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"Still
The Second
Best Thing
About Payday"

The NIH Record

A 'Moving Target'

AIDS Epidemic in 1990's Lashes Society's Weakest

By Rich McManus

The AIDS epidemic in the United States not only picks on the sole cell in the human body that could conceivably oppose it, but also targets those segments of society least equipped to defend against it—the poor, minorities, women and children.

It was a bleak portrait of society at its most vulnerable that Dr. Anthony S. Fauci, NIAID director and NIH's associate director for AIDS research, painted for an audience at Billings Auditorium; his talk on AIDS in the 1990's was part of the ongoing PHS physicians' professional advisory committee seminars.

"I have colleagues in New York City who care for HIV patients," Fauci recounted, "and they call New York a 'fourth world' city—the AIDS statistics are as bad in parts of the city as they are in certain countries in Central Africa, Asia and South America."

AIDS dawned on NIH 10 years ago when researchers in the Clinical Center saw the first patients suffering what was then known as GRID—gay-related immunodeficiency syndrome. In the intervening years, NIH has committed more and more money as the epidemic—which Fauci described as a "moving target"—has spread.

In 1982, NIH devoted some \$3.3 million to AIDS studies. The NIH AIDS budget for 1992 is about \$850 million, or roughly 10 percent of the entire NIH pocketbook.

"I'm often asked, 'Are we doing enough

research on AIDS?'," Fauci related, "and that's an unanswerable question. Obviously, as long as we don't have a cure, we haven't done enough. The fact is, there are more scientific opportunities than resources available to exploit them."

Fauci acknowledged that the AIDS budget "is an extraordinary amount of money" but also admitted to a paradox—the government is both not doing enough and also doing disproportionately more (compared to such top killers as heart disease and cancer) on AIDS than other serious diseases.

"The answer (to budget riddles) nearest and dearest to those of us at NIH is that we certainly are not doing enough for all of biomedical research, not just for AIDS," he said.

As the nineties begin, the NIH AIDS budget is flattening out compared to non-AIDS expenditures. Regarding the virus itself, Fauci explained that "what's happening now with AIDS is what was happening 10 years ago with HIV infection.

"It started as a gay disease during the first decade," he explained. "We are living through a changing profile of the epidemic. The second wave is now affecting drug users and their heterosexual partners, and children of these groups, primarily in such inner-city areas as

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'Parallel' Computing Spurs Research Productivity

By Anne P. Enright

DCRT's highly parallel supercomputer—a refrigerator-sized machine that blinks expectantly in its small, chillingly air-conditioned room in Bldg. 12A—is the heart of a growing program that is changing the way scientists think about research. Speed is its strong suit, and unleashing its "horsepower" for biomedical research will save precious time in the race to improve our nation's health.

The computer, an Intel iPSC/860, runs unwieldy computations so much faster than conventional machines that scientists now are waiting minutes instead of weeks for results to appear.

The explanation? Ordinarily, complex biomedical computing applications—such as protein sequence analysis and molecular simulation—have been approached sequentially: A computer must finish one computation before beginning another one. In a highly parallel system, a problem is divided into sections, and each part is sent to a different processor, or node. The segments are then computed simultaneously and results emerge many times faster than they would using conventional methods.

William Rizzo, DCRT associate director, likens the differences between the two computer architectures to a human resources situation: Sequential computing is like giving a task to one talented person to do, from start to finish. Parallel computing resembles divid-

(See PARALLEL, Page 6)

Good Taste Lasts

Advanced Age, Healthy Mouth Can Coexist

By Carla Garnett

If thoughts of your favorite meal can make your mouth water wistfully now, chances are good that the same thoughts will produce the same result when you get older—if you remain in reasonably good health, according to Dr. Bruce Baum, clinical director of the National Institute of Dental Research, who reported this and other good news during "No Teeth, No Taste and No Spittle: Is This What Old Age Means for the Mouth?," a recent Clinical Center grand rounds presentation.

Contrary to common generalizations about aging, he said, there is no evidence that advanced age decreases salivary gland function, or that lessening of gustation (sense of taste) or toothlessness must automatically accompany aging.

"As they age, healthy individuals maintain most functions of the oral cavity," Baum said,

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DCRT's Tieng Yap converts a computer program to run on the highly parallel machine.

TASTE

(Continued from Page 1)

noting that researchers and physicians may see more oral disorders in older populations largely because of the groups' overall poorer health. He defined healthy individuals for his studies as basically those not being treated for a systemic disease and not taking prescription medications. "Aging and disease are different," he reminded the audience, "but they are intimately related."

Baum said disease and some treatments for disease can initiate the onset of a dry mouth, with subsequent tooth loss and swallowing problems, and can lead to changes in the way individuals of any age taste and enjoy foods.

Normal function of human salivary glands is important for a number of reasons, Baum said, including remineralization and repair of the oral tissues, proper swallowing, and prevention of tooth decay and infections. NIDR scientists have found no difference in amount or stimulation of saliva production between different age populations, he said.

In taste studies conducted by NIDR to measure a group's gustatory responses to four qualities of taste—sweetness, saltiness, sourness and bitterness—few differences between older and younger individuals were found and even then changes were very modest. As with other age-related observations in the oral cavity, Baum said, "statistically, significant changes may be seen, but biologically, changes [with age] are rare."

Baum emphasized that food enjoyment is dependent not only on adequate gustatory function, but also on such factors as the ability to recognize food temperature and texture, as well as olfactory (sense of smell) function.

In University of Pennsylvania "scratch and sniff" tests conducted in 1984, and repeated

in NIDR studies with healthy subjects, on cross-section populations of all ages, olfactory function waned dramatically beginning in individuals at about ages 60 to 70.

"We conclude that while there is no generalized decrease in gustatory function," Baum said, "there is considerable decrease in olfactory function with age."

The widely held belief that the teeth are the first to go does not have to be true, he said. Baum showed a compilation of evidence gathered from four national studies of toothlessness. In a 1957 study population of people ages 65 to 74, about 60 percent were found to be toothless, Baum noted. In a similar study done from 1985 to 1986, a dramatic drop in the prevalence of toothlessness—from 60 percent to 38 percent—was documented.

He cited three reasons for the decline in toothlessness: advances in preventive dental practices since the 1950's, society's improvement in and attention to modern oral hygiene practices, and water fluoridation, which he called "close to the most effective public health practice instituted in the United States."

Baum said the 1986 study result was encouraging and confirms his conclusion: "You don't lose teeth as a normal correlate of growing old. Most of us can look forward to keeping our teeth and oral function for a lifespan."

According to epidemiologic information Baum presented, 16.7 million Americans, or 9 percent of the United States population, was over age 60 in 1960. He said statistics suggest that by 2040, however, nearly a quarter of the U.S.—22.6 percent, or 68.1 million people—will be senior citizens. Adopting a healthy oral hygiene program early in life, Baum reiterated, can prevent most mouth-related diseases and complaints commonly, but erroneously, associated with aging. □

Women's Equality Day Planned

Aug. 26, 1991, marks the 71st anniversary of the 19th Amendment to the Constitution. Adoption of this amendment secured for women an equal voice in our democracy—the right to vote. Ratification of the 19th Amendment in 1920 marked a watershed in American history by ensuring that women could share the rights and responsibilities of citizenship with men.

To commemorate the 71st anniversary of the 19th Amendment, the Division of Equal Opportunity, the advisory committee for women, and the Bethesda chapter of Federally Employed Women will sponsor a Women's Equality Day observance. The program will be presented Aug. 29 from 11:30 a.m. to 1 p.m. in Lipsett Amphitheater, Bldg. 10.

