

The NIH Record

A 'Marriage Brokering'

Forum Encourages Partnerships Between Scientists and Industry

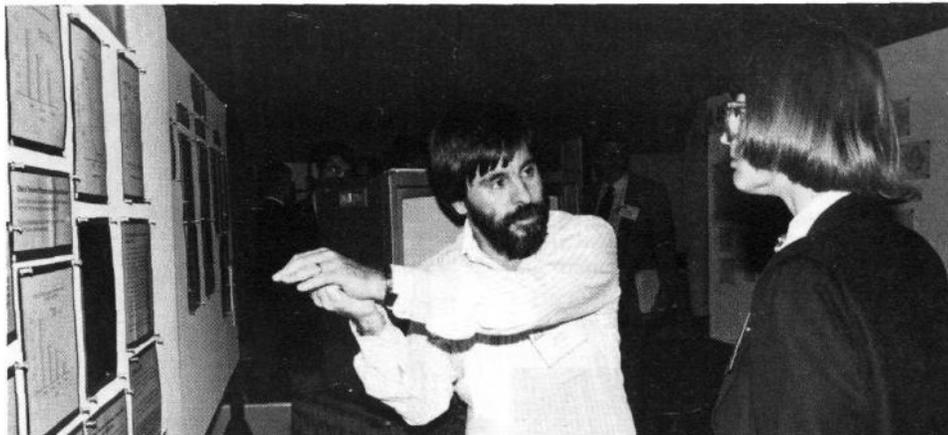
As big business goes, it wasn't as big as Philip Morris Cos. inhaling Kraft Inc. to the tune of the tens of billions. But the NIH/ADAMHA-Industry Collaboration Forum, held last month at the Omni Shoreham Hotel, may eventually yield profits both for government scientists and private companies.

Held in response to the mandates of the Federal Technology Transfer Act (FTTA) of 1986, which encourages government scientists to engage in collaborative research with industry, the forum enabled investigators to show potentially marketable products or ideas to more than 200 company representatives, about a quarter of whom hailed from local biotechnology firms.

"It's an initial marriage-brokering kind of event," observed Dr. Philip S. Chen Jr., NIH associate director for intramural affairs. "It gives government and industry a chance to feel each other out and learn about one another."

The forum, which drew more than 200 intramural scientists and their posters from NIH and ADAMHA, is "the result of the recognition that much government-funded research is either lying on a shelf not being commercialized or sitting in journals waiting to be picked up by foreign scientists," said Chen, who gave an hour's talk on the ramifications of the FTFA.

"The past several Congresses have recognized that, in order for the United States to



Dr. James Sellers of NHLBI gestures during an explanation of his theories on the role of myosins and actins in muscle contraction at the NIH/ADAMHA-Industry Collaboration Forum held recently at the Washington Omni Shoreham. The forum attracted some 220 company representatives interested in marketing the fruits of government research. Looking on is Dr. Ellen Anderson of the Food and Drug Administration.

remain competitive, the results of federal research must find opportunities to reach the market," he explained. "The intent of Congress in passing the FTFA was to assure that the results of appropriate government-conducted research become available commercially through patenting and licensing of inventions and thereby contribute to America's competitiveness in the world marketplace."

Cautioned Chen, "We must be careful that

NIH not become an arm of some industrial laboratory, though. Our mission is to acquire knowledge. But if that knowledge has commercial potential, we'd like to see it applied."

Among the scientists on hand for the day-long meeting was Dr. Roscoe Brady, chief of the Developmental and Metabolic Neurology Branch, NINDS. His poster on enzyme replacement therapy for hereditary metabolic

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On the Coattails of Codebusters

Scientists Chart Advances in Genetic Research at Science Writers Seminar

By Bobbi Bennett

For at least 2,500 years, philosophers have encouraged man to know himself. That goal—at least in terms of knowing the location of the genes in the human genome and the order of its chemical bases (known as mapping and sequencing, respectively)—should be achievable in the next 15 years. But this knowledge will merely open the door for more intimate explorations of the nature of man and disease.

Much of the progress that has brought us to this point is the result of ongoing studies in molecular genetics that have evolved from pioneering work at NIH in the 1950's. Twenty-five years ago, in what is considered by many to be NIH's greatest achievement, intramural scientist Dr. Marshall Nirenberg "broke the genetic code," deciphering how nature uses the order of DNA bases to produce proteins that carry out various functions in the



Dr. Marshall Nirenberg

body. The basic and clinical advances that have resulted from this fundamental discovery were the subject of a recent NIH Science Writers Seminar, held in conjunction with the opening of an exhibit on Nirenberg's work in the DeWitt Stetten, Jr. Museum of Medical Research in the Clinical Center.

Featured speaker Nirenberg, now chief of NHLBI's Laboratory of Biochemical Genetics, summarized the "spectacular advances made by other researchers on the genetic code" since he left the field 20 years ago. He pointed out that, although the code is a universal one, certain "dialects," or variations, have been found. The codes in the DNA of mitochondria (the principal sites of energy generation in the cell's cytoplasm) and certain microorganisms, for example, have been found to differ in sev-

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Watkins To Give AIDS Overview

Admiral James D. Watkins (Ret.), chairman of the Presidential Commission On AIDS, will speak at NIH on "America Through the HIV Lens" in Lipsett Auditorium, Bldg. 10, at 10 a.m. on Wednesday, Nov. 30.

After working for nearly a year, the commission in June delivered almost 600 recommendations to the White House for improving the federal response to the AIDS epidemic.

President Reagan praised the commission's work and many of the recommendations are being implemented by the administration. The commission's report was widely commended for the depth of its findings, which



Admiral James D. Watkins (Ret.)

included a call for expanding a number of AIDS-related programs and facilities at NIH, and for its compassionate tone in the treatment of persons with AIDS.

Watkins, who retired in 1986 as chief of naval operations, is credited with leading the commission out of a controversial start-up period to deliver a final report that was supported by leading researchers, healthcare and social workers in AIDS.

Dr. James B. Wyngaarden, NIH director, and Dr. Anthony Fauci, NIH associate director for AIDS research, will also take part in the program.

The Nov. 30 event is in cooperation with the World Health Organization, which has designated Dec. 1 as "World AIDS Day." □

Poinsettia Sale

R&W is sponsoring a poinsettia sale in Bldgs. 31, 10, 38 and Westwood on Thursday, Dec. 15.

For further information contact the R&W, 496-4600. □



Behind-the-Scenes Look at Nova

Perhaps one of the most enjoyable things about the public television series *Nova* is that it not only entertains the viewer, it makes him or her think and ask questions. Some of those questions might be about the series itself: Where do they get their ideas for shows? How do they keep the programs balanced? What goes into producing a typical *Nova* show?

For a rare behind-the-scenes look at the premiere science broadcasting series, NIH'ers are invited to hear *Nova* executive editor William Grant on Nov. 22 from 10 to 11:30 a.m. in the Lipsett Auditorium. He will talk about what goes on before a show airs—a fascinating process viewers rarely glimpse. He will illustrate his talk with film clips showing excerpts of shows in rough cut and finished form.

Grant has been working in documentary television for 5 years, the past 3 at *Nova*, and earlier as managing editor of the *Frontline* series. Before that, he was an education reporter for the *San Francisco Chronicle* and the *Detroit Free Press*, and a political writer for the *Lexington (Ky.) Leader*. He has also published numerous freelance articles.

