johnson High School. It is mostly through word of mouth that she gets referrals; NIH has no formal lab training for high school students.

"I remember when I started out in my field, working in a lab was the real test to see if you liked doing research," Gottesman said. "There are not that many labs where you can do this. I enjoy working with the kids. They are a pleasure to have around. Sometimes you get results from their projects but you do it mostly be-

cause you enjoy working with them. It is a question of one's priorities."

Although she and her husband haven't taught minicourses for a few years, they collaborate with Pyle Intermediate School to provide a few students with a day at NIH. This is usually done as an end-of-the-year activity and a brief experiment is arranged for them. The Gottesmans have been doing this for the past few years.

"This is really fun for us," she says. "We enjoy working with kids."

Michael Gottesman's research does not lend itself to hosting part-time students during the school year. But he has been instrumental in getting FAES to support summer students financially.

The Gottesmans, both natives of New York, came to NIH from Boston, she as a postdoctorate fellow in NCI and he as a research associate in NIADDK. They traveled back to Boston again for Michael to finish his residency then returned to NIH. They have been in Bethesda for about 11 years. □

Waldman Places Eighth

Todd Waldman, a senior at Walt Whitman High School, turned 18 while participating in the Westinghouse finals the week of Mar. 5. He was excited about placing eighth among the finalists and winning a \$7,500 scholarship. His project involves working with genes in bacteria. He made a protein that eats other proteins in the gene; this allows scientists to turn a gene on and off as they wish.

"I have done a lot of what I wanted to do, but my experiment is not complete," he says, "It is a never-ending thing."

Waldman has always been exposed to science because his father is a doctor. Originally, that was what Todd was going to be. Now, after being exposed to other areas of science, he has changed his mind.

While attending elementary school, Waldman was put in an advanced placement program and given a mentor in his field of interest. In 6th grade he was assigned to Dr. Dan Gilbert, a neurophysiologist at NIH. Once a week, Waldman would come to NIH and talk with Gilbert about science. On each visit he was exposed to different areas. Even after Waldman advanced to junior high school, he continued to visit Gilbert; they had become great friends by then.

Waldman graduates in June and has a big decision to make regarding colleges. He has already been accepted to Yale but has also applied to Harvard and Duke.

"It is terrific working here at NIH in the lab," he said. "It is an unusual situation and I still have a lot more to learn. But, thanks to the patience of persons like Dr. Gottesman, I was given the opportunity."—Anne Barber □

Brochure on Centennial Available From NIGMS

To commemorate the NIH centennial, the National Institute of General Medical Sciences has published a new brochure entitled *Then and Now: Biomedical Science in 1887 and Today*.

Printed with funds provided by the NIH centennial underwriters, this brochure describes some aspects of biomedical research and medical practice in the late 19th century. It includes a section on how scientists worked in 1887 and, for contrast, a corresponding section on selected research techniques of today. Historical highpoints and background facts help place the research in context.

Copies are available from the Office of Research Reports, Bldg. 31, Rm. 4A52, 496-7301. □



Waldman (l) reviews his notes on the experiment with Gottesman.

Photo by Bill Branson

Grateful He Knew 'Heimlich'

NIH Physician Saves Life of Colleague

An NIH physician learned the value of the Heimlich maneuver recently when he very likely saved the life of a colleague who had choked on a piece of apple.

The physician, who asked not to be named, was enjoying a meal in the town of Bologna, Italy, last fall when a companion at the table silently put his hand to his throat and began to grimace.

"He suddenly gripped his throat with both hands, but was unable to make a sound," the physician said. "Everyone around the table stopped talking and began to take notice. He was beginning to turn a little blue."

The choking man, still unable to speak, rose from the table and walked out of the restaurant. The physician found him leaning up against a car, salivating and turning very blue.

"I asked him, 'Gian Carlo, can you breathe?'" the physician said. "He gestured no, so I started to Heimlich the heck out of him."