NIH director Dr. Bernadine Healy will open the program, followed by a panel of women from the NIH community who will discuss their experiences and successes in "breaking the glass ceiling." All NIH employees are invited to attend. Sign language interpretation will be provided. For additional information and reasonable accommodations, contact DEO, 496-6301. □

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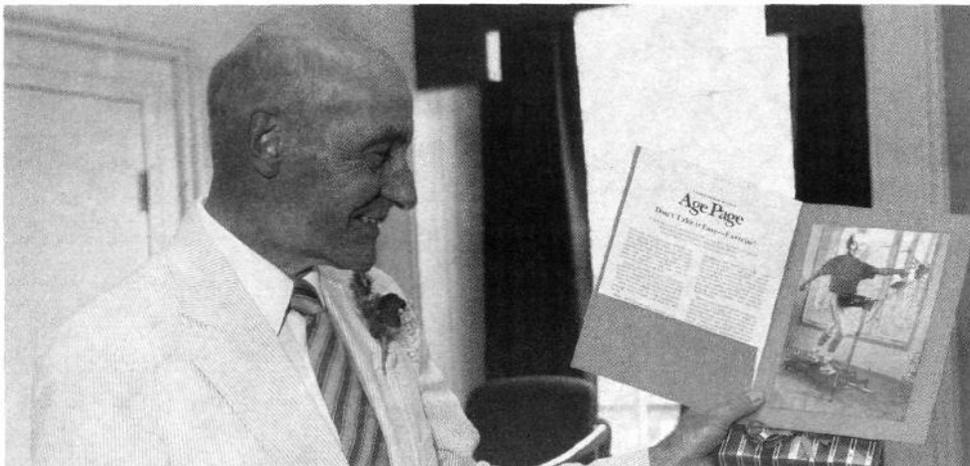
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Former NIA director Dr. T. Franklin Williams, shown here displaying an exercise regimen for himself, was honored at a number of events before leaving NIH. Fetes for him included an NIA forum on aging research, an appreciation award from the Interagency Forum on Aging-Related Statistics, and a gathering at which musicians from the Gerontology Research Center in Baltimore praised him in song.

Scientists Define Vascular Dementia During NINDS Conference

By Chris Vaughn

Dementia takes a heavy physical, emotional and economic toll on families and society at large. But the outlook for prevention and treatment of the disorder could be profoundly improved by a better understanding of one type of dementia called vascular dementia, according to scientists who participated in an international conference on the subject. The conference, sponsored by NINDS and the Geneva-based Association Internationale pour la Recherche et l'Enseignement en Neurosciences, was held recently at NIH.

Participating in the conference were scientists from the United States, Japan, France, Finland, Germany, Great Britain, Italy, Holland, Spain, Sweden and Switzerland.

Research on vascular dementia—a dementia caused by insufficient blood flow to parts of the brain—is hampered by the fact that there is no general agreement about what constitutes a diagnosis of the disorder in living patients. The conference was convened to attempt to reach a consensus on this issue in order to further research and communication around the world.

Conference participants spent a day describing international research perspectives on a range of topics including morphology, neuropathology, brain imaging and neuroepidemiology. In the latter session, investigators provided overviews of vascular dementia as it affects people in Japan, Europe and the U.S. Both Finland and Japan report higher prevalence of vascular dementia than any other countries. The second day was devoted to panel discussions on definitions and diagnostic criteria for the disorder, leading to a session on the final day during which chairpersons and rapporteurs prepared a final draft of the recommendations on standardized diagnostic criteria and case definition.

Conservative estimates are that 11 percent of Americans in their eighties are afflicted with dementia. Most of these cases are thought to be caused by Alzheimer's disease, but an estimated one-quarter to one-third of patients have vascular dementia. Some patients may have both vascular dementia and Alzheimer's disease.

The distinction between the two types of dementia is important. Treatments for Alzheimer's disease are extremely limited, while patients with vascular dementia may improve if underlying risk factors are treated, says Dr. Gustavo Roman, chief of the Neuroepidemiology Branch, NINDS. "It would be a tragedy if there were a simple way to help some dementia patients and we missed it because we don't know how to recognize those patients," he said.

Vascular dementia may be caused by a cere-

brovascular episode that damages large areas of the brain or by small strokes that kill or reduce the function of smaller but vital brain regions. Some areas of the brain seem to be more susceptible to cerebrovascular insufficiency than others. White matter, for instance, seems to be particularly susceptible to a fall in blood pressure. For this reason, the scientists at the conference decided that low blood pressure should be added to the list of risk factors commonly associated with the disease. The most common risk factors are those usually associated with hypertensive disease such as smoking, high blood pressure and a history of stroke.

The scientists agreed that magnetic resonance imaging (MRI) can be an important tool in the diagnosis of vascular dementia. Extensive white matter changes as seen by MRI are more likely caused by vascular dementia, while atrophy in the cortex is more likely a sign of Alzheimer's disease.



At the International Vascular Dementia Conference recently held at NIH, Dr. Gustavo Roman (l), chief of NINDS's Neuroepidemiology Branch, sat with Drs. Takenori Yamaguchi (c), director of the cerebrovascular division at Japan's National Cardiovascular Center, and Julio H. Garcia, chief of neuropathology in the department of pathology at Henry Ford Hospital in Michigan.

The conferees also decided that although clinical symptoms and neuropsychological tests are helpful in the diagnosis of vascular dementia, no set of questions or single psychological test offers a definitive diagnosis of the disorder. They hope that by adopting a more widely accepted definition of vascular dementia, scientists around the world will more easily be able to combine and compare research results.

"We need to come to grips with descriptive criteria differentiating the dementias, and to communicate and share this information with scientists throughout the world," said NINDS director Dr. Murray Goldstein. "Armed with

uniform definitions, investigators can better explore the causes and expressions of the various categories of dementia. Dementia is a global term for a disorder resulting from a host of etiological factors. Dementia due to cerebrovascular insufficiency is clearly one major category of dementia and demands focused attention from neurological scientists." □

Dental Materials Conference Set

A technology assessment conference on "The Effects and Side Effects of Dental Restorative Materials" will be held Aug. 26-28. Cosponsored by NIDR and NIH's Office of Medical Applications of Research, the conference will be held in Masur Auditorium, Bldg. 10.

The purpose of the conference is to allow the dental and medical communities the opportunity to evaluate available scientific information on dental restoratives and address the issues of efficacy and safety.

Although tooth decay has been declining steadily among American children in recent years, there remains a substantial demand in this country for dental restorative materials. More than 200 million restorations are placed each year.

The most commonly used dental restorative material is mercury-containing amalgam, followed by tooth-colored plastic composite materials, various cements, alloys of gold and porcelain.

Once placed, dental restorative materials are in contact with living tissues. Although they are made as strong and inert as possible, fillings may deteriorate or break and minute amounts of component substances may leach into the mouth.

This conference will bring together interdisciplinary experts including dentists, toxicologists, and biomaterials scientists to review the properties, effects, and side effects of many dental restorative materials in current use.

The conference is open to the public and there is no charge for registration. Fourteen hours of continuing education credit are available to dentists and physicians.

To register for the conference, contact Janine Joyce, Prospect Associates, 1801 Rockville Pk., Suite 500, Rockville, MD 20852, (301) 468-6555. □

Use Smokeless Tobacco?

The NIDR dental clinic is conducting a study on the effect of smokeless tobacco on the tissues of the mouth. Volunteers who use smokeless tobacco are needed for dental examination. Call Dr. Jaime Brahim or Dr. Leah Royce, 496-4371 or 402-0448. □

AIDS*(Continued from Page 1)*

New York City, Newark, Baltimore, Houston, and Washington. There is a greater incidence of this group (getting AIDS) than gay men at the present time."

About 60 percent of the AIDS cases diagnosed since the epidemic began in the U.S. have been in homosexual or bisexual males. Twenty-two percent of the cases involve I.V. drug abusers, 7 percent involve those who are both gay and use IV drugs, 6 percent involve heterosexuals and about 1 percent involve hemophiliacs.

Worldwide, some 10 million people are believed to be infected with HIV.

"By the end of the nineties, some 40-50 million people will be infected with HIV, most from developing countries," Fauci reported. "It is attacking portions of the world that are not at all equipped to handle it."

Studies of HIV's inroads to American society are alarming, Fauci continued. Of the 3,100 pediatric AIDS cases reported thus far, 84 percent got the virus from a parent. AIDS has become one of the leading causes of death for all men ages 25-44. For Black males in that age group, HIV-related death will soon become the leading cause of death. Only homicide is challenging AIDS for the lead in mortality statistics in young Black men.