"Behind the Scenes at *Nova*: A Look at the Star of Science Programming" is sponsored by the NIH Information Officers Training Committee. All NIH employees are invited to attend; there is no registration. For more information, call Brent Jaquet or Susan Johnson in the NIDR information office, 496-4261. —Susan Johnson □



Responding to a call on Nov. 4, at 1:35 p.m., NIH firemen work to put out a fire on the roof of Bldg. 41. According to Bill Magers, assistant chief, "The origin of the fire was due to a mechanical problem with the emergency generator." The damage was considered to be minor and after 45 minutes, the employees were allowed to reenter the building. Photo by Karlton Jackson, NLM

Normal Volunteers Needed

NIMH seeks healthy male and female volunteers (ages 18-65), who are in good general health and not taking any medications, to participate in blood sampling studies determining hormonal variations. Volunteers will be paid for their participation. For more information, call Dr. Mark Demitrack, 496-1891. □

The NIH Record

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Willy Burgdorfer Wins Koch Foundation Gold Medal

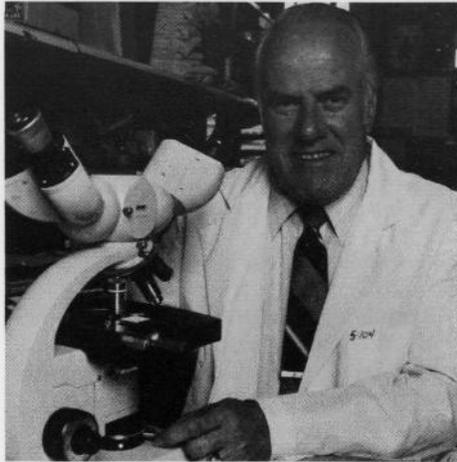
By Jeanne Winnick

Dr. Willy Burgdorfer, scientist emeritus in the Laboratory of Pathobiology at NIAID's Rocky Mountain Laboratories in Hamilton, Mont., has been awarded the Robert Koch Foundation Gold Medal for 1988. He was honored for his outstanding scientific achievements in research on infectious diseases, and in particular for "Discovering in the midgut tissues of the ixodid tick, *Ixodes dammini*, the causative spirochetal agent of Lyme borreliosis. Discovery of this new spirochete, named in his honor as *Borrelia burgdorferi*, has made possible the treatment of this widespread and complex disease."

This prestigious award was presented to Burgdorfer by Dr. Rita Suessmuth, West German Minister of Health, and Dr. H. Zur Hausen, president of the Robert Koch Foundation, at a Nov. 7 ceremony in Bonn, West Germany. The following day, Burgdorfer presented a lecture on Lyme disease at the Pettenkofer Institute in Munich.

The Robert Koch Foundation was established in 1907 after Dr. Koch discovered the pathogen involved in tuberculosis. Its original aim was to promote Koch's scientific work on combating this disease. Over the years, however, the foundation's objectives have broadened to include scientific research on all infectious diseases. Previous gold medal winners have included Drs. Rene Dubos, John Enders, Albert Sabin, Jonas Salk, Saul Krugmann, Richard Krause, Ernst Ruska and Hans Muller-Eberhard.

A distinguished and highly honored scientist, Burgdorfer is an authority on rickettsial diseases, particularly Rocky Mountain spotted fever (RMSF). His studies provided much of the fundamental knowledge about the biolog-



Dr. Willy Burgdorfer

ical relationships between rickettsiae and their tick vectors, and the means by which these organisms are maintained and distributed in nature. A simple rapid test (hemolymph test) devised by Burgdorfer has been applied extensively to determine whether persons bitten by ticks should be treated prophylactically for spotted fever. In addition to Lyme disease and RMSF, his other research interests include relapsing fever, tularemia, Colorado tick fever and California encephalitis.

Burgdorfer joined NIAID in 1951, formally retiring in 1986. On his retirement, the governor of Montana sent a certificate of merit in recognition of his service, and the mayor of Hamilton presented a congratulatory letter from the city honoring him for his community service. He is still actively engaged in research at the RML. □

HIV Nef Protein Slows Viral Production in Vitro

By Sandy Hecker

Researchers at NIAID have shown for the first time that the protein product of an important AIDS virus gene called *nef* slows viral gene expression, which reduces production of progeny viruses in infected cells. The *Nef* protein ("*nef*" denotes the gene, "*Nef*" is used for the name of the protein) might foster latency, an important feature of HIV infection, by slowing viral replication in infected cells.

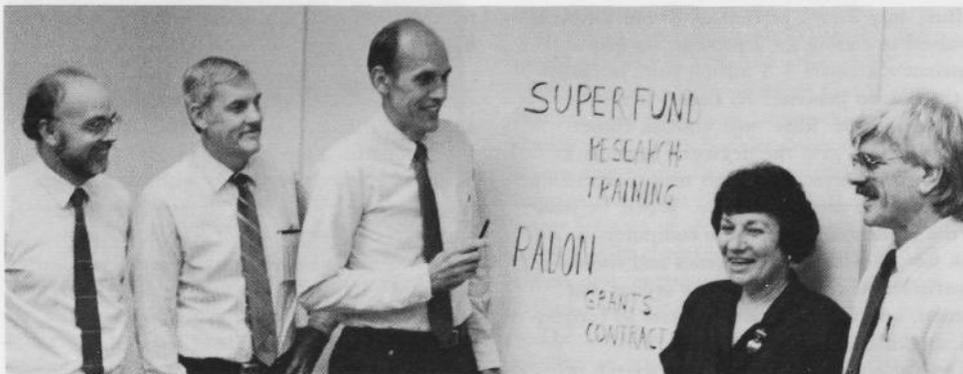
Drs. Nafees Ahmad and Sundararajan Venkatesan, Laboratory of Molecular Microbiology, NIAID, showed that HIV lacking a functional *nef* gene grew better in cells and killed them more quickly than did HIV with functional *nef*. When *Nef* was restored, the researchers found a proportionate decrease in viral replication. The greater the amount of *nef* added, the fewer viral particles were produced.

In another group of experiments, the researchers demonstrated that the *Nef* protein affects the long terminal repeat (LTR), a genetic region of the AIDS virus that is responsible for activating the viral genes. This step is required to begin viral replication (production of more viral particles). Ahmad and Venkatesan further pinpointed the region within the LTR that responded to the *Nef* protein.

Other researchers have shown that the viral *Nef* protein is related to a class of cellular proteins produced by oncogenes, which control cell division and maturation. Thus, in addition to having an effect on HIV replication, *Nef* may modify or affect certain cellular proteins as well.

HIV is a challenge for researchers attempting to understand its complex functions in order to devise strategies to prevent or to fight HIV infection. The AIDS virus has at least nine genes that contain genetic instructions for viral function and structure. Researchers are just beginning to sort out the complex effects these gene products have on the genetic material of HIV and on the infected host cell over time, as well as how these effects alter the course of HIV infection.

The research team's findings are helping unravel the complicated process that determines how efficiently HIV replicates in cells. This has implications for understanding latency, or the apparent inactivity of HIV in some infected cells. Research data about this process provide knowledge critical to development of AIDS drugs and vaccines. □



Members of NIEHS' Division of Extramural Research and Training staff review new programs in Superfund hazardous waste research and training and radon research grants and contracts. They are (from l) Drs. William A. Suk, program administrator; Jerry A. Robinson, health scientist administrator; Thorsten A. Fjellstedt, deputy director of DERT/NIEHS; Annette Kirshner, health scientist administrator; and George S. Malindzak, health scientist administrator. The staff travels frequently between NIH's Bethesda campus and NIEHS headquarters in Research Triangle Park, N.C.

GENETICS

(Continued from Page 1)

eral places from the code in nuclear DNA (the location of the genes that code for most proteins).

