

Copyright Ownership

This is the third article in the series dealing with the terms and issues which surround U.S. Copyright Law. This brief exposé is intended to provide general guidance and should not be regarded as legal advice on copyright ownership, control or transfer rights.

Ownership and control of copyright in materials created within the University are often subjects of inquiry from faculty, staff and students. From the recent articles on copyright we have learned that: 1) Copyright protection consists of a spectrum of protection; 2) copyright is an inherent aspect of authorship; 3) it is implied that most works are copyright protected; and 4) permission should always be sought before copying is initiated. We also know that copyright protects only the expression of an idea that is fixed in a tangible medium.

In this article we will find that copyright is a valuable right of authorship which may in some cases belong to a third party and not the actual author.

There are basically two cases where a copyright will belong to a third party and not to the author who created the work. In both cases, the copyright in the work(s) is held by a party acting as an "employer." In one case, the author is a regular employee and in the second the author is an independent contractor.

Regular Scope of Employment

In the first case, the author creates a work within the regular scope of employment, which could be an assigned task or tasks within the employee's job description. This is simply a recognition of the fact that the author is compensated by the employer for his/her efforts and is acting on the employer's behalf. If the employee were allowed to retain copyright, the employee would be paid twice for the effort and the employer would be powerless to use the work without the employee's consent.

If copyright ownership is disputed, the issue is whether the author is a "regular" employee. Then "common-sense" terms of employment (i.e., control of the employee's activities, tax payments, health benefits, workplace location, etc.) and the employee's "scope of employment" dictate who owns the copyright.

Copyright "Work for Hire"

The second category where the author does not retain the copyright involves the use of an independent contractor (author) operating under an express written agreement designating the product as a "work for hire." (The quoted language comes directly from the Copyright

Law, Title 17, U.S.C., Section 101.) If the author is not a regular employee this language should be used to define who has copyright ownership. The U.S. Supreme Court has recently ruled that without an express *written* agreement, a copyright in such a situation belongs to the independent contractor.

Therefore, when a person performs duties of authorship either outside the scope of his/her regular employment or under agreement as an independent contractor, the copyright will belong to the author and will not belong to the employer or commissioning party unless a written agreement between the parties clearly states that the work is a "work for hire." Any person who is utilizing the services of a non-employee to create works of authorship must consider the implications of the employment arrangement and should consider using a simple written agreement designating works to be created as "works for hire."

The University Position

The University of Minnesota attempts to adhere to U.S. Copyright Law in all respects. However, with respect to faculty authored works, the University follows the "university tradition" that copyright belongs to the faculty member unless it results from sponsored research or university administered funding, or where production of the authored work is an assigned task of the faculty member.

Paul McDowall

This ends the series on copyright issues. Other areas of intellectual property law will be subsequently featured on a regular basis.

Biomedical Science Scholar Awards

August 13 is the internal University deadline for application to three programs that grant scholar awards in the biomedical sciences. The programs are: The Lucille P. Markey Scholar Award in Biomedical Science (6 nominations), the Searle Scholars Program (2 nominations), and the Pew Scholars Program (1 nomination).

Since these programs stipulate that a limited number of applications may be submitted from an institution, all submissions are being coordinated through the Graduate School. Information and application forms have been sent to college offices. Questions may be directed to Michelle Beckmann, Graduate School Research Office, 625-2356.

New Licenses Signed in 1990

Licenses for the following inventions have been negotiated by the Office of Patents and Licensing in the first five months of 1990:

Equine Gait Software

- Developed by Calvin Kobluk, Department of Large Animal Clinical Sciences, this software is used to evaluate stride efficiency, injuries, and the results of therapy in horses. It was licensed to Motion Analysis Corporation, Santa Rosa, Calif., which produces high-speed video equipment used to analyze rapid motion.

Quantitative Test for Blood in Feces, Urine, and Other Materials

- This diagnostic test, known as the HemoQuant, was developed by Samuel Schwartz, professor emeritus in the Department of Medicine. Used to detect blood that could be a sign of cancer, kidney disease, or other disorders, the test was licensed to Beecham Clinical Labs, Inc., Van Nuys, Calif.

Method and Apparatus for Depositing Standard Particles on Semiconductor Wafer Surfaces

Method and Apparatus for Rapid Deposition of Standard Particles on Semiconductor Wafer Surfaces

- These two inventions were developed in the Particle Technology Laboratory of the Department of Mechanical Engineering by laboratory director Benjamin Liu, David Pui, and Yan Ye. The first can be used to improve the computer chip manufacturing process, and the second can be used to improve quality control during that process. They were licensed to MSP Corporation, Minneapolis, Minn.

Capture Collar

- This is a new type of radio-location collar that is being used by wildlife biologists to improve their ability to recapture wild animals for study without harming or traumatizing them. The collar was developed by Rick Chapman, formerly of the Department of Fisheries and Wildlife. It consists of a collar that emits a radio signal for relocation, plus a syringe that can be triggered by a signal from the biologist. This enables the biologist to relocate an animal, make sure it is in a safe location, and then trigger the syringe to deliver a dose of anesthetic in a more precise way than is possible with standard darting techniques. Chapman did further development work on the collar while an employee of 3M, which has returned ownership of the invention to the University of Minnesota. Chapman is using the collar in research on wolves directed by L. David

Mech, an adjunct professor in the Department of Fisheries and Wildlife. The two have formed a company called Wild Link, which has licensed the collar from the U of M and will market it to other wildlife biologists.

Nutritional Supplements for Surgically Stressed Patients

- These products evolved from research by Frank B. Cerra in the Department of Surgery, who is studying the pathological processes that cause hypermetabolism in some intensive-care patients. The hypermetabolism and accompanying malnutrition can result in multiple organ failure, which is a major cause of mortality in patients who have suffered severe trauma or infection. Cerra's two new nutritional supplements attempt to meet the extreme caloric and specific nutrient needs of patients experiencing hypermetabolism, in order to prevent organ failure. They were licensed to Sandoz Nutrition Corporation, which has licensed another of Cerra's nutritional supplements for surgical patients.

Reserving Funds for Research Assistants' Compensation

In a May 14 memo, Nick LaFontaine, director of budget management, advised deans, directors, and department heads to set aside sufficient funds to meet the 1990-91 compensation increase (6.5%) for graduate assistants. This increase will have also an impact on budgets covering research assistants on contracts and grants, and ORTTA advises that the following steps be taken regarding these sponsored projects:

1. When submitting proposals for projects involving graduate assistants, the 6.5 percent increase should be budgeted in the personnel category (ie. salary and fringe) to assure that if a project is funded, sufficient funds will be available for graduate assistants.
2. For active projects, effective July 1, 1990 it will be necessary to reserve, within existing dollars, the funds needed to cover the increase for graduate assistants. This is necessary because the actual mix between salary and fringe benefits has not yet been determined, and charges will be made retroactive to July 1 for all graduate assistant positions.

Questions should be directed to the appropriate ORTTA grant administrator.

ORTTA Policy on Destruction of Materials

In preparation for the relocation of the Office of Research and Technology Transfer Administration (ORTTA) later this year, the office is reviewing its record-retention procedures. In the past, the practice has been to keep everything forever, with closed records stored in the basement of the Administrative Services Center or in warehouse space at the Rosemount facility. However, the records at Rosemount are for all practical purposes inaccessible, and the space in ASC is limited; even less storage space will be available in ORTTA's new location, a building being constructed next to the Supercomputer Center on Washington Avenue.

After reviewing requirements and reasons for retaining proposal, award, and financial reporting files, ORTTA has decided to establish a policy for regular destruction of these materials. In compliance with existing governmental and agency policies on retention of files, ORTTA's policy will be as follows:

- 1) For **rejected proposals** the files will be retained by ORTTA for one year after the fiscal year in which they were rejected.
- 2) For **pending proposals** (those that are neither awarded nor rejected by the agency to which they were submitted), the files will be retained for two years after the fiscal year in which they were submitted.
- 3) For **closed-out projects** (those that have completed all final technical and financial reports), the files will be retained for three years after the fiscal year in which they were closed out (or longer if specifically required by the individual contract).

Files will be purged at the start of each fiscal year. In July and August of 1990, ORTTA staff will be destroying rejected proposals from fiscal year (FY) 1989 and earlier, pending proposals from FY 1988 and earlier, and closed-out projects from FY 1985 and earlier.

Anyone with questions or comments regarding this policy may call Mary Lou Weiss or Rick Dunn at 624-5599.

U/M Faculty Receive Presidential Young Investigator Awards

Four members of the University of Minnesota's Institute of Technology faculty have received Presidential Young Investigator Awards from the National Science Foundation (NSF) for the coming fiscal year.

The awards, given to faculty members near the beginning of their careers, are intended to encourage them to remain in higher education. Each investigator receives \$25,000 from NSF, plus matching funds for up to \$37,500 raised from private sources.

The four U/M recipients and their fields of research are:

Kevin Buckley, assistant professor of electrical engineering. He studies ways to enhance speech with digital hearing aids, which have more potential for removing noise and cancelling feedback than conventional hearing aids. He is also finding ways to pinpoint sources of signals in sonar, radar and communications systems. One area of application would be to help air traffic controllers get a better fix on locations of planes with radar.

Jeffrey Derby, assistant professor of chemical engineering and materials science. Derby, a theoretician, researches the conditions that allow optimal growth of crystals such as silicon, which is used in computer chips. He also studies ways to grow large, pure crystals of a material used to guide laser beams.

James Kakalios, assistant professor of physics. A specialist in solid-state physics, he studies the properties of materials such as "amorphous" silicon, a material that is relatively disordered on an atomic scale. His work could eventually lead to increased efficiency in solar cells that employ amorphous silicon.

Alon McCormick, assistant professor of chemical engineering and materials science. He studies the production and behavior of catalysts and ceramic materials. Typical of his interests are zeolite catalysts, which help break crude oil down into fractions such as gasoline and chemical feedstocks. He is also interested in silicon ceramics, which have a wide variety of uses.

New Assistant Director of Research Administration

The Office of Research and Technology Transfer Administration (ORTTA) is pleased to announce that after a lengthy search process, **Rick Dunn** has been appointed an assistant director in the Division of Grants and Contracts. Mr. Dunn's primary responsibilities will be similar to those of assistant director Mary Lou Weiss; he will handle federal agencies excepting the Department of Health and Human Services, which will remain Ms. Weiss' responsibility.

Mr. Dunn has 15 years of experience in sponsored program management at the University of Minnesota. For seven years, from 1979-85, he was project director of the Indian Upward Bound Program, which was funded by the U.S. Department of Education with additional funding from the U.S. Department of Agriculture and the General Mills Foundation. Most recently, Mr. Dunn was a senior grant and contract administrator at ORTTA for two and one half years. During that time he participated in a number of faculty outreach activities, as well as developing a successful contractual relationship with a new funding agency.

Mr. Dunn also has experience in private industry, having worked for two and one half years at Honeywell (1985-88), before rejoining the University of Minnesota. As a business administrator at Honeywell, he was responsible for cost and schedule control on a major Air Force sub-contract.

Community involvement adds another facet to the experience Mr. Dunn brings to his new position. He has served as an elected school board member in St. Anthony Village for the past three years, and was elected board chair for the 1989-90 year.

Mr. Dunn has a bachelor of science degree in physics from the University of Minnesota and an MBA in operations management, with particular emphasis on service industries, also from the University of Minnesota. At ORTTA, he can be reached at 626-2265.

ORTTA Participates in Tech Fairs

Staff from the Office of Research and Technology Transfer Administration (ORTTA) participated in two technology conventions in June.

On June 5, **Mary Fahey**, **Paul McDowall**, **Ann Viksnins**, and **John Thunte** attended "Strategic Alliances for the 90s," which was sponsored by Minnesota Project Innovation. The ORTTA booth was one of 105 at the convention, which brought together a diverse group of people and organizations interested in business innovation and public-private partnerships, especially in relation to small high-tech firms in Minnesota.

Inventions from the University of Minnesota were among the 200 inventions on display at the 1990 Minnesota Inventors Congress in Redwood Falls, Minnesota, June 7-10. Paul McDowall, of the Office of Patents and Licensing, gave a presentation on the basics of licensing at an Inventors Workshop on June 7. For the next three days, the ORTTA booth was one of about 20 exhibits in the Marketplace exhibit, which is reserved for inventions that are available for sale or licensing. McDowall, Fahey, and Michael Moore displayed and explained examples of new, useful technologies that have resulted from University research. On June 9, Professor Henry Buchwald, Department of Surgery, presided over the induction of new members into the Minnesota Inventors Hall of Fame. He is the current president of the Hall of Fame and one of five U of M faculty among the 34 inductees; the others are Otto H. Schmitt, Alfred O. C. Nier, Owen H. Wangensteen, and Izaak M. Kolthoff.

of the invention. Many patents granted are worthless and void and conflict upon one another, and a great many law suits arise from this condition."

The Ruggles study led to the Patent Act of 1836, which reestablished the examination system in effect before 1793. The Act of 1836 also established a separate Patent Office headed by a Commissioner of Patents. To obtain a patent, the act required applicants to file a specification, a drawing, and a model. When issued, the patent was good for 14 years, subject to an extension of 7 years. The patent numbering system began with the Act of 1836, and appropriately, Patent No. 1 issued to Senator John Ruggles, for a Locomotive Steam Engine for Rail and Other Roads, "designed to give a multiplied tractive power to the locomotive and to prevent the evil of the sliding of the wheels."

Much of the early history of the Patent Office was lost in December of 1836, when a fire destroyed all its records of patent applications and grants, including 7,000 models, 9,000 drawings, and 230 books. Congress appropriated \$100,000 the next year to restore the most valuable patent models, and the records were partially restored with help from court clerks and patent owners. As insurance against future losses, the Patent Office from then on required that two sets of patent drawings be furnished.

In 1842, Congress added the category of "design" patents, to be issued to "Any person, who by his own industry, genius, efforts and expense, has invented any new and original design." The term of a design patent was set at seven years, and the first was issued to George Bruce, for "Printing Types." The Act of 1842 also required owners of patents to mark inventions as patented.

The first Commissioner of Patents, Henry L. Ellsworth, stated in his annual report for 1843 that "the advancement of the arts, from year to year, taxes our credulity and seems to presage the arrival of that period when human improvement must end." This statement is thought to be the origin of the unfounded story of the Patent Office official who resigned because everything had been invented.

In the Act of 1861, the automatic length of patent protection was extended from 14 to 17 years, and the previous provision for an extension of seven years was abolished. The term of 17 years from date of issue remains to this day. Other major changes were made in the Act of July 8, 1870, including the first trademark law, the assignment of copyright authority to the Librarian of Congress, and the relaxation of the requirement that models

be submitted with all applications. After 1880, and to this day, inventors must submit models only if requested by the Patent Office. (This option is reportedly exercised whenever the office receives a patent application for a "perpetual-motion" device!)

Plants became patentable in 1930, and the Department of Agriculture was assigned to help the Patent Office determine the patentability of a plant. A plant patent can be issued to anyone "who has invented or discovered and asexually reproduced any distinct and new variety of plant other than a tuber-propagated plant." The word "asexual" was included to prevent a monopoly on the cereal grains, and the exclusion of tuber-propagated plants was to prevent a monopoly on potatoes and other important tubers. A supporter of the act stated that "the production of a new plant often requires more patience, skill, ingenuity, resourcefulness, knowledge and observation than the making of a mechanical invention."

Pharmaceutical inventions were given special attention in 1984, when the U.S. Patent and Trademark Office (USPTO) and Food and Drug Administration (FDA) formed a cooperative relationship. A 1984 law allowed the extension of the patent term for up to five years for products in which marketing was delayed by FDA regulatory review. The USPTO also agreed to expedite applications for patents on FDA-designated drugs, products, devices, and special foods to benefit people with rare conditions.

In 1987, the USPTO announced that it would consider applications for patents on new types of animals produced by human intervention, but not on products or animals found in nature. The first animal patent was issued in 1988 to Harvard University for a transgenic mouse produced by a novel technique developed by Philip Leder and Timothy Stewart.

In the 1980s, a major goal of the USPTO was to decrease the time between filing and final action on applications. The Office developed a plan based on computerization and hiring more patent examiners, with the goal of reducing the pending time for patents to 18 months. That goal has generally been reached, with the notable exception of biotechnology applications, which are lagging because of the lack of qualified examiners and the tremendous increase in filings in this area. Based on the experience of the University of Minnesota Office of Patents and Licensing, the following waiting periods can be expected when filing a patent application:

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	First Office Action	Final Disposition
New drugs	9 months	18 months
Biotechnology	30 months	50 months
Plants	10 months	24 months
Simple mechanical	6 months	12 months
Medical diagnostic	18 months	30 months

Nearly five million U.S. patents have been issued to date. Of the record 95,549 U.S. patents issued in 1989, 45,354 (47 percent) were issued to foreigners. Japanese were the leading foreign recipients, with 20,168 patents. Japanese corporations have led the list of patent assignees in recent years, and this trend continued in 1989: Hitachi (Japan) received 1,053 patents, Toshiba (Japan) 961, Canon (Japan) 949, Fuji Photo (Japan) 884, GE (U.S.) 818, Mitsubishi (Japan) 767, U.S. Philips (U.S.) 767, Siemens (West Germany) 656, IBM (U.S.) 623, and Eastman Kodak (U.S.) 589. U.S. universities received a total of 1,179 patents in 1989, nearly double the number they received in 1986.

Minnesota ranks sixth among the 50 states in the number of patents issued per capita, with 247 patents issued for every million residents, compared to the national average of 176 patents per million. For the past four years, the University of Minnesota has been among the top ten U.S. universities in patents received, ranking fourth in 1988 with 27 and seventh in 1989 with 41.

Historic University of Minnesota Patents

The patents described below offer an indication of the economic impact of research by University of Minnesota faculty from the 1920s through the 1970s. However, they by no means represent the University's total technological and economic contributions, because many new developments, especially those in agriculture, either were not patentable or could be commercialized more rapidly without patent protection. U of M inventions that were patented tended to be in the fields of engineering, chemistry, food sciences, and medicine, four areas in which new technologies were emerging rapidly to establish Minnesota's industrial economy.

The following information was compiled from records in the Office of Patents and Licensing, with the help of Willard Fornell, director of the University of Minnesota Patent Office from 1958 to 1981. Any additional information on these and other historic U of M technologies is welcome; please call Michael Moore, 624-9398.

Fumigant

- Invented by Royal N. Chapman, issued July 22, 1924.

This is the oldest patent in the files of the Office of Patents and Licensing. The fumigant comprised a combination of chloropicrin and carbon tetrachloride. "The chloropicrin was developed for war purposes and was primarily adapted for the repelling of human beings," Chapman noted in the one-page patent. He suggested combining the toxicity of chloropicrin with the volatility of carbon tetrachloride (then used in fire extinguishers) to produce a desirable fumigant. It is not known if a commercial product resulted.

Therapeutic Agent

- Invented by Harold Sheely Diehl; issued January 14, 1936.

This is the second oldest patent in the files, and it did achieve commercial success. Diehl was dean of the Medical School from 1936 to 1958. His therapeutic agent was "highly effective in the treatment of certain diseases, especially in the treatment of coryza," he noted in the first paragraph of his patent. He described the invention as a mixture of codeine and papaverine: "...by adding papaverine or its salts to codeine or its salts, I reduce the toxic effect of a given dosage of codeine, in addition to increasing the beneficial effects over that obtained by either ingredient alone." The agent was licensed to Abbott Laboratories and was sold as an analgesic named Copavin.

The Taconite Process

- Invented by E.W. Davis et al; seven patents issued between June 18, 1940 and Jan. 28, 1958.

These patents involved improved methods of reducing taconite to very fine particles so the iron ore could be separated magnetically, and for methods of heating and pelletizing taconite for shipment. The processes made it possible for Minnesota to continue as a leader in iron ore production even after non-taconite iron ore deposits were depleted in the 1950s. State tax revenues from the taconite industry reached a cumulative total of \$1 billion in 1989, and the state currently receives about \$80 million annually in taxes on the approximately 40 million tons of taconite shipped each year. (See the April 1990 Research Review for a more complete account.)

Vitamin E Substitute and Process of Making It

- Invented by Lee Irvin Smith and Herbert E. Ungnade; issued June 30, 1942.

Smith was head of the chemistry department and the namesake for the department's home, Smith Hall. He was issued at least 20 patents, most for processes of producing chroman compounds, methods of treating phenols, and for various other chemical processes. His vitamin E substitute and process was licensed to the Merck pharmaceutical company.

Mass Spectrometer Apparatus

- Invented by Alfred O.C. Nier; six patents issued from October 25, 1949 to January 8, 1952.

These inventions arose out of Nier's work in the 1940s, when he developed a process for isolating the type of uranium (U-235) used in nuclear fission reactions. Mass spectrometers continue to be used extensively to study isotopes of the basic elements and their relative radioactivity.

Oxidation Process

- Invented by Ole Gisvold, issued February 22, 1955.

This invention evolved out of Gisvold's research on methods for producing plant extracts, for which he was issued five other patents. His oxidation process included a novel process for producing ascorbic acid, or vitamin C; the rights to use this process were licensed to several companies.

Apparatus for Production of Quadriped Animals

- Invented by George A. Young, Jr.; issued March 8, 1955.

and

Brooder for Quadripeds

- Developed by Young, Norman R. Underdahl, Ronald W. Hinz, and Clarence L. Silbernack; issued April 14, 1959.

These inventions helped farmers keep newborn livestock free of disease during the critical first few weeks of life. The technology was licensed to a company in Quincy, Illinois, which sold equipment mostly to swine producers.

Method of Treating Nylon

- Invented by Lloyd R. Reyerson and Lowell E. Peterson; issued March 10, 1959.

This invention was a method of improving the crystalline structure of polyamides and imparting a permanent shape to nylon fibers. It was licensed to Monsanto.

Gas Temperature Probe

- Invented by Frank D. Werner and Robert Keppel; issued April 5, 1960, and assigned to the U.S.A., Secretary of the Air Force.

This invention provided new and improved means for accurately measuring temperatures of gases and controlling their flow at high speeds and high altitudes. The invention resulted in the founding in Eden Prairie, Minn., of Rosemount Inc., which is now an international leader in aerospace and process-control technology.

Blood Oxygenator

- Invented by Richard A. De Wall and C. Walton Lillehei; three patents issued Sept. 30, 1958; Feb. 21, 1961; April 25, 1961.

This invention was a device for oxygenating blood and releasing carbon dioxide outside of the body, temporarily taking over the work of the heart and lungs during cardiac surgery. This device, plus new surgical techniques pioneered by F. John Lewis, C.W. Lillehei, and Richard Varco, resulted in the world's first open-heart surgery at the University of Minnesota. The patent for a capillary oxygenator was licensed to the Dow Chemical Company, and together with training of cardiac surgeons at the U of M, it made open-heart surgery and heart transplantation possible throughout the world.

Spray-Drying Apparatus

- Invented by Samuel T. Coulter and Verne H. Townley; issued May 19, 1959.

and

Spray Drier

- Invented by Coulter, William E. Hoyt, and Samuel Van Deest; issued February 7, 1956.

These patents covered methods and equipment for drying liquids containing desirable solids, while retaining the flavor and body of those solids. The equipment yielded superior dried food products yet required considerably less factory space than that used in other drying processes. The technology was licensed by Food Equipment Corporation and used extensively by food companies producing powdered milk and other dehydrated food products.

Safety Seat Belt

- Invented by James J. Ryan; issued Jan. 22, 1963

Continued ...

Known as "Crash Ryan" because of his staging of car crashes for safety research, Ryan developed a seatbelt for automobiles and aircraft that is very similar to the retractable, locking seatbelts now in use. The invention was licensed to a company in Shoreview, Minn., Programmed and Remote Systems Inc., which supplied the seatbelts to automobile and aircraft manufacturers until newer versions came into use.

High Temperature Probe

- Invented by Leroy M. Fingerson; issued June 23, 1964.

Aerosol Sampler

- Invented by Benjamin Y.H. Liu; issued July 14, 1970.

and

Method and Apparatus for Measuring Particle Concentration

- Invented by Kenneth T. Whitby; issued Sept. 1, 1970.

The first of these patents led to the start-up by Fingerson of Thermal Systems Inc, now TSI, located in Shoreview, Minnesota. The second and third patents were licensed by TSI and used to diversify its products to become a leading manufacturing company.

Pivoting Disc Heart Valve

- Invented by Robert L. Kaster; issued Nov. 4, 1969.

This heart valve, developed with the assistance of surgeon C. Walton Lillehei, led to the founding of Medical Inc., a Minnesota biomedical company.

Implantable Blood Pump

- Invented by Frank D. Dorman, Eugene Bernstein, and Perry L. Blackshear; issued Sept. 28, 1971.

This was the first prototype of a line of ventricular heart assist devices currently used to try to keep a patient with a failing heart alive long enough for the heart to recover or for a donor heart to become available for transplant. Bio-Medicus Inc., Eden Prairie, Minn., was founded on the basis of this technology and is now an international leader in heart assist devices.

Implantable Infusion Pump

- Invented by Perry J. Blackshear, Frank D. Dorman, Perry L. Blackshear, Jr., Henry Buchwald, and Richard L. Varco; issued May 8, 1973.

The world's first implantable infusion pump, it is still used to deliver a slow, steady flow of drugs such as an-

ticoagulants, cancer chemotherapeutics, antibiotics, and insulins. It has helped more than 20,000 people receive life-sustaining therapy outside of the hospital and free of an external intravenous delivery system. Called the Infusaid, it was licensed to the Shiley-Infusaid Corporation of Norwood, Massachusetts, a subsidiary of Pfizer, Inc.

Kidney Preservation System

- Invented by Thomas A. Burton and Allen W. Moberg, two patents issued Dec. 11, 1973 and May 8, 1973

Burton, one of the founders of Waters Instruments, Inc., of Rochester, Minn. worked with Moberg, of the University of Minnesota Department of Surgery, to develop a device that was used to keep kidneys viable during transportation for transplant surgery. The patents were assigned to Waters Instruments, but the U of M received a percentage of royalties. This device increased the success rate for kidney transplantation and helped the U of M's program to become a world leader.

Suppression of Cardiac Ventricular Fibrillation and Cardiac Arrhythmias with Bretylium Tosylate

- Invented by Marvin B. Bacaner; issued April 25, 1978

This invention was licensed to the American Hospital Supply Corp., which distributed it as Bretylol, a drug still widely used in emergency situations to stop life-threatening heart arrhythmias and in chronic situations to prevent heart arrhythmias in patients who have suffered heart attacks. The drug has saved the lives of thousands of people, including President Dwight Eisenhower, who recovered from near-fatal ventricular fibrillation after being given Bretylol, and who continued to take it to prevent further heart attacks for the final six months of his life.

Several of the above inventions will be described in more detail in upcoming articles in this series, beginning with next month's account of the discovery and licensing of bretylium tosylate.

Program Information

Internal and External Sponsors

The National Institute of Arthritis and Musculoskeletal and Skin Diseases

Agency Profile

The National Institute of Arthritis and Musculoskeletal Diseases (NIAMSD), part of the National Institutes of Health, supports research and research training on a broad range of diseases and long-lasting, disabling conditions in the fields of rheumatology, orthopaedics, bone and mineral metabolism, muscle biology, and dermatology.

NIAMSD conducts and supports basic research programs in three major areas: arthritis and related diseases, musculoskeletal diseases, and skin diseases. Research is funded through research grants and contracts.

- **Arthritis and related diseases:** Included in this part of the institute's work are rheumatoid arthritis, Lyme disease, systemic lupus erythematosus, pediatric rheumatic diseases, Sjogren's syndrome, scleroderma, spondyloarthropathies and immunogenetics.
- **Musculoskeletal diseases:** Areas of current study in musculoskeletal diseases include osteoporosis, low-back pain, musculoskeletal fitness/sports medicine, osteoarthritis, heritable connective tissue disorders, Paget's disease of bone, and muscle biology.
- **Skin diseases:** The programs currently funded under this function are epidermolysis bullosa, sun-light and skin, alopecia, psoriasis, wound healing, and a health interview study that will be used for health care planning and development of strategies for intervention in high risk groups.
- **AIDS research:** The NIAMSD AIDS program supports and conducts research on the skin, rheumatic, and musculoskeletal manifestations of HIV infection. In particular, NIAMSD is investigating the relationship of psoriasis, folliculitis, seborrheic dermatitis, molluscum contagiosum, and Kaposi's sarcoma, which manifest themselves in relation to HIV.

For more information on research programs and application criteria, contact: Dr. Steven Houseman, Deputy Director of the Extramural Program, The National Institute of Arthritis and Musculoskeletal and Skin Diseases, (301) 496-7495.

National Institute of General Medical Sciences

Agency Profile

The National Institute of General Medical Sciences (NIGMS) is a component of the National Institutes of Health. It supports research and research training for the general biomedical sciences. The goal of this research and training is to improve the overall wealth of medical knowledge and in turn improve health care.

NIGMS conducts and supports basic research programs in five major areas:

- **Cellular and molecular basis of disease:** This includes studies of the structure, chemistry and functions of cells and their components, including their genetic material, in order to better understand the keys to maintenance of health and the development of disease.
- **Genetics:** Research is being pursued toward a greater understanding of the genetic code and the complex gene system. The goal of the research is an understanding of genetic diseases and possible prevention.
- **Pharmacological sciences:** This program supports research in three areas: pharmacology, anesthesiology, and bio-related chemistry.
- **Biophysics and biophysiological sciences:** This program provides funding for biomedical research concerned with structural biology, instrumentation development, cross field applications such as from mathematics and physics, and the biochemical and physiological effects of severe burns and other types of trauma.
- **Human genome research:** Part of the NIH-wide human genome mapping program.

For more information on research programs and application criteria, contact NIGMS at (301) 496-7714.

National Kidney Foundation

The National Kidney Foundation of the Upper Midwest has announced funding available for Research Grants to Younger Investigators for FY 1990-91. These funds are not limited to M.D. or Ph.D. level applicants. Amounts are from \$1,000 to \$3,000; the application deadline is August 14, 1990. Please call the local office at 337-7300 for further information.

The American Council of Learned Societies

The American Council of Learned Societies (ACLS) provides support to scholars working in the fields of philosophy, including the philosophy of law and science; aesthetics; philology; languages, literature and linguistics; archaeology; art history and musicology; history, including the histories of science, law, and religions; cultural anthropology; and folklore.

- **Fellowships** are open to scholars up to age 51 who have held the Ph.D. for more than three years and who wish to engage in research. Awards of a maximum of \$15,000 each provide support for six to twelve months of full-time work. Funds may be used for travel, clerical or research assistance, reproduction or purchase of materials, and support of dependents. The deadline for applications is **September 30**.
- **Grants-in-Aid** of up to \$3,000 each are designed to assist scholars with the expenses of specific programs of research-in-progress, including travel and maintenance away from home necessary to gain access to materials, research or clerical assistance, and reproduction of materials. The application deadline is **December 15**; the grant period is anytime between May 1 and April 30.
- **Grants for Travel to International Meetings Abroad** provide travel support for persons who are to read papers or who have a major official role in international scholarly meetings outside North America. The preference is for scholars over bureaucrats, and for youth over age. Awards of \$500 to \$1,000 are paid *after* meeting attendance and upon presentation of documentation. Deadlines for applications are **March 1** for meetings July through December, and **October 1** for meetings January through June.
- **Fellowships for Recent Recipients of the Ph.D.** are available for six to twelve months of full-time research by scholars who have received the Ph.D. within the last three years. Proposals for dissertation revisions as well as work on other projects will receive consideration. Awards of up to \$10,000 are intended primarily as salary replacement for the provision of free time. The deadline for applications is **September 30**.

Contact Ruth Waters, Executive Asst Fellowships & Grants, American Council of Learned Societies, 228 E. 45th Street, New York, NY 10017-3398; (212) 697-1505.

Exchange Programs with China

The Committee on Scholarly Communication with the People's Republic of China (CSCPRC) and its sponsors, the American Council of Learned Societies, the National Academy of Sciences, and the Social Science Research Council, announce the 1991-92 National Program for Advanced Study and Research in China:

Graduate Program

- Supports individuals enrolled in a graduate program in social sciences or humanities to do coursework or dissertation research at a Chinese university or research institute. Grants are offered for one year, beginning September 1991. The application deadline is **October 13, 1990**.

Research Program

- Supports individuals in the social sciences or humanities who hold a Ph.D. or equivalent at the time of application to do in-depth research on China, the Chinese portion of a comparative study, or an exploratory survey of an aspect of contemporary China. Grants are offered for two to twelve months between July 1, 1991 and December 31, 1992. The application deadline is **October 13, 1990**.

China Travel Grants Program

- Supports individuals with a Ph.D. or equivalent in the social sciences or humanities to present results of recent research on an aspect of China studies at a conference. Grants are offered for partial travel expenses only, and do not support travel to lecture, teach, or consult, nor to travel to conferences dealing primarily with the improvement of teaching methods or skills. The application deadline is **three months before the conference** applicants wish to attend.

Chinese Fellowships for Scholarly Development

- Supports Chinese scholars in the social sciences or humanities with a master's or doctoral degree from a Chinese institution to conduct post-graduate research at a U.S. institution. Grants are offered for five months between August 1, 1991 and July 31, 1992. American scholars must nominate Chinese candidates to the program; Chinese scholars cannot apply directly. The application deadline is **November 13, 1990**.

For further information on the above programs, write the CSCPRC, National Academy of Sciences, 2101 Constitution Avenue, Washington, DC 20418.

National Geographic Society

The National Geographic Society conducts a program of research grants to support basic research in science pertinent to geography, including work in the fields of anthropology, archaeology, astronomy, biology, botany, glaciology, paleontology, oceanography, ornithology, marine biology, mineralogy, underwater archaeology, geology, entomology, ethnology, ecology, and zoology. Support will also be provided for projects in the above fields that depend on exploration. In addition, museum or archival research may occasionally qualify as field research. The Society welcomes institutional research proposals and is especially interested in encouraging multidisciplinary projects.

Eligibility is open to candidates of any nationality who have received the Ph.D. and are affiliated with higher education institutions or other scientific or education institutions, including museums. On occasion, grants are also made to well-qualified graduate students with projects of outstanding significance.

Awards typically range from \$2,000 to \$150,000, with most for amounts under \$20,000. Support is provided for one year and is renewable for up to two years. Initial inquiries are suggested; formal applications may be submitted at any time. Contact Edwin W. Snider, Secretary, Committee for Research and Exploration, National Geographic Society, 17th & M Streets, N.W., Washington, D.C. 20036; (202) 857-7439.

International Society of Arboriculture

Each year since 1975, the International Society of Arboriculture has awarded grants to encourage scientific and educational research on shade trees. Horticulturists, plant pathologists, entomologists, soil specialists and others are invited to submit brief outlines of proposed projects for which grants might help buy supplies or equipment, hire technical or student help, or otherwise aid the work.

For the past three years the Society has awarded 10 grants of \$2,000 each per year. The number and size of 1991 grants have not yet been decided. Grants are not expected to cover all research costs, but to aid, stimulate and encourage scientific studies of shade trees.

The deadline for 1991 grants is **December 1, 1990**. A copy of the announcement is available from ORTTA and may be requested by calling 624-0061.

The Charles A. Lindbergh Fund

The Charles A. Lindbergh Fund was established as a non-profit organization to honor the memory of Charles A. Lindbergh, who devoted his life to many of humankind's chief concerns in the 20th century. Known first as an aviator, Lindbergh also made substantial contributions in other fields, including aeronautical research, conservation, biomedical research, exploration and wildlife preservation.

It is the Fund's intention to support future generations in working toward the goals Lindbergh envisioned, "...to discern nature's essential wisdom and to combine it with our scientific knowledge..." before it is too late. Lindbergh's profound belief was that the future of humankind depends upon a balance between technology and the environment.

As a means to this end, each year the Lindbergh Fund provides grants of up to \$10,580 (a symbolic amount representing the cost of the "Spirit of St. Louis") to men and women whose individual initiative and work in a wide spectrum of disciplines furthers this balance. The fund is interested in the following categories: 1) Aeronautics, 2) Astronautics, 3) Aviation, 4) Agriculture, 5) The Arts and Humanities, 6) Biomedical Research, 7) Conservation of Natural Resources, 8) Exploration, 9) Health and Population Sciences, 10) Intercultural Communication, 11) Oceanography, 12) Waste Disposal Management, 13) Water Resource Management, and 14) Wildlife Preservation.

It is the policy of the Fund to give priority to those projects that best address the issue of balance regardless of category, and to *give grants to individuals, not to affiliated institutions for institutional programs*. The deadline for application for the 1991 grant year is **October 16, 1990**.

Copies of the guidelines and application forms are available from: The Charles A. Lindbergh Fund, Inc, 708 South 3rd Street, Suite 110, Minneapolis, MN 55415; (612) 338-1703. Copies are also available from ORTTA and may be requested by calling 624-0061.

Changes to Research Review Deadline Section

By now you have probably noticed that the Deadline Section of the newsletter is missing.

Beginning with this issue, the Deadline Section is *no longer* being included with the monthly publication of the *Research Review*. ORTTA plans to distribute deadline information separately in two ways.

1. We will continue to update the deadline list on a monthly basis and will send a printed version to departmental and collegiate offices. Copies will also be available, upon request, from ORTTA, (please call 624-9004.) Specific grant opportunities will continue to be highlighted in the Program Information section of the *Research Review*.
2. We also plan to have the deadline list available electronically on a public access bulletin board through the University's computer system. This electronic bulletin board is currently being tested by a small group of faculty and administrators. We are hopeful that University-wide access will be available in late summer.

ORTTA will continue to keep you informed. If you have questions or comments regarding these changes, please direct them to Winifred A. Schumi at 624-5750.

NIH Proposals

Please carefully review the instructions for submitting a PHS grant application — any proposal deviating from the instructions included with the 398 application packet will be returned by NIH without review.

Grant applications must utilize the 10/88 version of the 398 kit and must adhere to the page limitations. The 20-page limitation for the Research Plan (sections A-D) applies both to new and competing renewal applications, as well as to all revised applications. Graphs, charts, figures and tables that are essential to the research plan must be included within the 20 pages. Furthermore, the type style and type density used in applications must be readily legible with type not exceeding 10 characters per inch for the first page. For the rest of the application, the type must not be smaller than 15 characters per inch. In addition, type may not be reduced in height, but should be the standard size (10 to 12 points, approximately 1/8 inch for capital letters). Applications must be typed, single spaced, and within margin limitations as indicated.

Indirect Cost & Fringe Benefit Rates

Indirect Cost Rates

The rates for July 1, 1989 through June 30, 1990 are listed below. When budgeting for periods beyond 6/30/90, the 7/1/89-6/30/90 rates should be used. **The rate agreement is dated March 28, 1988.** This date should be used where required on proposal applications.