After putting the victim in a hammerlock and vigorously pressing his chest, the physician was rewarded when a bolus of apple—"a pretty small piece, actually"—emerged from the man's throat, enabling him finally to breathe. Feeling there was still an obstruction in his throat, the man coughed and cleared his airway of yet another small piece of apple. Then he

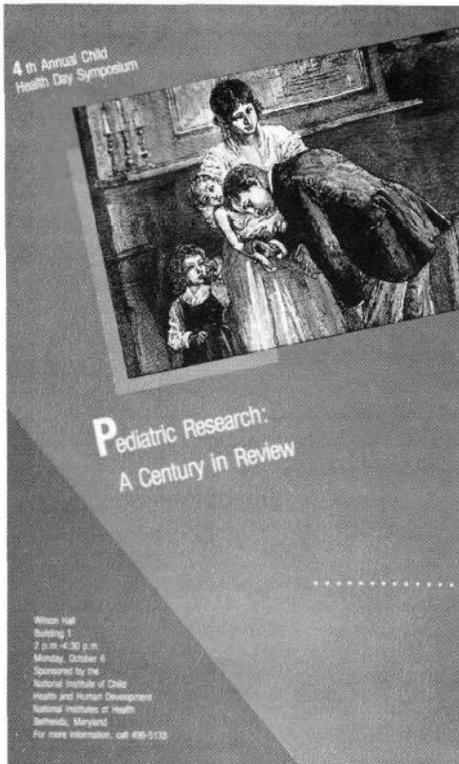
collected himself, returned to his friends at the table and finished his meal.

"It was classic example of how a choking victim behaves," the physician related. "They usually get up and go. They leave because they don't want to humiliate themselves by dying in front of everybody. Many choking victims are found alone in bathrooms."

"It was a classic example of how a choking victim behaves," the physician related.

The physician learned CPR and the Heimlich maneuver during a seminar held at Bethesda Naval Hospital last January. Upon completing the course he got a little card signifying his achievement and figured he'd never need to use his training. Ten months later, he couldn't have been happier he took the time to learn the simple procedure.

"I'm convinced he would have died had I not performed the maneuver," the physician concluded.—Rich McManus □



ART

(Continued from Page 1)

One of the first rules of life on B2 is that appearances deceive. Though B2 can appear intimidating, especially when a motorized cart comes honking by, it is in reality a bustling, friendly, creative place.

"A lot of people, when they finally find their way down here, are amazed at the mayhem of activity and the colored doors," said Brown, a 20-year NIH veteran who began her career as a general illustrator in the section she now heads. "The reason we're here is that we need to be near our clients. Research scientists are the most frequent clients for graphics and photography."

To hear Brown describe it, a unique sort of alchemy occurs when an investigator sits down with a member of her design team to discuss how best to present, in visual terms, an abstract biomedical concept.

"There's this nice synergistic effect that happens when an artist and researcher sit down and imaginatively take off," she said. "The net result is better than what either would have come up with individually."

Brown's goal is to create art that is as bold, original, and contemporary as the science that is being conducted at NIH.

"The images we create should reflect the quality of what goes on here," she said. "This

is a medical mecca. We have an obligation to tell the public what we're doing. A lot of good work is going on here that people need to know about."

What is striking to many people is the consistently high quality of the art coming out of MAPB. When Clinical Center executives had to decide on art for one of the hospital's major first-floor entrances, they picked a series of Design Section posters advertising everything from softball games to NIH Consensus Conferences to workshops on sexual dysfunction (a challenge that was met with typically good taste). The reason? The art was so good. In fact, many people think it's better than it has to be.

"We get lots of positive feedback," says Brown. "Our art could be dull, and it could be ordinary. But it isn't."

Not all tributes to the creativity of the Design Section come from within. A recent issue of *Medical World News* featured a cover story on NIH Consensus Conferences. Instead of using their own artwork with the story, as is standard practice, editors at *MWN* chose a splashy series of Design Section posters to illustrate the article.

"I get letters all the time telling me what a great staff I've got," says Brown. "I know that. In fact, I can't think of a better one."

When a client comes in the door, Brown plays "traffic cop" and directs the project to the most appropriate talent in her stable of five artists (see sidebar). All projects are seen as problems in search of the best solution.

"I try to keep the best projects in-house," said Brown, who is especially good at eliciting "what's tucked back in the deepest, darkest hippocampus," of a client's head.