"I have colleagues in New York City who care for HIV patients and they call New York a 'fourth world' city..."

—Dr. Anthony S. Fauci

"That really tells us something terrible about our society," said Fauci. "A Black male living in New York City has a greater chance of dying by murder or AIDS than any other cause."

A recent study of the blood of 20,000 newborns in New York state showed, statewide, 1 in 117 babies is born with HIV. In the Bronx, however, the ratio is 1 in 43.

"That is a direct reflection of the I.V. drug use problem," said Fauci.

Closer to home, a study of 5,000 patients at two sexually transmitted disease clinics in Baltimore showed an "astounding" 5 percent of study subjects infected with HIV. "Half the men had no idea how they got the virus," Fauci reported. "And three-quarters of the women acknowledged no high-risk behavior other than heterosexual behavior." By comparison, the HIV infection rate in Zaire is about 6 percent.

Because AIDS, unlike the flu, is not homogeneously spread in society and because it is a "behaviorally mandated epidemic,"

there has been no truly broadbased public outcry, Fauci said.

Research on HIV is focusing on ways to interrupt its life cycle. Current therapeutic strategies involve attacking its genes or gene products. Until recently, AZT—which interrupts viral replication—was the only HIV agent approved by the Food and Drug Administration.

"AZT is an imperfect drug," Fauci cautioned. "It is toxic and it only suppresses the virus for a while. It does increase survival though."

Dideoxyinosine (ddI), which like AZT is a nucleoside inhibitor, was recently recommended for approval in HIV patients by FDA; Fauci expects it will be approved soon.

Most AIDS patients undergo an acute drop in lymphocytes shortly after exposure to HIV, followed by a partial rebound in these infection-fighting white cells. Five or six years later, typically, early symptoms begin. Somewhat later opportunistic infections appear such as *Pneumocystis carinii* pneumonia. Death usually follows within 1-2 years, with the entire process taking more than 10 years from infection to full-blown disease.

Where the term "ARC," or AIDS-related complex, was once used to define early symptoms, the term is now obsolete, Fauci said. "Once a patient has severe constitutional symptoms and signs such as night sweats, wasting and uncontrollable diarrhea, he has AIDS."

The infections that beset AIDS patients are extraordinarily rare in the general, healthy population, Fauci said. A competent immune system wards them off with comparative ease. Once past the body's defenders, however, the infections can target the eyes, mouth/throat, skin, brain, lungs, and gut.

"There has been a philosophical change in the treatment of AIDS patients," Fauci explained. "We try now to intervene as early as possible in HIV, without waiting until the patients are ill or until their immune systems are ravaged."

Fauci predicts that, by the end of the nineties, there will be three to four or more prophylactic drugs against opportunistic infections in addition to those against *Pneumocystis carinii* pneumonia, including oral medicines for cytomegalovirus, toxoplasmosis, candida and cryptococcosis.

An AIDS vaccine will probably be available before decade's end, he forecasted. "I foresee phase II trials in humans, if not in the U.S. then in high-incidence countries such as Thailand or certain African countries, in the next 2-3 years," he said. Attempts to reconstitute a damaged immune system are also part of NIH's overall HIV research strategy.

From a societal standpoint, HIV has become a lens through which a broad variety of failings—or opportunities—are visible in

American public health, Fauci said, echoing a theme presented several years ago by James Watkins, former head of President Reagan's AIDS commission.

"AIDS has forced us to look at various critical public health issues that were always with us—the extraordinary degree of substance abuse, sexually transmitted diseases, a reemergence of tuberculosis," Fauci enumerated. "We lack an adequate maternal/child health care system, our mental health and social services are lacking, and health education needs substantial improvement. HIV, if it has done anything positive, has forced us to focus on our serious public health problems."

A major hurdle facing those who would be treated for any disease in the U.S., let alone AIDS, is that, among certain segments of society, access to health care is relatively limited, Fauci said. An estimated 37 million Americans, roughly one-sixth of the popula-

"... We certainly are not doing enough for all of biomedical research, not just for AIDS."

tion, are uninsured.

Regarding the recent scare over patients who appear to have contracted AIDS from their health care workers, Fauci said, "You could plot an HIV panic curve just like an HIV infection rate curve. Getting lost in the panic is the fact that the risk of getting HIV infection from a physician is very, very small, much less than the risk of a patient giving it to his or her doctor."

Fauci said not a single case of AIDS has been traced to an HIV-infected surgeon in a study of patients examined postsurgery. A health care worker has a 0.3 percent chance of getting HIV from an HIV-infected patient through an accidental needlestick, versus a 26 percent chance of contracting hepatitis B through a needlestick from a patient with this virus.

Recognizing that they had perhaps the country's most authoritative AIDS spokesman in their midst, the audience took the opportunity to ask Fauci a variety of questions.

On the Acer case: "It's a very, very strange case. I hesitate to comment because Dr. Acer is not around to defend himself, but it looks as though he had to be incredibly sloppy in his practice." Fauci said the case underlines the need for strict adherence to sterile techniques in any medical procedure.

On mandatory AIDS testing and criminal charges for physicians who do not inform their patients if they are infected: "There isn't anything to be gained by this approach. Voluntarism should be given a chance." Nonetheless, mandatory HIV testing will indeed happen, he assured, but it will be forced by insurance companies that cover hospitals and physicians. □

NIDCD Funds Study on Taste and Smell Disorders

No one talks much about smell and taste disorders.

Unlike deafness or blindness, most people are unfamiliar with the word "ageusia," which refers to the loss of taste, or even "anosmia," denoting a loss of the smell function.

Yet millions of people are unable to savor the subtle tastes of a gourmet meal, smell the light scent of a bouquet of roses, or heed the alarming fumes of a toxic gas.

Scientists at the University of Pennsylvania, however, are fitting together the pieces of this little-understood chemosensory puzzle that interferes with the lifestyle of people of all ages.

In a recent NIDCD-supported study, investigators examined 750 men and women in the Philadelphia area from 1980 through 1986 who had come to the University of Pennsylvania Smell and Taste Center with smell or taste complaints.

Dr. Richard L. Doty of the University of Pennsylvania Medical School, who headed the research, said this study is the largest and most comprehensive analysis of chemosensory disorders.

The investigative team found that most complaints of taste loss were actually reflective of a loss of smell. The study also showed that sensory disorders can be induced by physical injuries and infections, and may possibly be induced or prevented by certain chemicals.

Aging, Alzheimer's disease, and Parkinson's disease can also lead to chemosensory disorders.

Doty said the three causes responsible for most chemosensory problems are upper respiratory infections, head trauma and sinus disease. In the study, reported in the May 1991 issue of *The Archives of Otolaryngology—Head and Neck Surgery*, Doty said head trauma had the most severe chemosensory effects on the patients, most of whom were middle-age.

The researchers found that antidepressant use may be associated with chemosensory disorders. The scientists said that patients with either smell or taste complaints often were taking antidepressant drugs. They noted, however, that it was difficult to determine whether the depression or the drugs taken for depression were truly associated with the patients' disorders.

The investigators said that the intake of certain estrogen hormones may protect against smelling disorders in postmenopausal women. Only 4 percent of the women patients who had lost their sense of smell were taking conjugated estrogen at the time. This is much lower than the percentage of estrogen users in the general population.

Another hormone, levothyroxine taken for thyroid imbalances, was associated with sensory disorders and also burning mouth

syndrome, according to the results of the study.

The study also raised questions about zinc, a long-time, controversial drug treatment for sensory disorders. Investigators evaluated patients taking zinc in their study and found no significant influence of zinc on smell or taste dysfunction. The investigative team noted, however, that anyone who may have benefited from zinc treatment wasn't part of this study.

One unexpected find in this study was the relationship between strange smell sensations and warm air or steam. Steam from a boiling tea pot, for example, temporarily caused an odd smelling sensation in several patients.

The investigators assessed chemosensory function through a host of psychophysical tests, including a new, forced-choice odor detection test that can be used easily in a doctor's office. The forced-choice test is unique because it "forces" a patient to make a decision when distinguishing among different odors, leaving little room for subjectivity.