	07/01/89- 06/30/90
Research	
On-Campus	44.0
Off-Campus *	21.5
SAFHL	86.6
Hormel	49.5
Other Sponsored Activity	
On-Campus	33.4
Off-Campus *	16.8
Instruction	
On-Campus	68.7
Off-Campus *	27.9

* A project will be considered off-campus if more than 50% of the direct salaries and wages of personnel employed on the project are incurred at a site neither owned nor leased by the University.

Fringe Benefit Rates

If you have questions regarding fringe benefit rate development or need the breakdown of charges, call Vivian Fickling at 624-2009.

Current actual rates through 6/30/90 are:

Faculty	29.00%
Civil Service	24.50%

For proposals being submitted with start dates after July 1, 1990 the estimated fringe benefit rates to be budgeted are:

Faculty	30.00%
Civil Service	25.50%

As rates change, they will be reflected in this section

Faculty Research Awards

This section contains statistics on proposals and awards recently processed by ORTTA. In addition, we have randomly selected awards received by faculty during preceding months. If any faculty member has received an award he or she would like mentioned in future Research Reviews, please call Mike Moore at 624-9398.

Proposal and Award Summary

	Number	Amount
Proposals Submitted		
May, 1990	292	\$57,340,197
Awards Processed		
May, 1990	161	17,702,627
Proposals Submitted		
July, 1989 - May, 1990	3,409	567,421,006
Awards Processed		
July, 1989 - May, 1990	2,403	264,049,440
Proposals Submitted		
July, 1988 - May, 1989	3,047	532,265,216
Awards Processed		
July, 1988 - May 1989	2,196	192,132,245

Community Programs for Clinical Research on AIDS Statistical Center

James D. Neaton, School of Public Health
Thomas Louis, School of Public Health

NIH, NIAID
\$2,361,161 / 04/90 - 04/91

Home Care Quality Studies

Robert L. Kane, School of Public Health
Health Care Financing Administration (HCFA)
\$1,150,000 / 10/89 - 03/93

Oldest-Old Mortality: Demographic Models and Analyses

James W. Vaupel, Humphrey Institute for Public Affairs
NIH, NIA
\$392,105 / 02/90 - 12/90

Tandem Mass Spectrometer

Larry D. Bowers, Laboratory Medicine and Pathology
NIH, NCR
\$345,000 / 04/90 - 04/91

Study of Validity and Reliability of Pesticide Use Data Obtained From Interviews of Farmers

Jack S. Mandel, School of Public Health
Robert W. Gibson, School of Medicine, UMD
Dow Chemical
\$317,391 / 04/90 - 09/91

Krebs Cycle and Cyclic Nucleotide Control

Nelson D. Goldberg, Biochemistry (MS)
Richard M. Graeff, Pharmacology
NIH, NIGMS
\$244,122 / 04/90 - 03/91

Differentiative Programs of Lymphoid Progenitor Cells

Tucker W. LeBien, Laboratory Medicine and Pathology
NIH, NCI
\$191,566 / 04/90 - 01/91

Work-Site Cholesterol Intervention Program

John H. Himes, School of Public Health
Karen Graves, School of Public Health
Nabisco Foods Company, Inc.
\$155,550 / 07/89 - 06/91

Synthesis and Degradation of Ribosomes in the Mosquito

Ann Fallon, Entomology
NIH, NIAID
\$153,546 / 04/90 - 03/91

Research Training in Infectious Diseases and Developmental Immunology

Paul G. Quie, Pediatrics

NIH, NICHD
\$138,210 / 07/90 - 06/91

Neutrophil/Endothelial Cell Communication

Gregory M. Vercellotti, Medicine

NIH, NHLBI
\$124,625 / 04/90 - 03/91

Training Program for Physicians in Nutrition Research

Frank B. Cerra, Surgery
Allen Levine, Medicine

NIH, NIDDK
\$105,708 / 05/90 - 04/91

Kelvin Probe Investigation of Atmospheric Corrosion of Thin Film Materials

William H. Smyrl, Corrosion Research Center
Richard A. Oriani, Corrosion Research Center

IBM Corporation
\$100,000 / 02/90 - 01/91

Mercury Accumulation in Two Minnesota Lakes

Daniel R. Engstrom, Geology and Geophysics
St of MN - Pollution Control Agency
\$15,000 / 04/90 - 02/91

Watershed Assessment of Chemical Agriculture

Wilbur Maki, Agricultural and Applied Economics
U S Department of Agriculture
\$50,000 / 02/90 - 11/91

Sugarbeet Root Aphid in Minnesota: Biology, Damage and Management

William D. Hutchison, Entomology
Sugarbeet Research & Ed Board of MN and North Dakota
\$26,500 / 04/90 - 03/91

Genetic Alternation of Fish Size by a Size-Selective Fishery

Anne R.D. Kapuscinski, Fisheries and Wildlife
Sport Fishing Institute Fund
\$2,500 / 07/90 - 09/91

Analyzing Wood Supply with Multiple Market Locations

Howard Hoganson, Forest Resources
Ontario Ministry of Natural Resources
\$56,096 / 04/90 - 03/92

Museum Assessment Program

Marla C. Berns, Design, Housing, and Apparel
Institute of Museum Services
\$1,400 / 04/90 - 04/91

Neuroactive Venom Constituent

James F. Klerner, Biochemistry (MS)
Minnesota Medical Foundation
\$5,500 / 07/90 - 06/91

Diabetes Among the Paipai: A Tribe in Transition

Christopher K. Krogh, Family Practice & Community Health
Roger Mazze, Family Practice & Community Health
Diabetes Research and Education Foundation
\$18,900 / 04/90 - 03/91

Alternative Low-Energy Swine Housing

Carlos Pijoan, Large Animal Clinical Sciences
Larry D. Jacobson, Large Animal Clinical Sciences
Vernon R. Eidman, Large Animal Clinical Sciences
Greater Minnesota Corporation
\$73,700 / 03/90 - 11/91

The Sponsored Project Information Network (SPIN) is a computerized locator system of funding opportunities (federal, nonfederal, and corporate) for faculty and institutional research, development, and education program support. It is available to University faculty and staff through ORTTA.

Based on a description of your research areas and/or the type of support sought, ORTTA staff will search the SPIN Keyword Index to identify sources within specific areas of interest. The Keyword Index, a taxonomy developed by SPIN to catalog funding sources, is divided into the following ten major classifications:

- Agriculture/Food/Forestry
- Arts/Culture/Humanities/Communications
- Business/Economics/Management
- Education
- Health/Medical Sciences
- International Affairs/Area Studies
- Miscellaneous/Other
- Science/Technology
- Social/Behavioral Sciences
- Social Welfare/Public Affairs

The result of a search is a set of profiles of applicable funding sources that provides: 1) the sponsor's name; 2) the sponsor's contact address and telephone number; 3) deadline dates; 4) program titles; 5) objectives or interest areas of the sponsor; and 6) restrictions that would affect the submission of a proposal. This set of profiles is sent to the requestor.

SPIN searches are done free of charge to the requestor. A survey of users of SPIN indicates that the information received from a SPIN search was targeted to their request and a reasonable response time was effected.

For further information regarding the SPIN system or to request a search, please contact ORTTA at 624-5750, 624-0061, or 624-9004

Please Note: SPIN searches are also available through the Research and Development Office in the College of Liberal Arts; the Agricultural Experiment Station; the Research Support Office at Duluth; and the Grants Development Office at Morris.

ORTTA TELEPHONE NUMBERS

A Quick Reference Guide

Title and/or Area of Responsibility Fax Number	Name	Number (612) 624-4843
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Office of Research and Technology Transfer Administration

Associate Vice President, ORTTA	Tony Potami	624-1648
Assistant Director, Technology Transfer Development	Mary Fahey	626-7441
Communications Coordinator	Mike Moore	624-9398
Administrative Coordinator	Carol Perusse	624-6389

Grants and Contracts

Information		624-5599
Assistant Director	Rick Dunn	626-2265
Assistant Director	Mary Lou Weiss	624-5856
DHHS, NIH, ADAMHA, HRSA, OHD, Misc Private Agencies	Mary Lou Weiss	624-5856
NIH, Other DHHS, St. of MN, Counties, Am Heart Assoc	Todd Morrison	624-5066
NIH, Other DHHS, Voluntary Health Agencies, Cities	Kevin McKoskey	624-1521
NSF (Health Sci), USDA, DOD, NASA, EPA, NEA, AID, Misc Federal Agencies	Merlin Garlid	624-0288
NSF (IT), DOE, DOC, USDI (IT), Misc Fed	TBA	624-5571
NSF (non-Health Sci, non-IT), Education, USDI		
USDA, NEH, ST of MN, Other State	Rick Dunn	626-2265
Foundations, Miscellaneous Private Agencies	Judy Krzyzek	624-2546

Patents and Licensing

Director	John Thuent	624-2816
Technology Licensing (IT)	Tony Strauss	624-0869
Technology Licensing (Health Sci/Ag)	TBA	624-0262
Trademark Licensing	Robert Hicks	626-1585
Technology Licensing	Paul McDowall	625-8826
Grants & Contract Administration	Judy Volinkaty	624-3317

Financial Reporting

Assistant Director	Marilyn Surbey	624-4850
Effort Reporting, Indirect Cost & Other Rate Development	Leslie Estes	624-2040
Financial Reporting, Accounting Questions	Sandy Kenyon	624-2307

Information Services

Assistant Director	Winifred A. Schumi	624-5750
Regents Docket, Statistical Reporting	Darlene Anton	624-0353
Research Review, Application Materials, Program Announcements	Tove Jespersen	624-0061

Human Subjects Committee

Administrator	Moir Keane	624-1889
Executive Assistant	Ellen Stewart	624-9829

Duluth

Research Support Office	James Loukes	(218)726-7583
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Morris

Grants Development	Tom Mahoney	(612)589-2211 x6450
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ORTTA NEWSLETTER MAILING LIST INFORMATION

Faculty

The Research Review is automatically mailed to all faculty on the Faculty Mail List holding the rank of Assistant Professor and above.

To Add/Delete/Change a faculty name on this list, departmental officers must submit a Staff Directory Card to Administrative Information Services (AIS).

Please check with your departmental office or AIS (624-9000) if you need assistance.

Staff/Off-Campus

ORTTA maintains a **Supplemental Mail List** for academic staff not included in the above faculty list; for staff; and for individuals off-campus. Additions/ Changes/Deletions to this list may be initiated by filling out and sending ORTTA the following:

Change	☐
Add	☐
Delete	☐

Name -----

Department -----

Campus Address (Bldg) -----

→ **For changes/deletions, please enclose your mailing label.** ←

Return to:

Research Review
ORTTA
Adm Svcs Center
1919 University Avenue/5th Floor
St. Paul, Minnesota 55104

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University of Minnesota

RESEARCH REVIEW

An Overview of Sponsored Program and Technology Transfer Administration

Research and Technology Transfer Administration

JULY, 1990

A Brief History of the U.S. Patent Office

With an Overview of Historic U of M Patents

This month marks the 200th anniversary of the issuing of the first U.S. patent, so what better time to take a look back at that history and some of the University of Minnesota's early patents. The following information on U.S. patent laws was drawn from *The Story of the U.S. Patent and Trademark Office*, published in 1988 by the U.S. Department of Commerce, Patent and Trademark Office, with support from the Minnesota Intellectual Property Law Association and three other law associations.

The first law recognizing an inventor's right to profit from an invention was signed by President George Washington on April 10, 1790. The responsibility for reviewing and granting patents was vested in a board consisting of the Secretary of State, Secretary of War, and the Attorney General. Patents were to be issued for "any useful art, manufacture, engine, machine, or device, or any improvement thereon not before known or used." The first U.S. patent was issued on July 31, 1790, to Samuel Hopkins, of Pittsford, Vermont, for an improvement in "the making of Pot ash and Pearl ash by a new Apparatus and Process."

Thomas Jefferson, Secretary of State at the time, was the moving spirit behind the first patent law, and for the next three years he personally examined all applications and advised the board on the issuing of 55 patents. "The issue of patents for new discoveries has given a spring to invention beyond my conception," he said. Curiously, he never applied for a patent himself, although he made several inventions, including an improved plow for farming, a revolving chair, a folding stool that doubled as a walking stick, a machine for treating hemp, and a pedometer.

In 1793, the Patent Board was abolished, primarily because its members didn't have time to spare from their regular duties. Unfortunately, the Patent Act of 1793 also deleted the requirement that an invention be "sufficiently useful and important." These and other changes in the Act of 1793 made the patent system more of a clerical registration process (similar to current copyright registration) rather than a merit-based examination system. As a result, a study in 1836 by Senator John Ruggles from Maine found that "For more than 40 years the Department of State has issued patents on every application, without any examination into the merits or novelty

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Committee on the Use of Human Subjects in Research

Training Grants

Procedures for securing approval from the Committee on the Use of Human Subjects in Research for training grants differ slightly from standard procedures due to the nature of training grants.

In the initial grant application period, the principal investigator of a training grant should submit a letter to the Committee explaining the intent of the application, including an assurance that any training monies used for research with human subjects will not be used until the Committee has reviewed and approved the sub-project.

The Committee can then confirm the training grant and forward certification of approval to the funding agency.

Each sub-project of a training grant that uses human subjects in research must comply with institutional and federal research requirements. Individual investigators should apply for Committee approval as soon as their projects are identified. Principal investigators should take steps to ensure that investigators on sub-projects understand the need for compliance with the human subjects regulations since the PI is ultimately responsible for the conduct of the research under his/her direction.

Once approved, all research is subject to continuing review, no less than annually. It is the responsibility of the principal investigator of the training grant to ensure that sub-project investigators comply with requirements

of the Committee even though the project may be conducted by another investigator. The principal investigator, upon receipt of notification of continuing review (renewal) of an existing training grant, should contact the sub-project investigators to document compliance with the Committee. The principal investigator should send to the Committee a completed continuing renewal form, cover sheets, and a list of sub-projects that involve human subjects. These sub-projects should be identified by investigator name, project title, human subject code number, and most recent date of approval.

Upon confirmation of the training grant sub-projects, the Committee may certify approval for the overall project.

Any questions concerning training grants or other human subjects issues should be directed to Moira Keane, 624-9829.

Federal 1990 R&D Budget Analyzed

Congress approved \$66.2 billion for research and development in fiscal 1990, according to a report titled "Congressional Action on Research and Development in the FY 1990 Budget," published by the American Association for the Advancement of Science. That total was \$3.9 billion (5.5%) less than the amount requested by the Bush administration, but nearly \$2 billion (3.1%) more than the fiscal 1989 total.

The administration's request for Pentagon R&D was cut by more than \$4 billion (9%), and at \$41.1 billion ended up nearly \$600 million (1.4%) under the fiscal 1989 level. Defense-related R&D accounts for 62 percent of total federal R&D spending in 1990, down from nearly 70 percent in the early to mid-1980s.

Congress gave non-defense R&D 1.4 percent more than the administration requested, and the total for fiscal 1990 will be about \$2.5 billion (11.2%) more than 1989. NASA for the second year in a row received nearly half of the increase in non-defense R&D funds. Its budget was increased by \$7.1 billion (20.1%) over 1989, including a doubling of the amount earmarked for the space station (from \$900 million in 1989 to \$1.8 billion in 1990). Increases for other federal civilian R&D agencies were less steep: Department of Energy, 9%; National Institutes of Health, 6%; and the National Science Foundation, 7%. Federal spending for basic research in fiscal 1990 is expected to reach \$11.1 billion, up 7 percent from 1989.

RESEARCH REVIEW

Volume XX/Number 1

July, 1990

Editor: Michael P. Moore

Associate Vice President: A.R. Potami

Research Review is a monthly publication of the Office of Research and Technology Transfer Administration. Its purpose is to inform faculty and administrators who are involved with Sponsored Research and Technology Transfer on procedures and policies of granting agencies; on institutional policy and other information necessary to the preparation of research proposals; and on funding opportunities.

Research Review welcomes ideas and comments from all readers. Write to Research Review at 1919 University Avenue, 5th Floor, St. Paul, MN 55104, or call Michael P. Moore at 624-9398.

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, sex, national origin, handicap, age, veteran status, or sexual orientation.

RESEARCH REVIEW

An Overview of Sponsored Program and Technology Transfer Administration

Research and Technology Transfer Administration

August, 1990

Minnesota Project Outreach Corporation Selects President and Vendor

The Minnesota Project Outreach Corporation (MPOC) has selected Candace Campbell as its president, and Teltech, Inc., as the vendor through which it will provide technical information to Minnesota companies and the public. MPOC is a non-profit corporation established by the 1989 state legislature as a collaboration of the University of Minnesota, the Department of Trade and Economic Development, and the Greater Minnesota Corporation, each of which contributed \$1.6 million for the project's first two years. MPOC is charged with providing Minnesota's small and medium-sized technical companies with easy access to computerized databases and technical expertise to improve their ability to compete in high-tech industries. A major part of its information and expertise will be provided by the University of Minnesota.

Campbell was selected by the MPOC Board of Directors from a slate of 75 applicants. She was a senior associate at Pryde, Roberts Development Services, and she is currently a research fellow in the Regional Issues Forum at the Hubert H. Humphrey Institute of Public Affairs. Campbell will be responsible for overseeing Teltech's compliance with the MPOC contract and for carrying out the organization's mission as outlined by the board, which is made up of representatives from the three collaborating organizations, the legislature, and Minnesota's business and industry community. She began her duties in July at MPOC's new office in the University Technology Center, a facility near the University of Minnesota that houses several small technology-oriented companies and services.

Teltech, Inc., a Minneapolis-based, privately owned provider of technical resources, was the only respondent to the request for proposals issued by MPOC in January. The board had hoped to receive more proposals, says its chairman, Herbert Johnson, but the members realized

that the wide range of complicated technical services required by Minnesota Project Outreach could be delivered by only a handful of U.S. companies. "Teltech has been a national leader in building a technical resource network and in serving the information needs of technical companies," Johnson said. "After reviewing Teltech's proposal, the MPOC Board of Directors voted unanimously to award a two-year contract to the company."

Under the terms of the contract, Teltech has already begun to write software programs, develop databases of information, and recruit technical experts who will be available for phone consultations. Minnesota Project

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New Procedure for Subcontract Payments

Attention: PI's with subcontracts prepared and monitored by ORTTA

Because of changes in the University's accounts payable/purchasing procedures announced July 1, ORTTA must have approval from principal investigators before invoices for subcontract payments can be submitted to accounts payable. This change applies only to subcontracts prepared and monitored by ORTTA. The following procedure must be followed for all such subcontract invoices dated after July 1, 1990.

- 1) Invoices sent to the principal investigator (PI) must be reviewed and signed. The PI or departmental designee must indicate, on the vendor invoice, that it is "OK to pay."
- 2) The PI or designee must then apply a preprinted number label (B.A. form 1208) to the invoice, and sign the numbered label. (For information on this form and other changes, see "University of Minnesota Accounts Payable/Purchasing Procedures and Changes - 7-1-90.")
- 3) Mail the invoice with attached number label to ORTTA, marked to the attention of the grant administrator in charge of the subcontract.
- 4) ORTTA will stamp the invoice and forward it to the Accounts Payable Invoice Desk.

RESEARCH REVIEW

Volume XX/Number 2

August, 1990

Editor: Michael P. Moore

Associate Vice President: A.R. Potami

Research Review is a monthly publication of the Office of Research and Technology Transfer Administration. Its purpose is to inform faculty and administrators who are involved with Sponsored Research and Technology Transfer on procedures and policies of granting agencies; on institutional policy and other information necessary to the preparation of research proposals; and on funding opportunities.

Research Review welcomes ideas and comments from all readers. Write to Research Review at 1919 University Avenue, 5th Floor, St. Paul, MN 55104, or call Michael P. Moore at 624-9398.

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, sex, national origin, handicap, age, veteran status, or sexual orientation.

Indirect Cost & Fringe Benefit Rates

Indirect Cost Rates

The rates for July 1, 1989 through June 30, 1990 are listed below. When budgeting for periods beyond 6/30/90, the 7/1/89-6/30/90 rates should be used. The rate agreement is dated March 28, 1988. This date should be used where required on proposal applications.

	07/01/89- 06/30/90
Research	
On-Campus	44.0
Off-Campus *	21.5
SAFHL	86.6
Hormel	49.5
Other Sponsored Activity	
On-Campus	33.4
Off-Campus *	16.8
Instruction	
On-Campus	68.7
Off-Campus *	27.9

* A project will be considered off-campus if more than 50% of the direct salaries and wages of personnel employed on the project are incurred at a site neither owned nor leased by the University.

Fringe Benefit Rates

If you have questions regarding fringe benefit rate development or need the breakdown of charges, call Vivian Fickling at 624-2009.

Current actual rates through 6/30/90 are:

Faculty	29.00%
Civil Service	24.50%

For proposals being submitted with start dates after July 1, 1990 the estimated fringe benefit rates to be budgeted are:

Faculty	30.00%
Civil Service	25.50%

As rates change, they will be reflected in this section

Index to Research Review

An Index to Volume XIX (July, 1989 - June, 1990) of the Research Review is now available. You may call 624-0061 or 624-9004 to request a copy.

Committee on the Use of Human Subjects in Research

Certificate of Confidentiality

A new protection exists which provides an additional guarantee of anonymity and confidentiality for research subjects. The new protection, a "Certificate of Confidentiality," issued by the Assistant Secretary for Health, is modelled after the original certificates granted by the Alcohol, Drug Abuse and Mental Health Administration (ADAMHA). The original certificate was issued strictly for research in the drug abuse areas.

The new Certificate of Confidentiality is more generic in application and can be used to protect the identity and research records of subjects of "sensitive research." The Assistant Secretary for Health issues the certificates for research in biomedical, behavioral and clinical areas.

The regulations are being developed at this time; however, "Interim Guidance" has been issued and the Committee on the Use of Human Subjects in Research may recommend that investigators secure the certificate prior to initiating research. Since the assurance of confidentiality and anonymity promised in a consent form cannot be considered absolute, the certificate can be issued in sensitive research cases and the certificate will protect the research records from subpoena. There have been cases where a court-ordered subpoena has forced researchers to disclose confidential research results. (The data requested has varied, but is most often requested to disprove liability.)

The new certificates, while more widely applicable, will still be granted sparingly. The protection will be granted by the Assistant Secretary when the research is of a sensitive nature and the protection is deemed necessary to achieve the research objectives. Research is considered "sensitive" if it involves the collection of information in any of the following categories:

- sexual attitudes, preferences, practices;
- use of alcohol, drugs, or other addictive products;
- illegal conduct;
- information that, if released, could reasonably be damaging to an individual's financial standing, employability, or reputation within the community;
- information normally recorded in a subject's medical record which, if disclosed, could reasonably lead to social stigmatization or discrimination;
- information pertaining to a subject's psychological well-being or mental health.

Other areas may be considered "sensitive" due to specific cultural values or other factors. With appropriate justification and explanation, these areas may be considered suitable for a certificate.

Certificates will be granted for sensitive research irrespective of funding source. NIH need not be the funding agency for the certificate to be valid.

The Committee on the Use of Human Subjects in Research encourages investigators who are contemplating "sensitive research" projects to contact the Committee on the Use of Human Subjects in Research office for assistance in filing an application for "Certificate of Confidentiality." While the Committee cannot dictate the policy of a federal agency, the Committee may stipulate that an investigator pursue an application for a certificate and document its award or refusal, prior to initiation of sensitive research.

Several investigators at the University of Minnesota have received "Certificates of Confidentiality." They have found the certificate to be of assistance in recruiting subjects since extra guarantees can be offered, and they have found that subjects are very candid in responding to investigators who have assurances that the research records are protected from subpoena.

Questions concerning applicability and filing procedures should be directed to Moira Keane, Administrator to the Committee on the Use of Human Subjects in Research, 624-9829.

Drug-Free Workplace Site Reporting

In the May 25, 1990 Federal Register, an additional requirement was added to the drug-free workplace (DFW) certification required of institutions accepting federal funding. Effective immediately, institutions must identify the specific work site(s) applicable to each funded project.

To comply with this requirement, ORTTA will rely on the worksite as reported in question #16 of the BA23 submitted with that proposal. Therefore, *it is imperative that question #16 be filled out completely* when submitting a proposal. If there is a change in worksites during the project, the principal investigator must submit written notice to ORTTA. Please direct questions and information on this subject to the appropriate ORTTA grant administrator.

Biomedical Graphic Communications

Presentation Services Available Soon via Ethernet

Departments in need of slides, overheads, posters, and other types of presentation graphics will soon be able to access the services of Biomedical Graphic Communications (BGC) through the University's Ethernet telecommunication network. According to Martin Finch, director of BGC, his department is taking the step because of the increasing number of faculty and staff who are learning to do their own graphics through presentation software packages, but who lack the ability to output onto high-resolution slides and other media. "This is a trend that's going to continue to grow, and we want to make it easier for these computer users to get the best possible output of their work," Finch says.

BGC has been serving the photographic and graphic needs of the University's health sciences departments since 1954, although its services are available to anyone in the University community. Over the past decade, Finch has kept the department's hardware and software capabilities—as well as its personnel—in the vanguard of computerized presentation technology. His latest effort is to create an imaging center within the department that can provide 8000-line resolution film-recording of graphics transmitted via Ethernet, with 24-hour turnaround. "Once you have a slide you can also get an overhead, color print, or paper hard copy of the graphic, so it really gives users a full, high-quality presentation capability," Finch says.

The BGC imaging center will have the capability to accept over Ethernet, graphic fields created with Macintosh computers on presentation software, and it will soon be adding equipment needed to make it IBM compatible as well. Karen Arechiga, who directs the imaging center, says that some users don't understand that charts or tables created on a word-processing package cannot be photographed through the film recorder. "We are willing to work with anybody interested in using the service, either to help them learn to create their own graphics, or to work with our artists to create the images they need," she says. She encourages interested departments to contact her at 626-3939 to discuss what type of software they are using, how they can best use BGC's services, what various levels of creative services cost, and possibly to establish an Ethernet zone to transmit graphics to the imaging center. Finch says he is exploring the idea of forming a user group, with annual memberships that would include discounts off the regular imaging rates.

Finch sees his department's services, which include art, design, print production, photography, and videotape, in

addition to the imaging center, as being a valuable asset to enable researchers to succeed in the increasingly competitive research arena. "The need is increasing for researchers to present themselves in the best light possible, including the artwork they provide with publications, the posters and presentations they give at conferences, and the presentations they make to committees doing research site visits," he says.

In the News: 1989 Levels and Trends

This portion of a column by Dave Peters appeared July 9 in the St. Paul Pioneer Press, and is reprinted with permission.

The Defense Department paid 27 percent more for research and development work at the University of Minnesota in the June 1989 fiscal year than it did the year before.

The \$5.7 million the Pentagon spent will jump even more when the June 1990 figures become available because of the Army's five-year \$67 million supercomputer contract with the university.

The June 1989 figures have just been published by the university's Office of Research and Technology Transfer Administration. The National Institutes of Health remained the single biggest outside sponsor of research, increasing its contribution 7 percent to \$82.7 million.

On the receiving end, the medical school received an increase in outside research money but saw its part of the pie shrink slightly to 37.5 percent. The Institute of Technology, thanks largely to its new Center for Interfacial Engineering, increased its share to 18.3 percent. They are the two biggest recipients.

The University is struggling mightily to create wealth from all this research, first by patenting discoveries and inventions and then by licensing those patents to companies via royalty agreements.

The number of patents issued to the university rose nearly 60 percent in 1989 to 41, but the university's ranking fell from fourth to seventh in the nation on that score. Leading the nation is the Massachusetts Institute of Technology, followed by the University of California, the California Institute of Technology, the University of Texas, Stanford University and the University of Florida.

Policy on Charging Proposal Preparation Costs

As part of a recent federal audit, the University's policy on charging proposal preparation costs was discussed. The University was informed that current practices meet federal requirements, but we were cited for failure to have a written policy. Consequently, the following guidelines should be applied when charging costs for the preparation of proposals for external support. Questions concerning this policy may be directed to the appropriate ORTTA grant administrator.

New and Competing Renewals

The salaries and expenses of individuals working on developing a proposal for external support, including the principal investigator and support staff, *cannot* be charged to sponsored projects for that portion of their effort devoted to the proposal preparation. These costs must be charged to nonsponsored accounts.

Consequently, for the period of time that a proposal is being prepared, an employee who is already working on a sponsored project must also have effort available from a nonsponsored source. The salary paid from the nonsponsored source must be reflected on the effort certification card.

For example, an employee who is devoting 70% effort to sponsored projects and 30% effort to an 0100 fund during a month could spend up to 30% time on proposal preparation, assuming that no other teaching or departmental responsibilities exist. An individual who is paid 100% from sponsored projects could not submit any new or competing proposals — *federal auditors will not accept the argument that the employee prepared the proposal during nonworking hours.*

Continuations

Proposal preparation costs, both salary and other expenses, may be charged to an existing sponsored project when seeking continued funding for that project. For example, costs for preparing the continuation proposal for an NIH grant may be charged to the grant or to nonsponsored funds.

A Date In Patent History

Albert Einstein was more than a *theoretical* physicist: On November 11, 1930, he and a coinventor received Patent No. 1,781,541, for "An Apparatus for Producing Refrigeration."

NIH Receipt Dates for AIDS Competing Applications

In March, 1988 NIH announced the establishment of January 2, May 1 and September 1 as receipt dates for investigator-initiated AIDS research grant applications. These receipt dates differ from those for other applications and have been established to accomplish the receipt-to-award process in an accelerated fashion.

While that announcement also allowed for submission of AIDS-related applications on regular receipt dates, with the recent chartering of initial review groups specifically for the review of AIDS applications, *it is now necessary for all applicants submitting investigator-initiated AIDS-related applications to adhere strictly to the AIDS receipt dates.*

It must be stressed that the above receipt dates are for *competing continuation (Type 2) and supplemental (Type 3) applications* as well as for *new (Type 1) applications*. Thus, for example, while some current grantees may have had their last competing-AIDS-related application peer reviewed by an initial review group other than one of the recently established AIDS review groups, all subsequent competing continuation applications must be submitted for the receipt dates listed above for review by these AIDS initial review groups.

AIDS-related applications include those that propose studies on the etiology, epidemiology, natural history, pathology, diagnosis, treatment or prevention of AIDS or the various sequelae specifically associated with the syndrome. Basic studies of the HIV virus, such as virology, molecular genetics, immunology, and *in vivo* or *in vitro* models of human HIV infection aimed at elucidating the mechanism of the AIDS infectious process are directly applicable. Preparation and screening of anti-AIDS agents as well as vaccine development in both preclinical and clinical studies are included. Relevant studies of blood and blood products, neurological effects of HIV infection, behavioral research, prevention of high-risk behaviors, and education projects are also acceptable.

The final determination of AIDS relatedness is the responsibility of the Division of Research Grants (DRG), at NIH. For further guidance, applicants are advised to contact the Referral Office, DRG, at (301) 496-7447.

The above article was reprinted from the NIH GUIDE, Volume 19, Number 27, July 20, 1990.

Responsible Conduct of Research

National Research Service Award Institutional Training Programs

A fundamental aspect of research is that it be conducted in an ethical and scientifically responsible manner. National Institutes of Health (NIH) and Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) supported research training programs are notable for producing high quality researchers in the various fields of biomedical and behavioral science. Within this framework of excellence and relevance, it is important that attention be directed toward scientific integrity in the conduct of research.

Most universities and academic institutions have practices and procedures to ensure the responsible conduct of research. These may include informal seminars and presentations on conflict of interest, data recording and retention, professional standards and codes of conduct, responsible authorship, institutional policies and procedures for handling allegations of misconduct, policies regarding the use of human and animal subjects, etc., or formal courses on bioethics, research conduct, and the ideals of science.

To address this aspect of research training, NIH and ADAMHA are revising the administrative guidelines for all National Research Service Award institutional training grants to require that a program in the principles of scientific integrity be an integral part of the proposed research training effort.

Effective July 1, 1990, all competing National Research Service Award institutional training grant applications must include a description of the formal or informal activities related to the instruction about the responsible conduct of research that will be incorporated into the proposed research training program.

Patricia Hampl named MacArthur Fellow

The John D. and Catherine T. MacArthur Foundation announced July 17 that University of Minnesota English Professor Patricia Hampl is one of this year's 36 MacArthur Fellows. Hampl, a teacher and writer of poetry and prose, including *Resort and Other Poems*, *A Romantic Education*, and *Spillville*, will receive a five-year, \$275,000 grant (plus health insurance), which she can use as she wishes. MacArthur Fellows, chosen from a list of names proposed by more than 100 nominators, come from a wide range of fields and are chosen for their creativity.

U of M's First Japanese Patent Issued

The Office of Patents and Licensing recently received the first Japanese patent issued for a University of Minnesota invention. Called a Japanese Letters Patent, it was issued for the Implantable Drug Infusion Regulator invented by Frank D. Dorman of the Department of Mechanical Engineering. The Japanese patent application was filed May 1, 1980 and issued February 15, 1990; the U.S. patent application for the same invention was filed May 3, 1979 and issued November 10, 1981. Japanese patent protection lasts for 20 years from the *date of filing*, compared to 17 years from the *date of issue* in the United States.

The longer time required for a Japanese patent reflects, to a certain extent, the difficulty U.S. inventors face in that country's system, but there are also fewer time constraints in Japan's patent prosecution process, says Tony Strauss, who handles the licensing of Institute of Technology inventions. In Japan an inventor has seven years from filing the patent to request examination.

"We have several other patents pending in Japan," Strauss says, "but because of the expense and time involved, we usually don't file there unless we have a company interested in a license with Japanese protection, or unless we are pretty sure the invention will be commercially successful in that country."

Ford Foundation

The Ford Foundation's two-year budget for 1990-91 calls for a 13.2% increase in grant making compared to 1988-89. Most giving programs, including urban poverty, human rights and social justice, governance and public policy, education and culture, and international affairs, will increase grant making significantly.

In addition, the foundation has increased funding for program-related investments (low-interest loans to non-profits) and for its general reserve fund, which the foundation uses to meet unanticipated needs or to respond to program activities outside its usual categories. The foundation has slightly decreased funding for its rural poverty and resources program. Approximately 35% of the Ford Foundation's program budget is allocated for work in selected developing countries.

The foundation recommends that grant applicants begin by sending a short letter of inquiry. Grant inquiries may be addressed to Barron M. Tenny, Vice President, Secretary, and General Counsel, Ford Foundation, 320 East 43rd Street, New York, NY 10017; (212) 573-5000.

News from the Council on Governmental Relations

The following items are excerpted from the June 27 report of the meeting of the Council on Governmental Relations, National Association of College and University Business Officers, which was held June 6-8 in Washington, D.C. Rick Dunn, assistant director of ORTTA's Division of Grants and Contracts, represented the University of Minnesota.

Higher Education Colloquium on Science Facilities

Senator Terry Sanford (D-NC) has agreed to chair a committee to consider alternatives to earmarking funds for university science facilities. Other members of this committee include Senator John Danforth, Representative George Brown, and the Presidents of Vanderbilt University, Princeton University, University of California at San Diego, Oregon State University, Georgia Institute of Technology, University of Notre Dame, University of Wisconsin at Madison, and Southern Methodist University. The colloquium will attempt to explore *new options*, rather than review existing studies. The following questions have been posed, and the top 100 R&D performers in the higher education community have been invited to provide feedback:

- What changes in federal laws and regulations would enhance the university's ability to finance and manage research facilities?
- What changes in tax code incentives for research, charitable gift deductions, federal cost reimbursement policies, or other provisions would enhance the university's research capacity?
- If earmarking is not an appropriate response to the academic facilities problem, what alternative methods of federal funding would more adequately meet the nation's needs? What should be the science policy of the United States?
- What more can universities do to improve the way they acquire and manage research facilities?
- Does debt financing hold significant untapped potential for universities as a means of acquiring new research facilities?
- What arrangements can be devised to increase cooperation and support from industry?

NSF to Expand Information Regarding Peer Review

It has been the official policy of the National Science Foundation since 1984 to send copies of reviewers' evaluations to the Principal Investigator, when NSF informs him/her about decisions regarding grant applications. NSF will soon issue an Important Notice to announce additional steps:

- For every proposal that was reviewed by a panel, an explanatory summary will be prepared and mailed to the Principal Investigator; these summaries recapitulate the panel's discussion of the respective proposal, as well as any collective or individual conclusions reached by the review team.
- For proposals that were handled by mail review, the NSF program director may make a telephone call to inform the Principal Investigator of the major considerations in the review.
- In all instances the anonymity of the reviewers will be protected.
- NSF will invite Principal Investigator applicants to name persons they believe should not review a proposal.
- The roster of available reviewers, which is maintained by NSF, will be made available publicly, in electronic on-line format.
- NSF will inform each Principal Investigator in writing about the competitive environment in which his/her application was reviewed, by providing information on the success rate, the volume of proposals, and how much funding was available for the program.

GAO to Examine University Patent Licensing Practices

Representative Ted Weiss (D-NY) has asked the General Accounting Office to survey the top recipients of NSF and NIH research funding, to look into the license practices of universities. The central focus will be on the fairness rather than the effectiveness of the technology transfer process. There are three major questions:

1. Which corporations have received either proprietary rights or exclusive licenses?
2. How much stock do university executive officers and trustees have in these corporations, both foreign and domestic?
3. What is the nature of industrial liaison arrangements entered into by universities and does it allow foreign nationals to get special advantages?

GAO will soon mail a questionnaire to 38 universities that are leaders in receiving NSF and NIH funding. Since there is no randomization, GAO will have to be careful not to generalize results. Although GAO was asked to complete the report by September 1990, staff shortages may delay this effort until later in the year.

Outreach will be separate from Teltech's other user services but will provide access to many of the company's existing databases and experts. Teltech is required to enroll and train users and to implement information services on a schedule that, by mid-1991, will provide 400 companies and 75 public sites with interactive access to more than 1,000 technical databases and more than 10,000 technical experts, including 300 from the University of Minnesota. Through a personal computer communicating with Teltech via telephone modem, users will be able to search any of the databases, order reprints, and request help from Teltech's staff.

Minnesota Project Outreach also will provide easy access to information about research projects and technical centers, technologies available for licensing, and services available through the University of Minnesota, as well as economic-development programs of the Greater Minnesota Corporation, and state and federal governments.

"This will be an excellent way for us to inform industry and the public about the wide range of research and technical expertise at the University of Minnesota," said Tony Potami, associate vice president for research and technology transfer and the University's representative on the MPOC board. "The network will provide Minnesota companies with a quick and easy access point to the University, which is what we were challenged by industry to provide when I started working on this project back in 1987." Potami helped set up a pilot project involving ten small companies located in Anoka County's Medical Enterprise Park, and he led the efforts to present the idea and obtain state funding from the legislature.