"We take projects from the idea stage, the 'Oh-gee-I-don't-know-what-I-want' stage to the final product," she said. "It makes you feel like you've done something for a place that's doing something important."

Brown has an almost missionary zeal about her vocation, saying her work "feels like it's more important work than anywhere else. Public health is the most important thing this country does. You like to make a difference, to make things a little better somehow."

To achieve this goal she has trained herself to say yes.

"Nothing makes clients happier than fulfilling their fantasies," she said. "It's like Christmas. You try to say yes. You *want* to say yes."

One institute information officer once told Brown that the classy images MAPB had provided made the officer's own staff happier about working at NIH. Said the IO, "That's something I can't even put a price tag on."

Though Brown is generally regarded as the straw that stirs the drink in Design, some

credit is due her boss, Ron Winterrowd. It is Winterrowd, an alumnus of the University of Kansas, who asked authorities at his alma mater to send the best Jayhawk talent his way. Brown, a native of Kansas City and a UK grad, was lured to NIH via this connection.

"Many employees of the section have gone on to bigger and better things," reports Winterrowd. Brown herself was nearly lured to UPI, a national newswire, not long ago. "They offered me a lot of money to leave," she said, adding, "It was very flattering to be called."

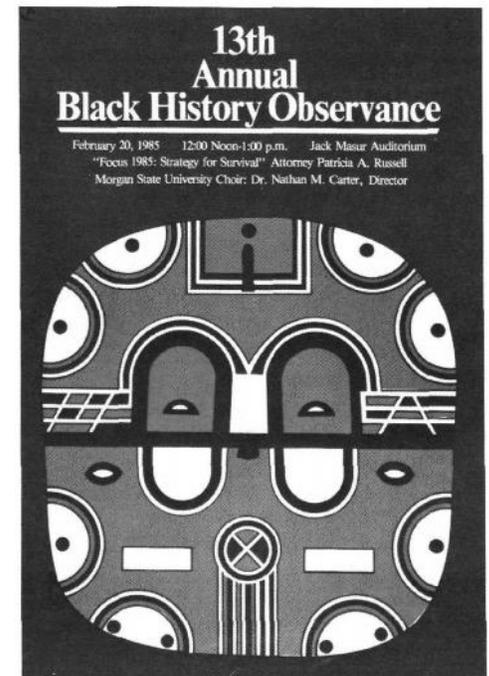
Winterrowd, the chief of MAPB and former Design Section head, says the section's work is outstanding. "I think NIH is very lucky and fortunate to have a service that provides such quality. They're always performing miracles, and getting work done on a very short deadline."

"They really care and want to do a good job," he continued. "They like NIH. They like the customers and love a challenge. They always seem to come up with the right solution to the design problem." Then he adds, tongue-in-cheek, "I think it's the wonderful atmosphere we have here in the CC basement."

Brown, he says, is "terrific. She's not only a good art director, she's also a very fine artist herself. She has wonderful techniques for dealing with customers and clients."

None of the superlatives mean as much to Brown and her staff as a satisfied client. Says Brown, "I'm always flattered and grateful that the business keeps coming in."

The smiles, not to mention the art, are worth going to B2 to see. □



A Portrait of the Artist

There is nothing modest about the goals of the Design Section, MAPB.

"We want to create art that is sophisticated, scientifically correct, and attractive," said Linda Brown, an artist who worked her way from general illustrator to chief of the highly regarded department.

Helping her answer the art needs of every bureau and institute within NIH is a staff of five artists, each of whom has a unique talent.

"This is an amazing collection of people—some of the best in DC," says Brown. "I don't have to say 'Do first-class work.' They do first-class anyway. They are an uncommonly able and pleasant group of people. Everybody's special."

Brown says the staff gets "only exciting projects. I think we're lucky because we get to work with people who are real excited about what they're doing," she enthused. "I have Nobel laureates folding up paper airplanes (to approximate the folding of molecules) in this office. Some very impressive people come in here and talk to us like we were real folks. It's a pleasure."

Ironically, the most important person on the staff, by unanimous agreement, is a person who freely admits that when she came to MAPB 5½ years ago as a stay-in-school, she "didn't know the first thing about art—I didn't know what a drawing pen was when I got here."