For years, scientists have believed that there were 20 amino acids that form chains in various combinations to become proteins. However, a 21st amino acid, selenocysteine, was discovered in the past year. It is a derivative of the amino acid cysteine, contains selenium, and has a very unusual tRNA. (Transfer RNA, or tRNA, plays a critical role in the final stage of protein synthesis. In this process, messenger RNA, or mRNA, transmits the genetic information from DNA in the nucleus to the cytoplasm, where protein synthesis occurs. Each triplet of nucleotides in mRNA—known as a codon—codes for either a specific amino acid or a signal to start or stop protein synthesis. When a protein is being produced, each amino acid is linked to its specific tRNA molecule, which puts it in its proper place in the growing protein chain.) It is still an enigma how this special tRNA of selenocysteine can interpret one particular codon to mean two different signals: "add selenocysteine" for some proteins and "stop synthesis" for others.

Another remarkable phenomenon discovered last year is RNA "editing." As an example of this, Nirenberg described apolipoprotein B100, a protein involved in cholesterol transport. It exists in two different sizes in the body—as a long protein in the liver and as one-half that size in the intestines. He cited unequivocal evidence that both proteins are derived from one gene. However, when the DNA is transcribed into mRNA in the intestines, one nucleotide base in the codon is "edited," or somehow changed. Thus, instead of coding for the next amino acid to be added to the growing protein—which would form the liver-based protein—the new base changes the signal to "stop protein synthesis," resulting in the shorter protein.

Another area of tremendous excitement, according to Nirenberg, is the work now being done on isolating the proteins that regulate gene expression during development and adulthood. He and others ask whether this work will lead to still another kind of genetic code, one that is based on protein-nucleic acid interactions, rather than the one we now know that involves nucleic acid-nucleic acid (DNA-RNA) interactions.

Next, Dr. George Cahill, vice president for scientific training and development at Howard Hughes Medical Institute (HHMI), described the prospects for mapping and sequencing the human genome—the most ambitious project



Dr. George Cahill

yet to develop from our knowledge of the genetic code.

After summarizing the basic concepts and techniques of molecular genetics, Cahill described some of the difficulties that must be overcome to expedite mapping the human genome. Scientists now have about 500 useful gene probes—specific radioactive-labeled segments of single-stranded DNA used to seek out, in the millions of DNA bases, "markers" for specific genes or the genes themselves. The cost of identifying and making these probes has been estimated at \$30 to \$50 million. But to achieve the 99 percent accuracy in mapping that is necessary if the results are to be used for such purposes as prenatal diagnosis, Cahill pointed out that a total of about 3,500 probes is needed. He thinks they will be available in the next 3 or 4 years because of the large number of people now working in this area.

Why bother to map the human genome? Cahill said that mapping is not only central to genetic analysis and the prediction of genetic abnormalities, but it also is needed so that we can learn the basis of these abnormalities and thus design appropriate therapies. Once we know the sequence of the gene responsible for a disease, we can identify its protein product; from that, we can discover the basic mechanisms of the disease.

But, only 2 to 4 percent of all our DNA is involved in coding for a protein. So why sequence the entire 3.5 billion pairs of bases in the human genome? As Cahill sees it, "sequencing the 'filler' will unmask those sequences that give the degree of sophistication to the genetic code, that make a human a human, and a mouse a mouse. When we have all the sequences, we can use computers to look for ... what controls genes and the differentiation of cells into various organs and systems, and for the lack of control in congenital abnormalities."

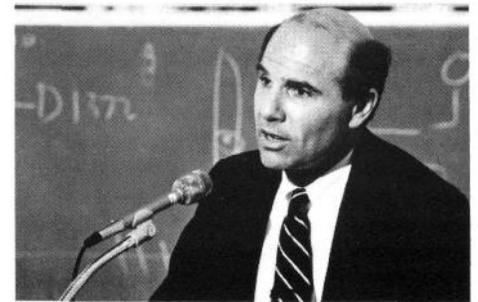
Determining the sequence of a stretch of DNA now costs \$1 per base, not including the cost of preparing the DNA. As instrumentation and robotics are improved, Cahill thinks the cost will drop to 3 to 5 cents a base.

Dr. John Minna, chief of the NCI-Navy

Medical Oncology Branch, described recent advances in molecular genetics that he feels will be extremely important over the next decade in preventing, diagnosing and treating cancer.

"In cancer," Minna said, "there has been a major simplifying concept that has been confirmed by molecular genetics: Cancer in people is the result of several genetic changes—at least 2 and maybe as many as 15—occurring in specific genes in cancer cells. Other factors in the host or environment can play a role, but today our fundamental understanding of cancer focuses on genetic changes in specific genes."

He pointed out that there are two types of oncogenes (cancer-causing genes): dominant ones in which the presence of the gene product causes a malignancy, and recessive ones, in which the absence of the gene product causes



Dr. John Minna

Photos: E. Branson

the malignancy.

Recessive oncogenes have been found to be responsible for certain cancers, including retinoblastoma, a rare childhood tumor of the retina. Scientists have used molecular genetic techniques to map the location of the retinoblastoma gene (Rb) on chromosome 13 and to show that the development of this disease requires two events, that is, Rb must somehow be inactivated on both chromosomes.

Rb also may be involved in small cell lung cancer (SCLC), an aggressive disease that annually afflicts about 30,000 adults in the United States. Recently, an HHMI scholar, William Harbour, working with Minna and his colleagues found that abnormalities in the structure and expression of Rb occurred often in SCLC, as well as in atypical pulmonary carcinoid (a potentially cancerous lung tumor), but infrequently in other types of lung cancers. SCLC and the carcinoid resemble retinoblastoma in other ways, including the cell from which they all may be derived. Thus, Minna said, "Rb may contribute to the transformation of normal cells into malignant ones in tissues other than the retina."

The seminar moderator, Dr. Alan Schechter, chief of NIDDK's Laboratory of

Chemical Biology, discussed the recent advances made possible by molecular genetics in the diagnosis and treatment of genetic diseases.

Of the 4,000 syndromes now known to involve only one gene, a small but significant percentage of these can be diagnosed prenatally at this time. But molecular genetics also is enabling scientists to search for the genes for diseases in which the cause is unknown. Diagnostic markers for genes for several such diseases—the neurological disorders Huntington's disease and Duchenne's muscular dystrophy as well as cystic fibrosis, a lethal disease affecting the lungs and digestive tract—have been found in the past few years.

Schechter discussed some new techniques that can be used to identify directly missing or abnormal genes in various human tissues, including fetal cells. The newest method, polymerase chain reaction (PCR), according to Schechter, "will completely revolutionize genetics and oncology." In PCR, one can start with a single gene or a segment of DNA that might contain a disease-causing gene or genes and make more than a million copies of it in a few hours. With this technique, enough material is available to do genetic tests the same day; previously, it might have taken scientists 3 weeks to produce enough DNA to conduct tests for prenatal diagnosis, to detect the presence of viruses such as the one that causes AIDS, or to begin mapping and sequencing normal and abnormal genes. In addition to being more sensitive and rapid than other methods, PCR does not require the use of radioactive material, thus making it a practical system that could be used by Third World countries.

Effective treatments for genetic diseases include partial replacement of a defective mol-

human fetuses; the gene functions until birth when an "adult" gene takes over. This approach could counteract the abnormal hemoglobin production in patients with the "adult" sickle cell hemoglobin gene.

In the NIH study, and others in which a different drug has been used, the fetal gene was switched on in the patients and produced moderate amounts of normal hemoglobin. However, several concerns—such as drug toxicity, dosage and timing, as well as individual differences in response to the drug—still need to be resolved.

There is much optimism that effective gene therapy of single-gene disorders can be achieved by replacing a defective gene with a cloned copy of the normal gene. The first protocol for such an experiment in humans is nearing approval by NIH. Schechter predicts that this approach to treating genetic diseases "will be part of the medical armamentarium in the next century." □



Two NHLBI employees, Allison "Bunny" Proctor (l) and Annette "Rambette" Northcut, brightened Halloween in Bldg. 31 with their costumes.