The scientists said that smell and taste disorders can often result from a variety of diseases. Smell and taste complaints are important, therefore, because they may assist a physician in diagnosing a particular disease. The researchers also said this study, along with data from other smell and taste centers, will provide new direction for the treatment of chemosensory disorders. Although this study was robust, the investigators added that more research is needed to make all the findings of this study more definitive.—Chris Wanjek □

Fall Symposium Examines Cell Cycle Regulation

A fall mini-symposium on cell cycle regulation will be held Oct. 18 at Hood College in Frederick, Md. Deadline for registration is Sept. 18.

Speakers and their topics include: Tony Pawson, "SH2 Domains Direct Protein-Protein Interactions in Signal Transduction"; James Roberts, "Control of the G1/S Transition in the Human Cell Cycle"; John Newport, "How Cells Know When to Go into Mitosis"; Joan Ruderman, "Control of the Cell Cycle in Early Embryos"; Andrew Murray, "How Cells Know When to Leave Mitosis"; Joseph Nevins, "Functional Consequences of Oncogene-Anti-oncogene Interactions."

Registration fee of \$25, which includes lunch and refreshments, should be paid to Foundation for Advanced Cancer Studies c/o Patti Hall, NCI-FCRDC, P.O. Box B, Bldg. 539, Frederick, MD 21702-1201. □

Theatre Group Holds Auditions

Auditions will be held Sunday, Aug. 25 and Monday, Aug. 26 at 7 p.m. in Masur Auditorium, Bldg. 10, for the NIH R&W Theatre Group's production of a musical tribute to Cole Porter titled *Another Op'nin' Another Show*. Performances will be presented the first three weekends in November for the benefit of the Patient Emergency Fund.

Actors, singers, musicians, dancers and technical staff are needed. Prepared materials are not necessary. For further information call Ron, 652-2544. □



General Electric's ELFUN Society (roughly equivalent to R&W at NIH) recently presented a check in the amount of \$11,500 to Special Love/Camp Fantastic, raised by means of a volleyball tournament and softball tournament. In addition to these events, the society has also put on carnivals and picnics for NIH patients. Shown are (back row, from l) Charles Butler and Randy Schools of Special Love; Jack Hanson, GE; DeeDee DeSatnick, GE. In front are (from l) Mike Harrington, GE; Christen Mansfield, CC patient; and Gary Clark, GE.

PARALLEL*(Continued from Page 1)*

ing the task into pieces and giving it to many people who work simultaneously. Some tasks—especially extremely complex ones—can best be solved if they are segmented and given to a number of people to complete; other problems are better handled by one expert.

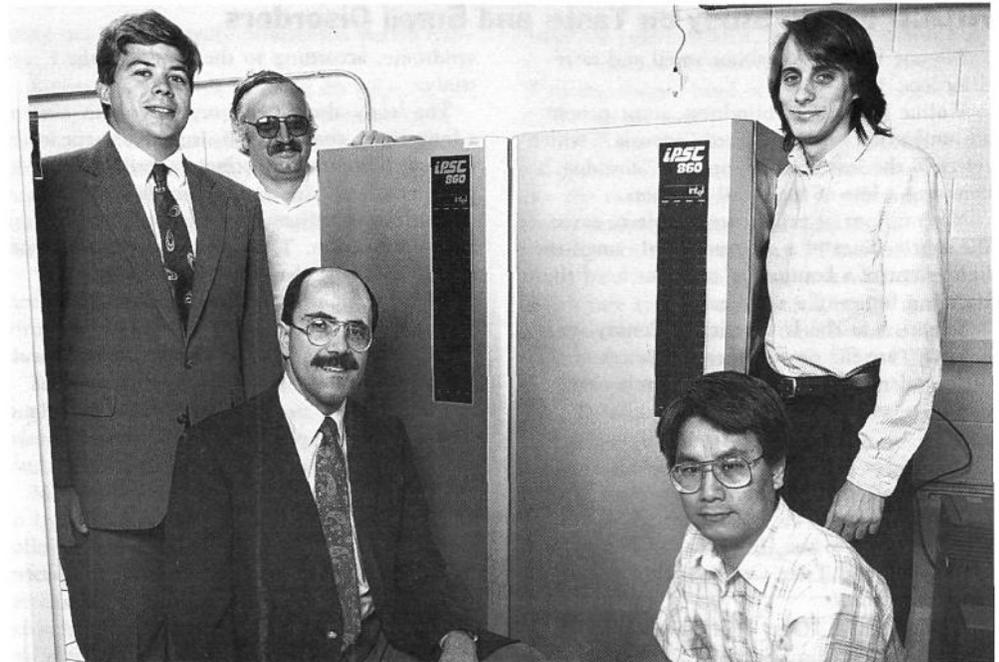
Dr. Robert L. Martino, who is pioneering biomedical applications of this massively parallel system, is working to provide a premier, highly parallel computer facility that will benefit many NIH researchers in their scientific computing needs. "The physical limits of sequential computer technology are being reached," explained Martino, head of DCRT's Computational Science and Engineering in DCRT's Computer Systems Laboratory. "The application of parallel architectures has and will continue to have a positive effect on science at NIH."

This impact may be evident even at the inception stage of a scientific inquiry. "Parallel computing makes new classes of problems accessible to researchers," says Risso. "Now, a researcher can consider aspects that may have been too computationally intensive and unreasonable to perform on a conventional machine."

Some researchers are already experimenting with the highly parallel system. Four DCRT engineers are developing software in conjunction with scientists who work on such projects as protein and nucleic acid sequence analysis and molecular dynamics simulations. "Interdisciplinary teams collaborate on developing software for computationally intensive applications so that scientists may eventually perform these applications transparently from their workstations," Martino says. DCRT's Calvin Johnson, for instance, adapts image processing of electron micrographs for the parallel computer.

John Pfeifer, a DCRT computer engineer, came to NIH with—not surprisingly—a background in computer science. Over the past few months, however, he has become intimately familiar with a different discipline: nuclear magnetic resonance spectroscopy. With scientists at NIDDK, Pfeifer and Intel's Stan Erwin customized a software package that determines protein structures on the highly parallel supercomputer. Experimenting on the cutting edge of technology is something Pfeifer enjoys about highly parallel processing. "This is definitely the direction that high-end computing is going," he notes.

Tieng Yap, also a DCRT computer engineer, has "parallelized" another software program—for scientists in NINDS—that analyzes protein and nucleic acid sequences. His months-long collaboration has reduced computer processing time for one computation from 23 hours—on a Sun workstation—to



Speed is power—highly parallel supercomputer helps scientists pick up the pace of complex biomedical research. DCRT collaborators are (clockwise from front l) Dr. Robert L. Martino, Calvin Johnson, Stan Erwin, John Pfeifer, and Ed Suh of the Computer Systems Laboratory.

approximately 4 minutes—using 64 nodes on the iPSC/860.

Until recently, projects like these have been in the earlier stages of development: Computer engineers develop parallel implementations of the application software and intramural scientists suggest sample data sets. Now, some applications are ready for production. As a result, the highly parallel machine is becoming the focal point of a campus supercomputing center, in which scientists can perform their own applications and consult with DCRT experts when necessary. This high-tech resource center is connected to NIHnet, the campus-wide computer network, so scientists need not leave their labs to access increased computing power.

The key—and the challenge—to computing at the parallel system's top speed is to minimize the amount of communication among its processors. If a problem is successfully "parallelized," or divided into distinct segments, the application should run at the record speeds for which the machine is known. Ed Suh, DCRT computer engineer, said his work is completed up to 35 times faster on the parallel computer.

But, Martino points out, peak performance is not the program's focus. "Of course, peak performance is important for rapid computations. But our goal is to impact the scientific applications of NIH researchers," he remarked.

This machine is unique, in part, because it is so familiar. Instead of holding custom-designed circuitry, as do many supercompu-

ters, the highly parallel computer contains several of the disk drives and processors that can be found in ordinary computers. A peek inside its closet-sized doors reveals 16 hard-disk drives and 128 processors. This architecture is popular not only for its speed, but also for its price tag: Highly parallel supercomputers tend to cost comparatively less than other high-end machines.