Tawanna Shaw, an operations support clerk for the section, "runs this place," declares Walter Ashe, the unofficial section historian and final authority on everything that has happened at NIH in the past 40 years.

"Tawanna is the only one who knows what's going on," seconds Brown. "She's indispensable."

A native of Washington, Shaw was a student at Chamberlain Career Center when she first came to NIH. Of the dozen or so students who came with her to the campus, only a couple remain. "I really work for good people," she said. "I consider myself an assistant to all the professionals here."

"We made her a permanent employee as soon as possible," says Brown. "She's real cool and collected. Sees all, knows all. She may be the only contact some clients have with this office."

Brown, who is as quick with an adjective as she is with a drawing pen, profiles each of her artists in succession.

On Betty Hebb: "It's a little like having Matisse on the staff. She often uses very bold and very colorful, sometimes abstract solutions to problems." Scientists particularly like Hebb's work because they recognize scientific



Members of the Design Section, a part of DRS, include (clockwise, from center) chief Linda Brown, Scott Pollard, Tawanna Shaw, Betty Hebb, Walter Ashe, Al Laoang and Lee Nance (inset).

accuracy in what, to a layman, seems utterly abstract.

On Al Laoang: "Al is a wonderful illustrator and painter. His illustrations vary from fine art drawings to graphic images that are successfully incorporated in the posters he designs." A talented fine artist, Laoang is often called upon to do portraits for NIH officials who are retiring or moving to other medical centers. He is also well-known for the posters he designs each year for Asian-Pacific American Heritage Week, which routinely become collector's items.

On Lee Nance: "Lee has a big, bold graphic style. He reduces things to their basic elements, which makes him particularly good at such projects as logo design. His poster designs are strong and direct." Though the strength of Nance's work derives in part from his background in technical illustration and drafting/engineering, another source may be the first-degree black belt he holds in moo duk kwan, a martial art similar to tae kwon do. He is at the green belt level in another martial art, tang soo do.

On Scott Pollard: "Scott trained as a photographer and is very strong with layout and type. He often works in combination with other people—photographers, medical illustrators. He seems to understand the printed page." Pollard was attracted to NIH because it "offered a variety of techniques that I didn't

learn in school (Virginia Commonwealth University), including silk-screening. NIH also offered me a chance to work on complicated design projects for clients, whereas in a large commercial corporation, it would have taken a long time to be responsible for such projects."

On Walter Ashe: "Walter gives us the benefit of his experience. He keeps us entertained with stories of the last 40 years at NIH. He works on a lot of jobs that require extraordinary care and precision." Ashe, a dignified Virginia gentleman with a carefully distilled whimsicality, remembers the good old days before the Philistines erected an NMR center atop the grass he wore away on walks to and from work. "It's too late for me to start a new rut," he lamented recently.

Evaluating her own work, Brown says, "I'm just the traffic cop here, which is such a shame because I'm a good designer. I fill in if anyone on the staff gets hit by a truck." A designer by training, she had no interest in biology or medicine when she first landed at NIH.

"The staff has command of a wide range of styles," Brown said. "We're lucky to have a big enough staff to satisfy almost any client." Two years ago, there were seven artists on board instead of five. But even in an era of budget constraints, the Design Section churns out the same volume of work as in 1984. "In the face of lean financial times, this staff is so spirited

(See ARTIST, Page 10)

ARTIST

(Continued from Page 9)

and so self-starting that it performed well," said Brown.

"We're real fussy," she admits. "People are attracted to our standards. They say, 'Gee, this is just like an (advertising) agency. It's so—professional.' We're NIH's own little ad agency."

"Talent attracts talent," adds Ron Winterrowd, Brown's supervisor. "It becomes a magnet. When people see an organization turning out good things, they're attracted."

Brown thinks the Design Section must be good if it hopes to survive. "We're in competition (for the attention of busy physicians and a busy public) with some pretty slick operators, notably the drug companies," she said. "So we should look good. We should look the best."—**Rich McManus** □

STEP Right Up

A STEP Forum entitled "Research Funding as an Investment: Can we Measure the Returns?" will be held on Thursday, Apr. 9, from 1 to 4 p.m. in Wilson Hall, Shannon Bldg.