Technical experts from the University of Minnesota will be recruited to join other experts from academia and industry who agree to be available for brief telephone consultations with project users who have specific technical questions. The experts will be paid \$75 for each successful consultation, and they and the users will have the option of arranging a more detailed consulting relationship.

Minnesota companies with annual earnings below \$10 million are invited to apply to MPOC for access to the technical network. MPOC expects to enroll 400 companies in the service based on applications stating each company's need for technical information to further its growth and competitive position. Each participating company must designate an employee for training by Teltech and provide a suitable personal computer and modem. MPOC will provide each company with 15 network interactions per year — including expert consul-

tations — at no charge, and then a nominal fee will be charged for each additional interaction.

In addition to the company sites, MPOC will establish 75 public-access sites throughout Minnesota. These sites will be in selected offices of the Minnesota Extension Service, Greater Minnesota Corporation, and the State's Small Business Innovation Centers program. A staff person trained by Teltech will be at each site to help potential users define their information need and, if suitable, access the Minnesota Project Outreach network.

"I'm confident that Teltech's experience in arranging technical consults will keep both the industry and public interactions with faculty concise and productive," Potami says. "There will be constant feedback among experts, Teltech, and MPOC to make sure the expert system is working the way the legislature intended and is not overburdening anyone. I think Minnesota Project Outreach will be an excellent vehicle for the University to make its expertise available to Minnesota companies, to display its research to a wide audience, to market its technologies and services nationally, and to contribute to the success of Minnesota business and industry."

U/M Components of Minnesota Project Outreach

Research Projects

Descriptions of active technical research projects, including principal investigator, objective, status, and funding source and amount.

Research Centers

A list of technology-based centers, with descriptions of each center's research specialty area, facilities, and services.

Technical Experts

Biographical sketches of 200 to 300 U of M faculty who have agreed to be available for telephone consultations on specific technical subjects.

Available Technologies

Descriptions of U of M inventions available for licensing, including potential uses, patent status, and type of license offered.

Pew Charitable Trusts

Agency Profile

The Pew Charitable Trusts has concluded a major organizational restructuring in an effort to respond to increases in foundation assets and grant-making potential. In 1990, with assets now exceeding \$3.2 billion, the foundation expects to make grants totaling roughly \$145 million. Along with expanded grant making will come a program that emphasizes increased foundation involvement with grantees as well as with other grant makers, and a stronger commitment to interdisciplinary funding.

Following are program areas emphasized by the Trusts:

1. **Health and Human Services**, Drew E. Altman, Director. This program will proceed from the notion that a natural role for foundations is to provide the seed funds for [health and human services] programs that ultimately get picked up and integrated into government funding streams.
2. **Education**, Robert B. Schwartz, Director. The Trusts believes there is potential for increased partnerships between the government, the corporate sector, and foundations in education, with foundations providing the initial risk capital to test innovative programs.
3. **Culture**, Marion A. Godfrey, Director. This program would explore partnerships at the local and national levels with corporations, the government, and other foundations. Pew is looking into opportunities for programs to increase public appreciation of the arts and culture.
4. **Religion**, Joel A. Carpenter, Director. The Trusts believes the importance of religious scholarship has been underestimated by American academics — scholars have gotten into the frame of mind that they can understand Western culture without this critical component.
5. **Environment**, Joshua S. Reichert, Director. The Trusts looks forward to, and expects to encourage, a groundswell of community-based activism on behalf of the environment, with programs that encourage a wide range of opportunities to promote environmentally sustainable economic development, strengthen grassroots environmental organizations, increase public awareness, and encourage new public policy ideas for addressing important environmental problems.

6. **Public Policy**, Kevin F.F. Quigley, Director. The Trusts will explore ways to build on its existing Economic and National Security programs to further strengthen integration of the two fields at the policy level.

Of Grants made in 1989 by the Pew Charitable Trusts, 46% went to health and human services, 24% went to education, 14% went to culture, 8% went to religion, 5% went to conservation and the environment, and 4% went to public policy.

For information about the Trusts, contact Diedra A. Lynard, Communications Manager, Pew Charitable Trusts, Three Parkway, Suite 501, Philadelphia, PA 19102; (215) 587-4057.

American Cancer Society

Institutional Research Grant

The Dean's Committee for the American Cancer Society Institutional Research Grant has announced the availability of funding for 1991. The stated goal of the American Cancer Society is to "foster meritorious research on cancer that cannot be supported through other available types of support." The purpose of the grant is to provide "seed" money to permit the initiation of promising new projects or novel ideas by junior faculty investigators.

The Grant has been restructured considerably. The amount of the award has been increased to \$15,000 direct costs. Eligible applicants must be faculty members at the level of Assistant Professor or Instructor and must not have received a prior ACS Institutional Research grant or have a current competitive national research grant.

The grants are available to anyone meeting the above eligibility requirements and who is engaged in cancer-related research at the University of Minnesota. Cancer-related research also includes analysis of developmental biology, gene regulation, or alteration of intracellular or extracellular processes that may lead to an improved understanding and/or therapy of potential or actual oncogenic events in prokaryotic or eukaryotic cells.

The application deadline is October 1, 1990. Instruction and application materials are available from the Pediatric Oncology Office, D-557 Mayo Building, 626-2778.

Program Information

Internal and External Sponsors

United States Institute of Peace

Jennings Randolph Program for International Peace

The United States Institute of Peace is an independent, nonpartisan, national institution created by the United States Congress in 1984 to strengthen scholarship, education, training, and information dissemination concerning international peace and conflict management. The Institute is governed by a fifteen-member Board of Directors appointed by the President of the United States with the advice and consent of the United States Senate. It does not take positions on political candidates or policy issues pending before Congress or other domestic or international legislative bodies and does not mediate international disputes.

The Institute invites qualified men and women to compete for three types of fellowships offered by the Institute's Jennings Randolph Program for International Peace. These fellowships enable outstanding professionals and scholars to undertake research and education projects that will increase knowledge and spread awareness among the public and policymakers on topics that concern the sources and nature of violent international conflict and the full range of ways to end or prevent conflict and to sustain peace. Individuals from a broad spectrum of backgrounds—government, diplomacy, higher education, international affairs, law, military service, the media, business, labor, religion, humanitarian affairs, and others—are encouraged to propose innovative, carefully conceived fellowship projects reflecting diverse interests, project approaches, and communication media.

Types of Awards

Distinguished Fellows are eminent statesmen, scholars, or other professionals who have achieved national or international stature by virtue of extraordinary practical or scholarly accomplishments in international peace and conflict management or other relevant endeavors.

Peace Fellows are professionals or scholars who have demonstrated substantial accomplishment or promise of exceptional leadership in their careers.

Peace Scholars are outstanding students in recognized American university doctoral programs who have demonstrated a clear interest in issues of international peace and conflict management and have completed all required work toward their doctoral degrees except their dissertations. The award is intended to inspire and enable such students to devote their dissertation work to

topics that advance the state of knowledge about international peace and conflict management and to provide the students with a strong intellectual base for their future careers as scholars or practitioners.

The Institute expects to make approximately 12 Distinguished Fellow and Peace Fellow awards and 10 Peace Scholar awards for 1991-92. The competition is open to persons from any country.

The application deadline for the Distinguished Fellow and the Peace Fellow is **October 15, 1990**; the application deadline for the Peace Scholar is **November 15, 1990**. To obtain further information about the program or to receive a nomination or application form, contact: Jennings Randolph Program for International Peace, United States Institute of Peace, 1550 M Street NW,

American Health Assistance Foundation

The American Health Assistance Foundation (AHAF) is a not-for-profit umbrella organization that provides research funds and educates the public about age-related and degenerative diseases. The current research programs include: Alzheimer's Disease Research, Coronary Heart Disease Research, and National Glaucoma Research.

Through its program on Alzheimer's Disease Research, AHAF is presently funding researchers in many specialized fields, including neurobiology, physiology, neuropathology, molecular and developmental biology, neurochemistry, pharmacology, neurosurgery, and epidemiology. Grants are awarded on the basis of the scientific merit of the proposal, the relevance of the research, and the potential impact of the proposed study on better understanding and/or treatment of the disease.

Scientific investigators, both established and junior, who have demonstrated the ability to follow through a well planned, feasible project with considerable merit, will be considered for funding. Grants are awarded for a two-year period for a maximum of \$100,000 per year. Grants may be renewed through the competitive review process. Deadline for submission is **October 31, 1990**.

Application materials are available in ORTTA and may be requested by calling 624-0061.

National Council for Soviet and East European Research

The National Council for Soviet and East European Research is an incorporated, nonprofit academic body whose purpose is to encourage and sustain high-quality research and related activities dealing with the social, political, economic and historical development of the USSR and Eastern Europe. The Council is currently inviting proposals for funding under its program of research and related activities for 1991.

Appropriate fields of research include, but are not limited to:

1. Long-term trends in Soviet and East European societies;
2. The operation of, and long-term prospects for, the Soviet and East European economies;
3. Long-term developments in Soviet and East European foreign policies, especially as they affect the United States;
4. Soviet and East European intentions, objectives, and policy options.

Research proposals may include related activities such as: meetings and workshops; research-specific training, especially involvement of graduate students in research projects; contact among scholars and specialists in government and private enterprise; development of data banks and other reference aids; and dissemination of research data, methodology, and findings.

The applications deadline is **November 1, 1990**. Guidelines and application materials may be obtained from: The National Council for Soviet and East European Research, 1755 Massachusetts Avenue, N.W. Suite 304, Washington, D.C. 20036; (202) 387-0168.

Fund for Research on Dispute Resolution

The Council of the Fund for Research on Dispute Resolution, an independent research fund affiliated with the National Institute for Dispute Resolution, has announced its 1990 program, the third year of its research initiative. With the Ford Foundation's support, the Fund provides grants to support research in dispute

resolution, pursuing a variety of means, by scholars representing a wide range of disciplines.

The particular focus of the current program is to support a broad range of research which connects the study of disputing and dispute handling to social, psychological, economic, political or legal theory, seeking to promote understanding of the conditions under which individuals, groups and organizations do or do not express grievances and become involved in disputes. The Fund hopes to support exploration of the way social, political and legal institutions encourage, inhibit or resolve grievances and disputes. Preference will be given to projects that collect new data or develop new analyses of existing data. Longitudinal, comparative and historical research projects are also appropriate. A wide range of methodologies and approaches are encouraged.

The Fund will award grants in two separate funding cycles totalling approximately \$800,000. Applicants must submit a brief concept paper that describes the proposed research. Concept papers for the 6th round must be received by **September 14, 1990**. Researchers are encouraged to seek supplementary or matching funds from other sources particularly where they are seeking large sums from the Fund.

For further information regarding the Fund's program, please contact the Fund for Research on Dispute Resolution, 1901 L Street NW, Suite 600, Washington, DC 20036; (202) 785-4637. Guidelines on the preparation of concept papers are available from ORTTA and may be requested by calling 624-0061.

Biomedical Science Scholar Awards

August 13 is the internal University deadline for application to three programs that provide scholar awards in the biomedical sciences. The programs are: The Lucille P. Markey Scholar Award in Biomedical Science (6 nominations); the Searle Scholars Program (2 nominations); and the Pew Scholars Program (1 nomination).

Since these programs stipulate that a limited number of applications may be submitted from an institution, all submissions are being coordinated through the Graduate School. Information and application forms have been sent to college offices. Questions may be directed to Michelle Beckmann, Graduate School Research Office, 625-2356.

National Science Foundation

Minority Postdoctoral Research Fellowship Program

The Biological, Behavioral and Social Sciences (BBS) Directorate of the National Science Foundation (NSF) has announced the continuation of a program of Postdoctoral Research Fellowships for under-represented U.S. minorities. This program is part of an effort by NSF to increase the number of research scientists from underrepresented minority groups, thereby contributing to the future vitality of the nation's scientific enterprise.

The goal of the program is to produce exceptionally trained minority scientists who will be prepared to assume positions of scientific leadership in academia. To attain this goal, the program provides opportunities for postdoctoral training to recent minority Ph.D.s. The program has several special features:

1. Assistance with identifying Postdoctoral Sponsors;
2. Travel awards to visit laboratories;
3. A workshop for sponsors and Fellows;
4. A starter research grant.

The awards are designed so that recipients can choose the research training environment most beneficial to their scientific development. Applicants are expected to submit a research and training plan that is in a field or subfield other than that of their doctoral experience. In general, the change of field or subfield, considered an essential aspect of the Fellowship, requires a change of institution from the doctoral and/or current institution. If this change is not proposed, the application must provide an explicit explanation. This research and training plan should be developed in collaboration with the sponsoring mentor.

The Fellowship is awarded for a maximum of three years. Under special circumstances a Fellow may apply for an extension for an additional year. The Fellowship provides a stipend of \$28,000 per year, an institutional allowance of \$2,400 per year to aid in defraying indirect costs associated with research, and a special allowance of \$4,600 per year, expendable at the Fellow's discretion, for certain kinds of direct research-related costs. No funds may be expended for the expenses of dependents.

The application deadline is November 1, 1990. Eligibility requirements, guidelines and application materials may be obtained from ORTTA by calling 624-0061.

National Cancer Institute

DCBDC Small Research Grants on the Molecular and Cellular Biology of Metastatic Tumor Cells

The National Cancer Institute (NCI) of the National Institutes of Health is inviting applications for grants to study the molecular and cellular biology of metastatic tumor cells. This special initiative is designed to promote collaborations and to facilitate scientific interchange between investigators: one with experience in the biology of metastasis and the other in a more basic scientific discipline such as molecular or cellular biology or biochemistry. Prospective investigators are encouraged to identify a research collaborator in order to prepare and submit a small grant application.

The Small Research Grants program provides limited funds (maximum \$40,000 per year) for short-term (up to 2 years) research projects; they are non-renewable. Small grants provide an opportunity for initiating studies that may be preliminary in nature.

Up to ten awards will be made under this initiative. The application deadline is October 10, 1990. Inquiries may be directed to Dr. Michael R. Martin, Program Director for Basic Cancer Biology, National Cancer Institute, Executive Plaza South, Room 630, 6120 Executive Boulevard, Rockville, MD 20892; (301) 496-7028. A complete copy of the RFA is available from ORTTA and may be requested by calling 624-0061.

Program Information

Internal and External Sponsors

NEH 1991 Summer Stipends

The National Endowment for the Humanities (NEH) Summer Stipends provide support for college and university teachers to pursue two consecutive months of full-time study or research, supported by a stipend of \$3,750. (The Graduate School will provide a \$1,500 supplement to fellowship recipients.) The University may nominate three members of its faculty for Summer Stipends via an internal competition managed by the Graduate School. The scope of support includes, but is not limited to, the following disciplines: history, philosophy, languages, linguistics, literature, archaeology, jurisprudence, theory and criticism of the arts, ethics comparative religion, and those aspects of the social sciences that employ historical or philosophical approaches.

Requests for nomination are due at the Graduate School by **September 4, 1990**. Eligibility requirements and nomination procedures may be obtained by calling the Graduate School Research Office, 625-3256. CLA faculty may also call Geri Malandra, ORD, 625-4801, for additional information about this program.

Also, non-faculty college and university staff members are eligible for Summer Stipends. They may apply *without nomination* directly to the Fellowship division of NEH for the October 1, 1990 deadline, provided they will not be teaching during the 1990-91 academic year. Applications may be obtained from the Graduate School.

American Cancer Society

Institutional Grant Applications in Nutrition and Cancer

The American Cancer Society (ACS) is accepting applications from Cancer Centers and other academic institutions for its Special Institutional Grants on Nutrition and Cancer Program. The purpose of the program is to stimulate interdisciplinary research on the role of nutrition in cancer. Emphasis is being placed on laboratory and epidemiological studies that will identify dietary patterns and factors that may cause or prevent cancer.

Proposals will be judged on the following: 1) scientific merit of the proposal; 2) qualifications, experience and productivity of the investigators and the institutional environment; 3) interdisciplinary nature of the studies; 4) development of novel concepts; and 5) recruitment and training of new investigators in nutritional research.

The program is limited to a maximum of two new grant awards per year, and only one Special Institutional Grant will be awarded per institution. (ACS has indi-

cated that the program is *unlikely* to be repeated next year.) Recipient institutions will be funded for periods of up to five years; one renewal for an additional period of up to five years will be considered. The maximum award is \$200,000 per year, including 25% indirect costs.

The application deadline is **March 15, 1991** for grants beginning January 1, 1992. Additional information may be obtained from Dr. Dawn Willis, Scientific Program Director, Research Department, American Cancer Society, Inc, 1599 Clifton Road NE, Atlanta, GA 30329; (404) 329-7554.

McKnight-Land Grant Professorships

The University of Minnesota recently established the McKnight-Land Grant Professorships, a program of junior faculty career development awards. The program was named for a significant gift from the McKnight Foundation, combined with a share of the Permanent University Fund.

Beginning in 1991, the Professorships will be reduced from three years to two, to enable the University to create a larger number of awards. Departmental nominations are now being invited for the 1991 class of up to twelve, two-year Professorships.

Each McKnight-Land Grant Professor will be awarded a \$16,500 research grant in each of the two years. This grant may be used at the recipient's discretion for expenditures directly related to a research project. In addition, each holder will be given either a year's leave to pursue research, with full pay, during the second year of the award, or s/he will receive an additional research grant of \$15,000. This leave will not affect sabbatical leave eligibility.

In accepting a McKnight-Land Grant Professorship, a faculty member will agree to remain at the University for the full two years of the Professorship, plus one year. If this condition is not met, the recipient would be required to repay the value of the Professorship in full.

Each department may nominate one candidate. Eligible recipients must have received the Ph.D. within the past five years, i.e. after January 1, 1985 and be in a tenure-track position. The deadline for nominations is **Friday, October 26, 1990**.

A memorandum has been sent by the Graduate School to Deans, Directors and Department Heads. For complete guidelines, please contact Myrna Smith, 625-3394.

Question of the Month

What is the procedure for obtaining a no-cost extension on a federally sponsored research project

A no-cost extension means that an agency will allow investigators an additional period of time, usually no more than one year, to complete their research and file project reports, but will not provide additional funding.

Most federal sponsors, including the National Science Foundation, the National Institutes of Health, the National Aeronautics and Space Administration and the U.S. Department of Agriculture, allow institutions to grant no-cost extensions if a letter of request and explanation (countersigned by the department head and/or dean) is submitted to the institution by the investigator. The explanation should describe why the research could not be finished in the planned amount of time. *Not having spent all the allotted funds IS NOT an acceptable reason for requesting a no-cost extension.*

The Office of Research and Technology Transfer Administration (ORTTA) is authorized to approve "institutional no-cost extensions." Letters of request, after departmental and/or collegiate signatures have been obtained, may be forwarded to the appropriate ORTTA grant administrator.

A request for a *second* no-cost extension will be considered by some federal sponsors, but it must also be properly signed and submitted through ORTTA. ORTTA must certify that the investigator's original institutional extension was properly requested and exhausted. Federal sponsors *will not* consider any no-cost extension unless it has been signed and submitted through ORTTA.

Since not all federal sponsors have delegated authority to institutions to grant no-cost extensions, principal investigators should contact the appropriate ORTTA grant administrator for information about their particular funding agency.

Response by Rick Dunn

From now on, the "Question of the Month" column will no longer be a regular feature of the *Research Review*. However, ORTTA will continue to solicit questions for the column and will print any such questions received. If you have a question on sponsored programs or technology transfer that you would like answered, please call or write: Mike Moore, *Research Review*, ORTTA, Adm Svcs Bldg, 5th Floor; 624-9398.

National Science Foundation

Administrative Approvals

NSF is concerned about the increase in requests for retroactive administrative actions such as no-cost extensions and approvals for pre-award costs. **Decisions on these matters continue to be the responsibility of the grantee organization.** Faculty and administrators who require information about current procedures should contact Rick Dunn, Assistant Director, ORTTA, so that such requests to NSF become unnecessary.

National Science Foundation

The National Science Foundation (NSF) has announced a new deadline policy, whereby unless otherwise stated in a specific program announcement or solicitation, proposals *postmarked* on or before the target or deadline date will be accepted for review. However, some programs may still opt to require that proposals be *received* by a certain date. These exceptions will be clearly stated.

National Science Foundation

Mathematical Sciences Research

Proposals for research in the Mathematical Sciences should be submitted six to nine months prior to the expected start date to ensure timely notification of outcome. The Division of Mathematical Sciences will accept such proposals **at any time of the year**. Most standard research proposals are received in October or November. Proposals received after the end of the year run the risk of being incompletely reviewed when most funding decisions are being made. Program and staff for the Division of Mathematical Sciences are listed in the deadline section of the *Research Review*, available in your departmental or college office.

National Science Foundation

Change in Deadline Date

The closing date for the **Undergraduate Curriculum and Course Development in Engineering, Mathematics, and the Sciences** has been changed from April 9, 1990 to **October 15, 1990**. The scope, purpose, proposal categories, and other aspects of the program remain the same. Proposals received prior to the former closing date will be held for review until after the new closing date; or proposals may be withdrawn and new proposals submitted in response to the new date.

Faculty Research Awards

This section contains statistics on proposals and awards recently processed by ORTA. In addition, we have randomly selected awards received by faculty during preceding months. If any faculty member has received an award he or she would like mentioned in future Research Reviews, please call Michael A. Moore at 624-9398.

Proposal and Award Summary

	Number	Amount
Proposals Submitted		
June, 1990	331	\$ 50,550,342
Awards Processed		
June, 1990	146	11,232,479
Proposals Submitted		
July, 1989 - June, 1990	3,740	617,971,348
Awards Processed		
July, 1989 - June, 1990	2,549	275,281,919
Proposals Submitted		
July, 1988 - June, 1989	3,363	578,946,074
Awards Processed		
July, 1988 - June, 1989	2,361	204,627,717

Molecular Diagnosis of Cytomegalovirus Disease

M. Colin Jordan, Medicine
Marshall Hertz, Medicine

NIH, NIAID
\$570,257 / 07/90-06/95

PAP-MAB Conjugates for Treatment of Human Viral Diseases

Fatih Uckun, Therapeutic Radiology

Bristol-Myers Company
\$559,842 / 04/90-03/93

Agriculture, Environmental Policy and Public Policy Education

C. Ford Runge, Agricultural and Applied Economics

Northwest Area Foundation
\$295,000 / 05/90-04/93

Novel Iron Making Research

Kenneth J. Reid, Mineral Resources Research Center

St of MN - Department of Natural Resources
\$125,000 / 03/90-06/90

Statistical Graphics: Diagnostics and Inference

Sanford Weisberg, School of Statistics
R. Dennis Cook, School of Statistics

National Science Foundation
\$69,620 / 08/90-01/92

Dynamics of Catalytic Reactions and Reactors

Rutherford Aris, Chemical Engineering and Materials Science
Lawrence Que, Jr., Chemical Engineering and Materials Science

National Science Foundation
\$83,410 / 05/90-10/91

Radar-Sonar and Time Series Analysis

Avner Friedman, Institute for Mathematics
Willard Miller, Jr., Institute for Mathematics

USDOD-Army
\$19,999 / 06/90-12/90

Process Knowledge Bases

Kevin Dooley, Mechanical Engineering

Minnesota Mining and Manufacturing Company
\$15,000 / 06/90-06/91

Partial Differential Equations and Harmonic Analysis

Eugene B. Fabes, School of Mathematics

National Science Foundation
\$48,072 / 05/90-10/91

Municipal Solid Waste Incinerator Ash as a Soil Amendment

Carl J. Rosen, Soil Science

St of Mn - Pollution Control Agency
\$74,580 / 09/89-06/91

M/I Lead Soviet Union Study

Gerald R. Miller, Minnesota Extension Service
Donna Rae Scheffert, Minnesota Extension Service

W.K. Kellogg Foundation
\$40,000 / 05/90-11/90

P Element-Induced Quantitative Genetic Variation

Nancy Z. Hartun, Genetics and Cell Biology
Franklin D. Enfield, Genetics and Cell Biology
Michael J. Simmons, Genetics and Cell Biology

National Science Foundation
\$208,980 / 06/90-11/93

Minnesota Pesticide Impact Assessment Program

Phillip K. Harein, Entomology
James Cink, Entomology

U.S. Department of Agriculture
\$15,140 / 09/88-08/91

Integrated Cropping Management of Peas

James A. Percich, Plant Pathology
David W. Davis, Plant Pathology
Frank Pfleger, Plant Pathology

Faribault Foods, Inc.
\$97,500 / 02/90-11/91

Program Development—Association of Youthwork Advocates

Michael Baizerman, School of Social Work

Saint Paul Companies, Inc.
\$25,000 / 05/90-04/91

Toward Public Policy for Family Caregiving: A Working Conference

Rosalie A. Kane, School of Public Health

Vira I. Heinz Endowment
\$98,887 / 05/90-12/91

Farm Management Curriculum

Edgar A. Persons, Vocational and Technical Education

World Wide Training Associates
\$3,260 / 05/90-06/90

Gambling Behavior Baseline Surveys of Adults and Adolescents

J. Clark Laundergan, Sociology-Anthropology, UMD
James M. Schaefer, School of Public Health
Ken Winters, Pediatrics

St of MN - Department Human Services
\$84,458 / 05/90-09/90

Statewide Distribution of Self-Instructional Training Materials

Mary Lou Gilstad, Continuing Education and Extension

St. of MN - Department of Human Services
\$10,225 / 04/90-12/90

Effects of Smoking on the Disposition and Pharmacodynamics of Metoprolol Enantiomers in Characterized Hydroxylators

Robert J. Straka, College of Pharmacy

American Heart Association, Minnesota Affiliate
\$22,080 / 07/90-06/92

Assessment and Treatment of Adolescent Substance Abusers

Ken Winters, Center for Adolescent Substance Abuse

ADAMHA, NIDA
\$174,133 / 07/90-06/91

Development of Clinical Tools for Assessing Adolescent Substance Abusers

Ken Winters, Center for Adolescent Substance Abuse

Archie D. & Bertha H. Walker Foundation
\$10,000 / 5/90-04/91

The Sponsored Project Information Network (SPIN) is a computerized locator system of funding opportunities (federal, nonfederal, and corporate) for faculty and institutional research, development, and education program support. It is available to University faculty and staff through ORTTA.

Based on a description of your research areas and/or the type of support sought, ORTTA staff will search the SPIN Keyword Index to identify sources within specific areas of interest. The Keyword Index, a taxonomy developed by SPIN to catalog funding sources, is divided into the following ten major classifications:

- **Agriculture/Food/Forestry**
- **Arts/Culture/Humanities/Communications**
- **Business/Economics/Management**
- **Education**
- **Health/Medical Sciences**
- **International Affairs/Area Studies**
- **Miscellaneous/Other**
- **Science/Technology**
- **Social/Behavioral Sciences**
- **Social Welfare/Public Affairs**

The result of a search is a set of profiles of applicable funding sources that provides: 1) the sponsor's name; 2) the sponsor's contact address and telephone number; 3) deadline dates; 4) program titles; 5) objectives or interest areas of the sponsor; and 6) restrictions that would affect the submission of a proposal. This set of profiles is sent to the requestor.

SPIN searches are done free of charge to the requestor. A survey of users of SPIN indicates that the information received from a SPIN search was targeted to their request and a reasonable response time was effected.

**For further information regarding the SPIN system or to request a search, please contact ORTTA at
624-5750, 624-0061, or 624-9004**

Please Note: SPIN searches are also available through the Research and Development Office in the College of Liberal Arts; the Agricultural Experiment Station; the Research Support Office at Duluth; and the Grants Development Office at Morris.

DHHS Organizational Listing

The following listing of agencies illustrates the organizational relationships between components of the Department of Health and Human Services.

Department of Health and Human Services (DHHS)

Public Health Service (PHS)

National Institutes of Health (NIH)

- National Cancer Inst (NCI)
- National Heart Lung & Blood Inst (NHLBI)
- National Eye Inst (NEI)
- National Inst of Allergy & Infectious Diseases (NIAID)
- National Inst of Diabetes & Digestive & Kidney Disease (NIDDK)
- National Inst of Arthritis & Musculoskeletal & Skin Diseases (NIAMS)
- National Inst of Child Health & Human Development (NICHD)
- National Inst on Aging (NIA)
- National Inst of Dental Research (NIDR)
- National Inst of Environmental Health Sciences (NIEHS)
- National Library of Medicine (NLM)
- National Inst of Neurological Disorders & Stroke (NINCDS)
- National Inst on Deafness and Other Communication Disorders (NIDCD)
- Fogarty International Center
- National Center for Nursing Research (NCNR)
- National Center for Research Resources (NCRR)

Alcohol, Drug Abuse & Mental Health Administration (ADAMHA)

- National Inst of Mental Health (NIMH)
- National Inst on Alcohol Abuse & Alcoholism (NIAAA)
- National Inst on Drug Abuse (NIDA)

Centers for Disease Control (CDC)

- National Inst for Occupational Safety and Health (NIOSH)

Health Resources & Services Administration (HRSA)

- Bureau of Health Care Delivery & Assistance
- Bureau of Health Professions
- Bureau of Maternal & Child Health & Resources Development

Office of Population Affairs (OPA)

Food and Drug Administration (FDA)

Family Support Administration (FSA)

Health Care Financing Administration (HCFA)

Office of Human Development Services (OHDS)

Social Security Administration (SSA)

ORTTA TELEPHONE NUMBERS

A Quick Reference Guide

Title and/or Area of Responsibility Fax Number	Name	Number (612) 624-4843
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Office of Research and Technology Transfer Administration

Associate Vice President, ORTTA	Tony Potami	624-1648
Assistant Director, Technology Transfer Development	Mary Fahey	626-7441
Communications Coordinator	Mike Moore	624-9398
Administrative Coordinator	Carol Perusse	624-6389

Grants and Contracts

Information		624-5599
Assistant Director	Rick Dunn	626-2265
Assistant Director	Mary Lou Weiss	624-5856
DHHS, NIH, ADAMHA, HRSA, OHD, Misc Private Agencies	Mary Lou Weiss	624-5856
NIH, Other DHHS, St. of MN, Counties, Am Heart Assoc	Todd Morrison	624-5066
NIH, Other DHHS, Voluntary Health Agencies, Cities	Kevin McKoskey	624-1521
NSF (Health Sci), USDA, DOD, NASA, EPA, NEA, AID, Misc Federal Agencies	Merlin Garlid	624-0288
To be Determined	David Lynch	624-5571
To be Determined	Elizabeth Klitzke	TBA
NSF (non-Health Sci, non-IT), Education, USDI		
USDA, NEH, ST of MN, Other State	Rick Dunn	626-2265
Foundations, Miscellaneous Private Agencies	Judy Krzyzek	624-2546

Patents and Licensing

Director	John Thuente	624-2816
Technology Licensing (IT)	Tony Strauss	624-0869
Technology Licensing (Health Sci/Ag)	TBA	624-0262
Trademark Licensing	Robert Hicks	626-1585
Technology Licensing	Paul McDowall	625-8826
Grants & Contract Administration	Judy Volinkaty	624-3317

Financial Reporting

Assistant Director	Marilyn Surbey	624-4850
Effort Reporting, Indirect Cost & Other Rate Development	Leslie Estes	624-2040
Financial Reporting, Accounting Questions	Sandy Kenyon	624-2307

Information Services

Assistant Director	Winifred A. Schumi	624-5750
Regents Docket, Statistical Reporting	TBA	624-0353
Research Review, Application Materials, Program Announcements	Tove Jespersen	624-0061

Human Subjects Committee

Administrator	Moir Keane	624-1889
Executive Assistant	Ellen Stewart	624-9829

Duluth

Research Support Office	James Loukes	(218)726-7583
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Morris

Grants Development	Tom Mahoney	(612)589-2211 x6450
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ORTTA NEWSLETTER MAILING LIST INFORMATION

Faculty

The Research Review is automatically mailed to all faculty on the Faculty Mail List holding the rank of Assistant Professor and above.

To Add/Delete/Change a faculty name on this list, departmental officers must submit a Staff Directory Card to Administrative Information Services (AIS).

Please check with your departmental office or AIS (624-9000) if you need assistance.

Staff/Off-Campus

ORTTA maintains a Supplemental Mail List for academic staff not included in the above faculty list; for staff; and for individuals off-campus. Additions/ Changes/Deletions to this list may be initiated by filling out and sending ORTTA the following:

Change	☐
Add	☐
Delete	☐

Name _____

Department _____

Campus Address (Bldg) _____

→ **For changes/deletions, please enclose your mailing label.** ←

Return to:

Research Review
ORTTA
Adm Svcs Center
1919 University Avenue/5th Floor
St. Paul, Minnesota 55104

University of Minnesota

Office of Research and Technology Transfer Adm
Administrative Services Center, 5th Floor
1919 University Avenue
Saint Paul, MN 55104

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RESEARCH REVIEW

An Overview of Sponsored Program and Technology Transfer Administration

Research and Technology Transfer Administration

September, 1990

Electronic Bulletin Board:

ORTTA Research News and Deadlines

ORTTA has been working with AIS and SPCS over the past several months to develop an electronic means of distributing research information in a more timely manner. On September 1, ORTTA's Electronic Bulletin Board went into production. It is available under a new University Public Access Information Service. There is no charge to Bulletin Board users.

The Bulletin Board is menu-driven and is designed to be used with no printed documentation. Once logged onto the Bulletin Board, there should be sufficient information on screen or within the online Help screens to use the Bulletin Board. If this is not the case, please let us know, since enhancing the Help screens will be an ongoing process.

Within the Bulletin Board, users can send electronic messages to the Bulletin Board Editor to request additional information on program announcements, to request proposal application kits, to request a SPIN search, etc. Within Menu 2 you can perform sort and search functions. In addition, users can download and/or print selected sections of the Bulletin Board. Further functional enhancements are being designed for the Bulletin Board and will be communicated via the *Research Review* and the News section of the Bulletin Board.

We hope this service will facilitate the research efforts of University faculty. Please address any comments or concerns to Winifred A. Schumi at 624-5750.

Contents of the ORTTA Bulletin Board

ORTTA's Bulletin Board contains the following information:

- **NEWS**

Includes recent program announcements, new or changed deadline information, new University and agency research policies, and general research information.

- **CONTACTS**

Includes names and phone numbers of ORTTA staff listed alphabetically by name, by ORTTA unit, or by agency responsibility area for Grants and Contracts staff.

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Open House at University Stores

University Stores will host its Fourth Annual Open House on Wednesday and Thursday, September 12-13, from 10:00 AM to 4:00 PM, at 2901 Talmage Avenue SE.

The event will be an opportunity to meet the staff and management of Stores, to visit with more than 40 vendors of scientific and general supplies, and to see the new products added to Stores over the past year. Free food, trivia games, and technical seminars will be available, and door prizes will be awarded, including a Grand Prize donated by CDP. Attendees can ride the #13 bus free or drive and park in the Stores parking lot.

For more information, call University Stores at 624-4878.

"Minnesota Recruitment" in Wall Street Journal

Job seekers interested in Minnesota companies may want to check the September 12 issue of *The Wall Street Journal*, in which "Minnesota Recruitment" will run as a special segment of The Mart section. Ads running in the special segment also will be published in the National Business Employment Weekly.

RESEARCH REVIEW

Volume XX/Number 3

September, 1990

Editor: Michael P. Moore

Associate Vice President: A.R. Potami

Research Review is a monthly publication of the Office of Research and Technology Transfer Administration. Its purpose is to inform faculty and administrators who are involved with Sponsored Research and Technology Transfer on procedures and policies of granting agencies; on institutional policy and other information necessary to the preparation of research proposals; and on funding opportunities.

Research Review welcomes ideas and comments from all readers. Write to Research Review at 1919 University Avenue, 5th Floor, St. Paul, MN 55104, or call Michael P. Moore at 624-9398.

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, sex, national origin, handicap, age, veteran status, or sexual orientation.

Indirect Cost & Fringe Benefit Rates

Indirect Cost Rates

The rates for July 1, 1989 through June 30, 1990 are listed below. When budgeting for periods beyond 6/30/90, the 7/1/89-6/30/90 rates should be used. The rate agreement is dated March 28, 1988. This date should be used where required on proposal applications.

	07/01/89- 06/30/90
Research	
On-Campus	44.0
Off-Campus *	21.5
SAFHL	86.6
Hormel	49.5
Other Sponsored Activity	
On-Campus	33.4
Off-Campus *	16.8
Instruction	
On-Campus	68.7
Off-Campus *	27.9

* A project will be considered off-campus if more than 50% of the direct salaries and wages of personnel employed on the project are incurred at a site neither owned nor leased by the University.

Fringe Benefit Rates

If you have questions regarding fringe benefit rate development or need the breakdown of charges, call Vivian Fickling at 624-2009.

Current actual rates through 12/31/90 are:

Faculty	29.00%
Civil Service	24.50%

For proposals being submitted with start dates after January 1, 1991 the estimated fringe benefit rates to be budgeted are:

Faculty	29.00%
Civil Service	24.50%

As rates change, they will be reflected in this section

Index to Research Review

An Index to Volume XIX (July, 1989 – June, 1990) of the *Research Review* is now available. You may call 624-0061 or 624-9004 to request a copy.

The Story of Bretylium:

From Eisenhower to E.T.

by Michael P. Moore

Here's a great trivia question: What did former President Dwight D. Eisenhower and E.T., the extraterrestrial, have in common (besides baldness)? The answer: they both were saved from ventricular fibrillation by the heart drug bretylium. And that's only one of the strange twists in the amazing story of bretylium, which began with a serendipitous discovery by Marvin Bacaner, Professor of Physiology in the University of Minnesota Medical School.

The discovery came in 1964, during a series of canine experiments investigating the relationship between heart metabolism and heart performance. Initially, Bacaner was studying the totally isolated hearts of dogs hooked up to a mechanical system in which the hearts pumped blood. During analysis of biopsy samples from the hearts, "we found something very interesting," Bacaner says: "the old idea was that the heart was about one-half percent glycogen, but we found big regional differences, from almost no glycogen to five percent glycogen, depending on which parts of the heart were contracting more strongly."

Bacaner would have written a scientific report of this discovery if not for a comment by one of his colleagues in the Department of Physiology. "He came by and said, 'Marvin, I'd feel a little better about your data if there was a little more dog around the heart.' I felt that was justified, so we set up some experiments to obtain the biopsies with the heart in the chest cavity. But we couldn't get very far because every time we tried to biopsy a heart, it would fibrillate, and that changes the whole metabolism of the heart. So we concluded that there was no way we could repeat the experiment on a normally beating heart."