DCRT acquired the Intel iPSC/860 through participation in the DARPA Touchstone high-performance parallel computing project, a collaboration of federal agencies working together on highly parallel computing initiatives. Martino praised the DARPA project for fostering cooperation between agencies such as NASA and the Oak Ridge National Laboratory.

"We're part of a major national effort in parallel computing," Martino remarked. "This groundbreaking program will allow for upgrades to the newest hardware and collaboration on some of the software development."

Highly parallel processing is the latest addition to biomedical computing technology. Says Martino, "Another array of tools is being brought to bear on some of NIH's complex research problems." □

NINDS Needs Volunteers

The NINDS is seeking healthy volunteers ages 40-70 for a study of blood pressure control. Participants will receive monetary compensation, free medical exam and EKG. For further information call 496-8850. □

Scientists Begin 'Framework' Map of Human Genome

Human genome project scientists have begun a new, unified effort to develop a "framework" map of the human genome. Expected to take 2 to 3 years to complete, this interim map will establish on each human chromosome an ordered set of special, high quality "index" markers that will help scientists pinpoint genes or other genetic regions more quickly. Once scientists narrow down the location of a gene to an interval on the framework map, they can focus their search only on the segment of the chromosome located between the index markers.

"This is a crash program to get a series of really good markers out into the hands of the research community quickly so they can use them to go after genes," says Dr. James D. Watson, director of the National Center for Human Genome Research. "The plan is that the markers will go into a central repository where they will be available to everyone."

The framework map is part of NCHGR's ongoing goal to produce a highly detailed "linkage" map of the human genome. Linkage maps are so called because they are made by following two separate but linked traits that are passed through families, from one generation to the next. By determining how often the two traits—for example, color blindness and blond hair—occur together among family members, scientists can estimate how far apart on a chromosome the genes for those two traits lie. Two traits that are frequently inherited together are usually located close together on a chromosome. If the location of the gene for blond hair is known, for example, scientists can use it as a landmark to search for the nearby gene for color blindness. In this way, a system of established markers on the framework map will help researchers pinpoint genes for inherited diseases or other biological traits.

The index map will differ from existing linkage maps in the scientific usefulness of the markers. To be an effective marker, a trait must be present in a population in a variety of forms, and at least 70 percent of the time any two people will carry different forms. If a marker exists in only a few forms, it is difficult for scientists to track it through families because members "on both sides" of a family are likely to have the same form. It is difficult then to tell which branch of a family tree the marker, and the gene linked to it, came from.

Although some 2,000 markers have been assigned to human chromosomes so far, only a small fraction of them are of high enough quality, or "informative" enough, to be used as index markers. And many of the existing informative markers are concentrated in a few regions of the genome.

In addition to using the small number of known high-quality markers, researchers developing the framework map will find and characterize new, highly informative markers

spanning each of the 23 pairs of chromosomes. The aim is to space the markers between 10 to 15 million base pairs apart. A base pair is a chemical subunit of DNA. An average human chromosome contains about 150 million base pairs of DNA.

So far, NCHGR supports framework mapping of the following human chromosomes: 1, Nicholas Dracopoli, Massachusetts Institute of Technology; 2,6,7,8,12, and 14, Helen Donis-Keller, Washington University (St. Louis); 3, Sue Naylor, University of Texas Health Sciences Center, San Antonio; 4, Jeff Murray, University of Iowa; 5,16, and 17, Ray White, Howard Hughes Medical Institute, University of Utah; 9, Dave Kwiatkowski, Massachusetts General Hospital; 10 and 20, Tim Keith, Collaborative Research, Inc., Bedford, Mass.; 11, Mike Litt, Oregon Health Sciences University; 13 and 15, Anne Bowcock, University of Texas Southwestern Medical Center; 18, Conrad Gilliam, Columbia University; 19, Jim Weber, Marshfield Medical Research Foundation, Wisconsin; 22, Jonathan Haines, Massachusetts General Hospital. □

Chesapeake Bay Fishing Trip

R&W has chartered boats from Scheible's Fishing Center in Ridge, Md., for a day of fishing on the Chesapeake Bay. Beginners and experts are all welcome to join us on Saturday, Oct. 5 for this relaxing day on the bay. Cost is \$47 and includes 8 hours on the boat, your bait, tackle and fishing license, plus a hearty lunch (you provide beverages of your choice). Sign up at any R&W location or call 496-4600 for more information. □

Renaissance Festival Tickets

Experience 400 years of fun in a single day—the popular Maryland Renaissance Festival kicks off Aug. 24 for its 8-weekend run in Crownsville, Md. R&W offers discounted tickets; \$8.95 for adults (\$2 off), and \$3.50 for children.

The festival features more than 200 professional magicians, jugglers, minstrels, musicians and other performers; some 130 craftspeople presenting their wares, including stoneware, glassblowing, pottery, leather, armor, woodworking and more; authentic jousting matches; a Biergarten; children's area with a zoo; games of skill and sport for all ages; and a variety of foods.

The festival will be held every Saturday and Sunday, Aug. 24 thru Oct. 13 (and Labor Day, Monday, Sept. 2) from 10:30 a.m. to 7 p.m. Tickets are available at all R&W locations and can be used for any date. For more information call 496-4600. □

NIH Summer Computer Expo

The NIH Summer Computer Expo will be held on Thursday, Aug. 22 in Wilson Hall, Bldg. 1. The 1-day showing of microcomputer technologies will be open from 10 a.m. to 2 p.m.

More than 20 different exhibitors from all over the United States will be on hand displaying the latest in office automation and graphics, desktop publishing, technical computing, communications, training and much more.

All personnel are invited and there is no registration or fee. For more information call (301) 206-2940. □



A group of undergraduate students supported by the NIGMS Minority Access to Research Careers (MARC) Program recently gathered at the NIH Visitor Information Center to meet with NIGMS and other NIH staff and to compare notes on their summer jobs. These students are working in NIH laboratories as part of their honors undergraduate research training experience. This component of the MARC program seeks to increase the number of minority students who can compete successfully for entry into graduate programs leading to a Ph.D. or M.D.-Ph.D. degree in the biomedical sciences.

*Perfect Combination***Transfusion Medicine Department Plays Role in Gene Therapy**

By Sue Kendall

To a sick little girl, it must seem tiresome and bewildering. She comes to the Clinical Center from her home in Ohio, has blood taken from her arm, and later has some "stuff" put back into her arm. Then she goes home until next month, when the process begins all over again. All she wants is to feel better. What she's too young to understand is that she's part of medical history.

Last September, in performing one of these apparently simple infusions, the Clinical Center's department of transfusion medicine (DTM) used its resources and expertise to carry out the cutting-edge gene therapy protocol developed by Dr. W. French Anderson of the National Heart, Lung, and Blood Institute and Drs. R. Michael Blaese and Kenneth Culver of the National Cancer Institute. A second child began the protocol in January. Says Dr. Harvey Klein, DTM chief, "We were very enthusiastic about being a part of this program. We knew we had the technology that would benefit it."

DTM prepared more than 1 billion genetically repaired white blood cells that were transfused into the bloodstream of the 4-year-old girl who has ADA deficiency, a lethal and rare hereditary disorder in which cells lack a gene that produces an enzyme essential to the proper functioning of the immune system. It is similar to the disease that afflicted the "Boy in the Bubble," who survived to age 12 by living in a completely sterile environment to avoid infections.

Not only did DTM collect the cells from the young girl, it also assisted with the behind-the-scenes repairs on the cells to get them ready to be infused. Gene therapy involves fixing these defective cells by inserting into them the gene they lack and then infusing the repaired cells back into the patient. Although cell repair can be done in a regular research laboratory, Anderson and Blaese needed to grow large quantities of the cells, repair them, and place them back into the patient without introducing any infections. Enter DTM.

When the little girl arrives at the CC for her monthly treatment, she goes to DTM where she "donates" a unit of blood. About a billion white cells are then separated out so the missing gene can be inserted, and the remaining blood cells are infused back into the patient. If the child were larger, she could be hooked up to a machine that would automatically draw the blood, separate out the white cells, and reinfuse her blood, a process called apheresis. But with a small child, the "low-tech" method is simpler, faster, and works just as well.