Health Benefits Open Season

The Office of Personnel Management has announced an open season for Nov. 14 through Dec. 9, under the Federal Employees Health Benefits Program. During that period eligible employees may change their plan, option, type of enrollment, or any combination of these. One cannot be covered as an employee under one's own enrollment and as a family member under someone else's enrollment in the FEHBP. Likewise, a member of one's family cannot be covered under more than one enrollment in the program.

Commissioned Corps personnel, employees serving under appointments limited to 1 year or less, and intermittent employees are not eligible for enrollment in the FEHBP.

In connection with open season, eligible employees will receive a booklet entitled "1989 Enrollment Information Guide and Plan Comparison Chart," from their BID personnel office. This booklet contains open season enrollment instructions and general information about the FEHBP. It itemizes major features of all plans and contains general categories of coverage such as dental and vision care, outpatient and inpatient service, calendar year deductible, hospice care, etc.

The Division of Personnel Management will sponsor an open season Health Benefits Insurance Fair on Tuesday, Nov. 22, in Bldg. 1, Wilson Hall, third floor. Various plan representatives will be available from 10 a.m. to 2 p.m. to answer individual questions on the 1989 contracts. The Handicap Employee Committee will also be available to assist disabled employees. □



November Security Tip

Be alert when leaving banking facilities, especially on paydays. Follow these common sense rules:

Never carry large sums of cash—flashing a "wad" of bills is inviting trouble.

Have a firm grasp on wallets and purses to discourage thieves.

Be alert to unauthorized persons entering office spaces or loitering in hallways.

If you are being followed, go to nearest group of people, open business or residence and phone for police assistance.

Know how to contact police: On campus, dial NIH Police, 496-5685 (nonemergency) or 115 (emergency). Off campus emergency, dial 911.—NIH Security Branch □



Dr. Alan Schechter

ecule, alterations in metabolism through dietary changes, or bone marrow transplants. A novel approach to treating patients with sickle cell anemia has been taken by Schechter and Dr. Arthur Nienhuis, chief of NHLBI's Clinical Hematology Branch. They have used a drug, hydroxyurea, to "turn back on" the gene that produces normal hemoglobin in all

FORUM

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diseases drew interest from several businesses.

The work Brady and other scientists were showing is current; his poster described a therapy for Gaucher's disease that has just won approval for use in patients at the Clinical Center.

"For a long time I've advocated NIH-industry cooperation," said Brady. "We should have started this 10 years ago. Japan and Sweden have been doing it for years."

Brady said that evening meetings between companies and scientists at NIH have been somewhat productive in past years, but that closer and more formal ties will be helpful.

Also on hand to exhibit her work was Nancy Halden of NICHD, whose poster described a novel restriction enzyme that she discovered with colleague Dr. Warren J. Leonard.

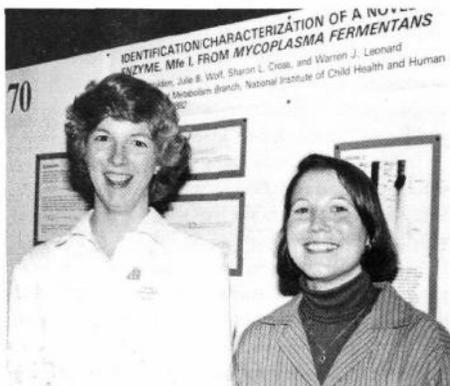
"This is a gratuitous finding, not in the mainstream," she said of her laboratory's work on mycoplasma. "It's not what we were working on, but it will be of interest to industry." Two companies—BRL and Boehringer-Mannheim—have already contacted her about the discovery.



Dr. Roscoe Brady, chief, Developmental and Metabolic Neurology Branch, NINDS, displayed his work on an enzyme replacement therapy to treat such hereditary disorders as Gaucher's disease. Genzyme Corporation, a Massachusetts-based firm, will develop and produce the enzyme glucocerebrosidase in an agreement with NIH.

Another exhibitor, Dr. James Sellers of NHLBI, said his work on the regulation of the movement of smooth and nonmuscle myosins was probably too basic for immediate commercial application.

"It's useful for people who want to learn about drugs and their effects on muscle contraction," said the 9-year veteran of NIH



Nancy Halden (l) and Sharon Cross exhibited their poster, "Identification/Characterization of a Novel Restriction Enzyme, Mfe I, From Mycoplasma Fermentans." Their recent discovery of Mfe I was a gratuitous finding they came across during their regular research at NICHD.

research. "But industry needs to realize that it has to support basic research as well as applied research in order to get returns."

A little closer to the market was work on the enzyme aldose reductase described by Dr. Peter F. Kador, head of the molecular pharmacology section, Laboratory of Mechanisms of Ocular Diseases, NEI.

"We're presenting results which provide treatment for diabetic retinopathy," he said. "We're bringing it out to the public."

Most pharmaceutical companies are already working in that area, he acknowledged.

Increased interactions between NIH scientists and industry began about 3 years ago when NIH director Dr. James Wyngaarden liberalized outside work rules to permit investigators to consult with commercial companies on their own time and for a consulting fee, said Chen.

"This change in policy allowed industry to begin to utilize the general expertise of many of our scientists, especially in biotechnology or in biomedical engineering, while at the same time allowing those scientists to supplement their incomes," he said, adding that the FTTA will certainly accelerate such collaborations.

Leading all other components of NIH in taking advantage of the new leeway is NCI's Division of Cancer Treatment.

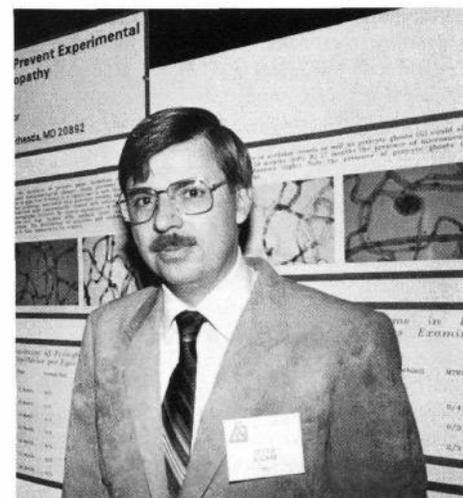
"You won't see any DCT posters at this forum," Chen noted. "They are an example of an NIH organization that has already developed many close linkages with industry and are currently not able to accommodate more collaborators."

So far, eight institutes at NIH, plus the Clinical Center and DRS, have entered into a total of 39 Cooperative Research and Develop-

ment Agreements (CRADAs) with commercial companies.

What is a CRADA? Basically, it is a written agreement between a federal laboratory and another organization that allows each participant to provide personnel, services and property toward a joint research project, said Chen.

"In addition, the outside collaborator, but not the federal laboratory, can provide funds. The collaborating party may be granted, in advance, an exclusive license to any invention made in whole or in part by a federal employee, subject to the government retaining



Dr. Peter Kador of NEI displayed his poster, "Aldose Reductase Inhibitors Prevent Experimental Diabetic Retinopathy," at the government-industry collaborative forum that was inspired in part by the Federal Technology Transfer Act passed in 1986.

Photos: R. McManus



Dr. Larry Keefer of NCI-FCRF discusses his work with Glaxo, Inc. Keefer's poster was one of more than 100 at the forum.

a . . . license to practice or have the invention practiced throughout the world by or on behalf of the government."

The assurance, up front, to a participating company of an exclusive license to any patented inventions that might arise during the collaborative research is a considerable incentive, Chen said.