Then one night Bacaner woke up with a possible answer. "The intact hearts were more prone to fibrillation because they were still connected to the nervous system. Since the major innervators of the heart ventricles are from the sympathetic nervous system, I decided to try to block them. I went to a colleague in pharmacology and asked if I could borrow some guanethidine, the only drug I knew of that blocked post-ganglionic sympathetic action. He didn't have any, but he handed me a newer drug that he said would do the same thing."

The drug was bretylium tosylate, and it allowed Bacaner to biopsy the beating hearts without inducing fibrillation, suggesting that sympathetic blockade was indeed reducing the ability of the heart to fibrillate. "Being an M.D.,

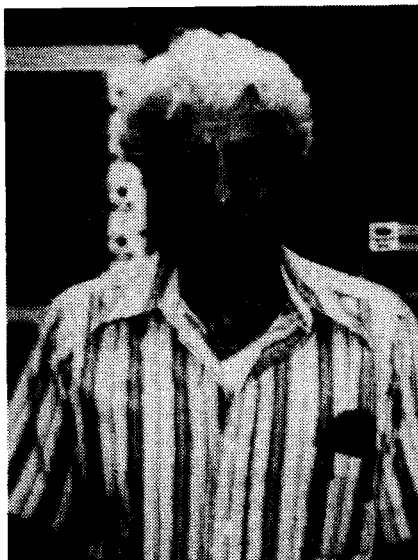
that seemed very significant; not only did I understand what made the heart prone to ventricular fibrillation, namely sympathetic innervation, but I also knew how to block it."

To further evaluate bretylium's usefulness in reducing vulnerability to ventricular fibrillation, Bacaner turned to an electrical-threshold system developed by two colleagues, John A. Johnson and Richard J. Stish. "We modified their system slightly so we could evaluate thresholds for ventricular fibrillation, and then we tested bretylium. We found that it markedly raised the amount of current it took to induce ventricular fibrillation.

But the most remarkable finding was that bretylium induced a phenomenon called spontaneous defibrillation, which occurs naturally in small animals such as cats, rabbits, and rodents, but which is never seen in large hearts such as those of dogs, pigs, cattle, and humans. Large hearts will fibrillate until the heart is defibrillated with an electrical countershock or the person dies. The fact that we could induce this phenomenon in dogs' hearts was a spectacular sign of antifibrillatory effect."

Ironically, the theory that caused Bacaner to end up working with bretylium turned out to be only partly true. When he tried guanethidine, thinking that its sympathetic blockade effect would produce results even better than bretylium's, there was no antifibrillatory effect. "We now know that sympathetic blockade is a helpful but not necessary component — the major component [in bretylium's antifibrillatory action] is a membrane effect on the ionic currents of heart cells," Bacaner says.

Thinking that he had discovered something with clinical potential, Bacaner called a former colleague who had left academia to become research director and then president of a pharmaceutical company. "The first thing he said was 'Get a use patent.' He explained that in this country you can patent the novel use of a compound, and since bretylium was originally patented as an an-



Marvin Bacaner

tihypertensive compound, I could patent its use to prevent ventricular fibrillation." The bretylium tosylate compound was originally patented by the Burroughs Wellcome Company, but it was dropped from consideration as an antihypertensive because it induced only orthostatic hypotension, and patients soon became tolerant even to that effect.

Bacaner convinced the University's patent office to file for a patent on bretylium, and the director of the office, Willard Fornell, suggested that he contact Burroughs Wellcome to see if they would be interested in licensing it for the new application. "I called them and they weren't very interested, because they had already spent a lot of money on bretylium and it had died. But I finally persuaded them to let me present my data, and when I did they became mildly interested. They said they didn't want to undertake clinical trials because of the expense, but if I was willing to do the trials they would supply the three things I needed to get an Investigational New Drug approval from the Food and Drug Administration (FDA): the manufacturing specifications, the chemical stability data, and the preclinical toxicity data."

Bacaner supplied the clinical testing plan, and after obtaining FDA approval, he went ahead with a pilot study on 30 patients. Bretylium was given only as a last resort, to acute cardiac patients in whom all other treatments had failed. All 30 patients converted to normal heart rhythm and lived. "We were most successful in the six with refractory ventricular fibrillation and the four with ventricular tachycardia; bretylium was less successful in suppressing nonlife-threatening arrhythmias."

Bacaner published those results and continued with clinical testing, unfortunately without any funding. "The people around here participated because I asked them to, and I'm indebted to surgeons Walt Lillehei and Aldo Castenada, and to about 15 local physicians who sent us patients. "The pilot results did lead to a license agreement with Burroughs Wellcome, however, and as part of the contract the company agreed to set up controlled studies. Why those clinical trials were never conducted is open to speculation. Bacaner thinks three factors contributed: confusion as a result of the company moving its headquarters; the fact that at that time bretylium had been tested only when given parenterally rather than orally, which might reduce the size of its market; and the company's desire to find an analog of bretylium that was either more effective or absorbed better orally.

Burroughs Wellcome did send bretylium out on a compassionate basis to about 1,400 patients, with very good results. Former President Dwight D. Eisenhower was one of those patients. In 1968 he had a heart attack and was in Walter Reed Hospital in Washington, D.C., suffering refractory ventricular fibrillation. "Apparently his car-

diologist had read one of my clinical reports and he called me to request some bretylium," Bacaner says. "So I took it out to the airport and put it on a plane. The first I knew it had been used was when a Washington, D.C., newspaper reporter called me, and then the Minneapolis paper called. I never heard anything official, but I later saw the clinical report, which said that every time they stopped giving him parenteral bretylium he'd go back into fibrillation, so they put him on oral bretylium and he did fine for the six months he was on the drug." Eisenhower died suddenly in 1969.

However, despite the extensive compassionate use suggesting that bretylium was very effective, the lack of data from controlled clinical trials stood in the way of FDA marketing approval. And despite Bacaner's persistent efforts, Burroughs Wellcome wasn't pursuing the clinical testing needed for FDA approval. It took pressure applied on the company by Harold Chase, then University Vice President for Academic Affairs, and on the FDA by two nationally prominent figures at the University, Chief of Cardiology Howard Burchell, then editor of the journal *Circulation*, and Head of Physiology Maurice Visscher. As a result of action by the University, Burroughs Wellcome relinquished its claim to bretylium in 1972 and gave the University royalty-free access to the composition patent.

The burden again fell on Bacaner to carry on clinical studies until a new licensee could be found, as well as to continue to supply the drug to physicians who requested it for compassionate use, often in emergency situations. "We used skycabs for a couple of years, and we never charged for the drug, just for the delivery," Bacaner says. After about a year and a half of this service, Bacaner was able to put together enough data to do what no individual had ever done: he was invited by the FDA to present his results to the Cardiovascular Advisory Committee, and as a result of the committee's recommendation, his new drug (NDA) application was approved by the FDA in November 1973, opening the way for full marketing approval. "As far as I know, this was the first and last time FDA has approved an NDA submitted by an individual, rather than a company," Bacaner says. In the approval letter, E. DeVaughn Belton, M.D., director of the FDA Division of Cardio-Renal Drug Products, wrote the following:

"I would like to express my appreciation for the role you have played in the development of bretylium and its usefulness in severe arrhythmias and for your presentation to the Cardiovascular Advisory Committee...At this junction may I humbly suggest that it is in the interest of the patients to be treated that we proceed expeditiously toward a new drug approval."

Bacaner, Continued on Page 12

Proposal and Award Activity--FY 1990

The proposal and award activity of faculty at the University of Minnesota continued to increase in fiscal year 1990. Approximately 10 percent, or 357 more proposals were submitted through the Office of Research and Technology Transfer Administration in FY 1990 compared to FY 1989 (3,740 vs. 3,383). The number of awards rose by 8 percent, or 188 over the previous fiscal year (2,550 vs. 2,362). The total amount of awards processed increased by nearly 35 percent (\$275.3 million vs. \$204.6 million), however the increase was mostly accounted for by the \$66.9 million received for the Army High Performance Computing Research Center. The table below shows the distribution of proposals and awards among University colleges.

Proposal and Award Activity – FY 1990

	Proposals Submitted		Awards Processed	
	Number	Amount	Number	Amount
Medical School	1,160	\$ 178,564,472	801	\$ 70,072,718
School of Dentistry	60	6,585,446	44	3,609,787
College of Pharmacy	61	4,421,782	40	2,118,977
School of Nursing	31	2,576,535	18	1,114,314
School of Public Health	153	64,929,186	132	25,967,605
College of Veterinary Medicine	105	7,982,668	65	3,671,118
UMD-School of Medicine	54	5,702,863	32	1,566,131
Health Sciences Administration	1	182,489	0	0
Total – Health Sciences	1,625	270,945,441	1,134	108,328,072
College of Agriculture	265	27,206,053	127	7,733,787
College of Natural Resources	128	12,585,657	71	1,893,463
College of Human Ecology	53	3,832,277	34	1,774,190
Other IAFHE Programs	34	3,194,463	38	2,049,519
Total – IAFHE	480	46,818,450	270	13,450,959
UM Duluth, Administration	9	852,641	4	245,336
School of Business & Economics	8	886,204	6	1,340,914
Education & Human Services	12	500,802	6	59,340
School of Fine Arts	6	61,953	7	22,957
College of Liberal Arts	7	258,940	4	151,909
College of Science & Engineering	59	7,807,650	35	1,285,440
Natural Resources Research Institute	66	10,026,719	54	4,213,702
Total – UM Duluth	167	20,394,909	116	7,319,598
Institute of Technology	693	170,793,087	516	107,747,418
College of Biological Sciences	179	33,617,848	108	8,924,606
College of Education	159	17,703,021	117	8,958,381
College of Liberal Arts	147	20,166,523	88	5,479,953
Graduate School	20	5,592,564	19	2,206,689
School of Management	16	3,973,995	7	2,011,937
HHH Institute of Public Affairs	14	3,729,275	5	497,943
College of Architecture & Landscape Architecture	21	3,936,320	11	961,933
UM Morris	21	1,158,016	8	314,246
UM Crookston	14	504,890	13	552,962
UM Waseca	10	2,795,939	2	55,014
Law School	5	355,093	3	127,500
General College	9	1,307,749	8	1,134,001
Continuing Education & Extension	47	2,380,076	36	953,053
Academic Affairs	63	2,989,462	56	2,486,330
UM Hospitals / CUHCC	21	2,416,392	17	1,942,772
Hormel Institute	18	5,838,276	8	410,531
Libraries	4	202,401	6	1,396,623
Other Units	7	349,621	2	36,686
GRAND TOTAL	3,740	\$ 617,969,348	2,550	\$ 275,297,207

Committee on the Use of Human Subjects in Research

Changing Titles of Research Protocols Already Approved by the Committee

Any change whatsoever in the protocol of a research project must be approved by the Committee on the Use of Human Subjects in Research prior to the initiation of that change.

Occasionally, however, an Investigator finds it necessary to change only the title of a research project without changing any procedures. Such title changes may occur in response to a particular granting agency's perceived preference for certain "buzz words" or when a limited number of characters is required for a project title on the grant application.

The administrative office of the Committee is required by regulation to account for any and all changes in approved research, in writing, including title changes. This "paper trail" is necessary to provide a historical record of all research. Changes in title can be handled in two ways.

1. If the original title is to be retired, i.e., will no longer be used to refer to the specific protocol, a letter from the principal investigator explaining the change in title, including the original approved title, the Human Subjects Code Number, the latest Committee approval date, and a revised consent form, should be sent to the Committee office prior to any grant submission. Following administrative review, the most recent approval date for the original study will be used for the new title.
 2. If the original title is to remain active, but funding is sought from another agency under a different title, the investigator should call the Committee office and request a form to certify that study title "X" is the *same* as study title "Y". That form, known as the "same as form," should be completed and returned to the Committee office with a consent form for the new study title. The "same as" procedure may be used by investigators only when the research procedures *are precisely the same* as those previously approved by the Committee.
- Upon review, if the "same as" application *does not* include the same procedures as previously approved by the Committee, the request will be denied and the investigator will be required to apply for a new study approval from the Committee.

In anticipation of meeting a grant application deadline, an investigator should file for these changes at least 30 days prior to the grant submission date, to allow for processing of the request and any other updating of approval dates or changes in the consent form that may be necessary.

Communication with the Committee office is critical to the smooth handling of changes in title. The administrative office cannot assume that a similar title for a research project is indeed the same research protocol. Therefore, the Committee cannot certify approval for titles not on record, even if the titles are similar or the procedures appear to be the same as those in approved study titles.

The Committee does not want to encourage the proliferation of "same as" research. The responsibilities for proper record keeping are shared by the investigator and the Committee together. If the Committee determines that an investigator is misusing these procedures, that investigator may be restricted in the exercise of this procedure in the future.

Investigators are further reminded that these "same as" projects represent distinctly different research projects that involve similar research procedures. Each title requires continuing review and approval from the Committee. Separate annual continuing review forms must be filled out for every title on file with the Committee.

If a "same as" is employed and an investigator does not receive funding for the project, and the investigator does not intend to use the title for another submission, a letter from the investigator to the Committee will "retire" that title and prevent the necessity of issuing needless forms for continuing review.

If you have questions, please call Moira Keane at 624-9829.

Smoothing the Way for University-Industry Research

Industry support for research by University of Minnesota faculty increased by an average of 7 percent annually from fiscal year 1985 through 1989. The University has aggressively sought research collaboration with industry, but it has also instituted greater scrutiny of potential conflicts of interest, as well as aggressive protection of faculty's right to publish and of the University's proprietary rights in the results of research. In addition, the University has established procedures to help smooth the sometimes rocky road to a mutually agreeable research contract.

Judy Volinkaty, who handles industry research administration in the Office of Patents and Licensing, says that a faculty member's reputation is the leading factor in generating interest from industry, with contacts usually made through former students or other acquaintances in industry. As industry awareness of the Office of Research and Technology Transfer Administration (ORTTA) has grown, however, she is receiving more cold calls from companies interested in sponsoring a specific type of research but not knowing whom to contact. "We can usually refer those calls to a department or research center that specializes in the technology the company is interested in," she says.

General discussions of research possibilities and goals with contacts in industry can be helpful in defining the parameters of a sponsored project, Volinkaty says, but specific discussions of the University's obligations and the budget for the project are best left for later. "We've found that things go a lot smoother and everyone is happier if we at least start the negotiations by working with our standard research agreement, which we've been using for about two years now."

That research contract is based on a model published in 1988 by the National Academy Press. The model research agreement and a simplified form for unrestricted research grants were developed by The Government-University-Industry Research Roundtable (sponsored by the National Academy of Sciences, National Academy of Engineering, and Institute of Medicine) and The Industrial Research Institute (under the auspices of the National Research Council). In the 1988 publication, the two groups described why and how the model agreements were developed:

"Our two organizations approached the task of developing these models with the goal to maximize productive research collaboration between industry and academia by streamlining the negotiation process for reaching a formal agreement. Some of the impacts we hope will result from use of the documents are: a decrease in the

time and effort required to reach an agreement; partners in research programs, rather than developing a contract from scratch, will use much of the model and devote their energies to negotiating specific features; and companies and universities new to research alliances will have a sense of what is reasonable to consider in establishing a contract.

"The preparation of these models was accomplished through a series of steps. The Roundtable, with the assistance of the I.R.I. Committee on University Relations, established an ad hoc committee of industrialists to prepare initial drafts of the two agreements. The thought was to have industry, as the financial supporter of the research, take the lead for simplification. This concept is an outgrowth of the Roundtable initiative with the federal agencies to simplify the federal government-university research administration procedures...

"The models drafted by this ad hoc committee were discussed at a workshop of university and industrial directors for sponsored research. Comments from that workshop have been incorporated into the document. The I.R.I. Committee on University Relations then reviewed the models for their effectiveness and appropriateness as starting points for negotiations."

A major point of discussion with industry sponsors is indirect costs (overhead). While as business people they recognize the validity of such costs, they often cannot understand why such costs must be paid to the University. University policy is that all sponsored projects with industry should include some payment for indirect costs. "ORTTA is willing to work with the faculty member and the sponsor to ensure that the research gets funded," says John Thuente, Director of Patents and Licensing. "Problems often arise if the faculty member has done initial negotiating with the company and has not included any indirect costs in the budget, then ORTTA becomes involved and adds indirect costs." Thuente adds, "It is best to mention early in discussions with a company that indirect costs are expected."

Use of the standard research agreement has increased nationwide since its publication, Volinkaty says, and representatives of most corporations have become quite familiar with it and are comfortable using it as a starting point. University faculty also have become more aware of the agreement and of the process for submitting a proposal to industry through ORTTA. That process is identical to the process for submitting proposals for research projects to federal agencies or private founda-

Industry Research, Continued on Page 9

U/M Research Efforts

This article, by Martin J. Moylan, appeared in City-Business July 23, 1990, and is reprinted by permission.

When the research interests of industry and a university coincide, both can profit greatly.

There has been growing recognition of that at the University of Minnesota. Industry and business financing of university research has grown from \$2 million in fiscal 1984 to \$12.4 million in fiscal 1989.

Totals are not available for fiscal 1990; but leading local corporate sponsors of research this year were Medtronic Inc., which provided \$594,000; Honeywell, Inc., with \$831,000; Cray Research, Inc., with \$875,000 and 3M Co., with \$2.4 million, according to U of M figures.

"We're trying to be as aggressive as possible in seeking opportunities to work with industry because of the benefits both parties can get in that type of collaboration," said Tony Potami, associate vice president of research and technology transfer. Potami heads the university's Office of Research and Technology Transfer Administration (ORTTA), formed in 1983. Its mission is to help business make better use of university resources, thereby spurring economic development in Minnesota.

The U of M has research programs in most scientific areas. It has also established, with substantial help from business, several multidisciplinary centers in high-technology fields such as biomedical and interfacial engineering.

The university has dramatically stepped up its efforts in other areas to attract industry's interest. University faculty reported 170 inventions in 1989, up from 30 in 1983. There has also been a significant rise in patents awarded to the U of M and a parallel increase in their licensing to business. In 1988, the university was awarded 26 patents, placing it fourth among U.S. universities. Last year, it ranked seventh, with 41.

Business has recognized the commercial potential of many of the patents. As of March, the university has 117 separate licensing agreements with 77 companies, 33 of which are based in Minnesota. University royalties from those licenses exceed \$2 million a year.

Licenses have been issued for a wide array of inventions and processes. Recent ones include a procedure for cleaning microscopic particles from silicon wafers used in computers; a vest that enables cystic fibrosis victims to self-administer daily therapy and clear lung congestion; a combination muzzle and collar designed to make dog

leashes more humane and effective; and a method that permits the electroplating of materials that normally cannot endure high temperatures.

"I see only a few other major research universities that have accomplished as much as this institution and its faculty have in regard to inventions, patents, products and companies that have been created," Potami said.

Fostering economic development through cooperation with business and industry is nothing new for the university. Decades ago, its researchers developed the process and devices that are essential to the Iron Range's taconite industry. Taxes on the struggling industry, which extracts iron ore from taconite, have added more than \$1 billion to state coffers over the years.

What is new is a more aggressive commitment to establishing the U of M's connections with business, especially in medicine, computer science, engineering and other high-technology areas. Former University President Ken Keller started the initiative and it is continuing under current President Nils Hasselmo, Potami said. By no means, though, is the university planning to deviate from its traditional missions and become merely a tool of business, he said.

Business and industry account for about 7 percent of the U of M's outside funding for research. The federal government, primarily through the National Institutes of Health (NIH), supplies about 76 percent of those funds.

Cooperation with industry can be a natural outgrowth of the U of M's missions to teach, foster research and provide community service, said Henry Buchwald, Professor of surgery and biomedical engineering. Buchwald's implantable device laboratory developed the world's first implantable infusion pump, a drug-delivery system that has been used to administer anticoagulants, insulin, antibodies, anti-cancer drugs, pain killers and other treatments. Initially funded by NIH, the pump was further developed with grants from industry. It was licensed to Infusaid Corp., now a subsidiary of pharmaceutical giant Pfizer, Inc., in 1975.

Technology developed at Buchwald's lab will also be incorporated in the next generation of blood pumps from Bio-Medicus, Inc. of Eden Prairie, said Buchwald. Bio-Medicus is the world's leading producer of centrifugal blood pumps and related accessories for blood circulatory support systems.

Continued on Next Page

"Community service certainly is a cardinal role of a land-grant university," said Buchwald. "And I would think one of the most essential parts of community service—to the community of Minnesota, the United States and the world—is to have products and ideas that will benefit mankind come out of the University of Minnesota. The university must teach future inventors how to invent," Buchwald said. "I think the university is responsible for teaching people how to express their creativity, how to take currently available knowledge and derive new concepts from it." Applied research—the kind that ends up in technology transfer—is as valid an academic pursuit as theoretical research, he said.

Most industry-financed research at the university focuses on technical areas rather than product development, said Michael Moore, ORTTA communications coordinator.

Honeywell, Inc. funds research that could help in the manufacture of products. "It's rare you get a full-blown product," said Len Weisberg, Honeywell, Inc. vice president of corporate research and engineering. "Typically, you get important results that help you understand something you're making. You get many inputs that add up over the years, instead of a specific breakthrough. It's more like getting a lot of singles instead of a home run."

Professor David Grant, head of the Department of Pharmaceutics, said there can be a natural dovetailing between the goals of academic research and industry needs. Research into improving the shelf life of drugs and better understanding how drugs are metabolized, distributed and excreted are examples of areas in which academic and industry interests may mesh.

"Some of our research sometimes coincides with the practical needs of industry," Grant said. "Under those circumstances, university-industry cooperation can be very fruitful for both parties." Much of Grant's work is supported by industry players, including Pfizer and Smithkline Beckman Corp., another pharmaceutical company.

Funding U of M research and establishing other ties to the university can give a company an edge in recruiting future employees, said Weisberg. That's very important; about two-thirds of the scientists and engineers involved in Minnesota's high-technology industry come from university classrooms and laboratories, the university said.

For companies such as Medtronic, Inc., a major biomedical technology company that produces pacemakers and other devices, it's good business to stay close to the university. Founder Earl Bakken got started making

pacemakers while he was an engineering student at the university.

"The university attracts students, faculty members, engineers and scientists whose interests and accomplishments are in the fields related to biomedical engineering and biomedical science," said Dick Reid, a spokesman for the Fridley company. "Those people are an asset to Medtronic and we're interested in seeing them interact with Medtronic people. "We feel that the university can help us and that we can help the university. It's a matter of industry and academia working together to extend the resources of both."

Industry Research, Continued from Page 7

tions, except that they are processed by Volinkaty, who has the expertise and resources of the Office of Patents and Licensing to assist her in negotiating agreements with industry.

Her review starts with a check of the Application for External Research, Training, or Public Service Support (B.A. Form 23), to make sure all required approvals have been obtained, especially for any financial arrangements or investments the researcher might have with the sponsoring company. The University's policy on Disclosure of Financial Arrangements with Industry has been helpful in making sure potential conflicts of interest are reviewed at the appropriate administrative level, she says. Because of the added sensitivity of medical research—especially clinical trials—the Medical School has a special committee to review faculty involvement with industry.

Besides keeping track of the hundreds of projects with industry, Volinkaty also administers about 50 "transfer of materials" agreements for faculty researchers. Virtually all of these agreements grant some rights in the faculty member's research to the provider of the materials. "We need to make sure that the agreement doesn't conflict with the principal investigator's other research agreements or with the University's proprietary interests in the biological materials," Volinkaty says.

Lyme Disease Vaccine

Approved for Dogs;

Sub-License for Human Vaccine Signed

The U.S. Department of Agriculture has granted a provisional license for use of a Lyme disease vaccine in dogs. The vaccine was developed and patented by Russell Johnson, Professor of Microbiology, and was licensed by the University to MGI Pharma of Minnetonka (formerly Molecular Genetics Inc.). MGI Pharma contracted with Fort Dodge Laboratories, of Fort Dodge, Iowa, to test, develop, and market the vaccine for animals. The dog vaccination is given in two shots, a week apart, followed by annual booster shots. Approval for use in other animals is expected in about a year.

MGI Pharma and the University recently sublicensed the human application of Johnson's Lyme disease vaccine to Wyeth Labs, but a product for humans is thought to be three to five years away.

Bulletin Board, Continued from Page 1

- **PROHELP**

Includes information needed when developing proposals, such as fringe benefit rates; indirect cost rates; Research Animal Resources per diem rates; and academic floors, fixed ranges and fixed rates.

- **SPIN**

Includes alpha keyword index and topical keyword index for the Sponsored Program Information Network (SPIN). This is a data base that ORTTA uses to search out funding opportunities.

- **RFP'S**

Includes selected RFP's provided weekly through the SPIN system. New RFP's are posted weekly and are available on the Bulletin Board for a month.

- **DEADLINE**

Includes sponsor deadlines for receipt of applications, listed by funding agency and program. This section is updated monthly.

- **NIHGUIDE**

Includes the entire NIH Guide, which is issued weekly—Notices; Notices of Availability (RFPs and RFAs); Ongoing Program Announcements. Titles of RFAs and Ongoing Program Announcements from the NIH Guide are incor-

porated monthly into the Deadline section of the Bulletin Board under the individual institute. Significant new program announcements may also be highlighted in the News section of the Bulletin Board. The two most recent weeks of the NIH Guide are posted.

How to Access the Bulletin Board

To access the Bulletin Board you need some computer hardware and communications software. If you can access LUMINA, you already have the required hardware and software, and the logon process is similar. Asynchronous users may need to specify a different telephone number and may need to change communication parameters (see #3 below). University Internet users need to specify a different IP Address (see #4 below).

There are several different ways you can access the ORTTA Bulletin Board:

- 1) Through the U of M Public Access Menu located on computer terminals in the University Libraries.
- 2) Through the AIS Public Access ("PA") option on the AIS network. This requires an AIS SecurID card and a connection to AIS via TCP/IP, dial-up, SNA coax or twisted pair.
- 3) Through asynchronous (dial-up) connection to the Public Access Menu (625-6009). This requires (a) a modem connected to a microcomputer; or a University digital phone with a data option board (DOB) or Asynch Data Interface (ADI-100), and (b) microcomputer communications software capable of vt100 terminal emulation (e.g., ProComm, TinCan, etc.). The dial-up modem settings are 8 data bits, 1 stop bit, no parity.
- 4) Through the University's Internet [IP Address 128.101.109.1 (PUBINFO.AIS.UMN.EDU)]. This requires a connection to the campus Internet, an Internet address, and NCSA Telnet with tn3270 software. (AIS currently does not support vt100 emulation through the University Internet.) For a connection to the campus Internet, please contact Telecommunications Services at 626-0260.

Once you are in the Bulletin Board, if you need help or have questions, either send a note to the Bulletin Board Editor or call ORTTA at 624-0327. If you need help connecting to the Bulletin Board (hardware connections or communications software problems), please call an AIS Information Center Consultant (626-0505) or call the Help Line at the Microcomputer and Workstation Networks Center (626-4276).

ORTTA ELECTRONIC BULLETIN BOARD

Research News and Deadlines

MAIN MENU

1. ORTTA NEWS
2. ORTTA CONTACTS
3. PROPOSAL HELPS (RATES, ETC.)
4. SPONSORED PROGRAM INFO NETWORK
5. REQUESTS FOR PROPOSALS
6. SPONSORING AGENCY DEADLINES
7. NIH GUIDE

SUB-MENUS

1

ORTTA NEWS

1. Program/Deadline Information
2. General & Policy Information

2

ORTTA CONTACTS

1. Comprehensive Alphabetical Staff List
2. ORTTA Staff by Title and/or Area of Responsibility
3. Grants and Contracts Staff by Agency Responsibility

3

PROPOSAL HELPS (RATES, ETC.)

1. Fringe Benefit Rates
2. Indirect Cost Rates
3. Research Animal Resources Per Diem Rates
4. Research Patient Care Rates
5. Academic Floors, Fixed Ranges and Fixed Rates

4

SPONSORED PROGRAM INFO NETWORK

1. SPIN: What it is—And How to Use It
2. SPIN: Alphabetical Keyword Index
3. SPIN: Topical Keyword Index

5

REQUESTS FOR PROPOSALS

1. RFP's For Most Recent Week Available from SPIN
2. RFP's For Prior Week Available from SPIN

6

SPONSORING AGENCY DEADLINES

1. General Deadline Information
2. ADAMHA—Alcohol, Drug Abuse & Mental Hlth Adm
3. NIH—National Institutes of Health
4. DHHS—Department of Health and Human Services
5. ED—U.S. Department of Education
6. NSF—National Science Foundation
7. FEDL—Other Federal Agencies
8. NONFEDL—Nonfederal Agencies

7

NIH GUIDE

1. NIH Guide (Current Issue)
2. NIH Guide (Previous Issue)

But not even this victory speeded the re-licensing of bretylium. It was a hard sell because it was initially approved by the FDA as a drug of last resort, and because its effectiveness in preventing ventricular fibrillation when given orally had not yet been evaluated, Bacaner says. Finally, in 1976, a license was signed with a small, independent company named Arnar Stone, which was later bought by American Hospital Supply.

In July 1978, bretylium, under the trade name Bretylol, was fully approved for marketing by FDA. "It took us 11 years, from 1965, when the evidence of its value was quite clear, until 1976, when Arnar Stone made it clinically available, to get bretylium into use. That's too damn long," Bacaner says. "We must have hit every bureaucratic problem in the world. That it ever was marketed at all I think is a miracle."

Not only was bretylium marketed, it went on to become the most lucrative royalty-generating product ever licensed by the University of Minnesota. Those royalty payments ended in 1988, a year in which total sales of Bretylol reached \$15 million. Several million dollars were generated to support University research over the 13 years of the license agreement. Some of that money was used to expand the University's Office of Patents and Licensing and to more aggressively—and expediently—pursue new patent and license agreements. "Royalties from bretylium gave us the ability to serve faculty better and to get more new technologies out to industry and the public," says John Thuente, director of patents and licensing.

Bacaner has used some of the royalties he received from bretylium to endow a scholarship fund through the Minnesota Medical Foundation. "It recognizes the most original and useful scientific achievement by a graduate student in each of the six basic science departments of the Medical School," he says. Students chosen by the departments to receive the annual Jacob and Minnie Bacaner Awards, named in memory of his parents, receive \$500 and have their names added to plaques kept in each department library.

Now that the bretylium patent has run out, Bacaner says he feels freer to try to improve the way it is used. "I've never felt free to openly criticize how it was being used while the patent was in force, because I didn't want to be in the position of advocating the use of a drug from which I was benefitting materially." The problem he sees is that the original FDA-approved indication was for bretylium to be used following administration of lidocaine and procainamide, if those drugs failed to restore normal heart rhythm. It's been very difficult to

reverse that, even though the current FDA indication is unqualified for the 'prophylaxis and therapy of ventricular fibrillation' which no other drug has.

"Bretylium works when everything else fails, but it works much better if it's given first," Bacaner says. He explains that bretylium increases the strength of heart contractions, while other drugs depress both contractility and rate. Prior administration of such drugs (class 1 antiarrhythmics) also increases the tendency of bretylium to cause hypotension, which is its only side effect, he says. "Very often cardiac patients are dehydrated from diuretics, and when you give them bretylium, which decreases peripheral resistance, it magnifies the effects of dehydration and leads to hypotension, especially if the other drugs have blocked its action of increasing contractile strength. You can easily prevent or reverse hypotension, though, by giving fluids or by constricting the periphery with vasoconstrictors. Really though, the side effects are caused mostly by its being used after all these other drugs. Symptomatic hypotension is very unusual when adequate doses of bretylium are used as the primary treatment."

Despite the intensity with which he tells the story of bretylium, Bacaner softens when asked about the movie *E.T., The Extra-Terrestrial*. He went to see the movie on the insistence of his son. "He said 'Dad, you've got to come see this movie, you'll love it!' I said 'What do you mean, it's a kid's movie,' but he insisted, so I went." Near the end of the movie, when E.T. is being treated by a team of doctors and seems to be dying, he suddenly goes into cardiac arrest. As chest compressions are started, the doctor in charge says, "Let's try the bretylium!" and other medical personnel repeat the call: "Get the bretylium." A while later, E.T., seemingly dead, opens his eyes and greets his friend, Elliot.

"I couldn't believe it when out of the blue comes this mention of bretylium," Bacaner says. "It was kind of fun. It was a very realistic cardiac resuscitation, probably set up under the supervision of an emergency room physician. Most use of bretylium is by emergency room physicians, who seem to appreciate the usefulness of bretylium a lot more than cardiologists do."

The realism of the E.T. episode was recently emphasized by an account of a similar cardiac resuscitation. Under a headline reading: "Chance or fate? 'Dead man's' tale defies odds," Star Tribune columnist Jim Klobuchar recounts the events following the collapse of a 65-year-old man. Early in the article, he quotes one of the attending doctors: "For more than 70 minutes he was down with no blood pressure or practically no blood pressure, no pulse; and when they brought him to emergency and

Continued on Next Page

New Grant Administrators Join ORTTA

Two new grant administrators have joined ORTTA, partly to fill the vacancy left by the departure of Mary Bergaas, now director of the Minneapolis Research Foundation, and partly to meet the rising workload in the Division of Grants and Contracts.

Dave Lynch joined ORTTA as a senior grant and contract administrator on

July 1. For eight years he was the head of the grants section of the Indiana Department of Natural Resources, where he administered federal and state grant programs. He has a B.A. in geography and a master's degree in administration, both from Indiana University.



Dave Lynch

Lynch's primary responsibilities will be in National Science Foundation proposals and

Continued from Previous Page

we started to try to save him, some people in the room thought we were crazy. They thought he was gone."

Later in the article, Dr. Lynn Simon, the emergency physician who treated the patient at Methodist Hospital, is quoted: "We shocked him 18 times and gave him three different kinds of drugs," Dr. Simon said. "For a while, nothing seemed to bring him back. I don't think many there thought there was any chance of saving his brain even if his heart came back. So much time had gone by. The Bretylum (a drug that gives a kind of chemical shock) seemed to help. At 2:30 he was able to recognize his wife. At 7 p.m. we had most of the tubes out of him, and I talked to him about it."

Bacaner says it's a story he's heard many times, but which he hopes will have a less death-defying theme in coming years as bretylum is given to patients earlier in their resuscitation. "While bretylum saves hundreds of patients with intractable ventricular fibrillation, it could save thousands if used properly," he says.

awards. "My new position will give me the chance to see the grants process from the recipient's viewpoint, while applying my experience from the funding organization's perspective," he says.

Elizabeth (Liz) Klitzke joined ORTTA July 23 as a grant and contract administrator. For the past 10 years she directed a University of Wisconsin-Stout (UWS) project that evaluated high school vocational-technical programs in Wisconsin. For one year before that she represented UWS on a state-wide economic development project called "Commission '85." She held retail management positions for six years before being hired by UWS. She has a B.S. in business administration and an M.S. in vocational education, with an emphasis on evaluation and statistics, both from UWS.

Klitzke's primary responsibility at ORTTA will be to administer grants and contracts from the Department of Education.

With the hiring of these new grant administrators and the appointment of Rick Dunn as Assistant Director,

the Grants and Contracts section of ORTTA is currently evaluating its workload distribution. Lynch and Klitzke will be assigned additional agency responsibilities in the near future, when that evaluation has been completed.

Liz Klitzke



National Library of Medicine

Agency Profile

The National Library of Medicine (NLM), a component of the National Institutes of Health, is the only federal agency that focuses on the gathering, storing and transmitting of technical information, related to the biomedical sciences.

The agency funds a wide range of grants to improve the management, transfer and use of medical knowledge. Its grant programs, which totaled about \$20 million in FY 1990, provide support for individual investigators conducting basic research in areas such as artificial intelligence and decision-making and funds for major institutional planning and development projects. NLM also supports institutional and individual training activities. Specific areas of support include:

Research Grants

NLM awards regular investigator-initiated research project grants, First Independent Research Support and Transition (FIRST) grants, and Research Career Development Awards in three program areas:

- **Medical Informatics**, combines medical specialty areas with information and computer sciences, computational linguistics and decision analysis, among other areas. Interests include knowledge representation, human factors, and improved storage and retrieval. Of special interest are the cognitive aspects of information-related behaviors.
- **The Biotechnology Information Program**, supports research on more effective methods for organizing and analyzing vast amounts of data and information relating to molecular control of life processes. Problems of interest include design and management of large-scale databases, retrieval of information from multiple factual databases, and the role of advances such as artificial intelligence in uncovering knowledge otherwise concealed by large and complex data.
- **Health Library Information**, emphasizes research on problems of access and use of literature. Among the interests are improving the organization and retrieval of the medical bibliography, and analyses of health information delivery.

Publication Grants

In addition to research support, NLM also provides short-term financial assistance, usually less than \$20,000, to nonprofits to prepare and publish biomedical scientific studies, particularly to synthesize and in-

crease the use of biomedical information and to help close gaps applying scientific research findings to medical practice.

Information Access Grants

NLM provides information access grants to link libraries of small-to-medium community hospitals and consortia of health-related libraries to up-to-date computer and telecommunications technology. Projects are aimed at improving the access of health science personnel to information resources and services.

Information Systems Grants

NLM provides information systems grants to health science institutions and hospitals with major teaching and research components. These grants also are designed to improve access and use of health science information, but usually on a larger scale than access grants. Information systems grants are for projects that foster networking and integration to improve the information infrastructure. Projects may encompass multiple systems of the infrastructure or may focus on connecting various parts. Grants also provide support for innovative improvements to the infrastructure, for example, using an artificial intelligence technique as a means of managing information.

Integrated Academic Information Mgmt Systems

NLM provides big multiyear grants to medical centers and health science institutions for planning and developing projects leading to the implementation of institutionwide computer networks. These networks hook library systems up to individual and institutional databases and information files inside and outside an institution to create comprehensive information systems. The goal is to integrate archival databases of research, academic and bibliographic material, and working clinical and administrative files.

Training

In addition to research and resources grants, NLM also offers U.S. nonprofit graduate training institution grants for predoctoral and postdoctoral research training in informatics, which includes such fields as health information sciences, computer sciences, statistics, computational linguistics and cognitive sciences. NLM also awards individual postdoctoral fellowships in informatics.

For more information, contact the Biomedical Information Support Branch, Extramural Programs, National Library of Medicine, 8600 Rockville Pike, Bethesda, MD 20894; (301) 496-4221.

Graduate School

Faculty Summer Research Fellowships

The Graduate School plans to award approximately 60 Faculty Summer Research Fellowships for 1991. The purpose of the program is to encourage research and artistic creation by enabling members of the faculty to devote full time to intensive work on their projects for one summer session.

Regular faculty members on nine-month appointments are invited to apply. The proposed project should promise completion during the summer.

Four copies of the proposal must be submitted on a Faculty Summer Research Fellowship application form (rev. 9/89). The deadline for submission is **Monday, November 12, 1990**. The Faculty Summer Research Fellowship committee will review the applications and results will be mailed by January 7, 1991.