Speakers with diverse backgrounds will present many perspectives on this issue and ample time will be allowed for discussion.

The series is open to all NIH professional and support staff. No preregistration is required. For additional information, contact the STEP program office, 496-1493. □

Career Day Set for Mar. 26

"Explore Your Options" is the theme for Career Day 1987, sponsored by the NIH Women's Advisory Committee. The program will be held on Thursday, Mar. 26, from 11 a.m. to 2 p.m., in the ACRF Amphitheater, Bldg. 10.

Topics featured include career development, career pathways, educational opportunities, employee benefits, and how to prepare an SF-171, application for federal employment.

Also available will be training information and career advice from DPM's Development and Training Operations Branch staff. Personnel from the Recruitment and Employee Benefits Branch and the Employee Assistance Program will answer questions about their respective programs. Representatives of local colleges, universities, and professional organizations will also be present to provide information and opportunities for "networking."

Sign language interpretation will be available. If accommodations for other handicapping conditions are needed, call the Federal Women's Program manager, 496-2112. □

How to Shoot Nature

Experts in the art of photographing nature will hold a retreat Apr. 11-12 for a limited number of NIHers.

For more information on the program and fees, call FAES photography instructor John Boretos, 496-5771. □

Training Tips

The NIH Training Center of the Division of Personnel Management offers the following:

Courses and Programs Dates

Management and Supervisory 496-6371

Networking—Silent Politics	4/2
Effective Presentation Skills	4/16-17
Dealing With Daily Conflict	5/6-8
Managing Behavior in the Work Environment	6/13-15
Improving Managerial Effectiveness	4/28
Effective Communications	5/5-8
Managing Stress and Maximizing Effectiveness	5/19-21
Congressional Operations Workshop	5/6-7
Presidential Operations Workshop	5/30-6-1

Office Skills 496-6211

Medical Terminology II	4/7-6-11
Effective English Workshop	4/6-7
Human Relations Workshop	4/6-7
Understanding and Managing Stress	4/6-7
Better Office Skills Service	4/27-29
Executive Secretaries and Administrative Assistants	

Special Programs 496-6211

Adult Education	
Training and Development Services Program	Continuous Availability

SHARE TRAINING: An online catalog is available by accessing WYLBUR. Enter SHARE TRAINING.

First time users only, enter:
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USUHS Seeks Male Volunteers

The Uniformed Services University of the Health Sciences is seeking healthy, nonsmoking men between the ages of 20 and 35 for a study on the repeatability of the effects of exercise on plasma levels of beta-endorphin.

Three groups are needed: men doing no regular endurance exercise such as running, biking, or swimming; men running between 10 and 25 miles per week; and men running more than 45 miles per week.

Volunteers will undergo maximal treadmill stress tests on three separate occasions while heart activity, oxygen consumption and temperature are monitored and blood samples are taken.

For more information, or to volunteer, call Sue Kyle, Human Performance Lab, 295-1371. □



A ribbon-cutting ceremony was held at the "Grand Re-Opening Day" of the Giftshop in Bldg. 31 with Agnes Richardson, R&W president cutting the ribbon. Also present were (l to r) Richardson; Holly Lebowitz, merchandising assistant; Mary Hodges, R&W recording secretary; Hiltraud James, 31 giftshop manager; Randy Schools, assistant general manager; Errol Forgosh, accountant.

Sexual Dysfunction: A Common Side Effect of Illness

Studies show that half of the population will have sexual dysfunction at sometime in life. It can be physically or psychologically related and in most cases can be treated and corrected.

Explaining this was a film, *When Sex Was Good, It Was Very, Very Good; When It Was Bad . . .* shown recently as part of a five-part film/panel discussion series being held on "Life Cycles and Illness," sponsored by the CC Social Work Department.

The film showed that sexual dysfunction is not uncommon in patients with cancer, diabetes, brain and spinal injuries, vascular disorders, hormone deficiency, high blood pressure or therapy involving antidepressant drugs.