Among the incentives for a federal scientist to enter a CRADA is that he or she can earn 25 percent of gross royalty income up to \$50,000 on a given patent, then 20 percent of the next \$50,000, plus 15 percent on royalty income above \$100,000, up to the legal maximum of \$100,000 per year per inventor (unless the president approves a higher amount).



Russell Frost (l) of Bio-Rad Laboratories in California exchanges addresses with Stillman Wright of NIEHS, who discussed his poster on the Human Effects of Environmental Agents.

"This provides a significant incentive for our federal scientists to collaborate with U.S. companies," said Chen.

The forum was enough of a success that NIH "will definitely do it every year," Chen predicted. "We will probably do it at NIH next time and focus on a specific topic such as



More than 500 representatives from NIH, ADAMHA and the scientific industry gathered to share information on new technology and recent inventions in an effort to advance government and industry collaboration.

biomedical instrumentation or monoclonal antibodies."

Chen, who oversees the Office of Invention Development at NIH, is a leading member of the executive working group of the Inter-agency Committee on Federal Laboratory Technology Transfer. He says the input of industry will be important when the next forum is planned.

Besides industry, "many other government agencies are looking to NIH for leadership in this area," he said.

Most of the BIDs at NIH have a liaison representative to the NIH/ADAMHA Patent Policy Board, chaired by Chen. To contact your representative, call the Office of Invention Development, 496-3561.—Rich McManus



Dr. Michael Rogauski (l) of NINDS shares his work on novel anticonvulsant drugs with Thomas Krenitsky of Wellcome Research Laboratories, a component of the Burroughs Wellcome Company.

Dr. Philip S. Chen, Jr., on Federal Technology Transfer

"It is necessary that the contribution by the company be essential, or very important, to the success of the planned collaboration. We do not wish to use the Cooperative Research and Development Agreement mechanism as simply a cheap way to buy access into the federal laboratory research enterprise."

"Government scientists can receive a more liberal share of royalty and license fee income as a result of the act and, in addition, the government laboratory will receive the remainder of the royalties, which previous to the act would have had to be returned to the U.S. Treasury. As a result, more funds may be available for patenting and licensing activities, for promoting technology transfer, and for enhancing further research activities in the originating laboratory."

"The important thing to note about the new Federal Technology Transfer Act is that federal funds cannot be provided as part of a Cooperative Research and Development Agreement. Therefore, extra-

murally supported research on the outside cannot become the basis for a CRADA with the federal government."

"As a result of these possibilities, a new set of potential conflicts of interest can arise. We are now in the process of trying to sort out the nuances of proper ethical behavior by our scientists. The general rule has been promulgated that an NIH or ADAMHA scientist cannot simultaneously consult for a company on compensated outside work, and collaborate with that same company under a CRADA."

"The Invention Evaluation Panel (one of seven subcommittees comprising the Patent Policy Board) is envisioned as an oversight committee that would be cognizant of, and make recommendations about, the entire portfolio of intramural invention reports and patents that are produced within the intramural NIH and ADAMHA laboratories and clinics, whether they originated through a CRADA collaboration or entirely through government resources."



is work on nitric oxide and nitrosamines with Rondi Hewitt of than 100 displayed for industry perusal at the collaboration

The CRISP System Database: A Talk with Dr. Ken Collins

By Sue Meadows

The Computer Retrieval of Information on Scientific Projects (CRISP) System database is located in the research documentation section (RDS), a component of the Information Systems Branch, Division of Research Grants. To find out more about this important information resource, this reporter talked with the chief of RDS, Dr. Ken Collins.

Q. Dr. Collins, what kind of database is CRISP?

A. CRISP is a database describing research projects that are supported by the agencies of the Public Health Service.

Q. So, CRISP not only covers NIH projects, but other PHS agencies as well?

A. That's right. The system also includes information on the research programs of the Alcohol, Drug Abuse, and Mental Health Administration, the National Institute on Occupational Safety and Health, the Food and Drug Administration, the Health Resources and Services Administration, and several other PHS organizations. And CRISP not only includes the extramural programs (grants, cooperative agreements and research contracts), but the intramural programs of NIH and ADAMHA.

Q. What is the information contained in CRISP used for?

A. The primary focus of CRISP is scientific, that is, what a project is all about. The database is set up to facilitate finding out what is going on in various research areas. NIH program staff frequently need to know not only what is happening in their own institute, but about similar work being supported in other institutes as well. CRISP is invaluable for this purpose, because it is a trans-NIH system adhering to consistent and impartial standards for all institutes. The information also is very valuable to the national and international scientific community because PHS-supported research is often at the "cutting edge" of what is happening in biomedicine. Frequently this research has not been published, so CRISP provides a unique access to this information.

Q. How does one actually extract information from CRISP?

A. There are two main ways. First, the research project records in CRISP are indexed by scientifically trained staff of the RDS, DRG. They read grant applications, contract award documents, and intramural annual reports cover-to-cover, and working from a very comprehensive "controlled vocabulary" select the appropriate indexing terms or subject headings. Also, the project records contain abstracts (summaries) of the research.

The database is supported by the CRISP Inquiry System which allows for some very powerful querying. Incidentally, this "controlled vocabulary" I just referred to is published annually as the *CRISP Thesaurus*.

Q. Besides maintaining and indexing CRISP, what else does RDS do?

A. RDS is a service organization to NIH, and as such, has taken the initiative in actively publicizing its services. First and foremost, we accept search requests from NIH and other PHS staff. We will provide advice, expert consultation, and whenever requested, we will set up queries, run them, and deliver the results to the requester. We would like more NIH'ers to use these services. Also, we publish a number of major indexes to research as well, and we offer regular training courses that are announced in the *NIH Record*. Our 1-day course, "Introduction to the CRISP System," offered eight times a year, is very well attended.



Dr. Jerome G. Green, DRG director, uses the S-CRISP program as (from l) Carla G. Flora, computer programmer analyst, NIDR, and S-CRISP programmer; Dr. Donald H. Luecke, DRG deputy director; and Dr. Kenneth A. Collins, RDS chief, look on.

Q. What are some of RDS' recent accomplishments?

A. As part of our educational efforts, we have issued several new documentation products to assist users in taking advantage of the valuable information that CRISP contains. But right now, we are most proud of our latest development, S-CRISP.

Q. What is S-CRISP?

A. S-CRISP is a new program that anyone having a DCRT account can access through the NIH Computer Center. What it does is vastly simplify the interface between the user and the CRISP System. S-CRISP lets you deal



directly with CRISP without having any special technical knowledge. By offering simple prompts, basic error checks and HELP screens all along the way, even the first time user can set up a CRISP search and run it. The HELP screens alone are practically a minicourse in the system. Furthermore, we have included a BULLETIN BOARD with all kinds of announcements (about enhancements, updates, training), a facility to direct order publications from RDS, and a COMMENTS feature, so that you can ask questions and make suggestions. We have tested it extensively and the response has been overwhelmingly enthusiastic.

Q. How can an interested reader get in touch with you for more information?

A. They can call members of RDS staff on 496-7543 and we will tell them more about what we have to offer or send some literature. Also, we can sign them up for training, or provide assistance on how to access S-CRISP. □

Guide to Federal Health Plans

Federal employees can save hundreds or more in health costs next year by selecting the right health insurance plan during "open season" (Nov. 14–Dec. 9), the period when employees are free to switch plans. How employees can make these savings and still be protected against catastrophic health care costs is revealed in a Washington Consumers' Checkbook publication called *Checkbook's Guide to 1989 Health Insurance Plans for Federal Employees*.