The cells are drawn from the child in one area of the department, carried about 20 yards to a laboratory in another area, treated, grown, concentrated, and sent to the patient's bedside in a blood bag, "just as you would issue a blood transfusion," Klein explains. The cycle takes about 2 weeks. When the child returns for the infusion of the treated cells, all she has to do is lie quietly while the grayish mixture drips into her veins, just as if she were receiving a transfusion of her own blood.

"That part is very easy for the patient," says Klein. "The real difficult part is for the people handling the cells. Dr. Culver and my staff, for whom I have only the highest praise, really worked around the clock to prepare for our part in this."

The mechanism for repairing the defective cells by carrying the missing gene into them is called a vector, which is a retrovirus whose own genetic instructions have been removed so it cannot replicate itself. The missing human gene is spliced into the vector, which is then mixed with gene-lacking cells taken from the patient. Under carefully controlled laboratory conditions, the vector enters the cell and inserts the gene, thus repairing the cell.

The vector is produced in a commercial high-tech laboratory under Anderson's supervision and is sent to DTM in a container, much as any lab reagent would be. DTM then uses a time-tested open system of plates and wells to combine the vector with cells taken from the patient. The mixtures are placed in incubators to allow the vector to carry the gene into the cells under sterile conditions, a process called "treating" or "transducing" the cells.

Klein explains: "The vector carries the human gene into the cell once, but since it's defective, it cannot go on to infect any other cells. Once it has done its job, that's it." This contrasts with the retrovirus that causes AIDS, HIV. HIV enters a cell, controls it, reproduces more of itself, and then infects other cells.

Although the process of treating the cells sounds simple, "it is very labor-intensive, meticulous work that goes on 7 days a week," and requires at least two full-time laboratory staff members, says Klein.

DTM is working to automate the cell-handling and transfusion technology to the point where it can be exported to other hospitals. "Right now, it is very difficult, very time-consuming, and very expensive," says Klein. "There aren't many institutions that can mobilize the resources to do it the way it's being done here," he adds. "We're taking technology that we work with in the transfusion world and marrying it to very state-of-the-

art laboratory techniques so that they're more practical to use in humans."

A major goal is to close the system so cells are grown, treated, and infused back into the patient all in one set of transfusion bags. This would ensure easier handling of the fragile engineered cells. The current system of using plates and wells is certainly effective, but a closed system would virtually eliminate any chance of contamination by reducing the cells' exposure to air or other lab hazards.

DTM has also developed techniques for labeling these bags of cells, with an eye toward exporting the technology. Since the CC is currently treating only two patients, labeling isn't a problem. However, should gene therapy become widely used, there must be a method for ensuring that each patient receives his or her own cells. A mistake could have disastrous results.

Based on findings of blood studies done over the last year, DTM researchers have targeted additional areas to improve the technology such as collecting larger numbers of cells from small children, finding ways to get the gene into more cells, finding better ways of growing the cells, and using collection bags made of different materials.

Of the two CC patients, the first has completed the initial phase of the gene therapy protocol, and the second is almost finished. "Both are doing beautifully," says Klein. "We know nothing bad has happened, and we have a number of indications that some very good things have happened," but researchers need to see how long those benefits will last without further treatments. Since these repaired cells probably do not reproduce, and eventually die off in the body, both girls will face infusions of fresh cells throughout their lives.

Eventually, gene therapy may be used to treat cancer, infectious diseases, and hereditary diseases other than ADA deficiency. Klein projects that the future of gene therapy is in treating stem cells, permanent cells found in the marrow and bloodstream that produce red and white blood cells. The idea is to insert the missing gene into the stem cells so that the cells they produce will also contain that gene. Scientists here at NIH are working on methods to accomplish this. Once the technology exists, DTM would become responsible for collecting, treating, and delivering stem cells to patients.

Klein knows his team can deliver. The department opened an expanded facility at the west end of the north corridor in August 1990, 1 month before the protocol began. "This lovely new laboratory gave us the space and physical resources," he says. "We simply could not have done it in the old lab." □

Hispanic Media Executives Gather at NIA

By Carolyn S. Shanoff

Representatives of the major Spanish language broadcast and print media organizations in the United States say they want to cooperate with the National Institute on Aging to disseminate health information to older Hispanics, whom they called "desperate" for such information. The public information office at NIA and the Administration on Aging recently hosted the news executives at a workshop to determine how best to use these media outlets to disseminate news of biomedical research and disease prevention.

The workshop was the third in a series of meetings sponsored by NIA to explore ways to meet the health information needs of older Hispanics, the fastest growing segment of the older population. It was organized in response to a suggestion by a group of Hispanic health researchers and social services professionals at an earlier NIA workshop, "Developing Strategies for Disseminating Health Information to the Older Hispanic Population." In the end, the meeting served a double purpose: NIA staff learned how to format and package health information for the Spanish language media, and workshop participants came away with a greater awareness of the health problems faced by older Hispanics.

According to Dr. Manuel Miranda, NIA assistant director for interdisciplinary research, among Hispanics, older women who speak only Spanish are the most difficult to reach with health messages—and the most in need. "They are likely to be the poorest, the most frail and in the worst health among the Hispanic population," he said. "They have little or no education and need very simple, direct, practical health messages. At the same time, they are likely to live with younger family members, who can talk about health promotion, disease prevention, and available services once they themselves get these messages from radio, television, newspapers and magazines."

Deborah Durham, Washington bureau chief of Univision, the leading national Spanish language television network, said that when it comes to health news, "our listeners prefer the 'news you can use' kind of format that includes local resources and practical tips." Other participants agreed, noting that they also want to provide information about institutions and services. Indeed, the group agreed that a federally funded clearinghouse and regional toll-free telephone lines staffed by bilingual, bicultural personnel are other practical ways to disseminate information about health and services.

The media representatives said they want to provide their audiences with more information about health and biomedical research in general, and targeted diabetes, arthritis,



Dr. Gene Coben, acting NIA director, and Dr. Antonia Novello, U.S. Surgeon General, attend a reception to welcome representatives of the nation's leading Hispanic newspapers, magazines, and radio and television networks.

depression, hypertension and cardiovascular disease as medical problems of special relevance. "You have the health information that our readers need," said J. Gerardo Lopez, managing editor of *La Opinion*, the nation's oldest Spanish language newspaper. "I think the time is right to build a strong relationship with NIA that will benefit our diverse communities."

At a preworkshop reception sponsored by NIA and the American Association for Retired Persons, U. S. Surgeon General Antonia Novello welcomed the group, and hailed the press for its interest in reporting research breakthroughs and disseminating health information. □

Infant Care Available

The NIH Infant/Toddler Center run by ChildKind, Inc., in Bldg. T-46 has spaces available for children 18 months to 2 years of age. Subsidy information is available on request. Call Lee Eltman, 496-8357. □

Healy Meets Foreign Diplomats at NIH Reception

The Fogarty International Center hosted a reception recently to introduce Dr. Bernadine Healy to the foreign diplomatic community in Washington.

Dr. Philip E. Schambra, FIC director, introduced the new director to the diplomats, many of whom are in regular contact with FIC and other NIH scientists and staff members. He noted that Healy "has been actively involved in international science for many years. She brings to the NIH not only her expertise and experience as a physician and a scientist, but a broad understanding of the government of the United States and the federal role in international scientific research and policy."

In her remarks to the group, Healy spoke of President Bush's commitment to the work of NIH, which he had expressed on a trip here the previous week, and quoted him as saying, "Biomedical research is a key to transforming the practice of medicine." She added, "We all rely on the commitment of our leaders to maintain and expand our efforts to improve the health of people everywhere."

She reminded the diplomats that one-third of all scientists working in NIH laboratories today are from other countries, "and are an integral and much-appreciated part of the NIH community. The research efforts of NIH have always been enriched by the contributions of outstanding foreign scientists working both in the United States and in laboratories in their own countries."



Members of the diplomatic corps in Washington recently attended a Stone House reception for NIH director Dr. Bernadine Healy. Here she meets Vladimir Ossenov (l), first secretary of the Embassy of Bulgaria, as Fogarty International Center director Dr. Philip Schambra looks on.