Application forms are available in the Graduate School Research Office, 417 Johnston Hall, or you may call Michelle Beckmann or Lori Wallin at 625-2356. Faculty members on the Morris and Duluth campuses should contact Dean Elizabeth Blake's and Dean John Hatten's offices, respectively, for forms.

Graduate School

Grants-in-Aid of Research Artistry and Scholarship

October 1 is the deadline for applications for research funds to be awarded at the fall meetings of the Graduate School's General and Health Sciences Research Advisory Committees.

General areas of support include personnel such as graduate or undergraduate research assistants, equipment, supplies, and limited travel. In most cases, grants provide "seed" money for developing projects to the point of attracting more complete, external funding. Applications are accepted from faculty members who hold regular appointments.

Information and application forms are available from Michelle Beckmann, 625-2356 or may be picked up at the Graduate School Research Office, 417 Johnston Hall. Faculty at the Duluth and Morris campuses may obtain applications at Dean John Hatten's and Dean Elizabeth Blake's offices, respectively.

Department of State

Man and the Biosphere Program

The mission of the United States Man and the Biosphere Program (U.S.MAB) is to foster relationships between humans and the biosphere through an international program of policy-relevant research that integrates social, physical and biological sciences to address problems. These activities — broadly interpreted — include catalytic conferences and meetings, education and training, and the establishment and use of biosphere reserves as research and monitoring sites.

U.S. MAB is announcing its priorities and criteria for selection of original research proposals and projects to receive support in FY 1991. While the currently available funds are relatively modest, it is intended that these funds will enable scientists to begin in a limited, yet timely, manner interdisciplinary pilot projects and programs. U.S. MAB funding is aimed at stimulating scientists from different disciplines to work together in selected areas. Priority consideration will be given to:

- High Latitude Ecosystems;
- Human Dominated Systems;
- Marine and Coastal Ecosystems;
- Temperate Ecosystems; and
- Tropical Ecosystems.

Preference will be given to proposals which:

- Are inter- or trans-disciplinary;
- Request \$50,000 or less;
- When international, involve scientists from the host country;
- Deal with environmental policy issues relevant to agencies that support U.S. MAB;
- Are submitted by U.S. citizens; and
- Within the program areas, utilize units of the International Network of Biosphere Reserves as sites to integrate appropriate project components of monitoring, research, education or demonstration.

All proposals must first be submitted as a prospectus with a maximum length of three (3) pages. No prospectus will be accepted after **November 5, 1990**. Interested scientists are encouraged to write to U.S. MAB for further information, at U.S. MAB Secretariat, OES/EGC/MAB, Room 833, SD-5, U.S. Department of State, Washington, DC 20522-0508.

National Science Foundation

Presidential Young Investigator Awards

The National Science Foundation (NSF) announces the competition for Presidential Young Investigator (PYI) awards. The awards are made to achieve the following objectives:

- Attracting and retaining outstanding young faculty in science and engineering;
- Providing their research and teaching careers with a strong start and greater freedom to pursue their research interests;
- Improving the research capabilities of academic institutions;
- Fostering contact and cooperation between academia and industry.

Approximately 200 new Presidential Young Investigator Awards will be made for up to five years based on the annual determination of satisfactory performance and subject to the availability of funds.

Eligibility

Nominees must be U.S. citizens or permanent residents as of October 1, 1990. To be eligible, nominees must have a tenure-track or tenured faculty position at their nominating institution or receive an appointment to such a position to begin on or before October 1, 1990.

Nominees must have begun their first tenure-track position at any college or university after April 30, 1987 and must have a Ph.D. degree or equivalent, awarded on or after January 1, 1985. Only the department chairperson or analogous administrative official at an institution may nominate its faculty members for the awards.

PYI nominees must have a clearly demonstrated ability to conduct a research program. Awardees may conduct research in any branch of science or engineering normally supported by NSF. (NSF normally does *not* support clinical research such as biomedical research with disease related goals, or animal models of such conditions).

The minimum award will consist of an annual base grant of \$25,000 from NSF. Furthermore, in accordance with the program goals of fostering industry-university cooperation, NSF will provide up to \$37,000 of additional funds per year on a dollar-for-dollar matching basis to contributions from industrial sources, resulting in total annual support of up to \$100,000.

The deadline for submission of nominations is **October 1, 1990**. Inquiries may be directed to the Presidential Young Investigator Awards, National Science Foundation, 1800 G Street NW, Washington, DC 20550; (202) 357-9466. Nomination forms are available in ORTTA and may be requested by calling 624-0061.

National Science Foundation

Research Experiences for Undergraduates

The National Science Foundation (NSF) is seeking applications to train undergraduates for research careers in science under a *revised* Research Experiences for Undergraduates (REU) program. **Supplemental Awards** are available to principal investigators with existing NSF projects; **Site Grants** require independent proposals to initiate and conduct undergraduate research participation for a number of students appropriate to the discipline and the setting.

Student participants must be U.S. citizens or permanent residents and be enrolled full time or part time in a bachelor's degree program. NSF estimates total costs per student to be about \$5,000.

The submission deadline is **October 10, 1990** for Site Grants; supplemental award proposals may be submitted at any time. For further information, please contact: Research Experiences for Undergraduates, Biological, Behavioral and Social Sciences Directorate, National Science Foundation, 1800 G Street NW, Washington, DC 20550; (202) 357-9880. Guidelines are also available in ORTTA and may be requested by calling 624-0061.

Department of Energy

Hybrid Separation Systems to Separate Propane from Propylene

The Department of Energy (DOE) is interested in receiving unsolicited applications for research and development on innovative hybrid systems to perform propane/propylene separation. Research and development continuing through field testing of prototype systems is desired.

Currently the separation is carried out by distillation. This distillation is, however, expensive and energy intensive because of the low relative volatility of these two

compounds. Proposed research should address the following areas: 1) Retrofit potential and generic applicability of the systems to other separation; 2) Overall system design and optimization to combine the proposed hybrid technology with a conventional separation process; and 3) Economic, energy use, and market studies to predict the commercial potential of the proposed system.

The deadline for application is **October 30, 1990**. For further information, contact Ginger Sandwina, U.S. Department of Energy, Idaho Operations Office, Contract Management Division, Financial Assistance Branch, 785 DOE Place, Idaho Falls, Idaho 83402. Application materials are also available from ORTTA and may be requested by calling 624-0061.

U.S. Geological Survey

Water Resources Grant Program for FY 1991

Applications are invited for water research projects under the Water Resources Research Grant Program. The purpose of the program is to provide matching grants for research concerning any aspect of water resource-related problems deemed to be in the national interest. The program supports research related to the following general areas of interest:

1. Aspects of the hydrologic cycle;
2. Supply and demand for water;
3. Demineralization of saline and other impaired waters;
4. Conservation and best use of available supplies of water and methods of increasing such supplies;
5. Water reuse;
6. Depletion and degradation of groundwater supplies;
7. Improvements in the productivity of water when used for agricultural, municipal, or commercial purposes;
8. The economic, legal, engineering, social, recreational, biological, geographic, ecological, and other aspects of water problems.

For further information contact Melvin Lew, U.S. Geological Survey, Water Resources Division—MS 424, 12201 Sunrise Valley Drive, Reston, Virginia 22090;

Department of Energy

Energy-Related Air Pollution Research

The Energy Department (DoE) is seeking applications for special research grants for theoretical and experimental studies of energy-related air pollution.

Under **Physiochemical Mechanisms Determining the Fate of Energy-related Air Pollutants**, DoE will fund measurement of rate and equilibrium parameters for important molecular processes, measurement of physical transformation processes and theoretical description of such processes using advanced mechanistic models that are either analytical or numerical in nature.

Under **Air Pollution's Ultimate Deposit on the Earth's Surface**, DoE will fund development of advanced computational methods and/or submodels for describing macroscopic elements of the process.

Five grants for approximately \$500,000 will be awarded for project periods of three years. The application deadline is **November 30, 1990**. For application packages, contact Energy Department, Acquisition and Assistance Management Division, Office of Energy Research, ER-64, Washington, DC 20585; (301) 353-5544. For program information, contact Ari Patrinos, Atmospheric and Climate Research Division, Office of Health and Environmental Research, ER-76, Washington, DC 20545; (301) 353-4375.

Agency for Health Care Policy and Research

Medical Treatment Effectiveness Program

The Agency for Health Care Policy and Research (AHCPR) (Formerly the National Center for Health Service Research) is inviting applications for research on the effectiveness and appropriateness of health care interventions for a range of acute and chronic conditions. The major areas are:

- Medical effectiveness and patient outcome research grants that support studies of a variety of conditions in all age groups, especially comparisons of alternative treatments for the same condition.
- The design and development of new databases and enhancement of existing databases that are useful for patient outcomes research and clinical decision-making, including development of

Program Information

uniform definitions, common reporting formats, linkages across databases, standards to ensure confidentiality of data and investigations of the validity and accuracy of patient data, and ways to improve the quality, uniformity and relevance of data for medical effectiveness research.

- The support of research projects to evaluate the effect of alternative research dissemination strategies, including development, demonstration and evaluation of dissemination methods to present, publicize and distribute information to diverse audiences, including health care professions.

This is an ongoing program; annual deadlines are February 1, June 1 and October 1. Guidelines may be requested from ORTTA by calling 624-0061.

Commission on the Bicentennial of the United States Constitution

The Commission on the Bicentennial of the United States Constitution has opened the FY 1991 competition of the Bicentennial Educational Grant Program. The Commission continues to encourage proposals that correspond to themes highlighted by the Commission during its five-year commemorative plan.

In this year's competition, the Educational Grant Program encourages the submission of proposals focussing on the Bill of Rights and subsequent Amendments, although any aspects of the Constitution as commemorated through the Commission's five-year focus are eligible. The focus on the Bill of Rights should provide an exceptional opportunity for projects addressing the interaction of a variety of ethnic and minority groups with that document and the subsequent amendments.

Limited funding is available for expanding, replicating, or continuing highly successful educational programs that effectively link the Constitution to civic literacy and responsibility today. A significant aspect of any such program would be the inclusion of a co-curricular activity and/or community involvement component.

Complete program announcements are available from the Commission and may be requested by writing or calling: Commission on the Bicentennial of the United States Constitution, 808 17th Street NW, Washington, DC 20006-3999; (202) USA-1787 / FAX (202) 653-5219.

FYI

Question of the Month

The "Question of the Month" will no longer be a regular feature of the *Research Review*. However, ORTTA will continue to solicit questions for the column and will print such questions as they are received.

If you have a question on sponsored programs or technology transfer that you would like answered, please call or write: Mike Moore, *Research Review*, ORTTA, Administrative Services Building, 5th Floor; 624-9398.

National Invention Center

A new national contest is offering student inventors the chance to win \$5,000.

The annual competition, which is open to all full-time college students, is sponsored by the B.F. Goodrich Company and the National Invention Center, a science and technology museum that sponsors educational programs. The competition is intended to encourage students' interest in scientific problem solving. Entries will be judged by a panel of scientists, physicians, and patent lawyers.

Students are asked to submit inventions in one of three categories: a new and useful process or product; an original design for a product; or a new and distinct breed of plant. Three entrants will be selected to win \$5,000.

Students should send their inventions or their designs to the National Invention Center, 80 West Bowery Street, Suite 201, Akron, Ohio 44308.

Calling All Research Related Ads

ORTTA is considering starting a new section in the *Research Review* to enable U/M researchers to place brief advertisements in the newsletter that are directly related to their research needs. These might include requests for biological materials or samples; offers to share equipment; or indications of interest in specific research collaborations. All contacts and financial arrangements would be the responsibility of the interested parties. If you have a prospective advertisement, please send it to Mike Moore, Editor, *Research Review*, ORTTA, Administration Services Center, 1919 University Avenue, 5th Floor, St. Paul, MN 55104.

Faculty Research Awards

This section contains statistics on proposals and awards recently processed by ORITA. In addition, we have randomly selected awards received by faculty during preceding months. If any faculty member has received an award he or she would like mentioned in future Research Reviews, please call Mike Moore at 624-9398.

Proposal and Award Summary

	Number	Amount
Proposals Submitted		
July, 1990	.236	\$34,672,726
Awards Processed		
July, 1990	.304	23,527,090
Proposals Submitted		
July, 1989	.234	32,941,475
Awards Processed		
July, 1989	.195	12,690,559

Commonwealth Center — Kellogg

Harry C. Boyte, Humphrey Institute

W.K. Kellogg Foundation
\$499,000 / 06/90-05/93

More Options

Jean King, Educational Policy and Administration

Bush Foundation
\$200,000 / 07/90-06/91

Foreign Language Study Across the Curriculum

Michael F. Metcalf, History

National Endowment for the Humanities
\$175,750 / 06/90-05/93

Behavioral Training in Developmental Disabilities

Travis Thompson, Psychology
Alfred F. Michael, Pediatrics

NIH, NICHD
\$158,682 / 07/90-06/91

Genetic Analysis of Cell-Cell Signaling in Myxococcus

James F. Zissler, Microbiology
Gary R. Gray, Chemistry

NIH, NIGMS
\$150,720 / 07/90-06/91

Cognitive Profile Analysis in Alzheimer's Disease

Kathy Christensen, Neurology

Alzheimer's Disease & Related Disorders Association
\$134,088 / 07/90-06/93

Opioids, Amino Acids and the PAG's Involvement in Analgesia

Alvin J. Beitz, Veterinary Biology
Alice A. Larson, Veterinary Biology

NIH, NIDA
\$132,264 / 07/90-06/91

Microenvironmental Control of Monokine Production in Wound Repair

David Knighton, Surgery

USDOD, Navy
\$114,964 / 06/90-05/93

Lake States Regional Forest Resource Assessment

Richard A. Skok, College of Natural Resources

U.S. Department of Agriculture
\$100,000 / 05/90-05/92

Evolutionary Ecology of Black Pineleaf Scale Infestations on Ponderosa Pine

Donald N. Alstad, Ecology, Evolution and Behavior

National Science Foundation
\$100,000 / 06/90-11/91

Cytotoxic Mechanisms of Oxidative Chemical Reactivity

Kendall B. Wallace, Pharmacology, UMD

Environmental Protection Agency
\$50,000 / 07/90-06/92

US/USSR Seminar on Precambrian Geology, the Southern Canadian Shield, and the Eastern Baltic Shield

Richard Ojakangas, Geology, UMD
Priscilla Grew, MN Geological Survey
Glenn Morey, MN Geological Survey

National Science Foundation
\$20,250 / 07/90-12/91

The Analysis of Complex Effluents

Robert M. Carlson, Chemistry, UMD

Environmental Protection Agency
\$50,000 / 08/90-07/92

Structure and Economy of Temperate Europe's First Cities

Peter S. Wells, Center for Ancient Studies

National Science Foundation
\$61,011 / 07/90-12/91

Nature of Two-dimensional, Surface and Bulk Phase Transitions in Liquid Crystals

Cheng-Cher Huang, School of Physics and Astronomy

National Science Foundation
\$210,539 / 05/90-05/93

Multivariate Survival Curve Analysis

Ronald C. Pruitt, School of Statistics

NIH, NIGMS
\$56,936 / 07/90-06/91

Repair and Strengthening of Steel Frames

Roberto Leon, Civil and Mineral Engineering

State University of New York at Buffalo
\$30,000 / 09/90-08/91

Fluid Pathways in Deformation as Traced by Oxygen Isotopes

Christian Teyssier, Geology and Geophysics

National Science Foundation
\$41,057 / 06/90-11/91

Isotopic and Channel Analyses of Selected Minnesota Waters

E. Calvin Alexander, Jr., Geology and Geophysics

St of MN, Pollution Control Agency
\$24,765 / 05/90-06/91

Inhibitor of Myogenic Cell Proliferation

William R. Dayton, Animal Science

Marcia R. Hathaway, Animal Science

National Pork Producers Council
\$13,500 / 07/90-06/91

Methotrexate-Resistance Gene Insertion in Murine Hematopoietic Cells

R. Scott McIvor, Institute of Human Genetics

Leukemia Task Force
\$21,717 / 07/90-06/91

Heparin-Binding and Endothelial Cell Adhesion-Promoting Domains on the Globule of the Long Arm of Laminin

Aristidis S. Charonis, Laboratory Medicine and Pathology

American Heart Association, MN Affiliate
\$24,000 / 07/90-06/91

The Sponsored Project Information Network (SPIN) is a computerized locator system of funding opportunities (federal, nonfederal, and corporate) for faculty and institutional research, development, and education program support. It is available to University faculty and staff through ORTTA.

Based on a description of your research areas and/or the type of support sought, ORTTA staff will search the SPIN Keyword Index to identify sources within specific areas of interest. The Keyword Index, a taxonomy developed by SPIN to catalog funding sources, is divided into the following ten major classifications:

- **Agriculture/Food/Forestry**
- **Arts/Culture/Humanities/Communications**
- **Business/Economics/Management**
- **Education**
- **Health/Medical Sciences**
- **International Affairs/Area Studies**
- **Miscellaneous/Other**
- **Science/Technology**
- **Social/Behavioral Sciences**
- **Social Welfare/Public Affairs**

The result of a search is a set of profiles of applicable funding sources that provides: 1) the sponsor's name; 2) the sponsor's contact address and telephone number; 3) deadline dates; 4) program titles; 5) objectives or interest areas of the sponsor; and 6) restrictions that would affect the submission of a proposal. This set of profiles is sent to the requestor.

SPIN searches are done free of charge to the requestor. A survey of users of SPIN indicates that the information received from a SPIN search was targeted to their request and a reasonable response time was effected.

For further information regarding the SPIN system or to request a search, please contact ORTTA at 624-5750, 624-0061, or 624-9004

Please Note: SPIN searches are also available through the Research and Development Office in the College of Liberal Arts; the Agricultural Experiment Station; the Research Support Office at Duluth; and the Grants Development Office at Morris.

ORTTA TELEPHONE NUMBERS

A Quick Reference Guide

Title and/or Area of Responsibility	Name	Number
Fax Number		(612) 624-4843

Office of Research and Technology Transfer Administration

Associate Vice President, ORTTA	Tony Potami	624-1648
Communications Coordinator	Mike Moore	624-9398
Administrative Coordinator	Carol Perusse	624-6389

Grants and Contracts

Information		624-5599
Assistant Director	Rick Dunn	626-2265
Assistant Director	Mary Lou Weiss	624-5856
DHHS, NIH, ADAMHA, HRSA, OHD, Misc Private Agencies	Mary Lou Weiss	624-5856
NIH, Other DHHS, St. of MN, Counties, Am Heart Assoc	Todd Morrison	624-5066
NIH, Other DHHS, Voluntary Health Agencies, Cities	Kevin McKoskey	624-1521
NSF (Health Svcs), USDA, DOD, NASA, EPA, NEA, AID, Misc Federal Agencies	Merlin Garlid	624-0288
NSF (IT), DOE, DOC, USDI (IT), Misc Fed	TBA	624-5571
NSF (non-Health Svcs, non-IT), Education, USDI		
USDA, NEH, ST of MN, Other State	Rick Dunn	626-2265
To be Determined	David Lynch	624-5571
To be Determined	Liz Klitzke	626-7718
Foundations, Miscellaneous Private Agencies	Judy Krzyzek	624-2546

Patents and Licensing

Director	John Thuente	624-2816
Technology Licensing (IT)	Tony Strauss	624-0869
Technology Licensing (Health Svcs/Ag)	TBA	624-0262
Trademark Licensing	Robert Hicks	626-1585
Technology Licensing	Paul McDowall	625-8826
Grants & Contract Administration	Judy Volinkaty	624-3317

Financial Reporting

Assistant Director	Marilyn Surbey	624-4850
Effort Reporting, Indirect Cost & Other Rate Development	Leslie Estes	624-2040
Financial Reporting, Accounting Questions	Sandy Kenyon	624-2307

Information Services

Assistant Director	Winifred A. Schumi	624-5750
Research Review, Application Materials, Program Announcements	Tove Jespersen	624-0061

Human Subjects Committee

Administrator	Moir Keane	624-1889
Executive Assistant	Ellen Stewart	624-9829

Duluth

Research Support Office	James Loukes	(218)726-7583
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Morris

Grants Development	Tom Mahoney	589-2211 x6450
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ORTTA NEWSLETTER MAILING LIST INFORMATION

Faculty

The Research Review is automatically mailed to all faculty on the Faculty Mail List holding the rank of Assistant Professor and above.

To add/delete/change a faculty name on this list, departmental officers must submit a Staff Directory Card to Administrative Information Services (AIS).

Please check with your departmental office or AIS (624-9000) if you need assistance.

Staff / Off-Campus

ORTTA maintains a Supplemental Mail List for academic staff not included in the above faculty list; for staff; and for individuals off-campus. Additions/changes/deletions to this list may be initiated by filling out and sending ORTTA the following:

Change	☐
Add	☐
Delete	☐

Name

Department

Campus Address (Bldg)



For changes and deletions please enclose your mailing label.



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RESEARCH REVIEW

An Overview of Sponsored Program and Technology Transfer Administration

Research and Technology Transfer Administration

October, 1990

Coping with the Possibility of Federal Budget Cuts

As of this printing, the automatic funding cuts mandated by the Gramm-Rudman legislation loom over the the government's efforts to deal with the federal budget deficit. Understandably, there is great concern among universities and their faculty members that federal research funding may be cut drastically. It is hoped that the possibility of across-the-board cuts will have been avoided by the time this is read, and that the situation for future support will have been clarified somewhat. However, it must be recognized that any negotiated budget agreements arrived at by the President and Congress will be subject to much political posturing, and it may be some months before a clear picture emerges of how research funding will fare in the coming decade of deficit reduction.

Richard Caldecott, President Hasselmo's special assistant for federal relations, is working closely with our congressional delegation and with the Midwest Universities Alliance to provide information on the harm that would be caused by reductions of already strained research and training budgets. He will also be passing along to administrators and faculty any available information as soon as it is received. Next month's *Research Review* will provide an overview of this information and an analysis of its effects on our federally sponsored programs.

An example of the confusing information coming out of Washington, D.C., recently is the fact that the House of Representatives and the Senate appropriations subcommittees voted the National Institutes of Health a 14 percent increase for fiscal 1991 (see page 3), while at the same time the Office of Management and Budget warned that the Gramm-Rudman law might eliminate 9,000 PHS research grants and 28,000 National Science Foundation (NSF) awards. NSF director Erich Bloch responded to the possibility of automatic Gramm-Rud-

man reductions by issuing the important notice reprinted on page 2, stating NSF's intentions to reduce its discretionary activities by 32 percent. Others have mentioned reductions ranging from four to twenty percent in total federal support for academic research.

Realistically, however, according to Tony Potami, associate vice president for research and technology transfer, it is unlikely that cut-backs will exceed 10 to 15 percent for most agencies from which the University receives funding. Some shifts in research emphasis might occur—for example as a result of current environmental concerns. Although it is difficult to predict where—and if—cuts may be made, it is important that

Budget Cuts, Continued on Page 10

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National Science Foundation

Impact of the Gramm-Rudman-Hollings Act in FY 1991 NSF Awards

The new Fiscal Year (FY) will begin on October 1, 1990, but it is unlikely that regular appropriations will be enacted by that time. Unless the Congress and the Administration quickly reach a budget agreement consistent with the deficit targets of the Gramm-Rudman-Hollings Act, the automatic reduction provisions of the Act will take effect on October 1, 1990.

Current projections indicate that budgets of civilian discretionary activities, including NSF, would have to be reduced by 32.4% to meet the deficit limits prescribed by law. Beginning October 1, reductions will be imposed at this rate on funds available to NSF until the deficit limits have been met and regular appropriations have been enacted. In such event, October 1, 1990, NSF will take the following steps affecting awardees:

NSF will continue to make new awards and renewals under the existing programs to the extent funding allows, but delays are likely. NSF's intent is to assure that forefront research and educational activity will continue.

To assure continuation and minimize disruption of scientific work, continuing increments due this autumn will be funded as scheduled, but at a provisional level of only 50% of each committed increment. Award of the balances of committed funds will be subject to the final resolution of the budget situation and will be handled as unilateral supplements, requiring no further action on the part of the grantee institution.

Further information about the status of the NSF budget and final program plans for FY 1991 will be provided when available.

RESEARCH REVIEW

Volume XX/Number 4

October, 1990

Editor: Michael P. Moore

Associate Vice President: A.R. Potami

Research Review is a monthly publication of the Office of Research and Technology Transfer Administration. Its purpose is to inform faculty and administrators who are involved with Sponsored Research and Technology Transfer on procedures and policies of granting agencies; on institutional policy and other information necessary to the preparation of research proposals; and on funding opportunities.

Research Review welcomes ideas and comments from all readers. Write to Research Review at 1919 University Avenue, 5th Floor, St. Paul, MN 55104, or call Michael P. Moore at 624-9398.

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, sex, national origin, handicap, age, veteran status, or sexual orientation.

Indirect Cost & Fringe Benefit Rates

Indirect Cost Rates

The rates for July 1, 1989 through June 30, 1990 are listed below. When budgeting for periods beyond 6/30/90, the 7/1/89-6/30/90 rates should be used. The rate agreement is dated March 28, 1988. This date should be used where required on proposal applications.

	07/01/89- 06/30/90
Research	
On-Campus	44.0
Off-Campus *	21.5
SAFHL	86.6
Hormel	49.5
Other Sponsored Activity	
On-Campus	33.4
Off-Campus *	16.8
Instruction	
On-Campus	68.7
Off-Campus *	27.9

* A project will be considered off-campus if more than 50% of the direct salaries and wages of personnel employed on the project are incurred at a site neither owned nor leased by the University.

Fringe Benefit Rates

If you have questions regarding fringe benefit rate development or need the breakdown of charges, call Vivian Fickling at 624-2009.

Current actual rates through 12/31/90 are:

Faculty	29.00%
Civil Service	24.50%

For proposals being submitted with start dates after January 1, 1991 the estimated fringe benefit rates to be budgeted are:

Faculty	29.00%
Civil Service	24.50%

As rates change, they will be reflected in this section

Save the Patents

On August 25, 1814, the British burned Washington. Dr. William Thornton, Superintendent of Patents, saved the Patent Office from destruction by pleading with the British Commander not to "burn what would be useful to all mankind." During the following year, Congress met in the Patent Office Building (Blodgett's Hotel), while the Capitol was restored.

Committee on the Use of Human Subjects in Research

All Research Requires Review, Irrespective of Funding

The Committee on the Use of Human Subjects in Research reminds investigators and departmental administrators that *all research*: 1) involving human subjects, 2) using records gathered on human subjects, or 3) involving human tissue, requires review prior to initiation, *irrespective of funding*.

Whether grant monies are involved or not, research requires review. The University has filed a formal "assurance of compliance" with the Office for Protection from Research Risks (OPRR). The institution has assured OPRR that it will protect all research subjects as required by federal guidelines. (For more information, see the Regents Policy on the Use of Human Subjects in Research and applicable OPRR Regulations).

If departmental or personal funds are used to support the research, is Committee approval required?

Yes. The Committee is charged with protecting the rights and welfare of all research subjects, not just those subjects who participate in federally funded projects.

If an investigator from the University is participating in a research project at another site, is review by the Committee required, even though no grant monies are involved, or if grant monies are processed through another institution?

Yes. If an investigator is participating in a project at another site, even if that site is the investigator's primary work site, the research is subject to the policies of the University of Minnesota. Reciprocal review of the research may be available if the research has been reviewed by another Human Subjects Committee.

Does student research require review?

Yes. If students are conducting research as part of a class assignment, or as part of the requirement for a degree, and the research involves human subjects, records gathered on human subjects, or human tissue, then the Committee must review the proposed research.

Does a data set gathered for another purpose but applied in a new research project require review?

Yes. Data gathered on human subjects and then used for another purpose requires Committee review. In some cases additional consent forms from the research subjects may be required.

Questions concerning applicability of review policies should be directed to Moira Keane at 624-9829.

Senate and House Subcommittees Appropriate \$8.3 Billion for NIH

Appropriations subcommittees from the Senate and House have marked up a 14 percent increase for NIH's 1991 budget, according to figures released during the second week of September. A major difference between the two recommended budgets is the inclusion by the Senate of \$350 million for research training that was deferred by the House because it was not authorized. The Senate subcommittee's level is \$766.8 million above NIH's FY 90 budget and \$425 million above the President's request for FY 91. Report language and the effects on grant funding for graduate training will not be clear until the full Appropriations Committee considers the budget. However, the Senate concurred with House bill language calling for NIH to formulate fiscal management and long-range plans to stabilize its funding.

As part of its work on the NIH budget, the Senate Appropriations Subcommittee on Labor, Health and Human Services restored the regular program at the National Center for Human Genome Research to the \$103 million requested by the President. The House had recommended about \$66 million for the human genome program. In other areas, the National Institute of Aging

was recommended for the highest dollar and percentage increase, given \$367 million for FY 91 by the Senate, \$137 million more than its FY 90 budget and \$89 million above the House mark.

The Senate subcommittee recommended \$491 million for the Alcohol, Drug Abuse and Mental Health Administration (ADAMHA); this would be an increase of \$101 million over FY 90 funding, and it is \$61 million more than the House figure and \$77 million more than the President requested. The Senate's recommendation for the National Institute for Drug Research is \$38 million above the FY 90 level of \$220 million; it is the same amount requested by the President but \$7 million below the House level. The Senate and House subcommittees agreed on a budget of \$143 million for the National Institute on Alcoholism and Alcohol Abuse, a level \$12 million higher than last year's and about \$6 million above the President's request.

Final Congressional action on NIH and ADAMHA budgets is likely to be postponed until after completion of negotiations on reducing the federal budget deficit.

National Science Foundation

Changes to NSF's Proposal Review System

On July 17, 1990 the National Science Foundation (NSF) released Notice No. 109, entitled Changes to NSF's Proposal Review System. Following is the Notice in its entirety.

This notice advises proposers, reviewers, administrators of proposing organizations, and the public of three important changes to NSF's proposal review system. It also describes the authority of NSF program officers to resolve matters raised by reviewers before NSF acts to award or decline a proposal.

NSF will now provide:

- 1) an opportunity for Principal Investigators (PIs) to suggest names of persons who should not be asked to review their proposals;
- 2) additional information to PIs whose proposals have been declined about the context and reasons for the declination; and,
- 3) guidance for PIs and their institutions who wish to request reconsideration of declined proposals on the basis of the substance, as well as the process, of the review.

The changes described below have been incorporated into the revision of the Foundation's *Grant Policy Manual* and will be included in the next edition of the brochure containing application forms and general information (known as *Grants for Research and Education in Science and Engineering*).

Reviewer Recommendations From Proposers

For some time the Foundation has invited PIs to suggest names of persons especially well qualified to review their proposal. PIs may now also suggest a brief list of persons who should not be asked to review a particular proposal. NSF program officers will honor such requests where possible and if promptly made, and may consult with the PI regarding the reasons. Selection of reviewers remains fully within a program officer's authority and discretion.

Additional Information about Declinations

More than two-thirds of proposals to NSF are declined, often for budgetary and programmatic reasons not directly related to the research or educational merit of specific proposals. PIs receive verbatim copies of the reviews of their proposals (and panel summaries where

panels have been used), and are encouraged to contact the program officer if further information is desired.

Effective August 1, 1990, each PI whose proposal is awarded or declined will also receive a written description of the process by which his or her proposal was reviewed and the context of the decision (such as the number of proposals and awards, and information about budget availability). If the proposal was not reviewed by a panel, or if the panel summary does not clearly explain the basis for declining the proposal, the PI will receive an explanation for the declination with the above documents or separately by letter, telephone or electronic mail.

Clarification of Reconsideration Policy

Under existing policy, a PI may request additional information from the relevant program officer about the declination of his or her proposal, or its return as inappropriate for NSF review. If not satisfied with the program officer's explanation, the PI may ask the cognizant Assistant Director to reconsider the action; if still not satisfied, the PI's institution may ask the Foundation's Deputy Director for further reconsideration.

Although the wording of that policy did allow for reconsideration on the basis of the substance of the decision, it was widely interpreted to pertain to the process of review only. The wording has been revised to make clear that the PI may ask the cognizant Assistant Director to determine whether the proposal received a review that was fair and reasonable, both substantively and procedurally.

The request for reconsideration must be in writing and received within 90 days of the date of the declination letter. Any further request to the Deputy Director must also be in writing and received by the Foundation within 60 days after the Assistant Director has notified the PI of the outcome of the initial reconsideration.

The program's budget, its priorities, and NSF-wide policies and priorities at the time of the decision will be taken into account when the action is reconsidered. As before, no revisions made to a proposal after declination will be considered in connection with a reconsideration. Also, as before, a revised proposal that addresses reviewers' comments may be submitted for a new review under the standard procedures, in lieu of formal reconsideration request.

NSF Proposal Review, Continued on Page 10

National Science Foundation

Changes in Procedures for Handling Final Project Reports

Following is the complete text of Important Notice No. 110 issued by the National Science Foundation on August 24, 1990.

NSF Grant Terms and Conditions require that a brief Final Project Report (NSF Form 98A) for each grant be sent to the cognizant NSF Program Officer within 90 days after the expiration of a grant. Final Project Reports provide information, available to the public, on the results of NSF-supported projects. They also provide human resources data vital for planning.

Grantee institutions have a responsibility to assure compliance with this requirement for each grant. Generally, Principal Investigators are expected to assume responsibility for preparing this summary of the outcome of their NSF-supported work. In the past few years, however, compliance with this grant condition has eroded.

The purposes of the Important Notice are to:

- reaffirm the importance of the requirement;
- implement a new procedure to encourage and ease compliance by investigators and grantee organizations;
- indicate how NSF intends to ensure improved grantee compliance with this grant requirement; and
- announce the revision of NSF Form 98A, effective October 1, 1990.

To make submission of NSF Form 98A easier for Principal Investigators and grantees, NSF will automatically provide a partially completed NSF Form 98A and a postage-paid return envelope to each PI prior to a grant's expiration. [A sample of the revised form is available from ORTTA.]

The first mailing, in mid-September 1990, will be to PIs who have delinquent NSF Form 98As as of that date and those who have awards with expiration dates between June 30, 1990 and October 31, 1990. After the initial mailing, forms and return envelopes will be sent 30 days prior to award expiration dates. **Beginning October 1, 1990, only final reports in the new format will be accepted by NSF.**

Currently, Principal Investigators and Co-principal Investigators are precluded from receiving additional NSF support if a Final Project Report for an expired grant is overdue. This policy will continue. NSF also may take

action with respect to grantee institutions that have not assured that final reports are submitted to NSF. In extreme cases this could result in suspension and debarment in accordance with current policies. To assist grantee organizations with compliance, NSF identified delinquent NSF Form 98As as a separate attachment to the quarterly Federal Cash Transaction Report.

While NSF does not require authorized institutional representatives to co-sign NSF Form 98As, institutions may wish to set up an internal control system to trace submission of NSF Form 98As. *

Procedures for electronic submission of NSF Form 98A will be made available at a later date.

To reduce the paperwork burden on Principal Investigators and grantees, NSF Form 98A has been revised in several ways:

- identifying data are provided automatically; PIs only need to add an attention line to pre-addressed envelope directing the report to the cognizant Program Officer;
- Part II has been streamlined; and
- Part IV has been revised for clarity and to include more precise ethnic definitions as recommended by the Intergovernmental Task Force on Women, Minorities, and the Handicapped in Science and Technology.

These changes will be incorporated into the next version of *Grants for Research and Education in Science and Engineering*.

- * Note from ORTTA: In order to assure proper tracking of report submission, PIs should continue to submit their final reports through ORTTA.

Reaping the Benefits

On June 21, 1834, Cyrus H. McCormick of Virginia received a United States patent for his reaper. The invention, one of America's greatest contributions to agricultural advancement, made the vast grain fields of the Midwest and West available for full production and assured a sufficient supply of cereals for the world's needs.

National Science Foundation

College and University Innovation Research: The Academic SBIR Program

The National Science Foundation has given the go-ahead to a prototype program that would spur university technology development the way the government-wide Small Business Innovation Research (SBIR) program fosters private efforts.

NSF's policy board approved the program at its mid-August meeting, paving the way for what NSF Director Erich Bloch said would be an experimental first year. NSF has budgeted \$420,000 for an initial 9 or 10 awards. The program eventually could catch on like SBIR, which began as a special NSF project in the late 1970s and now annually funds \$400 million in high-tech projects across domestic and defense agencies.

If things go as planned, NSF will soon issue a program announcement inviting university researchers to apply for feasibility grants to test new marketable technologies. Eligible applicants for the College and University Innovation Research (CUIR) program would be universities, two-year colleges and nonprofit research institutions in partnership with small, technology-intensive firms. NSF would fund proposals in its normal program areas. In general, the program is designed to mimic SBIR in intent and overall organization. Like SBIR, CUIR aims at translating technology-related research results into commercial products.

CUIR would, like SBIR, have three stages: a Pilot phase to scope out ideas; an intensive research phase to determine whether development is warranted; and a final, privately funded development and commercialization phase. Funding for phase I pilot studies would be limited to \$50,000. Promising phase I projects would receive \$250,000 in the two-year phase II stage.

Under SBIR, science funding agencies encourage small business applicants to connect with universities, and many do. Under CUIR, universities and colleges would be required to negotiate research partnerships with industry early on. A partnership would have to be in place by phase II. During phase I, academic researchers and their small-business partners would identify the market into which the innovation fits and begin looking for future support.

CUIR has included a special feature designed to encourage participation by less-funded institutions. Current plans call for review to emphasize the impact of a university's research and technology transfer on economic development in its region, as well as overall commercial potential and scientific merit.

Although NSF is ready to launch the program within months if Congress provides the funds, staff concede there still are major issues to resolve. Chief among them is the question of who will pick up the tab for the more expensive phase II research. Plans now indicate NSF would provide no phase II funds. Instead, other federal agencies, states active in technology transfer, or even private firms would be phase II sponsors.

Despite congressional and academic interest, the CUIR program raises a number of questions.

- One is who will benefit. Some colleges and universities are at a disadvantage because they have few if any research-oriented small businesses in their areas and faculty have little experience with university-business partnerships. Others are way ahead of the game, have their own technology incubators and technology transfer centers, and don't need NSF's help.
- Other questions center on program design. Academic representatives worry that uncertainty over phase II funding undermines the program plans and raises the possibility of potential abuse by investigators who aren't serious about commercial applications and merely are seeking short-term research funds.
- Conflict of interest also is a concern, especially for state universities that are worried about exploitation of university resources for private gain.

Answers are likely to emerge as the program develops. Because phase I projects will take a year, NSF has until 1993 to work out phase II sponsorship. The initial program solicitation will provide some guidance on conflict of interest problems and NSF will develop more procedures along the way.