The *Guide* evaluates each of the plans available to federal employees. Detailed tables show likely total annual health care costs—including both premiums and out-of-pocket costs—under each plan. The book also gives general advice on how to choose a plan, how the Federal Employees Health Benefits Program works, and why some plans are less expensive than others. *Checkbook's Guide* is available at the R&W Stores in Bldg. 10, Bldg. 38 and Westwood, and at the R&W Activities Desk in Bldg. 31. Discounted price is \$5.50 (regular price is \$5.95). Pick yours up today and choose the best plan for your needs. □

Cohen Joins NIA As Deputy Director

Dr. Gene D. Cohen was recently named deputy director of the National Institute on Aging. He comes to NIA from the position of associate director for aging in the Division of Clinical Research at the National Institute of Mental Health. He is currently also the executive secretary of the Council on Alzheimer Disease of the Department of Health and Human Services and the department's Advisory Panel on Alzheimer Disease.

According to Cohen, this is a particularly exciting and important time to be joining NIA. "The current, significant development of geriatrics subspecialties in internal medicine, family practice and psychiatry reflects a major new interest in aging in this country and broadens our capacity to conduct research in the field," he said.

Cohen received his M.D. degree from Georgetown University in 1970 after completing undergraduate work at Harvard University. He completed an internship and residency in psychiatry at Georgetown University Hospital, and obtained his Ph.D. in geriatric health and mental health through the Union for Experimenting Colleges and Universities in 1981. He holds a collateral appointment as a clinical professor of psychiatry at Georgetown University.

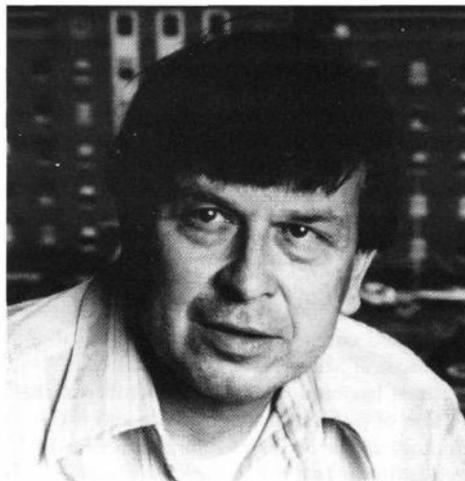
A pioneer in the field of geriatric mental health, Cohen served as the first chief of the Center for Studies of Mental Health of the Aging, established in 1975 at NIMH. This center was the first federal program to focus specifically on the mental health and illness of older people.

His research accomplishments include initiating a study, now in its 17th year, of older mentally ill people residing in an independent living community setting, and serving as principal investigator in a study on maintenance and promotion of mental health in later life.

A leader in the field of Alzheimer disease, Cohen has published a number of papers, book chapters and essays on this and other aspects of aging. He is also the recipient of many awards and honors, including the PHS Distinguished Service Medal. □

Nonsmokers Needed

The Department of Medical Psychology at the Uniformed Services University of the Health Sciences is seeking healthy female nonsmokers, ages 18-45, for a study concerning the components of effective communication. If interested, please call 295-3263. Participants will be paid \$25 for their participation in this 1½ hour study. □



NINDS scientist Dr. Carleton Gajdusek was honored for his contributions to children's health by being inducted into the Ambassador David M. Walters International Pediatrics Hall of Fame on Oct. 22. Located at Miami Children's Hospital, this hall of fame is the only one in the world devoted to the science of pediatrics. Gajdusek, who received a Nobel prize in 1976 for discovering that an infectious virus can lie dormant in its human host for years before symptoms appear, continues his pioneering work in the study of unconventional viruses.

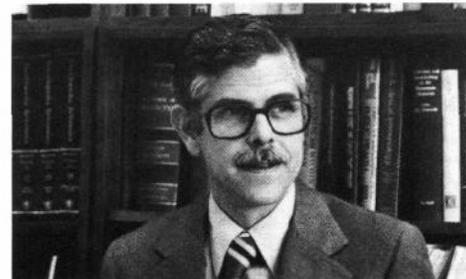


Dr. Leslie P. Bullock has recently been named director of the Laboratory Animal Sciences Program (LASP) of the animal resources program, DRR. Funded at more than \$52 million in FY 1989, LASP supports many diverse activities, all of which are aimed at enhancing animal research and the well-being of laboratory animals. Bullock, who received a D.V.M. from the University of California at Davis in 1963, comes to DRR from Tufts University School of Veterinary Medicine where for 6 years she was professor of medicine and director of the endocrine diagnostic laboratory. Prior to that she spent 11 years as an assistant then associate professor in the department of comparative medicine at Hershey Medical Center, Pennsylvania State University.

Edelman, 12-Year NIAID Vet, Retires to Academia

Dr. Robert Edelman, deputy director of NIAID's Microbiology and Infectious Diseases Program (MIDP) since 1984, and medical director in the PHS Commissioned Corps, recently retired from federal service. He has joined the University of Maryland School of Medicine (Baltimore) as professor of medicine and associate director for clinical research at the Center for Vaccine Development.

In his new position, Edelman will be responsible for the testing of experimental vaccines in populations in the U.S. and overseas. Studies will include vaccines against cholera, enterotoxigenic *E. coli*, shigella, typhoid, rotavirus, malaria, HIV and others. He will



Dr. Robert Edelman

also be studying organisms that scientists suspect of causing enteric disease.

Edelman joined the institute in 1976 as chief of the Clinical Studies Branch of MIDP. During his tenure, he was involved in vaccine development, particularly against diarrheal diseases, as well as studies of experimental treatment for systemic fungal infections and large-scale clinical trials on vaginal infection and prematurity. Edelman also participated in the initiation and monitoring of rotavirus vaccine trials. He was one of a team of scientists that helped prove the etiology of Lyme disease.

Early in the AIDS epidemic, Edelman—as chief of the Epidemiology and Biometry Branch—helped to establish the multicenter AIDS cohort study (MACS), to obtain information from large, comprehensive, longitudinal studies of populations at risk. Data from the MACS proved to be vital for investigators in designing clinical trials to evaluate promising therapeutic agents against AIDS.

In addition, as vice chairman of the NIH nutrition coordinating committee for many years, he worked to stimulate research on nutrition and health at NIH. He served as ex-officio member of the National Commission on Digestive Diseases as well as ex-officio member of the National Digestive Diseases Advisory Board.—Jeanne Winnick □

Rita Minker of DCRT Mourned

Rita Minker, one of the original staff members of DCRT, died on Oct. 11. Illness had forced her to retire in April 1988, exactly 24 years after she joined NIH.

Minker came to NIH in April 1964 to work as a mathematician and computer programmer in the Computer Center Branch of DRS (the forerunner of DCRT). She served as head of the training unit in DCRT from 1968 to 1975, and instituted training courses to teach medical researchers to program and work with computers and become familiar with statistical methods. Having successfully built up the training unit, she joined the statistical software section, Laboratory of Statistical Mathematical Methodology of DCRT in 1975. There she assisted medical researchers with their statistical programming and maintained and consulted on SPSS, an important statistical package.

Minker coauthored and was recognized for her assistance in a number of medical journal articles on schistosomiasis. Together with her husband, she also published an article in the *Annals of the History of Computing* tracing historical development in the optimization of Boolean expressions and related problems.

Minker had a long bout with cancer. She first contracted breast cancer in 1975 with a recurrence in 1985 that forced her retirement in 1988. Funeral services were held Oct. 13 at the Congregation Beth El, Bethesda.

Minker is survived by her husband Jack, of Bethesda; her son Michael Saul Minker of Chevy Chase; her daughter Sally Ann Minker of Bethesda; her father Louis H. Goldberg and stepmother, Anna Goldberg of North Miami Beach, Fla.; and brother Sanford H. Goldberg of West Orange, N.J.