Naomi Ballard of the CC Nursing Department, describes herself as a caregiver who commonly sees this problem with patients undergoing chemotherapy. "I try to get the patients to feel comfortable enough with me so that we can discuss this particular problem and others that arise due to the drugs they are taking," she said.

"The hospital setting is definitely not conducive to having sexual desires or relationships," Ballard continued, "But we as caregivers need to work more with patients and perhaps see

that they are given private time for closeness and togetherness with their families."

"We need to take the holistic approach in making the proper diagnosis and suggesting the proper treatment, to bring it together with the spiritual relationship," Chaplain Gary Johnson, a discussion panelist, stated. "We need to be sure to interrelate one with the other."

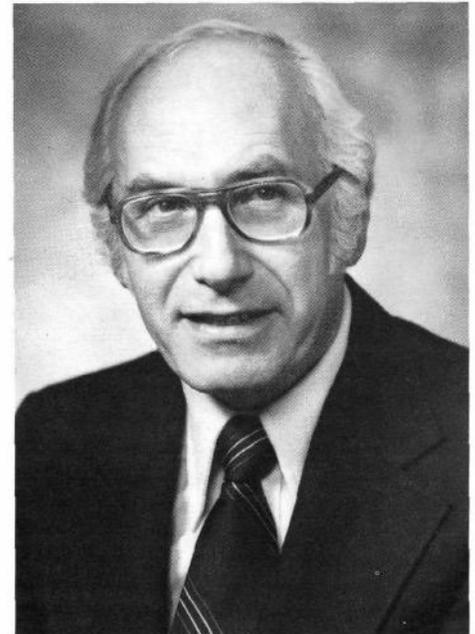
Don Rooney of the CC Social Work Department gave the name of a new support group, "Impotence Anonymous" as a source that offers fine help.

The film clearly states there are no cookbook answers to the sexual dysfunction problem.—
Anne Barber □

'What About Mom and Dad?'

A film about the decisions sons and daughters must make about their aging parents will be shown Apr. 9 at noon in the ACRF Amphitheater as part of the CC Social Work Department's continuing series on "Life Cycles and Illness."

The film, titled *What About Mom and Dad?*, will be followed by a discussion. □



Dr. Mischa E. Friedman has been appointed associate director for referral and review in the Division of Research Grants. Since 1984, he has been chief of the referral and review branch, a position he will continue to hold. In 1979, Friedman was presented the NIH Director's Award in recognition of his excellent leadership and managerial capabilities.



Three veterinarians recently received PHS Commendation Medals from DRS director Robert A. Whitney, Jr. (r). Dr. James F. Harwell (l), was honored for his performance as chief of VRB's veterinary medicine and surgery section while simultaneously acting as NIDR's staff veterinarian and playing a central role in developing animal care and use training for NIH scientists and technicians. (He has subsequently been named chief, VRB, DRS.) Dr. Alan Lock was honored for his performance in animal disease diagnosis and control, and in training NIH pathologists. Dr. James Watson, chief of VRB's small animal section, was cited for fostering initiatives in animal model development, rodent embryo cryopreservation, and small animal research holding. Another VRB veterinarian, Dr. Richard Killens (not pictured) was awarded the PHS Achievement Medal for his contributions in eradicating a canine parvovirus epidemic at the NIH Animal Center, Poolesville.

Applications Being Taken For Grants Workshop

A workshop on extramural programs and grant support, designed to help postdoctoral fellows understand the research grant process, will be held Wednesday, May 27, from 8:30 a.m. to 5 p.m. in Wilson Hall, Shannon Bldg.

The workshop, sponsored by the National Institute of General Medical Sciences, is intended for intramural postdoctoral fellows, staff fellows, clinical associates, and research associates. Others will be considered for participation if space allows.

The program will cover types of federal and nonfederal support available to new investigators, the NIH review process, points to remember when preparing a grant application, and appropriate persons to contact with problems or questions.

Application forms will be available from intramural laboratory and branch chiefs during the week of Apr. 13. Applications should be sent to Extramural Workshop, Rm. 919, Westwood Bldg. by May 15.