Reprinted from the Federal Grants and Contracts Weekly, August 27, 1990

People Transfer

"Technology doesn't transfer unless people do," says Energy Secretary James Watkins, quoted in *The Scientist* newspaper. Reasonable policies to clarify potential conflicts of interest need to be established, Watkins told a Senate energy research subcommittee in July, so that scientists can "go from labs to industry and back again without going to jail."

Licenses Negotiated

April - June, 1990

- 1) Title: MAC Cross-Sectional Anatomy**
Purpose: Educational software for medical students studying anatomy.
Licensee: Squid Software, Mahtomedi, Minnesota
Inventor: Jonathan Parsons, Cell Biology & Neuroanatomy
- 2) Title: A Method for Inhibiting Virus Replication in Mammalian Cells using Pokeweed Antiviral Protein – Monoclonal Antibody Conjugates**
Purpose: Antiviral-antibody for virus inhibition in humans.
Licensee: Oncogen (Bristol-Myers Squibb), Seattle, Washington
Inventor: Fatih Uckun, Therapeutic Radiology
- 3) Title: Nutritional Support During Hypermetabolism, and Enhancement of Host Defense Mechanisms**
Purpose: Enteral (mouth) and parenteral (vein) nutrition effects on metabolic response in humans.
Licensee: Sandoz Nutrition Corporation, Minneapolis, Minnesota
Inventor: Frank Cerra, Surgery
- 4) Title: Drug Injection Animal Capture Collar**
Purpose: Allows safe and less stressful recapture of animals with a radio-controlled collar containing tranquilizers.
Licensee: Wildlink, Incorporated, Brooklyn Park, Minnesota
Inventors: Richard Chapman, Entomology; David Mech, Fisheries and Wildlife
- 5) Title: Multiple Arc Plasma Device with Continuous Gas Jet**
Purpose: A relatively low temperature (800° C) method of coating materials with exceptionally durable Group III metal nitrides.
Licensee: Crystalline Materials, Inc., San Ramon, California
Inventor: Emil Pfender, Mechanical Engineering
- 6) Title: Honeycrisp Apple**
Purpose: A patented plant variety rated superior in texture, juiciness and storage vigor.
Licensees: Oregon Rootstock and Tree Company, Woodburn, Oregon
 Newark Nurseries, Hartford Michigan
Inventor: James Luby, Horticultural Science and Landscape Arboretum

U.S. Patents Issued

April - June, 1990

- 1) Title:** **Intelligent Insert with Integral Sensor**
Integral Acoustic Emission Sensor for Manufacturing Processes and Mechanical Components

Purpose: Two patents related to a high-speed cutting insert or tool carrying an integrally mounted sensor to permit the sensor to continually monitor machining action on the cutting edge to determine whether the tool is operating efficiently and effectively.

Inventors: Subbiah Ramalingam; Darrell Frohrib, Mechanical Engineering
- 2) Title:** **Electronic Pressure Algometer Apparatus and Method**

Purpose: Two pressure algometer apparati, one electronic and one mechanical, for diagnosis of muscle pain or tenderness when subjected to pressure. The apparati provide subjective data that are helpful in clinical and research evaluations of pain perception and rehabilitation.

Inventors: Eric L. Schiffman; James Friction, School of Dentistry
- 3) Title:** **Method and Device for Pharmacological Control of Spasticity**

Purpose: A bladder management method and apparatus particularly directed toward patients with spinal cord injuries who are unable to urinate; urinary infections and blood pressure spikes are hereby avoided.

Inventor: Dennis Dykstra, Physical Medicine and Rehabilitation
- 4) Title:** **Amplitude and Frequency/Phase Modulated Pulses to Achieve Plane Rotations of Nuclear SPIN Magnetization Vectors with Inhomogeneous B1 Fields**

Purpose: This invention relates to the field of magnetic resonance imaging (CAT Scans and Spectroscopy) and provides techniques that create an improved uniform transient magnetic field for better imaging.

Inventors: Michael Garwood; Kamil Ugurbil, Gray Freshwater Biological Institute
- 5) Title:** **Optically Active Isomers of Dideoxycarbocyclic Nucleosides**
Dideoxycarbocyclic Nucleosides

Purpose: Two patents for chemically related antiviral compounds.

Inventors: Robert Vince; Mei Hua, Medicinal Chemistry
- 6) Title:** **Cervical Range of Motion Measuring Device**

Purpose: The CROM device is an apparatus and method for measuring neck and spinally injured persons' cranial motion vertically, horizontally and from side to side.

Inventors: John D. Allison, Physical Medicine and Rehabilitation
- 7) Title:** **System for Airborne Particle Measurement in a Vacuum**

Purpose: A particle measurement apparatus for obtaining accurate information relating to airborne particles in a gas under vacuum from a process changer suited for fabrication of integrated circuit manufacture in the microelectronic industry.

Inventors: Wladyslaw W. Szymanski; Benjamin Liu, Mechanical Engineering

Continued On Page 9

- 8) Title:** **Process for the Chemical Vapor Deposition of Aluminum**
Purpose: This invention relates to the formation of mirror-like thin films of aluminum at relatively low temperatures, which allows for the coating of such substances as plastic that were heretofore unsuitable for aluminum coatings.
Inventors: Wayne L. Gladfelter, Chemistry; David C. Boyd, Chemical Engineering
- 9) Title:** **Cardiac Assist Pump with Steady Rate Supply of Fluid Lubricant**
Purpose: A centrifugal pump for left ventricle assist for persons with inadequate blood pressure as a result of heart failure. It can be used to help the person survive until the heart recovers or until a donor heart becomes available for transplantation.
Inventor: Frank Dorman, Mechanical Engineering

Fringe Benefit Rates

**The Fringe Benefit Rates shown below will be charged against salaries during the period
July 1, 1990 through December 31, 1990**

	<u>ACADEMIC %</u>	<u>CIVIL SERVICE %</u>
Health Plan (H)	6.17	9.71
Unemployment Compensation (U)	.03	.26
Worker's Compensation (W)	.00	1.51
Tuition Benefits (T)	3.00	1.08
Group Life and Disability (G)	.30	.00
Retirement (R)	12.50	4.29
F.I.C.A. (F)	<u>7.00</u>	<u>7.65</u>
TOTAL	29.00	24.50

**The following estimated rates should be used for budgeting on sponsored project proposals
beyond December 31, 1990**

NONSTUDENTS	<u>ACADEMIC %</u>	<u>CIVIL SERVICE %</u>
0-74% (hired before 4/1/86)	.03 (UW)	13.71 (UWRF)
0-74% (hired after 4/1/86)	1.48 (UWM)	13.71 (UWRF)
75-99% (hired before 4/1/86)	9.20 (HUWT)	24.50 (HUWTRF/G = Op)
75-99% (hired after 4/1/86)	10.65 (HUWTM)	24.50 (HUWTRF/G = Op)
100%	29.00 (HUWTGRF)	24.50 (HUWTGRF/G = Op)
STUDENTS*		
25 - 74%	3.00 (WT)	
75-100%	9.17 (HWT)	
*Eligible Classes: 9511; 9521; 9531; 9538; 9539; 9540; 9544; 9549; 9553; 9554; 9557; 9564		

**Please call Vivian Fickling, Accounting Records and Services, 624-2009
with questions regarding fringe benefit rate development**

NIH Announces New Office of Women's Health Research

William Raub, acting director of the National Institutes of Health, announced September 10 that NIH has established a new Office of Women's Health Research. Ruth Kirschstein was named acting director of the new office, while continuing as director of the National Institute of General Medical Sciences.

Raub said the new office will have the authority and responsibility to act with and on behalf of the NIH director to monitor and coordinate NIH women's health issues. The office will also be charged with assuring compliance with NIH policy on including women in clinical studies in general and in clinical trials in particular. The office's funding for fiscal year 1991 will come from the Office of the NIH Director's budget.

Kirschstein said that one of the new office's initial activities will be to organize a major conference this fall at which a broad spectrum of basic and clinical investigators, practitioners, and women's health advocates will work toward an agenda for NIH research on women's health.

Budget Cuts, Continued From Page 1

the University begin discussions on how to deal with this possible problem, Potami says. The Office of Research and Technology Transfer Administration will continue its efforts to alert faculty to changes in policy and project emphases, and to help departments and colleges detect and respond to trends in external funding.

The threat of reduced funding, especially for NIH and NSF, has been made repeatedly for the past several years. Nevertheless, we have not experienced any overall reduction at our institution. The current situation may be a bit more alarming, although it is difficult to assess accurately how the University might be affected. Potami does not believe at this time that the University can or should develop any significant contingency plan to address a possible multimillion-dollar reduction. Individual investigators and their departments and colleges should, however, be prepared for some cuts and should adjust their project expenditures accordingly until the funding picture clarifies.

The *Research Review* will keep the University community as well informed as we can regarding this important issue.

An Overview of Indirect Cost Recoveries and Research Support

During the past six years the State Legislature has responded favorably to University of Minnesota requests for the establishment of a Research Support Fund derived from Indirect Cost Recoveries of the University's externally sponsored research, training, and public service activities. The tables on the next three pages provide an overview of allocations from the Research Support Fund and of Indirect Cost Recoveries generated by collegiate units.

Schedule I provides information regarding the overall institutional allocations of Research Support Funds for this fiscal year.

Schedule II contains collegiate Research Support Fund allocations for fiscal years 1984-91. The formula allocations for FY91 are based on the latest three-year running average (FY87-89) of Indirect Cost Recoveries from Schedule III. Please note that matching and set-up funds committed for fiscal year 1991 are as of this printing and are subject to change if matching grants or set-ups are not awarded or completed.

Schedule III is a 14-year history (FY 76-FY 89) of Indirect Cost Recoveries generated by collegiate unit. The FY 90 ICR data will be available from the Office of Research and Technology Transfer Administration late this year.

NSF Proposal Review, Continued From Page 4

The revised wording also makes clear that prior to a reconsideration request, the PI should contact either the program officer or the appropriate division director for additional discussion of the reason(s) for the declination.

Additional Topic: Handling of Matters Raised by Reviewers

Reviewers sometimes raise scientific, administrative, or other matters that should be resolved before the Foundation awards or declines a proposal. In cases where action on the proposal would be significantly affected, program staff are to contact PIs for additional information in order to resolve the matter within a reasonable time before recommending whether to award or decline the proposal. Program staff are directed to refer any allegations of fraud, plagiarism, misconduct or similar activities to NSF's Office of the Inspector General.

Fiscal Year 1991 Indirect Cost Recovery Report

Schedule I

Research Support Funds

	Expenditures	Balance
A. Total Available Fund for 1990-91		\$32,500,000
1. Projected Revenue (ICR)		34,500,000
2. Balance forward from FY 1990		4,500,000
3. State Offset	(6,500,000)	
B. Direct Return to Managing Areas *	(1,100,000)	31,400,000
C. System-Wide Activities	(8,572,508)	22,827,492
1. a) ORTTA (1114;1115;1120) \$280,000 soft	(3,522,200)	
1. b) ORTTA Rent	(300,000)	
2. Grad School Research Cntr (1128) \$25,000 soft	(218,239)	
3. Grad Research Grants (4908)	(461,518)	
4. High Tech Computing	(350,000)	
5. Networking	(650,000)	
6. Radiation & Environmental Health (1418) \$92,588 soft	(377,078)	
7. Research Animal Resources (1559) \$242,600 soft **	(1,429,895)	
8. Solid & Hazardous Waste (6960/63)	(1,096,738)	
9. Technical Services Shops (1404)	(166,840)	
D. Campus-Wide Allocation (TC)	(5,593,605)	17,233,887
1. Health Science Chemical Facility (4965)	(79,825)	
2. a) Library Acquisitions (18xx)	(3,888,597)	
2. b) Library Automation (6 yrs to FY 92)	(325,183)	
3. NMR (3rd of 5 yrs to FY 93)	(1,000,000)	
4. Vibration Free Facilities (10 yrs to FY 99)	(300,000)	
E. Formula Distribution (See Schedule II, column 14)	(8,303,055)	8,930,832
1. Departmental Units (allocated for administration of research)	(3,104,574)	
2. Collegiate Units (includes \$386,220 to Duluth ***)	(5,198,481)	
F. Allocations to Collegiate Units ****	(8,883,242)	47,590
(See Schedule II, column 13)		

* Off-campus research activities

** \$25k for Alternative Testing is in the soft money allocation of \$243k in Line C-7 (Research Animal Resources)

*** Different base is used for computing Duluth allocation

**** Medical School and IT Equipment Maintenance and Repair (\$310k) are part of Line F (Allocation to Collegiate Units).

Schedule II
Research Support Fund Distribution Allocations

Unit	1984-85 *	1985-86	1986-87	1987-88			1988-89			1989-90			1990-91 **		
	1984-85 Total Allocations (1)	1985-86 Total Allocations (2)	1986-87 Total Allocations (3)	Matches Set-Ups Research (4)	Formula Allocations 11/20/87 (5)	1987-88 Total Allocations (6)	Matches Set-Ups Research (7)	Formula Allocations 12/06/88 (8)	1988-89 Total Allocations (9)	Matches Set-Ups Research (10)	Formula Allocations 11/17/89 (11)	1989-90 Total Allocations (12)	Matches Set-Ups Research (13)	Formula Allocations 7/24/90 (14)	1990-91 Total Allocations (15)
Crookston															
Duluth	15,780	84,648	436,644	10,000	100,000	110,000	90,000	204,743	294,743		335,400	335,400		386,220	386,220
Morris		75,944	32,000	35,622		35,622	10,000		10,000	55,557	2,500	58,057	1,250	1,472	2,722
Twin Cities															
IAFHE	2,160	6,195	5,100		13,152	13,152		12,800	12,800		8,700	8,700	450,000	13,702	463,702
Agriculture	83,560	145,399	292,413	270,000	113,524	383,524	252,000	87,600	339,600	575,000	115,900	630,900	13,333	125,808	139,141
Forestry	10,880	12,622	37,250	96,500	12,340	110,840		8,200	8,200	110,000	15,600	125,600		14,350	14,350
Human Ecology	10,530	39,601	17,160	61,580	17,182	78,762	100,066	28,600	128,666	35,145	47,200	82,345	64,606	36,842	101,448
Biological Sciences	223,140	972,547	1,149,800	1,137,494	184,159	1,321,653	# 434,300	@ 172,700	607,000	378,900	@ 241,100	620,000	244,367	@ 255,633	500,000
Continuing Ed & Ext	2,900	1,515	4,650					5,100	5,100		3,100	3,100		3,905	3,905
Education	31,450	77,293	160,117	47,500	87,621	135,121	296,574	104,000	400,574	230,000	139,800	369,800	230,000	131,355	361,355
General College	2,290	2,308	4,200	1,680	4,447	6,127		5,100	5,100		4,600	4,600		5,614	5,614
Graduate School	61,540	261,619	130,000	551,033	10,875	561,908	301,836	14,300	316,136	692,320	12,400	704,720	220,320	98,436	318,756
HMH Institute		616	3,200		284	284	50,000	1,300	51,300	50,000	3,500	53,500	120,000	2,017	122,017
Law (incl Library)	430	9,473	2,850		1,283	1,283	550,000	1,400	551,400	14,805	1,600	16,405	14,805	1,709	16,514
Liberal Arts	119,560	174,354	269,831	594,418	95,014	689,430	# 549,185	@ 96,900	646,085	815,970	@ 117,400	633,370	392,987	@ 122,600	515,587
Management	1,040	11,045	378,967	359,280	4,325	363,605	352,250	5,700	357,950	535,700	12,600	548,300		8,973	8,973
Technology	1,245,190	1,539,679	3,446,366	3,168,180	650,000	3,818,180	# 3,806,352	@ 757,400	4,563,752	3,748,569	@ 838,600	4,587,169	4,195,550	@ 954,450	*@5,150,000
University College															
Health Sciences	813,700		632,100		11,538	11,538	#1,827,500	18,800	1,846,400	#1,640,000	500	1,640,500	#1,857,600	5,327	*# 1,862,926
Dentistry	14,430	46,747	48,900		44,421	44,421		49,900	49,900		71,400	71,400		65,682	65,682
Medical School	404,080	863,920	1,276,600	288,894	1,490,955	1,779,839		1,674,300	1,674,300	1,456,324	1,970,300	3,426,624	750,000	2,035,034	2,785,034
Medicine - Duluth	12,570	58,147	67,052	25,000	49,565	74,565		58,200	58,200		66,900	66,900		69,203	69,203
Nursing	1,220	2,308	3,150		3,279	3,279		7,400	7,400		6,300	6,300		6,731	6,731
Pharmacy	6,600	20,485	78,152	17,245	29,681	47,126	7,728	39,000	46,728		38,800	38,800		42,644	42,644
Public Health	122,330	283,829	420,150	50,000	537,384	587,384		587,300	587,300	213,168	637,000	850,168	57,350	698,075	755,425
Special Programs	12,880	22,187	715,000		256	256		1,300	1,300		9,900	9,900		54,303	54,303
Veterinary Medicine	50,655	98,971	107,850	496,000	37,199	535,199		54,600	54,600		45,500	45,500		11,403	11,403
Other	19,490	313,916	156,249	830,114		830,114	2,460,230	60,896	2,521,126	1,287,180	114,700	1,401,880	253,750	46,992	300,742
Waseca												0			0
Total	3,268,404	5,125,366	9,875,748	8,044,524	3,498,679	11,543,206	11,088,001	4,057,639	15,145,640	11,538,638	4,861,300	16,399,938	8,865,918	5,198,480	14,064,398

* 84-85 Distribution of ICR includes some commitments made in 83-84

** ICR Allocations made but not necessarily distributed

Amount includes some commitments made prior to lump sum allocation agreement

@ Included as part of a lump sum allocation for setups, matches, and faculty research

1 million from central reserves allocated for NMR Project

*@ Includes \$1,110,000 in its printed budget

*# Includes 200k for equipment maintenance and repair

Schedule III
Income from Indirect Cost Recovery by College (Research & Non-Research)

Unit	FY76 (A)	FY77 (B)	FY78 (C)	FY79 (D)	FY80 (E)	FY81 (F)	FY82 (G)	FY83 (H)	FY84 (I)	FY85 (J)	FY86 (K)	FY87 (L)	FY88 (M)	FY89 (N)
Crookston	916	1,975		111	40	231	260	2,795			1,995	1,614	3,341	3,794
Duluth	131,508	148,972	212,071	264,121	347,648	444,394	463,483	504,483	553,503	566,995	399,013	432,940	385,378	441,929
Morris	32,667	14,900	40,853	15,125	46,263	136	433	3,088	9,520	5,677	14,954	421	8,605	19,879
Twin Cities IAFHE:				524,879		676,667								
Agriculture	296,521	316,673	433,371		571,299		588,861	627,942	698,916	781,509	767,630	892,831	671,472	906,403
Forestry	29,946	20,132	17,583		58,559		47,860	25,184	51,371	37,790	83,997	97,049	62,734	122,027
Human Ecology	63,137	46,445	29,896		24,331		17,328	42,627	36,613	63,180	42,845	135,129	219,122	369,283
Special Programs	93,543	52,680	16,616		32,328		48,102	35,550	44,979	64,678	94,129	103,437	97,970	67,685
Biological Sciences	423,889	498,435	573,459	732,327	1,025,816	995,216	1,113,630	1,270,871	1,321,795	1,404,145	1,614,718	1,613,994	1,520,947	1,885,754
Continuing Ed & Ext	27,119	39,837	31,356	53,498	62,102	76,847	64,381	62,465	45,738	15,714	6,512	13,451	38,723	24,504
Education	546,516	512,510	489,300	515,589	741,695	791,360	836,970	594,748	578,753	717,792	594,717	689,110	797,264	1,093,286
General College	10,395	21,444	38,439	26,110	37,970	32,620	41,813	54,617	30,952	24,080	26,953	34,972	39,095	36,174
Graduate School	305,991	312,847	405,462	548,909	473,223	501,392	618,024	748,930	734,257	788,647	791,966	732,954	619,560	580,623
HHH Institute	15,684	6,694	1,044	928	(478)	2,227	3,545	1,332	5,103	6,427	18,687	2,234	9,652	27,710
Law (incl library)	459,327	510,495	670,249	789,756	971,541	807,054	620,137	509,047	389,637	481,732	539,885	747,254	10,090	12,730
Liberal Arts	12,335	23,253	31,348	32,006	22,370	53,061	41,219	7,576	31,036	114,706	95,567	34,013	742,275	916,174
Management	1,881,428	2,061,178	2,198,858	2,611,287	3,103,866	3,554,321	3,942,938	4,317,891	4,686,060	4,881,695	5,522,637	5,877,671	6,307,326	6,559,153
Technology	1,961	15,670	9,557	1,499				1,600	1,004		4,605	(5,174)		
University College														
Health Sciences:				458,340	244,851							90,743	9,973	3,881
Dentistry	214,063	188,705	151,462	168,714	195,140	235,925	344,150	281,071	257,284	383,418	413,522	349,360	382,357	558,177
Medical School	4,262,335	4,251,294	4,412,323	4,952,493	6,348,192	6,565,001	7,271,047	7,465,996	7,610,637	8,544,711	9,510,107	11,725,691	12,628,106	15,411,382
Medicine-Duluth											336,661	389,615	446,210	523,023
Nursing	45,828	60,555	58,727	76,883	85,188	103,699	55,722	28,473	17,130	24,079	18,482	25,788	56,907	49,486
Pharmacy	70,883	58,831	64,005	81,009	108,249	130,196	131,397	113,784	132,633	151,392	184,532	235,005	296,973	303,482
Public Health	579,409	493,798	664,382	1,003,153	1,227,342	1,580,935	1,968,574	2,022,844	2,541,305	2,961,501	4,273,131	4,226,357	4,500,182	4,982,739
Veterinary Med	78,352	101,390	113,907	81,884	105,541	138,975	121,920	133,269	180,379	171,130	275,185	292,560	418,020	355,858
Special Programs	211,385	331,439	349,785		413,947		205,127	274,059	206,634	231,466	259,055	2,014	144,855	77,055
Other Miscellaneous	179,237	229,940	245,528	53,636	318,256	254,234	379,725	679,487	418,562	49,227	543,326	426,514	68,546	413,170
Waseca	2,191	3,336	3,546	3,663	7,709	7,322	7,514	7,060	3,448	772	1,742	2,126	502	3,230
Total	9,976,586	10,323,608	11,263,127	12,995,820	16,328,137	17,216,666	18,633,960	19,816,799	20,580,628	22,443,050	26,440,799	29,177,837	30,731,995	35,849,091

Data Source: Office of Research and Technology Transfer Administration

NIH/ADAMHA Policy Concerning Inclusion of Women in Study Populations

Following is a Policy Notice published in the August 24, 1990 NIH Guide

The National Institutes of Health (NIH) and the Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) recognize that most researchers adequately and appropriately consider gender representation in clinical research design. Nevertheless, the following statement is published as a reiteration and further interpretation of the existing NIH/ADAMHA policy concerning inclusion of women in study populations. Clinical research funding should be of benefit to all persons at risk of disease, regardless of gender.

This policy was previously published in the NIH guide for Grants and Contracts on October 24, 1986; January 23, 1987; March 27, 1987; January 15, 1988; and June 16, 1989. For the purpose of this policy, clinical research includes human studies of etiology, treatment, diagnosis, prevention, and epidemiology of disease, including but not limited to clinical trials. While this policy statement refers to inclusion of women, applicants are strongly reminded that a similar policy exists regarding the inclusion of minorities (NIH Guide for Grants and Contracts, September 25, 1987; January 15, 1988; and June 16, 1989). Both policies must be considered when preparing clinical research applications/proposals for submission to NIH/ADAMHA.

Public concern requires that clinical studies include both genders in such a way that results are applicable to the general population; exceptions would be those diseases or conditions that occur only in one gender. Therefore, applications/proposals for NIH/ADAMHA support of clinical research should employ a study design with gender representation appropriate to the known incidence/prevalence of the disease or condition being studied. If inclusion of women is impossible or inappropriate with respect to the purpose of the research, the health of the subjects, or other reasons, or if in the only study population available there is a disproportionate representation of one gender, these reasons for excluding women or men must be well explained and justified by the applicant. Similar justification is required if women will not be included in numbers appropriate to the incidence/prevalence of the disease.

In conducting peer review for scientific and technical merit, members of Initial Review Groups (IRGs)/Technical Evaluation Groups (TEGs) will be instructed to evaluate the proposed gender composition of the study population.

- 1) If there is an inadequate number of women in a study design *and* this affects the potential to answer the scientific question(s) addressed, that will be considered a weakness or deficiency in the study design and should be reflected in the assigned score given to the application/proposal, and in the summary statement of the review.
- 2) If an applicant proposes that there is justification for conducting a study in men only, or in a study population in which the proportion of women does not reflect the gender prevalence of the disease or condition under study, a strong scientific rationale, an explanation of the need to protect the health of the subjects, or other well-supported justification must be provided. The IRG/TEG will be instructed to evaluate the merit of such justifications. Appropriate justification will not adversely affect the assigned score. NIH/ADAMHA will not fund such applications/proposals unless the justification provided is compelling.
- 3) If the gender composition of the study population is not described, *but* the study otherwise has the potential to answer the scientific question(s) posed and translate the findings to all persons at risk of the disease, the omission will be documented by the Executive Secretary of the IRG/TEG in an administrative note, and will not adversely affect the scientific assessment and the assigned score. If there is inadequate information on the study population to allow evaluation of the scientific question(s), the review may be deferred. NIH/ADAMHA funding components will not fund/award grants or contracts until the applicant provides sufficient information on the study population to assure compliance with NIH/ADAMHA policy on inclusion of women in study populations.

Since the need to modify sample design could delay award and affect the costs of the study, applicants are strongly advised to address this issue in the initial submission. If costs or study designs are significantly affected by such modification, submission of an amended application/proposal for IRG/TEG review and/or reconsideration by the appropriate National Advisory Council or Board may be necessary.

Whenever there are scientific reasons to anticipate differences between men and women with regard to the hypothesis under investigation, applicants should consider the inclusion of an evaluation of gender differences

Women, Continued on Next Page

ACADEMIA IN REVIEW!

October 10, 1-3 p.m., Coffman Union Great Hall

Where Tradition Meets the Future is this year's homecoming theme and the focus of Academia in Review, a research fair that will explore the future of knowledge and technology evolving through University of Minnesota research. The fair will feature exhibit topics from 30 departments, including such subjects as:

- biological breakdown of pollutants
- teaching law through interactive video-disks
- restoring populations of peregrine falcons
- risk reduction by the Minnesota Heart Health Program
- regulation of the insulin receptor
- biotechnology in food processing
- proteins in inherited muscle disease
- urban design along the Mississippi River
- communication for children with hearing impairments

... and many more!

This will also be a second chance for those of you who missed this year's University of Minnesota State Fair exhibit, prepared by University Relations, Media Resources, and ORTTA. Again featuring the homecoming theme, the exhibit looks at the rich history of technology transfer from U of M research to Minnesota's economy. Individual displays highlight advances in agriculture, horticulture, health sciences, technology, natural resources, and fisheries and wildlife biology. A videotape provides a corresponding overview, with segments from the television program *MASH*, the movie *E.T.: The Extra-Terrestrial*, several U of M programs produced by Media Resources, and marketing videotapes for the Gentle Leader dog collar and the ThAIRapy pulmonary system for people with cystic fibrosis.

Women, Continued from Previous Page

in the proposed study. However, if men and women are enrolled in numbers that reflect the gender proportion of the disease under study, it is not an automatic requirement for the study design to include statistical power for men and women separately.

It is important to note that regardless of the program relevance of the proposed research, NIH/ADAMHA funding components will not fund/award grants or contracts that do not comply with this policy.

Sullivan Names New NIH Director

Health and Human Services Secretary Louis Sullivan announced September 10 that he will recommend **Bernadine Healy** to the President as his choice for director of the National Institutes of Health. Healy is a cardiologist at the Cleveland Clinic and chairman of the Cleveland Clinic Foundation's Research Institute. She is currently vice-chairman of the White House Science Council and a former deputy director of the Office of Science and Technology Policy. Sources in Washington, D.C., said that this background should help in expediting her presidential nomination and Senate confirmation.

Researchers with Disabilities

The National Institutes of Health (NIH) is proceeding with plans for a supplement program to encourage biomedical research training for investigators with disabilities. The initiative, patterned after the year-old minority supplement program, would offer current grantee investigators extra funding to involve researchers with disabilities in their projects.

Extramural program officials were scheduled to meet this month to discuss unresolved problems, including if and how much NIH would pay to cover the cost to a project of accommodating an individual researcher's disability. Without NIH help, it would be up to institutions to modify the research environment or provide needed equipment. Average costs of reasonable accommodation run about \$1,000, but requirements can vary widely.

NIH will announce the program as soon as details are sorted out, probably this fall. The notice will be preceded by reannouncement of the minority research supplement program, which will be revised to broaden the participation of talented high school students and minority postdoctoral investigators.

If you have comments and suggestions or you require further information, please contact Walter Schaffer, Research Training and Resources, National Institutes of Health, Building 1, Room 252, Bethesda, MD 20892; (301) 496-9743.

National Center for Research Resources

Small Grants for Innovative Technology

The Biomedical Research Technology (BRT) Program identifies and develops advanced technologies needed in biomedical research. Through grants and contracts, it supports an extremely broad and innovative array of technologies. Areas of emphasis in the Program are biomedical computing, biomedical engineering, and technologies for the study of biomolecular and cellular structure and function. To further its mission, the BRT Program supports a small grant award for pilot studies in relevant biomedical technologies.

This is a one-year, non-renewable award for a pilot project in a high technology area in engineering, instrumentation, physics, or computer science related to biomedical research. The project should involve a feasibility study of an innovative or high-risk idea in high technology. (Innovative is defined as an unusually imaginative or drastically different approach to a problem; high risk is having uncertain chances for success because no historical base exists for the proposed technological approach; high technology is defined as working at the frontier (limits of understanding) of a technology.) The project should be oriented towards new instrumental or methodological approaches and provide a basis for more extended research in the relevant technology.

The purposes of the small grants program are to:

1. Provide an opportunity to test new ideas in a high technology that would lead to an expanded research project or implementation of the technology in a working environment; or
2. Develop significant changes in an existing high technology important to biomedical research; or
3. Translate scientific notions into a basis for a future technology.

The award will provide a maximum of \$35,000 (direct costs) for personnel, consultants, supplies, small equipment, and travel required by the project. The award will be for one year and, in most cases, can be extended for an additional year without additional funds. The award may not be used to supplement support for an ongoing project. Because of the high-risk, feasibility-testing nature of the award, support of salaries for student employees working on a dissertation is discouraged.

This is an ongoing program with two deadlines annually: **October 1 and February 1**. For further information contact Biomedical Research Technology Program, NCRR, NIH, 5333 Westbard Avenue, Room 8A11, Bethesda, MD 20892; (301) 496-5411. A more detailed copy of the program guidelines is available from ORTTA and may be requested by calling 624-0061.

National Institute of Child Health and Human Development

Specialized Research Center Programs or Center Core Grants to Support Research in Reproduction

RFA HD-91-01

The National Institute of Child Health and Human Development (NICHD), a component of the National Institutes of Health (NIH), provides funding for a limited number of research centers in the area of reproductive sciences research. These centers are broadly based investigative endeavors encompassing research of a biomedical nature. They are supported through either Center Core Grants (P30) or Specialized Research Center Grants (P50).

The Reproductive Sciences Branch (RSB) of NICHD presently supports a fixed number of centers with a commitment of five years of support that is competitively renewable for additional five-year periods.

The ultimate goals of biomedical research in the reproductive sciences are to develop new knowledge leading to clinical applications that will enable men and women to control their fertility with methods that are safe, effective, inexpensive, reversible, and acceptable to various population groups, and to overcome problems of infertility and reproductive disorders. Applications under this RFA are encouraged on, but not limited to:

- Reproductive medicine: Fertility and infertility aspects;
- Mechanism(s) of follicular selection, atresia and ovulation;
- Neuroendocrinology of reproduction: clarification of the regulatory mechanisms of the hypothalamo-pituitary-gonadal axis;
- Regulatory mechanism(s) of gametogenesis;
- Mechanism of action of reproductive hormones, particularly at the cellular and genetic level; modification of action by growth factors;

Program Information

- Mechanisms regulating gonadal or genital tract functions;
- Studies on fertilization, preimplantation development of embryos, or blastocyst implantation;
- Immunological mechanisms regulating fertility.

In order to receive funding, a grant for a specialized reproductive research center (P50) must have three(3) or more related, integrated, and high quality research projects that provide a multidisciplinary, yet thematic, approach to the problems to be investigated. A grant for a reproductive sciences research Center Core facility (P30) must be predicated on the existence of a substantial number of eligible, funded research grants that will be active on April 1, 1992. A minimal number of three (3) relevant NIH or other federally funded grants are required for eligibility of a core in a P30 Center.

The receipt date for this RFA is **May 6, 1991**. It is strongly recommended, but not mandatory, that a letter of intent be submitted by January 1, 1991, outlining the organizational structure of the proposed center and listing the titles of relevant research projects and the names of relevant principal investigators. For further information, contact Julia Lobotsky, Reproductive Sciences Branch, NICHD, NIH, Executive Plaza North, Suite 603, Bethesda, MD 20892; (301) 496-6615. A copy of the complete RFA is also available from ORTTA and may be requested by calling 624-0061.

Dreyfus Foundation

The Camille and Henry Dreyfus Foundation is accepting nominations for its 1991 teacher/scholar awards, designed to support the teaching and research of young faculty members in chemistry, chemical engineering and related sciences.

Chemistry departments in higher education institutions that award bachelor's or higher degrees in chemical science may nominate *one candidate per year*. Candidates must be fulltime, tenure-track faculty members in the first five years of their academic careers. Teacher/scholars may use their five-year \$500,000 awards to fund any research or curriculum-related activity.

The foundation usually makes 12 awards a year. The annual deadline is **December 15**. Contact the Camille and Henry Dreyfus Foundation, 445 Park Avenue, New York, NY 10022; (212) 753-1760.

Internal and External Sponsors

Agency for Health Care Policy and Research

October 15 is the annual deadline for receipt of applications from universities and other institutions for the National Research Service Award (NRSA) institutional grants from the Agency for Health Policy and Research (AHCPR).

The primary objective of AHCPR's NRSA program is to help ensure that highly trained scientific personnel will be available in adequate numbers and in the appropriate research areas and fields to pursue research problems in health services delivery. Within this framework, it is important that attention be given to recruiting individuals from minority groups now underrepresented nationally in health services research.

Applicants may apply for support for predoctoral students, postdoctoral students, or a combination, but must include a rationale for their choice of supporting particular types of students.

Applicants may obtain a standard PHS 398 kit from ORTTA by calling 624-0061. For further information and guidance, contact Hoke S. Glover, Project Officer, AHCPR, Room 18-12 Parklawn Building, 5600 Fishers Lane, Rockville, MD 20857; (301) 443-3091.

American Institute of Indian Studies

The American Institute of Indian Studies short-term competition is open to faculty members (including full-year visiting appointments) and persons holding the Ph.D. who are receiving salary on a regular basis. Awards in foreign currency are contingent upon the extent of funding received by the Institute and approval of the projects by the Government of India. Short-term grant award periods range from 1 to 4 months and include maintenance stipend, research allowance and international travel. No dependent support or travel is possible under this grant. Awards are designed for support of research projects.

Please see the program description in the June, 1990 *Research Review* for further information on this agency. The deadline for receipt of applications for the short-term competition is **November 1, 1990**. Applications may be obtained from the agency by calling (312) 702-8638.

Program Information

Internal and External Sponsors

W.K. Kellogg Foundation

The Kellogg National Fellowship Program (KNFP) provides opportunities for qualified professionals *in the early stages of their careers* (from academic settings and the public or private sectors) to stretch their perspectives, explore new interdisciplinary pathways, and develop richer knowledge and background experience. The goal is to prepare people for expanded leadership roles in a society where issues grow more complex each year. Awardees will carry out non-degree, interdisciplinary, self-directed activities to take them beyond the confines of their profession; they will also participate in Foundation-sponsored seminars to explore a wide variety of problems and issues to develop leadership skills. Fellowships are *not* awarded for pursuit of basic research or to complete a degree.

Awards of up to \$35,000 for a three-year period, plus 12.5 percent of annual salary (not to exceed an aggregate of \$28,000 for the three years) will be made for up to 50 outstanding people who have leadership potential. **The Graduate School will obtain the appropriate signatures from Academic Affairs and will coordinate the submission of all nominations.**

Submission deadline to the Graduate School is **Monday, November 5, 1990**. Deadline to the Kellogg Foundation is Monday, December 14, 1990. Application materials are available from the Graduate School Research Office (417 Johnston Hall), or by calling Lori Wallin at 625-2356.

Rockefeller Foundation

The Rockefeller Foundation has announced a new Humanities Fellowship Program. This program is for humanities scholars whose research furthers understanding of contemporary social and cultural issues and extends international or intercultural scholarship.

For 1991-92, individuals can apply for resident fellowships at twenty-four host institutions. In addition, six new institutions will be chosen as residency sites for fellowships in 1992-95. Institutional applications are particularly encouraged from programs concerned with non-Western cultures, the diverse cultural and ethnic heritage of the United States, and humanistic analysis of global environmental issues.

By supporting resident fellowships, the Foundation seeks to promote the interdisciplinary dialogue that is the

hallmark of new scholarship in these areas, provide outstanding resources to individual scholars, and fortify the institutions that are advancing this work.

The University of Minnesota's Center for Advanced Feminist Studies is currently a residency site. A complete list of host sites and application guidelines are available from ORTTA and may be requested by calling 624-0061.

Tyler Prize for Environmental Achievement

Nominations are being accepted for the Tyler Prize for Environmental Achievement. Founded in 1973, the Tyler Prize is the premiere world prize for environmental science and leadership. The award is normally \$150,000.

Citizens of all nations are invited to nominate living individuals or institutions who have benefited humanity in environmental fields in their *broadest context*, including environmental health, resource management, food and agriculture, population growth, insect management, wildlife, radiation, pollution and hazardous materials and others. Prizes are awarded for any one of the following: the protection, maintenance, improvement or understanding of ecological and environmental conditions anywhere in the world; or the discovery, further development, improvement, or understanding of known or new sources of energy.

The deadline for nominations is **October 15, 1990**. Applications should be submitted directly to the Tyler Prize. Please call Michelle Beckmann in the Graduate School at 624-2356 for application materials; or you may call the Tyler Prize at (213) 743-6343 or (213) 740-6559.