The family requests that remembrances be made to the American Cancer Society.

Kermit Seminar Offered

The DCRT training program is sponsoring a Kermit seminar Nov. 22, 9-11 a.m., Bldg. 12A, Rm. B51.

Kermit is a software package used for loading and uploading from the mainframe to the PC. Topics covered include how to install and use Kermit on the PC, and some basic commands.

To register for the seminar, please contact the DCRT Training Unit, 496-2339, or TDD (Telecommunication Device for the Deaf) 496-8294. No formal application is required. □

Lecture on Alcohol and the Brain

Dr. Floyd E. Bloom, a researcher studying alcoholism, will talk on "Alcohol and the Brain: The Emerging Research Base," Monday, Nov. 21 at 4:30 p.m. in Lister Hill Auditorium, Bldg. 38A.

Sponsored by the Children of Alcoholics Foundation in cooperation with NIAAA and the Friends of the Library of Medicine, the lecture will be followed by a reception.

Dr. Julius Richmond, former U.S. surgeon general and currently on the faculty of Harvard Medical School, will also speak.

Bloom has been director and member of the division of preclinical neuroscience and endocrinology at the Scripps Clinic and Research Foundation in La Jolla, Calif., since 1983. Earlier in his career he served at NIMH. □

Concert Subscriptions Available

Seats for the Sunday afternoon Chamber Music concerts sponsored by the FAES are still available for the following performances, all at 4 p.m., in Masur Auditorium:

Nov. 20	— Les Arts Florissants
Jan. 8, 1989	— Ridge Quartet
Jan. 29	— Bruno Canino, piano
Feb. 26	— Carmina Quartet and Michel Lethiec, clarinet
Mar. 12	— Joshua Bell, piano
Apr. 2	— Luis Battle and Judy Gordon, duo piano with vocal quartet.

Subscriptions for these six concerts are \$60 each and may be purchased at the FAES office in the Cloister. □

New Brochure on Structural Biology

The National Institute of General Medical Sciences has just published a new brochure, *The Structures of Life: Discovering the Molecular Shapes That Determine Health or Disease*.

The 68-page booklet describes the latest research in the fast-moving field of structural biology, which aims to explain the activity of biologically important molecules in terms of their structure and to use this knowledge to design new therapies or vaccines.

Among the topics discussed are how proteins fold into shapes that are biologically active, the use of computers to determine the way protein subunits fit together or move, how proteins turn genes on or off, and the application of structural biology to understanding the cold virus and to drug design.

Single, free copies of this publication are available from the Office of Research Reports, NIGMS, Bldg. 31, Rm. 4A52, telephone 496-7301. □



Dr. Peter B. Dervan (c) accepts a certificate from Dr. Ruth L. Kirschstein, NIGMS director, in recognition of his presentation of the DeWitt Stetten, Jr. Lecture. Dervan, who is Bren professor of chemistry at the California Institute of Technology, spoke on "Sequence-Specific Recognition of DNA: A Synthetic Approach." On the left is Stetten, NIH deputy director for science emeritus.

Evening Courses for Scientists

The NIH Training Center is offering evening courses for NIH scientific staff. The program, from 6 to 9 p.m., includes all levels of training on IBM or IBM-compatible software packages.

Designed to meet the growing demand for personal computer training, these hands-on courses focus on scientific applications of popular software packages (i.e., WordPerfect, Grateful Med, Lotus 1-2-3, dBASE III). Reference materials are provided. All courses are taught in the User Resource Center.

To enroll, a nominee must submit an HHS-350 training nomination and authorization form. For further information, call Doris Dorin, 496-6211.

Course schedule:

Introduction to Using PC's
12/1 (Thur.), Cost: \$50
1/23 (Mon.), Cost: \$50

Introduction to Lotus 1-2-3
1/11-12 (Wed., Thur.), Cost: \$100

Transferring Files Between the Mainframe & the PC
1/10 (Tue.), Cost: \$50

Introduction to WordPerfect (5.0)
12/6-8 (Tue., Wed., Thur.), Cost: \$150
1/24-26 (Tue., Wed., Thur.), Cost: \$150

Introduction to dBASE III Plus
12/12-13 (Mon., Tue.), Cost \$100
1/30-31 (Mon., Tue.), Cost \$100

Introduction to Grateful Med
1/25 (Wed.), Cost: \$50 □



TRAINING TIPS

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

Courses and Programs Dates

Management and Supervisory 496-6371

Practical Approaches to Stress Management	12/02
Creative Basics for Changing Workplaces	12/01
Working With Personal Differences MBTI II	12/07
Interpersonal Relationships in the Work Environment	12/05
Positive Influence and Negotiation	1/25
Time Management	1/10
Pragmatic Problem Solving	1/18

Office Operations Training 496-6211

Adult Education 496-6211

Training and Development Services 496-6211

Personal Computer training is available through User Resource Center (URC) self study courses. There is no cost to NIH employees for these hands-on sessions.

The URC hours are:

Monday-Thursday	8:30 a.m.—9:00 p.m.
Friday	8:30 a.m.—4:30 p.m.
Saturday	9:00 a.m.—3:00 p.m.

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MacKay To Be Regents' Lecturer

Dr. Charles R. MacKay, director of the Division of Program Development and Evaluation of the NIH Office for Protection from Research Risks, will serve as regents' lecturer at the University of California, Berkeley during the 1988-89 academic year. He will lecture in the health and medical sciences program on issues in bioethics.

The regents' lectureship program of UC Berkeley is designed to bring distinguished persons to the campus to share thoughts about their work with members of the university community.

MacKay has earned national recognition for his work in bioethics including the Nelly Westerman Prize for Research in Ethics given by the American Federation of Clinical Research and a humanist fellowship given by the National Endowment for the Humanities. □

Pert and Partner Take Peptide Probes Private

Neuroscientist Dr. Candace Pert and immunologist Dr. Michael Ruff are leaving the NIMH intramural research program to start their own biomedical research firm, Peptide Design, in Germantown, Md. The new company will capitalize on emerging knowledge of molecular mechanisms underlying interactions between the brain, immune and endocrine systems, said Pert. Their research has shown that the three systems use many of the same messenger chemicals—small chains of amino acids (peptides) that bind to specific proteins (receptors) on cell membranes.

"We believe that many diseases may involve disturbances in peptides and/or receptors," said Pert. "Peptide Design will be synthesizing new peptides to treat diseases."

Pert will continue her research at NIMH as a guest scientist one or two days a week, completing studies on peptide T, a potential AIDS treatment she discovered. She will also collaborate with Dr. Steven Paul on investigations into possible viral and autoimmune causes of schizophrenia.

An internationally recognized receptor pharmacologist with more than 200 publications, Pert had formerly been chief of the section on brain biochemistry of the Clinical Neuroscience Branch. She and Ruff formally retired from federal service a year ago but continued as guest scientists under private support until now. Several members of their NIMH laboratory will be joining Peptide Design. At the NIMH lab, ongoing work will be supported by the Integra Institute, a private, nonprofit medical research foundation established by Pert and Ruff.

Pert came to NIMH in 1975 from Johns Hopkins University. She is credited with co-discovery of the brain's opiate receptor while a



Dr. Candace Pert

graduate pharmacology student in the laboratory of Dr. Solomon Snyder in 1973. Subsequently she branched out into studies of other neuropeptide systems. With Dr. Miles Herkenham of NIMH she developed a widely used system for visualizing the distribution of neurotransmitter receptors in brain. Ruff, a codiscoverer of peptide T, transferred from the National Institute of Dental Research to NIMH last year.