The members of the diplomatic community expressed their pleasure at meeting the new NIH director and learning of her international interests. They pointed out that international commitment to biomedical research is steadily expanding around the world. Clearly, several observed, international cooperation is not only desirable but essential for future progress in many critical areas of health research.

Countries represented at the reception included Austria, Barbados, Bolivia, Bulgaria, Canada, the People's Republic of China, France, Germany, Indonesia, Italy, Japan, Norway, Poland, St. Lucia, Saudi Arabia, South Africa, Thailand, the Soviet Union, and United Kingdom.

NIAID's John Bennett Receives 'Master' Designation

The American College of Physicians has conferred the designation of "master" on NIAID's Dr. John E. Bennett for his contributions to the understanding of systemic mycoses. One of the leading experts in the world on systemic fungal infections, Bennett is chief of the clinical mycology section in NIAID's Laboratory of Clinical Investigation.

Masters are a small group of highly distinguished physicians, selected by the members of the college, who have achieved recognition in medical practice or research. Since the mastership program was established in 1924, 214 masters have been chosen from among the college's membership, which currently numbers more than 70,000. Bennett is only the second person at NIH to be awarded the college's highest honor. The other is Dr. John C. Decker, former director of the Clinical Center.

Masters are authorized to use the letters MACP (Master of the American College of Physicians) in connection with scientific publications and professional and academic activities.

Born in El Centro, Calif., Bennett completed his undergraduate degree in 1955 at Stanford University and his medical degree in 1959 at Johns Hopkins University School of



Dr. John E. Bennett

Medicine. After completing residency training at Hopkins, the University of Washington in Seattle and the University of Washington in St. Louis, Bennett began his research career at NIH. He has served as lecturer at Johns Hopkins and is a full professor at the Uni-

formed Services University of the Health Sciences.

Bennett's numerous publications focus on systemic fungal infections and chapters in leading textbooks such as Harrison's *Principles of Internal Medicine* and Goodman and Gilman's *Pharmacological Basis of Therapeutics*. He is one of the editors of the leading infectious disease textbook, *Principles and Practice of Infectious Diseases*, which won the R.R. Hawkins Award in 1979 as the most outstanding professional and scholarly book.

In addition to publishing extensively in his field, he has served on the editorial boards of *Journal of Infectious Diseases*, *Antimicrobial Agents and Chemotherapy*, *Journal of Clinical Microbiology*, and the *International Journal of Antimicrobial Therapy*. He is a member of many scientific advisory boards and professional societies.

As an active member of the college, Bennett has lectured at its regional and national meetings and served twice on the infectious disease subcommittee of the Medical Knowledge Self-Assessment Program.

He also received the Commendation Medal of the Public Health Service in 1986 and the Besredka Award of the Foundation Franco-Allemande in 1988.—James Hadley □

NIAID Advisory Council Gains Five New Members

Five new members were recently appointed to the National Advisory Allergy and Infectious Diseases Council. They are: Dr. Marian E. Koshland, professor in the department of molecular and cell biology at the University of California at Berkeley; Dr. Floyd J. Malveaux, chairman of the department of microbiology at Howard University College of Medicine, and associate professor of medicine at the Johns Hopkins University School of Medicine; Dr. Martin Rosenberg, vice president and director of biopharmaceutical research and development for SmithKline Beecham Pharmaceuticals in King of Prussia, Pa.; Nancy Sander, founder and president of Mothers of Asthmatics, Inc., in Fairfax; and Wheelock Whitney, chairman of the Whitney Management Co. in Minneapolis.

Koshland received her Ph.D. in immunology from the University of Chicago and has been associated with the University of California for more than 30 years. She has served on the editorial boards of the *Annual Review of Cell Biology*, the *Journal of Immunology*, and *Immunochemistry* and has published numerous scientific articles.

Malveaux received his Ph.D. in microbiology from Michigan State University and his medical degree from Howard University. Currently, he is president of the Maryland Medical Association, and on the editorial review board of the *Annals of Allergy* and the

editorial board of the *Journal of the National Medical Association*.

Rosenberg has a Ph.D. from Purdue University and did postdoctoral training at NIH. He is the author of numerous scientific articles, and serves on the editorial boards of the *Journal of Molecular Biology*, *Journal of Acquired Immune Deficiency Syndromes*, *Current Methods in Molecular and Cellular Biology*, *Current Opinion in Biotechnology*, and *AIDS Research and Human Retroviruses*.

In 1985, Sander founded Mothers of Asth-

matics, Inc., a division of the National Asthma and Allergy Network, an organization devoted to providing resources to patients with asthma and allergies and to their families.

Whitney is a graduate of Yale University and has an honorary degree of doctor of humane letters from Hamline University in St. Paul. He serves on the boards of a number of corporations and is past president of the Investment Bankers Association of America.



Dr. Anthony S. Fauci, NIAID director (front, second from l), welcomes new members to the National Advisory Allergy and Infectious Diseases Council. They are (front row, from l) Dr. Marion E. Koshland, Nancy Sander, Dr. Floyd J. Malveaux. At rear are (from l) Wheelock Whitney, Dr. Larry W. Laughlin, and Dr. Martin Rosenberg. Laughlin, of the Naval Medical Research Institute in Bethesda, is the new ex officio member.



TRAINING TIPS

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

Courses and Programs *Starting Dates*

Management and Supervisory 496-6371

Using Animals in Intramural Research:	
Guidelines for Investigators	9/5
Voice for Success	9/9
Introduction to Supervision	9/9
Effective Communications (Phase I)	9/17
Practical Approaches to Stress Management	9/18
Hands-On Animal Techniques Workshop: Rodent Techniques	9/26

Office Operations and Administrative

<i>Systems Training 496-6211</i>	
Introduction to Working at NIH for New Employees	9/9
Medical Terminology II	9/11
Quality Writing II	9/19
Telephone Communication	9/30

Special Courses 496-6211

Basic Employee Relations	9/11
American Sign Language Level I	9/10
American Sign Language Level 2	9/10

Outlet Shopping Trip Set

Get a jump on your holiday shopping with big savings at the Reading, Pa., outlets. We'll "spend" the day at the Vanity Fair Factory Outlet complex with more than 40 manufacturers' outlets and almost a million square feet of shopping. Cost for the trip is \$24 and includes transportation and juice and pastries for the ride up. The motorcoach leaves from Bldg. 31C at 7 a.m. and will return at approximately 7 p.m. Reserve your seat today at any R&W location. For more information call 496-4600. □

DCRT Offers Training Classes

<i>Classes</i>	<i>Dates</i>
Introduction to SPSS at NIH	9/9-9/13
DB2: SQL and QMF Selected Topics	9/11-9/13
Memory Management on the PC	9/16
Getting Started With C	9/16, 9/17, 9/20
ENTER MAIL	9/17
Convex Questions and Answers	9/18
Ligand Bonding for the PC and Macintosh	9/20
Beyond Basic WYLBUR	9/23-9/27
BITNET	9/25
Flow Cytometry Topics	9/26, 9/27
Introduction to Windows	9/30
C Language Fundamentals	9/30-10/4
Use of SAS at NIH	9/30-10/11

Classes are offered by the Computer Center Training Unit, DCRT without charge. Call 496-2339 for information. □

Chaplain Kenneth Bastin Mourned

The Rev. Kenneth A. Bastin, 36, who was chief of the Clinical Center's department of spiritual ministry for the past 2 years, died in a traffic accident in Washington, D.C., on Aug. 1.

A minister of the American Baptist Churches, he came to NIH from Columbia Hospital for Women in Washington, where he had been director of spiritual care services for 6 years. He had also been a chaplain with Hospice Care of D.C., interim minister of Gunton-Temple Presbyterian Church in Bethesda, and a chaplain-in-training at St. Elizabeths Hospital.

In addition to his pastoral duties at NIH, where he held regular worship services in the chapel on the hospital's 14th floor and visited patients, Bastin was a member of the CC ethics committee and supervised students in the department's clinical pastoral education program. He was also very active in the Association of Mental Health Clergy, holding several offices in that organization.