Faculty Research Awards

This section contains statistics on proposals and awards recently processed by ORTTA. In addition, we have randomly selected awards received by faculty during preceding months. If any faculty member has received an award he or she would like mentioned in future Research Reviews, please call Mike Moore at 624-9398.

Proposal and Award Summary

	Number	Amount
Proposals Submitted		
August, 1990	.251	\$40,746,847
Awards Processed		
August, 1990	.266	21,844,825
Proposals Submitted		
July, 1990 - August, 1990	.487	75,419,583
Awards Processed		
July, 1990 - August, 1990	.567	45,034,375
Proposals Submitted		
July, 1989 - August, 1989	.499	116,496,484
Awards Processed		
July, 1989 - August, 1989	.464	103,017,664

Minnesota Technical Assistance Program for Waste Management and Reduction

Fay M. Thompson, Environmental Health and Safety
St of MN - Waste Management Board
\$672,000 / 08/90-06/91

Developing and Improving Institutional Animal Resources

Patrick J. Manning, Medical School Administration
NIH, NCRR
\$535,003 - 08/90-07/91

Mortality Follow-up and Analysis: MRFIT Randomized Men

Marcus O. Kjelsberg, School of Public Health
James D. Neaton, School of Public Health
Thomas Louis, School of Public Health
NIH, NHLBI
\$354,300 / 07/90-06/91

Predicting Performance of Waste Package for Performance Assessment

Roger W. Staehle, Chemical Engineering & Materials Science
Argonne National Laboratory
\$348,482 / 06/90-10/91

Partial Support for an Institute for Rock Magnetism

Subir K. Banerjee, Geology and Geophysics
Keck Foundation
\$300,000 / 07/90-06/93

HLA in Families with IDD and NIDD: A Distinct Subset?

Miriam Segall, Laboratory Medicine and Pathology
NIH, NIDDK
\$297,919 / 07/90-06/91

Recycling of Chronic Smokers to Sustained Abstinence

Harry A. Lando, School of Public Health
NIH, NHLBI
\$263,681 / 07/90-06/91

Vision Based Navigation in Large Scale Spaces

William B. Thompson, Computer Science
NSF
\$250,000 / 07/90-06/91

Opioid Effect on Bone Marrow and T-Cells

Nancy Lee, Pharmacology
S. Ramakrishnan, Pharmacology
ADAMHA, NIDA
\$205,362 / 05/90-04/91

Assessment and Treatment of Adolescent Substance Abusers

Ken Winters, Pediatrics
NIH, NIDA
\$174,133 / 07/90-06/91

Lowering Feedstock Costs for PHBV Production

Peter W. Carr, Chemistry
Rex E. Lovrien, Biochemistry, CBS
Chang Ho Park, Agricultural Engineering
Minnesota Upper Valley Regional Development Commission
\$195,000 / 04/90-06/92

Effect of an Expert System on Platelet Transfusion

Donald P. Connelly, Laboratory Medicine & Pathology
J. Jeffrey Mc Cullough, Laboratory Medicine & Pathology
NIH, NHLBI
\$160,227 / 07/90-06/91

Minnesota Deaf-Blind Project

Robert H. Bruininks, Educational Psychology
U.S. Department of Education
\$159,815 / 10/89-09/90

The Structure and Function of Cytoplasmic Dynein

Thomas S. Hays, Genetics and Cell Biology
NIH, NIGMS
\$158,547 / 07/90-06/91

UMD Animal Resources Improvement Grant

Larry D. Anderson, UMD School of Medicine
NIH, NCRR
\$157,201 / 07/90-07/91

Strain Improvement of Microsporidia for Use in Corn Pest Management

Timothy J. Kurtti, Entomology
Ulrike G. Munderloh, Entomology
USDA
\$150,000 / 09/90-08/93

Molecular Diagnosis of Cytomegalovirus Disease

M. Colin Jordan, Medicine
Marshall I. Hertz, Medicine
NIH, NIAID
\$145,083 / 07/90-06/91

Nociception, Excitatory Amino Acids and Drugs of Abuse

George L. Wilcox, Pharmacology
ADAMHA, NIDA
\$130,530 / 07/90-06/91

Two Major Peat Basins in Boreal America: Sources, Sinks or Reservoirs

Paul Glaser, Geology and Geophysics
NSF
\$129,948 / 07/90-12/91

Yeast Lipid Binding Protein; Identification and Analysis

David A. Bernlohr, Biochemistry, CBS
Paul T. Magee, Genetics and Cell Biology
NIH, NIGMS
\$127,759 / 07/90-06/91

Wildflower Research Center

Peter J. Olin, Horticultural Science
St of MN - Office of the Governor
\$100,000 / 06/90-06/93

Kaolin Processing Research

Kenneth J. Reid, Mineral Resources Research Center
St of MN - Dept of Natural Resources
\$90,000 / 06/90-06/91

Working Women and the Well-Being of Women and Children in the U.S. and Canada

Mahmood A. Zaidi, Carlson School of Management
William Donner Foundation
\$142,500 / 05/90-04/92

Tunneling and Transport in Ordered and Disordered Superconductors

Allen M. Goldman, Physics and Astronomy
NSF
\$125,000 / 07/90-12/91

Role of G-Protein in Matrix Mediated Tumor Cell Signal Transmission

Bruce R. Lester, Laboratory Medicine & Pathology
Elsa Pardee Foundation
\$121,770 / 07/90-06/92

Immune-Mediated Refractoriness to Platelet Transfusion

Douglas J. Christie, Laboratory Medicine and Pathology
NIH, NHLBI
\$117,167 / 07/90-06/91

Project Extra Technical Assistance to Minnesota Technical Colleges

Terence G. Collins, General College
St of MN - Department of Education
\$111,000 / 08/90-06/91

Bacterial Defenses Against Phagocyte Oxidative Killing

John Eaton, Laboratory Medicine & Pathology
NIH, NIAID
\$107,575 / 08/90-07/91

Materials/Technical Assistance: Augmentative Communication

Joe Reichle, Communication Disorders
Linda Hinderscheit, Communication Disorders
U.S. Department of Education
\$79,506 / 09/90-08/91

An Institute for Empirical Macroeconomics

Christopher A. Sims, Economics
NSF
\$99,958 / 11/90-11/91

Location of Outliers in Structured Data

Douglas M. Hawkins, School of Statistics
NSF
\$32,520 / 07/90-12/91

Studies of Two-Phase Flows of Solids and Liquids

Daniel D. Joseph, Aerospace Engineering & Mechanics
NSF
\$79,700 / 08/90-01/92

Land Design for Bicycle Transportation in Minnesota Cities

Richard P. Braun, Civil & Mineral Engineering
St of MN - Dept of Administration
\$35,000 / 08/90-10/92

Investigations of the Behaviors of Aging Drivers

Richard P. Braun, Civil and Mineral Engineering
St of MN - Department of Administration
\$50,000 / 07/90-06/91

Multilevel Secure Concurrency Control

Wei-Tek Tsai, Computer Science
NSF
\$37,217 / 07/90-12/91

Functional Domains in the Heavy Chain

Mary E. Porter, Cell Biology and Neuroanatomy
NSF
\$90,000 / 09/90-02/92

Superconducting Magnet System for Characterization of New Materials

Stephen Y. Chou, Electrical Engineering
Marshall I. Nathan, Electrical Engineering
NSF
\$58,835 / 08/90-01/92

Oaxaca Women's Economic Development Center

Shirley L. Baugher, Minnesota Extension Service
Kellogg Foundation
\$9,650 / 07/90-11/90

Rejuvenation of Conifer Meristems in Relation to Clonal Propagation

Wesley P. Hackett, Horticultural Science
Carl A. Mohn, Horticultural Science
Glenn R. Fournier, Horticultural Science
USDA
\$65,000 / 08/90-05/92

Psychological Selection Criteria for Astronauts

Robert M. Rose, Psychiatry
NASA
\$35,000 / 05/90-12/90

Effect of Gum After Carbohydrate on Plaque PH

Ignatius Lee, School of Dentistry
Charles Schachtele, School of Dentistry
William Wrigley, Jr. Company
\$13,566 / 06/90-08/90

Bundling of Acute and Post-Acute Care Services

Robert L. Kane, School of Public Health
Health Care Financing Administration (HCFA)
\$49,505 / 09/90-12/90

Mechanism of Plant-Herbivore Interactions

Mark E. Ritchie, Ecology Evolution and Behavior
G. David Tilman, Ecology Evolution and Behavior
NSF
\$29,716 / 07/90-12/91

Regulation of Ion Transport Across Porcine Gallbladder

Michael Duvall, Veterinary Biology
NIH, NIDDK
\$58,040 / 07/90-06/91

Discourse and Saturn School Technology Support Project

Stanley L. Deno, Educational Psychology
Saint Paul Public Schools
\$54,838 / 07/90-06/91

Cytotoxic Mechanisms of Oxidative Chemical Reactivity

Kendall B. Wallace, UMD School of Medicine
Environmental Protection Agency
\$50,000 / 07/90-06/92

Job Training Services to Disadvantaged Persons

Don Cavalier, Student Affairs, Crookston
Northwest Private Industry Council
\$7,326 / 07/90-06/91

Planning Grant - Improved Hmong Health Care

Amos S. Deinard, University Hospital and Clinic
Bush Foundation
\$80,000 / 10/90-03/92

The Sponsored Project Information Network (SPIN) is a computerized locator system of funding opportunities (federal, nonfederal, and corporate) for faculty and institutional research, development, and education program support. It is available to University faculty and staff through ORTTA.

Based on a description of your research areas and/or the type of support sought, ORTTA staff will search the SPIN Keyword Index to identify sources within specific areas of interest. The Keyword Index, a taxonomy developed by SPIN to catalog funding sources, is divided into the following ten major classifications:

- **Agriculture/Food/Forestry**
- **Arts/Culture/Humanities/Communications**
- **Business/Economics/Management**
- **Education**
- **Health/Medical Sciences**
- **International Affairs/Area Studies**
- **Miscellaneous/Other**
- **Science/Technology**
- **Social/Behavioral Sciences**
- **Social Welfare/Public Affairs**

The result of a search is a set of profiles of applicable funding sources that provides: 1) the sponsor's name; 2) the sponsor's contact address and telephone number; 3) deadline dates; 4) program titles; 5) objectives or interest areas of the sponsor; and 6) restrictions that would affect the submission of a proposal. This set of profiles is sent to the requestor.

SPIN searches are done free of charge to the requestor. A survey of users of SPIN indicates that the information received from a SPIN search was targeted to their request and a reasonable response time was effected.

**For further information regarding the SPIN system or to request a search, please contact ORTTA at
624-5750, 624-0061, or 624-9004**

Please Note: SPIN searches are also available through the Research and Development Office in the College of Liberal Arts; the Agricultural Experiment Station; the Research Support Office at Duluth; and the Grants Development Office at Morris. The alphabetical and topical components SPIN may also be accessed through ORTTA's Electronic Bulletin Board.

ORTTA TELEPHONE NUMBERS

A Quick Reference Guide

Title and/or Area of Responsibility	Name	Number
Fax Number		(612) 624-4843
Office of Research and Technology Transfer Administration		
Associate Vice President, ORTTA	Tony Potami	624-1648
Communications Coordinator	Mike Moore	624-9398
Administrative Coordinator	Carol Perusse	624-6389
Grants and Contracts		
Information		624-5599
Assistant Director	Rick Dunn	626-2265
Assistant Director	Mary Lou Weiss	624-5856
DHHS, NIH, ADAMHA, HRSA, OHD, Misc Private Agencies	Mary Lou Weiss	624-5856
NIH, Other DHHS, St. of MN, Counties, Am Heart Assoc	Todd Morrison	624-5066
NIH, Other DHHS, Voluntary Health Agencies, Cities	Kevin McKoskey	624-1521
NSF (Health Svcs), USDA, DOD, NASA, EPA, NEA, AID, Misc Federal Agencies	Merlin Garlid	624-0288
NSF (IT), DOE, DOC, USDI (IT), Misc Fed	TBA	624-5571
NSF (non-Health Svcs, non-IT), Education, USDI		
USDA, NEH, ST of MN, Other State	Rick Dunn	626-2265
To be Determined	David Lynch	624-5571
To be Determined	Liz Klitzke	626-7718
Foundations, Miscellaneous Private Agencies	Judy Krzyzek	624-2546
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Technology Licensing (IT)	Tony Strauss	624-0869
Technology Licensing (Health Svcs/Ag)	TBA	624-0262
Trademark Licensing	Robert Hicks	626-1585
Technology Licensing	Paul McDowall	625-8826
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Effort Reporting, Indirect Cost & Other Rate Development	Leslie Estes	624-2040
Financial Reporting, Accounting Questions	Sandy Kenyon	624-2307
Information Services		
Assistant Director	Winifred A. Schumi	624-5750
Research Review, Application Materials, Program Announcements	Tove Jespersen	624-0061
Human Subjects Committee		
Administrator	Moir Keane	624-1889
Executive Assistant	Ellen Stewart	624-9829
Duluth		
Research Support Office	James Loukes	(218)726-7583
Morris		
Grants Development	Tom Mahoney	589-2211 x6450

ORTTA NEWSLETTER MAILING LIST INFORMATION

Faculty

The Research Review is automatically mailed to all faculty on the Faculty Mail List holding the rank of Assistant Professor and above.

To add/delete/change a faculty name on this list, departmental officers must submit a Staff Directory Card to Administrative Information Services (AIS).

Please check with your departmental office or AIS (624-9000) if you need assistance.

Staff / Off-Campus

ORTTA maintains a Supplemental Mail List for academic staff not included in the above faculty list; for staff; and for individuals off-campus. Additions/changes/deletions to this list may be initiated by filling out and sending ORTTA the following:

Change	☐
Add	☐
Delete	☐

Name

Department

Campus Address (Bldg)



For changes and deletions please enclose your mailing label.



Return to
ORTTA

Administrative Services Center
1919 University Avenue, 5th Floor
Saint Paul, Minnesota 55104

University of Minnesota

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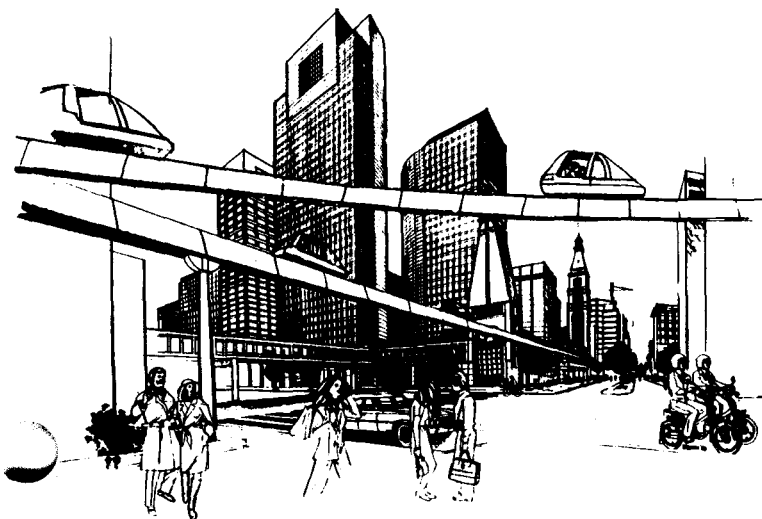
RESEARCH REVIEW

An Overview of Sponsored Program and Technology Transfer Administration

Research and Technology Transfer Administration

November, 1990

Taxi 2000 System to Get Test in Chicago



The Chicago Regional Transportation Authority (RTA) awarded two \$1.5 million contracts on October 11 for phase one of a planned three-phase development program for personal rapid transit (PRT). Taxi 2000 Corporation, founded by former University of Minnesota mechanical engineering professor J. Edward Anderson, is part of a consortium of companies that received one of the contracts.

While at the University in the 1970s and 1980s, Anderson studied mass transit systems and the reasons people either did or did not use them. His research led him to conclude that commuters will not be attracted to mass transit in large enough numbers unless provided with transportation that offers the same flexibility, convenience, and privacy as the automobile. He also investigated ways of solving urban transportation problems in an energy-efficient, land-sparing manner with low environmental impact.

During the 1980s, Anderson invented and the University patented several components of a personal rapid transit system to meet those objectives. He left the University in 1986 to join the faculty of Boston University and, with

the help of the University, founded the Taxi 2000 Corporation to seek customers for his system. The University has licensed the PRT patents to Taxi 2000, and it has a minority equity interest in the company and would receive a royalty per mile of track of any systems built.

Anderson envisions three-passenger vehicles traveling on elevated, lightweight rails, powered by electricity, and controlled by a central computer system communicating with an onboard computer. The system would provide transportation non-stop direct from one off-line station to another. By having stations off-line

Taxi 2000, Continued on Page 13

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Budget Uncertainties

NIH Grants Safe

Current budget uncertainties don't immediately endanger research awards by the National Institutes of Health (NIH), according to Acting Director William Raub.

NIH's budget deliberately delays new awards until December 1, allowing for more time to reach a final budget without endangering payments to grantees, Raub explained. NIH and other agencies are operating under a continuing resolution (CR) which permits federal spending at FY 90 levels through October 19.

In general, NIH has also provided for all FY 90 grants and contracts, so payments will not be reduced, Raub said, adding it is possible that an occasional grant or contract could be affected.

NIH training awards are also safe since they are made in June and July, another NIH official said. It is still too early to say whether the CR will delay NIH's intramural research, the official added.

The first grants in jeopardy are those new research grants due to be awarded on December 1, Raub said.

NSF Continues to fund at a 50% Rate

The National Science Foundation (NSF) will continue a funding plan implemented on August 29 until a final FY 91 budget is in place, a budget official said. The plan will continue scheduled payment this fall, but only at a 50% rate.

RESEARCH REVIEW

Volume XX/Number 5

November, 1990

Editor: Michael P. Moore

Associate Vice President: A.R. Potami

Research Review is a monthly publication of the Office of Research and Technology Transfer Administration. Its purpose is to inform faculty and administrators who are involved with Sponsored Research and Technology Transfer on procedures and policies of granting agencies; on institutional policy and other information necessary to the preparation of research proposals; and on funding opportunities.

Research Review welcomes ideas and comments from all readers. Write to Research Review at 1919 University Avenue, 5th Floor, St. Paul, MN 55104, or call Michael P. Moore at 624-9398.

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, sex, national origin, handicap, age, veteran status, or sexual orientation.

Indirect Cost & Fringe Benefit Rates

Indirect Cost Rates

The rates for July 1, 1989 through June 30, 1990 are listed below. When budgeting for periods beyond 6/30/90, the 7/1/89-6/30/90 rates should be used. **The rate agreement is dated March 28, 1988.** This date should be used where required on proposal applications.

	07/01/89- 06/30/90
Research	
On-Campus	44.0
Off-Campus *	21.5
SAFHL	86.6
Hormel	49.5
Other Sponsored Activity	
On-Campus	33.4
Off-Campus *	16.8
Instruction	
On-Campus	68.7
Off-Campus *	27.9

* A project will be considered off-campus if more than 50% of the direct salaries and wages of personnel employed on the project are incurred at a site neither owned nor leased by the University.

Fringe Benefit Rates

If you have questions regarding fringe benefit rate development or need the breakdown of charges, call Vivian Fickling at 624-2009.

Current actual rates through 12/31/90 are:

Faculty	29.00%
Civil Service	24.50%

For proposals being submitted with start dates after January 1, 1991 the estimated fringe benefit rates to be budgeted are:

Faculty	29.00%
Civil Service	24.50%

As rates change, they will be reflected in this section

Committee on the Use of Human Subjects in Research

Practical Concerns when Completing Grant Applications and Filling out the BA23

Most funding agencies require official certification of approval from the Committee on the Use of Human Subjects in Research prior to awarding grant monies. Some agencies will not consider grant applications unless final approval from a "duly constituted Institutional Review Board, (IRB)" accompanies the grant application.

In completing appropriate agency paperwork and filling out the BA23 form, it is important to attend to the details of the submission to ensure that the Committee office can certify approval for a grant proposal.

Agency Forms

The Committee office is familiar with most federal and private agency requirements for proper certification. The face page of a federal grant includes a section designated for human subjects committee certification of approval. That section should include only the **most recent date of approval** for the project listed in the "title" section of the face page. The "assurance number" required on the application is the code number assigned to the University of Minnesota by the Office for Protection from Research Risks, (OPRR). That number, M1337, *must* appear on the face page to alert the funding agency that the University is in current compliance with all regulations pertaining to the use of human subjects in research. Extraneous markings or other information should not be added to this section.

BA23 Form

This internal University form is the first source of information that the Committee office will use to identify and certify the approval of a funded project. The section on human subjects should be completed carefully to avoid mistakes in identifying a project. The **most recent date of approval** for the project should be listed on the form. The recently assigned, "Human Subjects Code Number" will assist the office in identifying projects and should be added below the date. (Projected revisions to the BA23 form will include space for this number).

Cautions

Always indicate the *approval date from a meeting, NOT the date of correspondence*. This may be the most recent Renewal date. The date can be found in the body of the approval letter sent from the Committee office.

If the title of the research or identity of a principal investigator does not match the Committee's records, immediate certification will not be possible. "Pending Approval" status will be assigned to any project not readily

identified in the Committee's records. Changes in title or investigator should be brought to the attention of the Committee office, in writing, prior to submission of the grant proposal.

The *official* signature for all human subjects assurances is Moira Keane, Administrator to the Committee. Other signatures are not acceptable to funding agencies.

National Research Council

Recommends a More Centralized Plant Genetic Resources System

The National Plant Germplasm System's (NPGS) decentralized structure has hindered its ability "to function as a coordinated, well-defined system with clear-cut leadership, responsibilities and authority," according to a National Research Council (NRC) committee report.

NPGS is a network of laboratories and experiment stations responsible for preserving tissues, seeds and plants that comprise U.S. plant germplasm resources. Two agencies at the U.S. Department of Agriculture (USDA) and state agricultural experiment stations manage the system. However, this decentralized framework "constrains the resolution of long-standing needs and problems" according to NRC's Committee on Managing Global Genetic Resources.

To improve NPGS, the report makes recommendations in the following six critical areas: administration, germplasm acquisition and collection, facilities and personnel, the mission of the national system, information management, and research.

In the area of research, the report proposes establishing an advisory committee to "assess research needs, resources and accomplishments, and...consider research proposals from scientists." The advisory committee could also oversee external peer review at NPGS because current internal peer review "lacks scientific and technical rigor."

"Competitive grants should be used to fund research for which expertise is not available within the national system," the report suggests. Such a program could be managed by either NPGS or USDA's Cooperative State Research Service.

For more information about The U.S. National Plant Germplasm System, call the National Academy Press at (202) 334-3313 or 1-(800) 624-6242.

Technology Transfer at the University of Minnesota

Where Tradition Meets the Future

Editor's note: The following article is a reprint of information included with the University's exhibit at the 1990 Minnesota State Fair, and at Academia in Review. It offers an explanation and overview of technology transfer at the University and may prove useful as a handout for visitors. Call 624-9398 for copies.

To understand and participate in our technological world requires an awareness of how existing products and processes came to be, as well as an interest in the research, development and introduction of new technologies.

The University of Minnesota has a rich history of research that has led to the development of many new technologies. From agriculture to engineering to medicine, these new developments have changed the world, and to a large extent defined Minnesota's economy.

This article highlights some of these past, present, and, we hope, future technology success stories.

Technology Transfer—Yesterday and Today

"Technology transfer" is a new name for an obligation that has long been part of the University's traditional service mission. Consider:

- Taconite was just a worthless rock until E.W. Davis (1888-1973) began the 40-year development of the taconite process and machinery that saved Minnesota's iron-ore industry in the 1950s. The Mineral Resources Research Center continues to improve the value of Minnesota's iron-ore product to keep the industry viable in an increasingly competitive market.
- Few soybeans were grown in Minnesota 30 years ago, but today it is the state's number one income-producing commodity. That's because Jean W. Lambert (1915-1990) spent decades developing soybean varieties that could thrive in Minnesota's shorter growing season. He developed 18 varieties of soybeans suited to climates and soil conditions throughout the world. This work is continuing in the Department of Agronomy and Plant Genetics and the Agricultural Experiment Station.
- Medical technology was virtually unheard of before a medical revolution launched in the 1930s by Owen H. Wangenstein (1898-1981), who was head of the Department of Surgery from 1930-1967. In the 1930s he developed the Wangenstein Suction Pump, a simple but effective device that reduced by 80 percent the mortality from abdominal surgery. His innovative influence led his students and colleagues to introduce

breakthroughs such as the world's first successful blood oxygenator, first open-heart surgery, first heart transplant, first artificial heart valve, and first heart pacemaker. These and other medical triumphs led to the rise of Minnesota's biomedical industry, which continues to be served by the University's Biomedical Engineering Center and other basic and applied medical research projects.

Getting Technology from the "U" to You

Why do publicly supported universities obtain patents for inventions, instead of making them freely available to those who could benefit?

Because commercializing a new product or process requires a company willing to invest in further development, testing, and marketing. Without a patent, the company would have no protection from others who could copy the product and sell it, reaping the benefits of the original company's investment and denying it a fair economic return. This is especially true today with respect to new drugs, which can cost more than \$100 million to test and bring to market.

For the above reasons, the government requires universities to apply for patents on inventions discovered through federally funded research. It also requires universities to seek companies interested in licensing the inventions, which means buying the rights to develop and sell them. The University of Minnesota has done well in these pursuits, as the tables below show.

University Patenting Top Ten — 1986-1989

	Number of Patents
Massachusetts Institute of Technology	276
University of California	260
Stanford University	179
California Institute of Technology	129
UNIVERSITY OF MINNESOTA	110
University of Texas	105
Johns Hopkins University	86
Cornell University	85
University of Wisconsin	77
Iowa State University	67

Current License Agreements for U of M Inventions

Total Licenses	150
Total Companies	92
In Minnesota	40
Other States	50
Foreign	2

AGRICULTURE

The Green Revolution Continues

Problem:

The demand for food crops continues to grow worldwide, while U.S. farmers face increasing economic and environmental challenges.

Research and Development:

Following in the footsteps of famous researchers such as soybean agronomist Jean Lambert and Nobel-prize winner Norman Borlaug, University of Minnesota agricultural scientists continually strive to improve the hardiness and yield of existing crops, while searching for new crops and economic strategies to help Minnesota and the world. Advances in genetic research have sped this process in some instances by making it possible to "bioengineer" desirable characteristics into plant species.

Solution:

Over the years, University of Minnesota scientists in the College of Agriculture and the Minnesota Extension Service have bred and released 118 new varieties of 20 different crops, including 32 of soybeans; 40 of oats, barley, and alfalfa; and 10 of wheat. These crops made up 80 percent of Minnesota's \$1.76 billion in agricultural exports in 1989. Total cash receipts for Minnesota crops was \$2.743 billion in 1988.

In 1989, Minnesota's Agricultural Exports Exceeded \$1.7 Billion *

	Value in \$ Millions
Feedgrains & produce	\$575.8
Soybeans & products	465.2
Wheat & products	252.8
Live animals & meat (excluding poultry)	93.3
Feeds & fodder	92.6
Hides & skins	56.0
Dairy products	54.3
Vegetables	54.2
Fats, oils, greases	17.9

Poultry & products	13.1
Seeds	13.0
Sunflower seed & oil	5.6
Other	51.4
TOTAL	\$1,763.3

* From Minnesota Agricultural Statistics 1990; issued by U.S. Dept. of Agriculture and Minnesota Dept. of Agriculture

Nearly all of Minnesota's crops and animal products have been improved or protected from disease as a result of teaching, research, and service at the University of Minnesota. The total annual value of all Minnesota's agricultural products is now over \$7 billion. However, farmers' share of retail food prices has weakened since 1980. The University is studying ways of increasing farming efficiency to help farmers counter this trend.

HORTICULTURE

Making Minnesota's Plants as Hardy as its People

Problem:

Minnesota's short growing season and harsh winters limit the varieties of trees, shrubs, fruit, and flowers that can thrive in the state.

Research and Development:

Researchers at the University's Horticultural Research Center and Minnesota Landscape Arboretum, and the Minnesota Agricultural Experiment Station, for decades have been cross-breeding plants to develop new plant varieties with characteristics suited to Minnesota's climates.

Solutions:

Many introduced varieties of fruit and landscape plants increase Minnesota's beauty, the enjoyment of gardeners, and the expansion of the state's nursery and fruit production and service industry. Among the new varieties are: the Regent and Honeycrisp Apples; the Autumn Spire and Northwood Red Maple Trees; the Minngopher, Snowsota, and Maroon Pride Chrysanthemums; the Northern Lights Azaleas; and the St. Cloud and Northblue blueberries.

Tech Transfer, Continued on Page 14

Health Insurance for Graduate Assistants

The following memo was distributed in September by Nick LaFontaine, director of budget management

While the University continues to negotiate a long-term solution to providing paid health-care coverage for graduate students, a conclusion has been reached on the coverage available for Fall, 1990.

1. Benefit Eligibility

Graduate assistants with a minimum 25% time appointment (130 hours per quarter; 190 hours per semester) in the following classes are eligible:

- 9511 - Teaching Assistant
- 9521 - Research Assistant
- 9531 - Administrative Fellow

The University will contribute an amount equal to twice the percent of appointment. For example, the University will pay 50% of the health care benefit cost for an assistant with a 25% appointment, and full benefit cost for an assistant with a 50% appointment.

2. Benefit for Fall, 1990

Full benefits will consist of payment of *both* the Boynton Health Service portion of the Student Services Fee and the University-sponsored student hospitalization insurance premium. They are not separable. Boynton Health Service will administer the benefit.

3. Benefit Delivery

Eligible graduate assistants will receive the health-care benefit in a manner similar to the tuition benefit using the Student Registration System.

4. Benefit Cost Recovery

Funds to pay this benefit for Teaching Assistants and Administrative Fellows on 0100 funds have already been distributed to units in the form of salary allocations (departments were advised to hold the raise allocation for graduate assistants to pay for this expense). No funds were distributed for Research Assistants or Teaching Assistants and Administrative Fellows on non-0100 money.

Recovery will be accomplished by applying the health insurance recovery rate (6.17%) to payroll expenses in the three affected classes. If appoint-

ments less than 25% are identified, those payments will be excluded; appointments at or greater than 75% (eligible for State Plan with minimum three-month appointment) will be excluded. It may be necessary to transfer from academic salary allotments to fringe allotments in order to monitor budgets accurately.

Management and Budget will pass on information on the coverage that will be available for winter quarter as soon as negotiations are complete. If you have questions concerning coverage or eligibility, please call the Boynton Student Insurance Office (624-0627). If you have questions concerning cost recovery, please call Ching Lee Huang at 624-7087.

National Science Foundation

University-based Research Centers

The National Science Foundation (NSF) plans to spend up to \$1 million next year on a competition for a few new university-based research centers. The competition will give state governments a larger role than ever before in choosing the winners.

The initiative, based on discussions with the National Governors' Association, will be unique in allowing each state to select up to two proposals that it wants to support in the agency's nationwide competition. Only proposals supported by a state government will be eligible. The competition will be for centers that emphasize research of broad relevance to industry. The agency will then use peer-review panels to choose the final winners from the list of state-approved agencies.

State governments must commit themselves to providing at least as much money as the proposed project seeks from NSF.

The program is also unusual in the degree to which it focuses on the economic needs of individual states. Because of their power in the selection stage, the states will be in a strong position to pursue work in line with their own economic objectives.

NSF plans to start three to five of the new centers.

Institute of Medicine Panel Report

Better Program Balance Between Construction, Training and Research Grants

A larger share of biomedical research funding must be allocated for training young scientists and improving research facilities, says a preliminary Institute of Medicine (IOM) panel report released September 27.

Investment in these areas has been neglected for a decade in favor of funding a fixed number of new and competing research projects each year, concludes the IOM panel. To provide greater coordination of federal health sciences priorities, the panel also called on the Office of Science and Technology Policy to establish a health sciences subcommittee as part of the Federal Coordinating Council for Science and Technology.

The report recognized the current plight of competent investigators being left without research funding and proposes a framework to gradually reallocate funds, replenish the supply of career scientists and upgrade buildings and equipment while maintaining support for research projects.

The committee proposed adding about \$12 million each year (0.2%) to training programs with a goal of reaching 5.75% of the extramural budget by 1995 and 6.75% of the budget by the year 2000. The FY 1990 NIH budget allocated \$5.6 billion to extramural programs, with 4.76% going for training.

Presently, 0.25% of the extramural budget is allocated for construction, according to the report, which proposes increasing it each year to 0.5% by 1995 and keeping it there for the rest of the decade. This amount will not finance a major building program but it is essential to meet crucial needs, the committee notes.

To use the report's example, if the National Institutes of Health (NIH) and the Alcohol, Drug Abuse and Mental Health Administration (ADAMHA) received a 4% budget increase, training needs could be met by a more modest share of the budget — perhaps 5.4% by 1995 and 6.2% by 2000. The increase for construction would remain the same. A 4% annual growth rate would allow research grants to increase in number by about 1,000 per year, the committee says. The committee has worked from the premise that it wouldn't ask for more money.

The full report, "Funding Health Science Research: A Strategy to Restore Balance," will be available in November from the National Academy Press. For more information, call (202) 334-3133 or 1-(800) 624-6242.

Jim Severson Joins Patents and Licensing

Jim Severson, Ph.D., joined the Office of Patents and Licensing on October 1 as assistant director. He replaces Kay Terry, who is now director of technology transfer for the State University of New York in Buffalo. Severson will be responsible for reviewing health sciences and agricultural disclosures, overseeing the patenting of those inventions, and pursuing licensing agreements.

Severson comes to the University of Minnesota with experience in both academic research and industrial technology assessment. Most recently, from 1986 to 1990, he was head of technology assessment and technology transfer for the life sciences division of Amersham Corporation in Arlington Heights, Illinois. "Amersham sells chemicals, primarily radiochemicals," Severson says, "to research laboratories in universities and pharmaceutical companies. In my last year and a half there, I worked mostly with new products and chemicals designed for the pharmaceutical industry."



Severson earned a B.S. in zoology from Iowa State University in 1973 and remained there to complete his Ph.D. in endocrine physiology in 1977. He did postdoctoral research in neurochemistry at the University of Southern California from 1977 to 1980 before accepting a faculty appointment there. From 1980 to 1986, Severson was on the faculty of the Psychiatry Department at USC. "I conducted research that was a combination of animal research correlated with clinical studies — looking for biological markers for depression," he says.

"I'm delighted to be back in an academic environment and I'm looking forward to meeting and working with faculty inventors," Severson says. He can be reached at 624-0262.

National Science Foundation

Changes in NSF Proposal Format

This is a reprint of revisions to Important Notice 107, originally issued on September 11, 1989, and reissued on August 29, 1990.

The National Science Foundation is announcing two revisions in proposal format to underscore:

- the importance of education and human resources within research supported by NSF; and
- the importance of quality of publications in the merit review process.

Importance of Education and Human Resources

Among the criteria established in 1981 by the National Science Board for the merit review of proposals is the effect of the proposed research on the infrastructure of science and engineering. This criterion permits reviewers to consider the potential of the proposal to improve the quality, institutional distribution, or effectiveness of the nation's scientific and engineering research, education and work force.

NSF is especially concerned about the development of scientists and engineers for the future. To assure there is adequate information for merit review, PIs submitting proposals for renewed support will be asked to describe the relationship of the completed project to the infrastructure review criterion.

Importance of Quality of Publication in the Merit Review Process

Evaluation of scientific productivity places importance on the quality of published work rather than its quantity. To ensure this order of priority, NSF will now limit the number of publications considered in reviewing a grant application.

Proposal Format Changes

Reflecting the above considerations, the following changes will apply to proposals submitted on or after January 1, 1991.

1. **Education and Human Resources:** *Each proposal for renewed support* of a research project must include, as part of the required summary of results of the completed work, information describing its contribution to the development of human resources in science and engineering at the postdoctoral, graduate, and undergraduate levels. This may involve, but is not limited to, the role of the research in student training, course preparation,

and seminars, particularly for undergraduates. Special accomplishments in the area of developing professional scientists and engineers from groups presently underrepresented should be described. Graduate students participating in the research should be identified by name.

Progress reports for continuing increments must also include the information described above, as appropriate.

2. **Biographical Sketches:** In lieu of providing a complete list of publications for the past 5 years, senior personnel need only include a list of up to five publications most relevant to the research proposed and up to five other significant research publications. Items in press may be included.

Patents, copyrights, or software systems developed may be substituted for publications.

Publications listed may overlap with the continuing requirement for a list of all publications resulting from and citing prior NSF support. Only the list of up to ten publications will be considered in merit review.

NSF also requests that senior personnel identify those scientists, other than co-authors already listed, with whom they have had a long-term association and/or with whom they have collaborated on a project or a book, article, report or paper within the last 48 months; and their graduate and postdoctoral advisors. This information will help avoid delays in the review process caused by inadvertent selection of inappropriate reviewers.

These changes will be incorporated into the next revision of the NSF kit, **Grants for Research and Education in Science and Engineering (GRESE)**.

NSF Application Kit Revision

Grants for Research and Education in Science and Engineering

ORTTA now has copies of the latest (August 1990) revision of the NSF application kit. This revision, (designated 90-77) contains several substantive changes and should be used for all proposals. NSF 83-57, dated May 1990 or earlier, should *no longer* be used. Call 624-0327 or 624-5599 to request copies of the new application.

Federal Support for Forestry Research Should Increase, NRC Says

Federal support for forestry research should increase by \$270.5 million, according to a National Research Council (NRC) report that finds current efforts "surprisingly weak and fragmented" at a time of increased need.

For example, federal support significantly decreased during the past decade, including two major funding sources at the U.S. Department of Agriculture (USDA). The Forest Service (FS) research budget dropped 14% in buying power during the decade, and fewer than 9% of the applications to the forestry competitive grants programs are funded. The \$4 million Cooperative State Research Service competitive research program "remains totally inadequate in both size and scope."

The report recommends:

- increasing funding for USDA competitive forestry research grants from \$4 million to \$100 million annually,
- increasing the FS research budget from \$135 million to \$218 million over the next five years, and
- raising McIntire-Stennis funds from \$17.5 million to \$109 million over the next five years.

Forestry Support by Private Companies also Decreasing

Research by private companies is also declining, the report finds. Fewer than 12 of the 50 timber companies with substantial land holdings have forest biology and management research programs, and over the past five years, in-house research may have declined by as much as 50%, the committee said.

Since 1978, the number of scientists earning Ph.Ds in forestry and related fields has changed little and the number of undergraduate degrees awarded in these fields has declined almost by half, the report concludes.

To help remedy the problem, the report also recommends:

- establishing a center and increasing research in five critical areas, including the biology of forest organisms, ecosystem function, and management and human-forest interactions;
- establishing a national forestry research council to provide a forum for deliberations on research and policy;
- strengthening and broadening forestry teaching;
- establishing a new forestry model, which "holds

that human beings and nature are interrelated" and interdependent.