"Our work together fertilized our growing appreciation that the chemicals of the mind control the body," says Pert. "Realizing that the immune system and the brain, rather than being separate, operate together with the same chemicals is a revolution. This is a theme underlying much of the research at the NIMH. That's why I have always felt comfortable with the NIMH," she added.—Jules Asher □

NINDS Publishes New Pamphlet

The National Institute of Neurological Disorders and Stroke has published a new informational pamphlet for parents of children with communicative disorders. *Developmental Speech and Language Disorders: Hope Through Research* explains in lay language the recognition and differentiation of speech and language problems.

The illustrated, 35-page booklet covers such disorders as phonological impairment, verbal dyspraxia and dysarthria, as well as current research activities. Also included is a chart of language milestones that may alert parents to a child's developmental problems.

Free single copies of the pamphlet may be obtained from the Office of Scientific and Health Reports, NINDS/NIH, Bldg. 31/Rm. 8A16. □

Amish Country Adventure

Join R&W for a "four-star" Amish farmlands tour put on by the experts at Penn Dutch Adventures. See the farmlands, experience the Amish history and culture, visit the quaint country shops and bakeries full of Amish goodies and top it all off with an old-fashioned Amish country feast!

Price for the Nov. 26 trip is \$34, which includes the bus ride, tour and dinner (lunch on your own). Bus will depart from NIH Bldg. 31C at 8 a.m., and will return at approximately 8:30 p.m. To reserve your seat for this trip, contact the R&W Activities Desk, Bldg. 31, B1W30, 496-4600. Payment is due upon reservation. Bus trip will be nonsmoking. □

DCRT Awards Major Computer Contract to IBM Corporation

A major contract for between \$600 and \$800 million in computer equipment and services over a 10-year period has been awarded to International Business Machine Corporation (IBM) by DCRT's Computer Center Branch.

The contract ensures that NIH will have a continual supply of the latest computer hardware and software technologies as they are developed through the 1990's.

"This contract ensures that NIH computing will be as modern 10 years from now as it is today," said Joseph D. Naughton, chief of the Computer Center Branch.

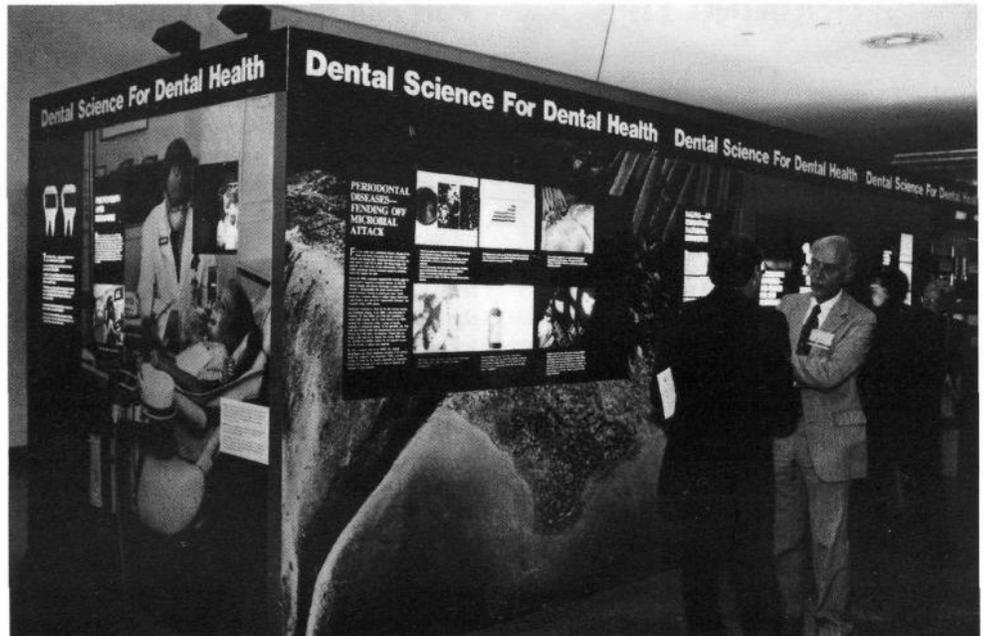
The new computers will be used for a wide range of applications from conduct and support of scientific research including complex calculations for molecular biology, to traditional administrative functions such as payroll, inventory control and accounting.

The initial purchase will include several of IBM's most powerful 3090 model 600 mainframe computers with vector facilities, which provide power for certain computation-intensive scientific research applications. High speed transaction processing, interactive data base management and batch processing functions will be provided by additional smaller IBM 3090 model 300's. The computer utility system will also include a large complement of main and extended storage, online disk drives, tape drives, printers, channels and communication controllers.

Several of IBM's most powerful mainframe computers are included in the contract, which will allow for networking a large number of smaller computers to the mainframe utility for routine administrative and data processing functions. These facilities and services will be provided at a price of \$600 million for the basic system over 10 years, with provisions to increase to as much as \$800 million for additional features and capacities as needed.

The NIH computer utility, established in 1967, provides computer services for 17,000 registered users. It operates 24 hours a day and conducts more than 18,000 batch jobs, 11,000 interactive sessions and 75,000 database transactions daily.

"We have accomplished something unique in the annals of information systems acquisitions. We have obtained a long-term commitment for continually evolving future technology at a guaranteed price," said Naughton. "We are buying into the future at a very good price." □



Smithsonian Extends NIDR Exhibit Dates

The NIDR exhibit, "Dental Science for Dental Health" will remain on display at the National Museum of American History until Nov. 28. The exhibit is housed in the Medical Sciences Wing of the museum, located at 14th St. and Constitution Ave., NW. Hours are 10 a.m. to 5:30 p.m. daily. The exhibit highlights progress in dental science during NIDR's first 40 years. Among the many items on display are: a mechanized "mighty mouth" developed to test new dental materials; video displays; glass beads used to fill cavities; and lenses through which the public can view microscopic bacteria that cause tooth decay.

Biological Clocks Lecture

The STEP program will present the second lecture in its "Science for All" series on Tuesday, Dec. 6, from 1 to 3 p.m. in Wilson Hall, Bldg. 1.

Entitled "Biological Clocks in Man and Beast," the talk will be presented by Dr. Michael Menaker, chairman, department of biology, University of Virginia, who came to UVa. in 1987 following a year at the University of Bristol in the United Kingdom as the Benjamin Meaker visiting professor. Prior to that position, he was professor of biology and director of the Institute of Neuroscience at the University of Oregon.

Circadian rhythms, or biological clocks, play a major role in jet lag, sleep disorders and certain other aspects of human performance. There is recent evidence to indicate that circadian malfunction also underlies some kinds of serious affective illness as well. Menaker will discuss in easy-to-understand language what these rhythms are, what controls them, what effects they have on man and animals and how they can be altered. A question and answer period follows the talk.

Advance registration is not required nor is continuing education credit available. For additional information, contact the STEP program office, 496-1493. □

Alumni Association To Meet

The Washington chapter of the National Institutes of Health Alumni Association (NIHAA) will hold its second meeting of the year on Monday, Dec. 5 from 5:30 to 8 p.m. at the Uniformed Services University of the Health Sciences Auditorium, Building B, 4301 Jones Bridge Rd., Bethesda, Md.

Dr. Jay F. Sanford, president of the university and dean of the medical school, will speak on "USUHS: A Unique Academic Institution Within the Federal Bureaucracy." Light refreshments will be served. The cost is \$5 per person. There will also be a short business meeting.

More than 350 individuals have joined the local chapter of NIHAA, which was reestablished as a result of interest shown by alumni at the Centennial. The purpose of the organization is both social and scientific. Past as well as present NIH employees are eligible to join. In either instance the membership fee is \$25 per year.

For further information about NIHAA or the event on Dec. 5, call 530-0567. □