For additional details, call Dr. Janet Newburgh or Dr. Christine Carrico, 496-7181, or Dr. Judith Greenberg, 496-7175. □

Institute Directors Defend FY 1988 Budgets on Capitol Hill

By Rich McManus

Capitol Hill was alive with the sound of NIH institute directors defending their FY 1988 budgets earlier this month. Beginning with NIH Director Dr. James B. Wyngaarden, all were obliged to appear before appropriations subcommittees of the House and Senate in a yearly ritual that combines the rigor of a final exam, the courtesy of the courtroom and a good bit of humor.

Setting the record for most Hill appearances in the fewest days was Dr. Anthony S. Fauci, director of NIAID. His testimony on Wednesday, Mar. 11, before the House Appropriations Subcommittee on Labor, Health and Human Services, and Education was his fifth in 6 days.

"It's actually quite enjoyable," commented a thoroughly unflapped Fauci as technicians from the Public Broadcasting System prepared to film his testimony; PBS is making a television series to be aired this fall honoring NIH's centennial year.

"You've got to know everything about everything," he said from beneath the dangling boom of a TV microphone. "They can ask you any question they want."

Fauci explained that the purpose of the hearings is to defend the President's budget request for each NIH institute and to inform Congress about the work of the institutes. As a member of DHHS and hence the executive branch, Fauci is obliged to ask for no more money than the President thinks he should have. However, Congress has made a habit over the years of appropriating more funds to NIH than the President usually requests.

How does NIH accomplish this delicate diplomatic mission? With months of homework, acres of poster exhibits and—let us be perfectly frank—savvy politics.

Without going into too many details, Fauci's testimony so impressed the subcommittee that, after 1½ crisp hours of it, Rep. Carl D. Pursell of Michigan stated, "From your testimony today I would probably vote for you myself."



Dr. Anthony S. Fauci, director, NIAID, (seated at microphone) prepares to testify before a House Subcommittee on Appropriations Mar. 11. A television crew from the Public Broadcasting System can be seen preparing to record his testimony for a TV show to be aired this fall honoring NIH's 100th year. In the background (l to r) are Yvonne du Buy, NIAID budget director; Dr. William Jordan, director, Microbiology and Infectious Diseases program, NIAID; and Michael Goldrich, executive officer, NIAID.

Declared Rep. William H. Natcher of Kentucky, chairman of the subcommittee: "We're going to mark you up a good bill, Dr. Fauci. I say it to you frankly. I want you to keep in touch with this committee, and I want you to know that the people of this country care about AIDS. We believe in you Dr. Fauci, as well as all the other institute directors, the deputy director (Dr. William Raub was on hand to gather this plaudit), Dr. Wyngaarden and all the others."

Natcher has been in Congress since about the time the Clinical Center was built and is just as much of a fixture in Washington. His friendliness toward NIH was palpable as he recounted stories of testimony given over the years by former NIH Directors Drs. James Shannon and Donald S. Fredrickson. His unique pronunciation of Fauci (FOW-shee instead of FOW-chee) went cheerfully uncorrected as he and his committee members asked questions ranging from AIDS to AZT.

Fauci said that NIAID staff began intensive preparation for the hearings back in January and half a dozen staff members worked "almost exclusively" on the hearings in the 2 weeks preceding them. (Fauci also appeared before House

and Senate subcommittees with Dr. Wyngaarden at the director's hearings and during hearings for the Assistant Secretary for Health, DHHS).

According to Yvonne du Buy, budget officer for NIAID, both the Senate and House of Representatives must agree on an appropriations bill for NIH. Following written questions and answers and review of the hearing transcripts, NIH supplies both sub- and full committees of both houses with data on the effect a given level of funding will have on each NIH institute. Typically, the fiscal year has ended before the President signs the appropriations bill and it becomes law; we all get paid through a "continuing resolution" in that case, or are sent home.

After 1½ hours of testimony, Fauci closed his binders full of plastic-coated file cards, answered some questions in the hallway and walked with Dr. Raub toward a waiting NIH automobile. Arriving at NIH just at 5 p.m., he and his NIAID entourage opposed the general flow of employee traffic and went back into Bldg. 31.

Another day, another \$576 million. □

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