A native of Lexington, Ky., Bastin had lived in Washington since 1979. He was a summa cum laude graduate of Georgetown College in Kentucky and attended Southern Theological Seminary in Louisville.

He worked at the Masonic Widows and Orphans Home in Louisville and was interim pastor of a church in Jeffersonville, Ky. He had also been a missionary in Malaysia in 1976.

Bastin was honored by the American Cancer Society for 5 years of service on the organiza-



Rev. Kenneth A. Bastin

tion's clergy and professional education committees. He also served on the D.C. mayor's committee for organ and tissue donation.

He was a member of the Association for Clinical Pastoral Education, the Society for Health and Human Values and the Hospital Council of the National Capital Area. He also was on the executive committee of the Ministers Council for Chaplain and Pastoral Counselors of the American Baptist Churches and belonged to American Baptist Concerned.

Survivors include his parents, Garland and Catherine Bastin of Lexington, Ky.; and a sister, Patricia Morse of Gainesville, Fla.

Carpools Need Members

Persons to share driving from Frederick to Executive Plaza North are needed, beginning immediately. Hours are 8:30 a.m. to 5 p.m., but willing to drive in earlier. If interested, call Karen, 496-6491 or 496-1181.

A fourth driver is needed to join a carpool coming from Frederick to NIH in Bethesda, starting immediately. Hours are from 7:30 a.m. to 4 p.m. Call Ruth, 496-6127. □

Murder Mystery Tickets

You are cordially invited to a dinner, a clue and a murder or two. R&W invites you to help solve the crime on Saturday, Sept. 28 at the Fiesta Restaurant (near Van Ness Metro station at Connecticut and Van Ness) as "Mystery on the Menu" presents a murder mystery dinner theatre. The fun starts at 7 p.m. The murder mystery dinner package is \$38 (save \$2 off regular price) and includes dinner, show, tax, gratuity and a margarita. Make your reservations at any R&W location. For more information call 496-4600. □

Weight Watchers Classes Offered

Registration for the next session of Weight Watchers at NIH will be held on two consecutive Fridays—Aug. 30 and Sept. 6 at noon in Bldg. 31, Rm. 11A10. Meetings will be held on Fridays, beginning Sept. 6, from noon until 1 p.m. Cost for the 10-week session is \$120 for new members (payable upon registration) and includes program materials, weekly meetings, and musical entertainment. Current Weight Watchers members or lifetimers who are over goal can join at a discounted rate of \$105. Special foods are not required to participate. Class size is limited to 30 people and registration is on a first come, first served basis. For more information call the R&W, 496-6061. □

Exhibit Depicts Art as Depression Therapy

By Marilyn Weeks

Deenie Kenner McKay suffered her first bout with depression when she was 14. She remembers the experience as one of "plunging downward, as if I had been standing on a trap door that opened suddenly."

The frightened teenager hid her feelings from her family and accepted the waves of pain and futility that followed as "just the throes of adolescence."

McKay, now 46, struggled with the anguish of increasing isolation and plummeting self-esteem for two decades before she was correctly diagnosed as having manic-depressive illness, and was accepted to participate in a National Institute of Mental Health research program.

Taking up a brush for the first time since childhood, she made painting part of her therapy, filling canvases with images of what she finally knew was a disease, but still could not express in words.

Today, 18 of the 33 tempera paintings in her "Dark Angel, Pilgrimage with Depression" series are part of a mental health public awareness exhibit at the National Museum of Health and Medicine Foundation, Armed Forces Institute of Pathology, Washington, D.C. The display, which also features the work of two other artists, is being shown through Nov. 30. It is sponsored by the foundation in cooperation with the Depression Awareness, Recognition, and Treatment (D/ART) Program, NIMH.

Titled "Depression: From Darkness to Light, Applying the Healing Process," the exhibit depicts the feelings and emotions associated with depression and emphasizes the importance of educating the public about clinical depression as a treatable mental disorder. More than 10 million Americans suffer each year with depression, which often goes unrecognized and untreated.

"I know so many people who suffer as I do and have not sought help," said McKay, a resident of Falls Church, Va.

For more than a decade after her initial episode with depression, the native Tennessean "quietly endured" her illness. Once a top student, McKay saw her grades and self-confidence decline as her feelings of failure increased. Her paintings about this period of her life include "Despair," "A Tear," and "My Gethsemane." An accompanying narrative tells of being "hounded by a barrage of unrelenting self-criticism," loss of identity, and "aching pain" throughout her body. The gaunt, hollow-eyed face of "The Hag" records the young woman's belief that she was old and ugly, despite her high school beauty award nominations.

Unable to hold a job, she spent most of her



Artist Deenie McKay stands beside her portrait of "Bleeding Madonna." She associates it with her growing fears, anxiety and humiliating failure after having to resign her first job as a chaplain. "The madonna's mantle bleeds over her emptiness while she gazes at her hand—somehow she has done this to herself," McKay said.

time in bed. "The Serpent" chronicles her efforts to "lie very still so as not to wake the sleeping serpent in the pit of my stomach . . . and unleash the fury and pain of the disease upon me."

Eventually, she was able to earn her master of divinity degree and, at 33, began working as a hospital chaplain. At the end of a year, however, "I had to resign because I was so depressed I couldn't move."

McKay was 34 when she was diagnosed as having manic-depressive illness, a mental disorder involving alternating mania or "highs" and depression. Of "The Spider—Diagnosis," she writes, "There was no relief in this discovery. I felt like a convicted criminal with a lifetime sentence. I was shattered that I could not control this myself."

She joined the NIMH program for what would become 7 years of counseling and efforts to find a medication, with minimal side effects, to treat the highs and lows of her illness. She also began painting the images of her illness.

"The Butterfly" symbolizes her new outlook when the right medication brought about the change she describes as "miraculous—like being recalled to life." She resumed her career as a chaplain, taught painting as therapy for others, and remained free of cycles of depression for 3 years. She decided to have an art exhibit in a church reception hall.

"I thought I was through with the depression and I wanted my friends and associates to see what I had been through," said McKay, who later exhibited her artwork at two other

churches and at Potter's House in Washington, D.C.

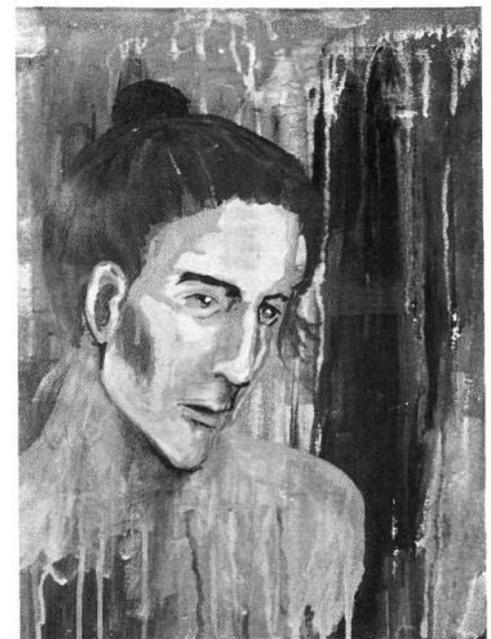
McKay still lives with her illness, a feat she finds "enormously frustrating." Last year, her body developed an intolerance to the once-effective medication, and two new antidepressants did not work for her.

"I still struggle with it as an illness," she says, and "pray for a cure and try to help others who are dealing with it."

Of the other two artists sharing McKay's efforts to promote mental health awareness by participating in the medical museum exhibit, one draws on first-hand experience with depression to create quilts, and the other uses watercolors to trace a friend's "Journey through Darkness."

The exhibit also includes illustrations of depression produced by patients in art therapy classes at the Walter Reed Medical Center and brain scans showing the abnormalities associated with mental disorders.

The museum, which is located at the Walter Reed Army Medical Center, is open Monday through Friday from 9:30 a.m. to 4:30 p.m., and 11:30 a.m. to 4:30 p.m. on Saturday and Sunday.



This painting called "The Hag—The Other Side of the Mirror" is by artist Deenie McKay, who uses art as therapy for her manic-depressive illness.