Forestry Research: A Mandate for Change is available from the National Academy Press and may be requested by calling 1- (800) 624-6242.

National Science Foundation

Directorate of Engineering, Division of Design and Manufacturing Systems

In order to streamline the processing of *unsolicited* proposals, the Division of Design and Manufacturing Systems (DDM) in the Directorate of Engineering is adopting (on a trial basis for two years) a panel review system for the proposals received by the Division.

NSF anticipates that the new review procedures will 1) make more efficient use of the review community, 2) more effectively involve the research community in formulating and guiding policy, and 3) allow for better allocation of scarce resources.

Currently, unsolicited proposals are accepted any time during the year. Henceforth, the *target dates* for receiving unsolicited proposals are **November 1, 1990** (for awards beginning on or about April 1) and **April 1, 1991** (for awards beginning on or about September 1) each year.

Faculty Awards

Regents' Professor of Medicine **B.J. Kennedy** received the Margaret Hay Edwards Achievement Medal at the 24th annual meeting of the American Association for Cancer Education on October 5. Kennedy helped establish medical oncology in 1972 as one of nine subspecialties of internal medicine. There are now more than 5,000 oncologists, making it the third largest subspecialty after cardiology and pulmonary medicine.

Pediatrics Professor **Warren J. Warwick** was honored in October for his 20 years as director of the University of Minnesota Cystic Fibrosis Center, at the 1990 North American and International Cystic Fibrosis Conference in Arlington, Virginia. Warwick recently was named the first holder of a \$2 million endowed chair in cystic fibrosis, supported by a gift from the family of one of his patients, Annalisa Marzotto, and a matching amount from the University.

Congress Gives NSF 13% Increase

House and Senate conferees have agreed on a \$2.36 billion FY 91 budget for the National Science Foundation (NSF). The figure represents a 13.1% increase over the FY 90 appropriation.

NSF's research and related projects would receive \$1.73 billion, a decrease from the President's \$1.95 billion request. Education funding was increased over the President's recommended \$322.4 million, and funding for the Antarctic program was set at \$175 million, the same as requested by the administration. The chart below shows the final congressional mark compared with the President's request and the FY 90 appropriation. All figures are in millions.

	<u>FY 90 Plan</u>	<u>President's</u>	<u>Congress</u>
Research	\$1,705.0	\$1,954.0	\$1,734.0
Education	204.3	251.0	322.4
Antarctic	151.7	175.0	175.0

Other Appropriations

In the same appropriations bill, the Department of Veterans Affairs medical and prosthetics research received \$216.8 million, \$28 million more than the President requested, but \$10 million less than the Senate originally sought; FY 90 funding was at \$212.65 million.

Research and development at the Environmental Protection Agency received \$254.9 million, the figure originally requested by the House. The Senate's original mark and the President's request was \$249 million. FY 90 funding was at \$229.4 million.

USDA Appropriations Legislation

The Senate passed FY 91 appropriations legislation giving the U.S. Department of Agriculture's Cooperative State Research Service (CSRS) \$73 million for its competitive research grant program.

The Senate figure is identical to the House-approved budget for CSRS grants, but is below the President's \$100 million FY 91 request. The Senate/House figure is \$30.5 million above the FY 90 appropriation.

The chart below shows the breakdown of grant funds (in millions) by research area as approved separately by the Senate and the House. (NOTE: Figures in parentheses represent specific allocations and are already accounted for in major research areas.)

	<u>FY 90</u>	<u>FY 91 request</u>	<u>Senate House</u>
Plant systems	\$ 7.75	\$ 50.00	\$ 35.00
Soybean research	(0.49)	—	(0.49)
Alcohol fuels	(0.51)	—	(0.51)
Animal science	4.94	30.00	20.00
Brucellosis	(0.47)	—	(0.48)
Pest science	1.98	—	—
Nutrition, food quality and health	1.48	5.00	4.00
Biotechnology	18.78	—	—
Stratospheric ozone	3.65	—	—
Forestry	3.95	—	—
Natural resources/the environment	—	15.00	14.00
TOTAL	\$ 42.52	\$100.00	\$ 73.00

Alzheimer's Research Gets Major Increase

Alzheimer's disease research would jump from \$150 million in FY 90 to \$305 million under the FY 91 mark set by the Senate Appropriations Subcommittee for Labor, Health and Human Services, Education and Related Agencies.

The National Institute on Aging (NIA) would receive \$120 million of the increase. Included in NIA's increase were subcommittee earmarks of:

- \$46.7 million to pursue promising leads,
- \$17.5 million to develop more accurate diagnostic techniques,
- \$17.5 million to explore new drugs and treatment methods,
- \$5.8 million for awards to distinguished senior researchers,
- \$3 million for two new research centers, bringing the total to 17.

The House has approved a \$40 million increase over FY 90 for NIA, approximately half of which is targeted for Alzheimer's disease research.

In addition, the National Institute of Mental Health (NIMH) will receive a \$10 million increase, which would bring total funding for various behavioral research studies to \$36.6 million.

Electronic Bulletin Board

Connecting Through the University's Internet

The September issue of the *Research Review* contained instructions on how to access the Bulletin Board. One of the options, connecting through the University's Internet, needs some clarification.

The article stated that, "If you can access LUMINA, you already have the required hardware and software, and the logon process is similar." Actually, to connect to LUMINA through the University's Internet, you can use NCSA Telnet software or tn3270 software. However, if you want to connect to the Bulletin Board *as well as* LUMINA, you must use tn 3270 software.

The tn3270 software and documentation is available free of charge from the Microcomputer and Workstation Networks Center, 125 Shepherd Lab (646-4276).

U of M Joins NeXT Computer Network

The University of Minnesota has entered a partnership with NeXT, Inc. of Redwood City, California to develop teaching software on the NeXT computer platform. NeXT was founded by Steven Jobs, a founder of Apple Computers.

The project, called MinNeXT, will allow faculty access to about 50 new machines to develop software for teaching in their disciplines. About 15 of the machines will be placed in public laboratories around campus as part of a network, according to project director Shih-Pau Yen. Yen said he will be inviting faculty to apply for access to MinNeXT shortly.

"We believe that higher education computing in the '90s will use networks of desktop systems for research, information sharing and education," said Mark McCahill, manager of the Microcomputer and Workstation Networks Center and project coordinator. "MinNeXT will allow groups of desktop computer users to more effectively collaborate to realize their academic goals."

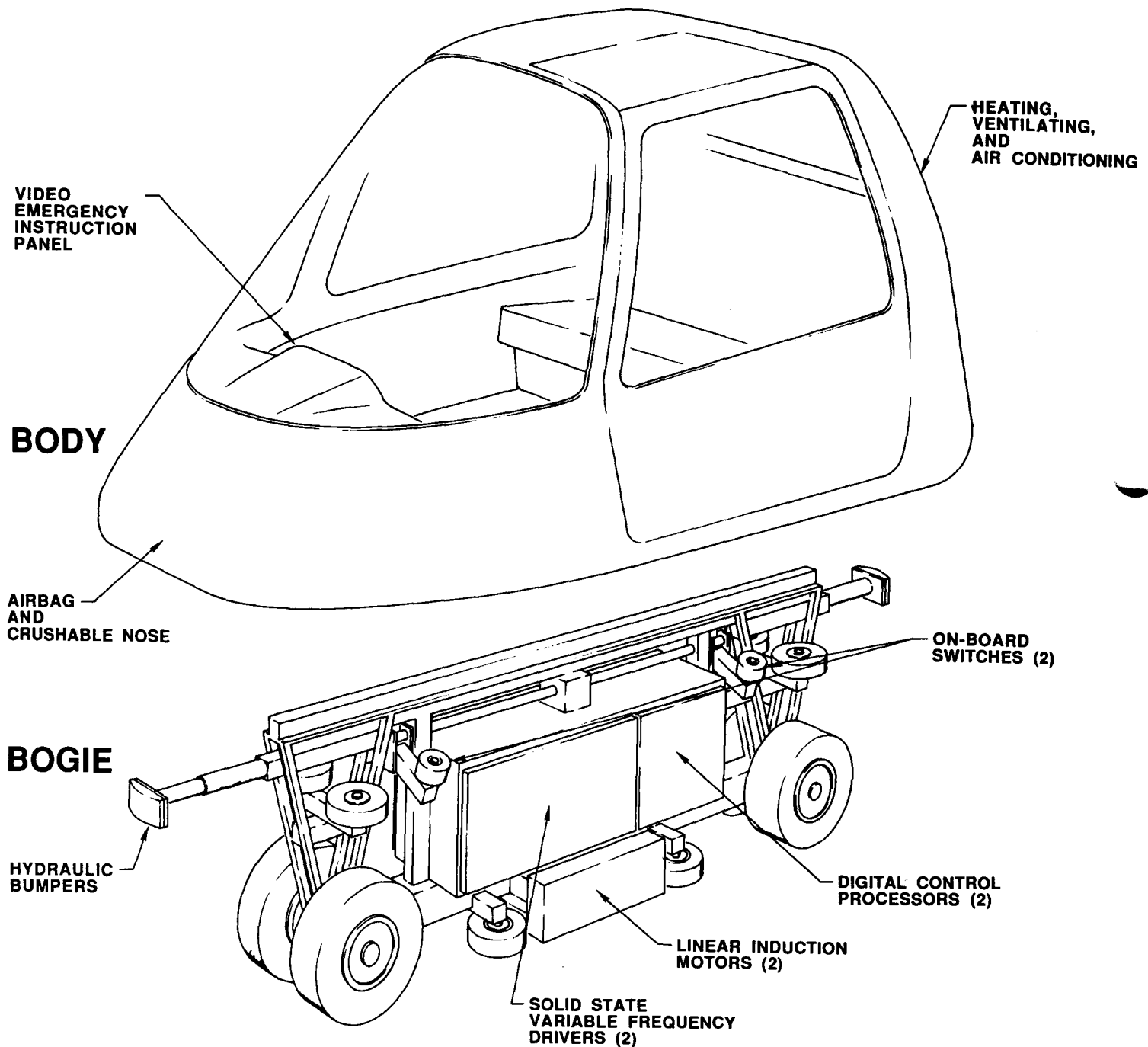
Walter Massey Nominated as New NSF Director

President Bush has nominated Walter Massey to be the next director of the National Science Foundation.

Massey, a physicist, is vice president of the University of Chicago, which includes research and directing the Argonne National Laboratory. Massey taught at Brown University from 1970 to 1979 and at the University of Illinois, Urbana, from 1969 to 1970. After completing his doctoral work in physics at Washington University in 1966, Massey joined Argonne as a fellow and served as a research physicist until 1968. From 1958 to 1959, Massey taught physics at Morehouse College in Atlanta, where he earned his bachelor's degree.

Massey's research has centered on the many-body theories of quantum liquids and solids. He is a member of the President's Council of Advisors on Science and Technology, and a former member of the National Science Board, NSF's policy-making body. He is also a former president of the American Association for the Advancement of Science, and was a member of the National Academy of Sciences Advisory Committee on Eastern Europe and the USSR.

Taxi 2000



and running vehicles at a minimum of 20 miles per hour and a maximum of 50 miles per hour, with a safe distance between vehicles, Anderson has determined that a PRT guideway could carry the same number of vehicles as a four-lane highway. He has designed the system to maximize passenger comfort and safety, with hydraulic bumpers, airbags, temperature control, and on-board fail-safe systems to direct the vehicle to the next station in case of emergency or system-wide power failure.

Anderson and the University's Office of Research and Technology Transfer Administration (ORTTA) attempted to bring the concepts of PRT and the Taxi 2000 system to the attention of transportation and public officials during the early 1980s. There was little interest in Minnesota, but in Madison, Wisconsin there was strong public and private support for a demonstration track in 1985. Then, in 1986, the John Deere Co. decided not to participate, and political concerns killed the proposed project. Other cities and major corporations in the United States and other countries have been equally enthusiastic, and in-depth evaluations by several major engineering corporations have strongly endorsed the system's engineering and financial feasibility. All, however, have backed away from financing a test track or purchasing a system.

"The response we usually got was that it sounds great — almost too great — but that it is too innovative and untested," says Tony Strauss, the ORTTA licensing attorney who has worked closely with Anderson and the Taxi 2000 Corporation. Even though Anderson's system relies on existing technology, and both the rail design and drive system "bogie" have been built and tested, lack of financing has prevented construction of a test track to demonstrate its operation.

"It's been a Catch 22: municipalities and corporations won't put money into it without a test track, but Taxi 2000 can't afford to build a working version of the system without a major external investment," Strauss says. "The Chicago RTA has made the tough political decision to finance an in-depth evaluation of PRT, recognizing that existing mass transit systems aren't solving the problems of urban and suburban congestion."

The Chicago RTA awarded one phase I grant to Intamin AG, a Swiss firm, and the other to the Taxi 2000 consortium, headed by Stone and Webster Engineering Corp. of Chicago, and which includes Bombardier, designer of the monorail at Walt Disney World, and the Riley Group, Inc. Each grantee will prepare a design and engineering study of a PRT system suited to the needs of a

Chicago suburb, and at the end of one year each will present a proposal. The Chicago RTA will then decide whether or not to co-fund one of the proposals for Phase II, development of the hardware and software needed for a demonstration system. If successful, the RTA will fund a suburban demonstration site under phase III, with the goal of having a public system operating by 1995.

"We're very optimistic that the Taxi 2000 PRT system will prove itself in Chicago," Strauss says, "but we'd also like to see it evaluated here in the Twin Cities. We think it could solve many of the microsystem transit problems such as transportation from the airport to remote parking lots, from the airport to Bloomington hotels and the Mall of the Americas, and even here at the University, along the corridor between the Minnesota and St. Paul campuses. We also think it could serve as a feeder system to light-rail transit (LRT) lines, or even as a less costly, more energy efficient, and less disruptive alternative to LRT."

Taxi 2000 Performance

Line Capacity:	7200 vehicles per hour
Station Capacity:	Up to 2000 vehicles per hour
Line Speed:	20 to 50 mph
Maximum Service Acceleration and Jerk:	0.25 g and 0.23 g/s respectively, corresponding to comfort requirements for seated passengers
Energy Requirement:	145 watt-hours per vehicle-mile at 25 mph
Maximum Grade:	Elevation change of 30 feet at 15%
Minimum Curve Radius:	36 feet
Maximum Winds:	Normal operation in winds up to 45 mph. Degraded performance in gusts up to 80 mph
Weather Operation	Normal operation in rain, heavy snow, ice storms, freezing rain and moderate hail
Availability:	24 hours a day, on demand
Accessibility:	To all including wheelchair passengers
Station Wait:	Off-peak hours — no wait. Peak hours — 80 % of people typically wait less than 30 seconds, 99% percent less than two minutes
Service:	On demand and private with one's own traveling companions in seated comfort with no intermediate stops.

Minnesota's Horticultural Showcase

The Minnesota Landscape Arboretum in Chanhassen is a showcase for more than 5,000 species and cultivars of trees, shrubs, flowers and other plants. The 905 acres of rolling hills are covered with native woods, marshes, a prairie, formal display gardens, and a variety of plant collections.

Established in 1958 as a unit of the University's Department of Horticultural Science, the Arboretum has three main goals:

- to provide education in horticulture and landscape design;
- to develop and evaluate plants for Minnesota and the Upper Midwest; and,
- to inspire and delight visitors with quality plants in well-designed and well-maintained displays.

HEALTH SCIENCES

Kinder and Gentler Medication

Problem:

Patients needing long-term infusion of medications or nutritional supplements must remain hospitalized and bedridden, and must be repeatedly stuck with needles to obtain blood samples and replace catheters.

Research and Development:

Mechanical engineers and surgeons in the University's Implantable Devices Laboratory studied a variety of designs and materials for new infusion devices. They then built and tested prototypes in the laboratory, and then tested them in animals and humans.

Solutions:

The world's first implantable infusion pump, licensed in 1971 to the Shiley-Infusaid Corp. The Infusaid pump has freed more than 20,000 patients who would otherwise have had to be bedridden or hospitalized.

The Buchwald-Wigness catheter, which can remain in the patient's vein for several weeks, allowing health care workers to infuse medication and withdraw blood samples without repeatedly sticking the patient. The catheter was licensed to Strato Medical Corporation in 1989 and has recently been made available to patients worldwide.

A Good Pounding for Cystic Fibrosis

Problem:

Cystic fibrosis and some other lung diseases cause sticky secretions that can block airways and cause infections. People with these diseases are dependent on others for daily percussion therapy to loosen and remove secretions.

Research and Development:

Based on decades of studying cystic fibrosis and treating patients at the University's Cystic Fibrosis Center, Warren Warwick and Leland Hansen developed a pneumatic system that enables patients to self-administer their therapy.

Solution:

The ThAIRapy™ Bronchial Drainage System, an electric motor and pneumatic vest patented and licensed to American Biosystems, Inc., which distributes it through the CAREMARK Division of Baxter Healthcare, Inc.

Heel Fido—Good Dog!

Problem:

Unless well-trained, most dogs respond to a collar and leash by straining against it, leading to mutually undesirable tugging matches with their owners.

Research and Development:

Veterinarians and public health professionals at the University's Center to Study Human-Animal Relationships and Environments (CENSHARE) applied their knowledge of canine behavior to develop and test new designs for a collar and leash. They invented and patented one that causes dogs to respond instinctively, as they would to a mother dog nudging her pups at the nape of the neck, or to a dominant dog pressing down on their snouts.

Solution:

The Gentle Leader™ dog collar and leash, marketed by Alpha M, Inc., a company established by the inventors, Robert K. Anderson and Ruth E. Foster. The Gentle Leader has been very popular with veterinarians and dog trainers, who find that their clients—human and canine—have a much better relationship as a result of this new device.

INSTITUTE OF TECHNOLOGY

Is There a Taxi in Your Future?

Problem:

Mass transit "solutions" such as subways, trains, and light-rail systems are expensive and disruptive to build, yet they fail to lure enough commuters away from their cars because they are not as comfortable, convenient, or flexible as the personal automobile.

Research and Development:

During 20 years of studying the problems of mass transit systems, former University professor J. Edward Anderson designed and engineered a solution that gives cities and people what they want: a system that is relatively inexpensive, easy to install and expand, and that offers convenience, comfort, and privacy to riders.

Solution:

Taxi 2000, a personal rapid transit (PRT) system patented by the University and licensed to the Taxi 2000 Corporation, founded by Anderson. The company was recently awarded a \$1.5 million grant by the Chicago Regional Transportation Authority, which wants to build a pilot PRT system. Engineering and feasibility studies by national transportation experts concluded that Taxi 2000 could provide superior service at lower capital and operating costs than other mass transit systems.

Taconite—An Ironclad Investment

Problem:

Minnesota's iron ore deposits were rapidly depleted by World War II, threatening economic doom for the Iron Range. Similar threats to Minnesota's competitiveness as a supplier to the steel industry continue as the Range competes against countries with higher-grade deposits of iron ore.

Research and Development:

Starting in 1915, a 40-year research project headed by Edward W. Davis, director of the University's Mines Experiment Station (now Mineral Resources Research Center) succeeded in inventing machines and developing processes that made it economical to extract a high percentage of iron ore from Minnesota's vast taconite deposits.

The Solution:

In 1955, taconite processing began to take up the slack caused by dwindling iron ore deposits, and in the mid-

1970s, taconite became the sole source of iron ore from Minnesota. Shipments peaked at 56 million tons in 1979, and despite the economic recession of the early 1980s, which forced the industry to reduce its workforce by two thirds, taconite shipments continue at about 40 million tons per year. In 1989, state tax revenues from the taconite industry reached a cumulative total of \$1 billion.

University research and development continues to increase the economy and value—and therefore the competitiveness—of Minnesota's taconite mining and processing industry for today and the future.

A Concrete Use for Sludge Ash

Problem:

The Metro plant of the Metropolitan Waste Control Commission (MWCC) in St. Paul generates over 21,000 tons of sludge ash each year as part of sewage sludge processing. Under current Minnesota Statutes, this ash cannot be disposed of in landfills.

Research and Development:

The MWCC funded a research project at the University's Mineral Resources Research Center to develop synthetic lightweight aggregates for use in low stress concretes. Researchers used the pelletizing and firing techniques developed for taconite processing to turn the sludge ash into expanded pellets. They also developed expanded pellets from a mixture of sludge ash, waste lime from the Minneapolis Water Works, and fly ash from Northern States Power plants.

The Solution:

The study concluded that the three types of waste could be combined in lightweight aggregates to produce concrete 40 percent lighter yet just as strong as commercially available lightweight concrete, which is used in non-load-bearing walls and ornamental products. Cost analysis and product testing showed that a plant producing 50,000 tons per year could be competitive with existing aggregates, while dealing with a waste disposal problem in an environmentally sound way.

Measuring Air Quality—In Outer and Inner Space

Problem:

Air quality is especially critical in tightly closed spaces, but it is difficult to scientifically evaluate air quality.

Research and Development:

In the University's Particle Technology Laboratory, Professor Benjamin Liu and colleagues have developed

one of the world's most advanced collections of instruments for generating, measuring, sampling, and analyzing airborne particles.

Solutions:

Dr. Liu's laboratory developed an air particle analyzer for NASA that was flown on the space shuttle Challenger to evaluate the astronauts' air quality. A company started by Dr. Liu, MSP Corp., has licensed from the University two other devices: a clean-room fogger used to evaluate airflow patterns in rooms where sensitive work is performed; and a personal particle analyzer, which can be worn on a worksite to evaluate an individual's exposure to airborne particles.

NATURAL RESOURCES AND FISHERIES AND WILDLIFE

Reducing Stress on Wildlife Subjects

Problem:

When studying populations such as deer and wolves, wildlife biologists must repeatedly recapture animals to study their development. Radio collars help in relocating animals, but anesthetizing them with dart guns or capturing them with other methods is still difficult for the biologists and stressful for the animals.

Research and Development:

As part of their studies of deer and wolves in northern Minnesota, researchers Richard Chapman, William Cochran, and L. David Mech of the University's Department of Fisheries & Wildlife developed and patented a new device that uses radio signals to track and recapture animals. Chapman did further development work at 3M, which then returned the rights to the University.

Solution:

The Wildlink Recapture System, a data-collecting and radio-relocation collar, incorporates a syringe that can be remotely triggered to deliver anesthesia accurately and safely once the animal is located. The collar also can be released automatically for retrieval without recapturing the animal. The device is licensed to Wildlink, Inc., a company started by Chapman.

Keeping Fish Down on the Farm

Problem:

Minnesota's lakes and ponds provide plenty of opportunity for aquaculture, but the harsh environment makes

it difficult to profitably raise fish and other aquatic organisms.

Research and Development:

Researchers in the University's Fisheries and Wildlife Department, Minnesota Sea Grant Extension Program, and Minnesota Extension Service are working with the NRRI Business Group and private operators to develop and study various aspects of aquaculture.

Solutions:

The Minnesota Aquaculture Development and Education Program, which is funded by the Legislative Commission on Minnesota Resources. Project coordinator Les Getting and others are working with Minnesota fish farmers to test more economical methods in three types of aquaculture: walleye production for food consumption, crayfish culture for consumption and export, and baitfish culture for sport fishing.

Crayfish Anyone?

Problem:

Northern Minnesota needs new industries, and the national economy can benefit as well from products that can be exported.

Research and Development:

Through research supported by the Greater Minnesota Corporation, the University's Natural Resources Research Institute in Duluth is studying crayfish aquaculture. The challenge is to develop methods of raising crayfish so they can be harvested when they shed their hard shells. In the softshell state, crayfish are nearly 95 percent edible and worth ten times more than when in the hardshell.

Solution:

The crayfish industry in Duluth is already shipping tons of crayfish to Sweden, where they are a delicacy. If methods can be found to raise or harvest softshell crayfish, this industry could be greatly expanded in volume and value. Maybe even Minnesotans would develop a taste for crayfish, which are said to have a slightly milder flavor than lobster.

Videotape (20 min)

A videotape compilation of television, movie, and marketing presentations that mention innovations by University of Minnesota researchers is available from ORTTA. See page 25.

NIA Outlines Research Opportunities in Older Women's Health Issues

Given the large percentage of women in older age groups — 72% of those 85 or above — the National Institute on Aging (NIA) has a particular interest in supporting women's health research.

NIA supports and conducts research on disorders prevalent among women, such as osteoporosis, incontinence, age-related hormonal changes, and also on older women's roles as recipients and givers of health care. However, some research areas need to be pursued and others expanded. Studies on menopause and hormonal changes could be expanded by focusing on:

- how hormones change at the molecular level and affect older women's health;
- whether the cessation of estrogen during menopause decreases neuronal function, especially at the cellular level;
- how longitudinal studies of menopausal and post-menopausal women are also a high priority.

Osteoporosis-Related Research Could Increase

NIA may also expand osteoporosis-related research from the primarily individual investigator-initiated research to clinical trials of techniques which could alleviate or prevent the most serious cases of the disease.

Studies of physical frailty, which generally have been small, could also be further developed. NIA and the National Center for Nursing Research (NCNR) now collaborate on a major, long-term program of clinical trials to reduce frailty and associated injuries. Program needs include a better understanding of the mix of factors — frailty diseases, psychosocial — that cause disability. NIA could also expand a planned FY 91 study following 1,000 disabled, older women over a five-year period which will identify research needs. A larger study would help refine a hypotheses and allow a cultural and racial comparison.

NIA and the National Cancer Institute have discussed increased research coordination on cancer in older people. NIA is also considering workshops in FY 91 on breast and gynecological cancers and on older-aged cancer survivors, and there are also many opportunities for behavioral studies of older women, both in the workplace and as caregivers. Minority and rural-area women also require research attention.

Hazardous Chemical Waste Management Guidebooks

The fourth edition of the Hazardous Chemical Waste Management guidebook, prepared by the University Department of Environmental Health and Safety, Environmental Protection Division, and Chemical Waste Program is now available.

The revised guidebook, developed in response to changes in federal, state, and local regulations, provides instruction and training in the management of hazardous chemical wastes, laboratory safety, and chemical spill response procedures. The hazardous waste guidebooks are provided free of charge to University departments and research laboratories and are distributed by the Chemical Waste Program.

If your laboratory, shop, or service area does not receive the revised guidebook and you are interested in obtaining a copy, please contact the Chemical Waste Program (627-4166) to be added to the distribution list.

NSF Directorate Name Change

The National Science Foundation recently announced establishment of the Directorate for Education and Human Resources (EHR) to replace the former Directorate for Science and Engineering Education (SEE). EHR will continue all of the activities of SEE and, in addition, will have responsibility for several programs from the Division of Research Initiation and Improvement, which was formerly under the Directorate for Scientific, Technological, and International Affairs.

NIDDK and Cystic Fibrosis Foundation

The Cystic Fibrosis Foundation (CFF) may provide funding for research applications that the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) is unable to finance. On October 22, NIDDK reviewed between 60 and 70 RFAs for support of research on the molecular pathophysiology of cystic fibrosis, according to NIDDK staff. According to CFF, applications reviewed by NIDDK that are judged meritorious but not fundable may immediately be submitted by investigators to CFF, without additional paperwork, for possible funding. For additional information, please call 624-0061 or send a note through the Bulletin Board.

Program Information

Internal and External Sponsors

National Science Foundation

Land-Margin Ecosystem Research

As part of the Ecological Systems and Dynamics science theme of the U.S. Global Change Research Program, the National Science Foundation (NSF) announces the third competition for land-margin ecosystems research (LMER).

Land-margin ecosystems are at the interface of continental land masses and coastal oceans (including the Great Lakes). Estuaries, coastal wetlands, tidal portions of rivers and coastal reefs are further examples of land-margin ecosystems. The goal of LMER is to increase the understanding of: 1) the structure and function of land-margin ecosystems; and 2) the linkages between these systems and adjacent terrestrial and marine systems. Proposals should be organized around major ecological questions and the ways in which changes on land cause changes in land-margin ecosystems.

Proposals may be requested for up to five years; detailed budgets should not exceed \$400,000 annually. The application deadline is **January 4, 1991**. The NSF contact is James T. Callahan in the Division of Biotic Systems and Resources, (202) 357-9596.

National Science Foundation

Doctoral Dissertation Research

The National Science Foundation (NSF) through its Division of Biotic Systems and Resources, in the Directorate of Biological, Behavioral and Social Sciences is accepting proposals for Doctoral Dissertation Research. Each proposal should be submitted through regular university channels by the dissertation advisor acting on behalf of a graduate student, and may be submitted while the student is completing other requirements for the doctorate. Only students enrolled at U.S. institutions are eligible.

The next application deadline is **February 1, 1991** for start dates of July 1 or later in the same calendar year; the other annual deadline is September 1.

For further information, contact the respective program in the Division of Biotic Systems and Resources to which the proposal will be submitted: Ecology, 357-9734; Ecosystem Studies, 357-9596; Population Biology & Physiological Ecology, 357-9728; Systematic Biology, 357-9588. (Area code, 202).

Improving Doctoral Dissertation Research

The NSF Directorate of Biological, Behavioral and Social Sciences is also accepting proposals for doctoral dissertation research in the environmental, behavioral, and social sciences and in the studies in science, technology, and society program, in order to improve the overall quality of dissertation research in these sciences.

Potential applicants are encouraged to call program officers to determine the appropriateness of their proposal for consideration by NSF. Six months should be allowed for normal processing; **application dates vary**. Contact ORTTA at 624-0061 for a full copy of the guidelines, or you may request a copy through the Bulletin Board.

National Science Foundation

Global Environmental Change

The National Science Foundation (NSF) through the Division of Social and Economic Science will hold a special competition for research dealing with the human dimensions of global environmental change.

Proposals must be clearly related to social, economic, demographic, governmental, legal and/or institutional aspects of global changes; demonstrate how proposed research will contribute to greater understanding of how individuals and institutions affect and respond to environmental processes at a multinational or global scale; and be well grounded in relevant social scientific theory, explain how the research will contribute to enhancement of that theory, and outline and justify the research methods to be used.

The application deadline is **January 15, 1991**. Contact: NSF, Social and Economic Sciences, Room 336, 1800 G Street NW, Washington, DC 20550; (202) 357-7966.

National Science Foundation

Alan T. Waterman Award Nominations

The deadline for receipt of nominations for the 16th Alan T. Waterman Award is **December 31, 1990**.

The award, presented annually to an outstanding young scientist, mathematician or engineer, will be announced and presented in May, 1991.

For further information and/or a copy of the guidelines for submission, contact Mrs. Susan Fannoney, National Science Board (202) 357-7512.

Program Information

Internal and External Sponsors

National Science Foundation

Small Grants for Exploratory Research

The National Science Foundation (NSF) is inviting proposals for small-scale, exploratory, high-risk research in science, engineering and education under the small grants for exploratory research (SGER) program. The maximum award is \$50,000.

Areas of research include: preliminary work on untested and novel ideas; ventures into emerging research areas; application of new expertise and new approaches to old research topics; multidisciplinary work, particularly crossing NSF program boundaries; research having severe urgency with regard to availability of or access to data, facilities or specialized equipment; or efforts of similar character likely to catalyze rapid and innovative advances.

Applicants may submit short, two- to five-page proposals at any time. Contact individual NSF programs.

Environmental Protection Agency

Exploratory Research Grants

The U.S. Environmental Protection Agency (EPA), through its Office of Exploratory Research (OER), is seeking grant applications to conduct exploratory environmental research in biology, health, chemistry, physics, engineering, or socioeconomics. Investigations are sought in these research disciplines which focus on any aspect of pollution identification, characterization, abatement or control, or that address the effects of pollutants on human health or the environment. In addition, research is sought on environmental policy and its social and economic consequences.

Application deadlines are listed in the "Other Federal" section of the Electronic Bulletin Board. For application materials and complete guidelines, please call 624-0061 or send a request through the Bulletin Board.

U.S. Information Agency

The United States Information Agency (USIA) invites applications from U.S. educational, cultural, and other not-for-profit institutions to conduct exchanges of students and young people with Bulgaria, Czechoslovakia, Hungary, Poland, Romania, the Soviet Union (including the Baltic States) and Yugoslavia. These exchanges rep-

resent part of the activities of the Samantha Smith Memorial Exchange Program.

Support is offered for two categories of exchange programs: Category A supports exchanges of undergraduate students under the age of 26 for academic programs of no less than ten weeks duration; Category B supports exchange of young people under the age of 21 for exchanges of no less than three weeks. Both existing and new projects are eligible.

Applications must be received by USIA no later than **November 30, 1990**. Detailed application packets may be requested by calling (for Category A), (202) 619-4420, and (for Category B) (202) 619-6299.

McKnight Foundation

Endowment Fund for Neuroscience

The McKnight Endowment Fund for Neuroscience is soliciting applications for the McKnight Scholars Awards.

The McKnight Scholars Awards were initiated to stimulate research in neuroscience, especially as it pertains to memory and, ultimately, to a clearer understanding of diseases affecting memory. Over the years this mandate has been interpreted broadly to permit support of work in many relevant areas of neuroscience.

Each award provides \$40,000 annually for three years. Funds may be used in any way that will facilitate development of the Scholar's research program.

The application deadline is **January 2, 1991**. Potential applicants should write or call the office of the McKnight Endowment Fund for Neuroscience to request application forms and guidelines: 410 Peavey Building, Minneapolis, MN 55402; (612) 333-4220.

Graham Foundation

The Graham Foundation is requesting fellowship and project grant proposals for advanced work in architecture education and related arts. The foundation funds: architecture scholars' independent study leading to publication; architecture schools' special projects, enrichment programs, curriculum development and graduate student assistance; and museums', schools' and libraries' exhibitions, catalogs and, occasionally, acquisitions. The foundation also makes grants to improve architecture

Program Information

publications or make them more available to students and teachers.

Grants to individuals may not exceed \$10,000; grants to institutions may exceed that amount.

Applications are due **December 1, 1990 and June 1, 1991**. The contact is: Graham Foundation, 4 West Burton Place, Chicago, Illinois 60610; (312) 787-4071.

Robert Wood Johnson Foundation

The Robert Wood Johnson Foundation is seeking proposals for the second year of its Improving the Health of Native Americans grant program.

RWJ will fund projects in three areas: prevention projects that focus on major causes of sickness, disability and death, including diabetes and alcohol and drug abuse; improving care for specific vulnerable age groups, including mothers and infants, adolescents and the elderly; and service management and financing projects, such as joint health care ventures between tribes and local municipalities, health care consortia of tribal governments and tribal contracting with health care organizations.

Eligible applicants are Indian tribes and organizations that provide health services to American Indians and Alaskan natives. The application deadline is **February 1, 1991**. Contact: Timothy Taylor, Program Director, Improving the Health of Native Americans, College of Public Health, Room 375, University of Oklahoma Health Sciences Center, P.O. Box 26901, Oklahoma City, Oklahoma 73190; (405) 271-3221.

National Center for Atmospheric Research

The National Center for Atmospheric Research (NCAR) is requesting applications for 1991 Postdoctoral Appointments. The program provides an opportunity for atmospheric scientists to pursue their research interests and to develop expertise in new areas; and also offers an opportunity for qualified physicists, chemists, applied mathematicians, engineers, and specialists from other disciplines such as biology, geology, economics, and geography to apply their training to research in the atmospheric sciences.

Internal and External Sponsors

Scientists just receiving their Ph.D. (or equivalent) and scientists with no more than four years' applicable experience past the Ph.D. are eligible.

The application deadline is **January 10, 1991**. Contact Barbara McDonald, Coordinator, Advanced Study Program, National Center for Atmospheric Research, PO Box 3000, Boulder, Colorado 80307-3000; (303) 497-1601.

National Cancer Institute

Epidemiology of Cancer in U.S. Ethnic/Minority Populations

The Division of Cancer Etiology of the National Cancer Institute invites grant applications for epidemiologic studies of possible causes of cancer in U.S. ethnic/minority populations.

The purpose of this RFA is to stimulate analytical, site-specific studies of cancer etiology in ethnic/minority populations of the United States. Research strategies may involve cohort, case-control, or genetic epidemiology designs as well as laboratory methodology. Innovative approaches that involve new inter-disciplinary collaboration, or include the application of diagnostic or exposure measurements, are particularly encouraged. Emphasis should be placed on etiologic studies of the more common cancers affecting the U.S. population, or on cancer sites with rising incidence rates. Projects will be evaluated on their potential for impact on the overall understanding of cancer etiology and means of prevention.

Prospective applicants are requested (but not required) to submit a letter of intent by January 15, 1991 that includes a descriptive title of the proposed research, the name and address of the principal investigator, the names of other key personnel, the participating institutions, and the number and title of the RFA in response to which the application is being submitted. The application deadline is **February 15, 1991**. The NCI contact is Dr. A.R. Patel, (301) 496-9600. A complete copy of the guidelines is available from ORTTA and may be requested by calling 624-0061 or sending a note through the Bulletin Board.

University Research Centers

Ready for Outreach Database

As of October 8, ORTTA had received completed data forms for the following University of Minnesota research centers. This information will be entered on a database that will be a part of the service offered through Minnesota Project Outreach. The information will be accessible on-site to 400 small and medium-sized companies in Minnesota and to users of public access sites throughout Minnesota. It will also be available to other corporate subscribers to the network offered by Teltech, Inc., the vendor selected by Minnesota Project Outreach Corporation (see the August, 1990 *Research Review*). Any additional research center directors who would like to be included on the MPO database should contact WinAnn Schumi, 624-5750.

University Research Centers as of October 8, 1990

- | | |
|---|--|
| 1. Accounting Research Center | 22. Microelectronics and Information Sciences, Center for |
| 2. Applied Research and Educational Improvement, Center for | 23. Minnesota Building Research Center |
| 3. Army High Performance Computing Research Center | 24. Minnesota Extension Service |
| 4. Bell Museum of Natural History | 25. Minnesota Geological Survey |
| 5. Biomedical Engineering Center | 26. Minnesota Technical Assistance Program |
| 6. Cloquet Forestry Center | 27. MIS Research Center |
| 7. Corrosion Research Center | 28. National Center for Research in Vocational Education |
| 8. Dairy Food Research Center, Minnesota-South Dakota | 29. Particle Technology Laboratory |
| 9. Dial U Insect and Plant Information | 30. Plant Disease Clinic, Plant Pathology |
| 10. Early Education & Development, Center for | 31. Plant Molecular Genetics Institute |
| 11. Human/Animal Relationships and Environments, Center to Study (CENSHARE) | 32. Plasma-Aided Manufacturing, Center for |
| 12. Humphrey Institute of Public Affairs | 33. Population Analysis and Policy, Center for |
| 13. Implantable Devices Laboratory | 34. Regional Instrumentation Facility for Surface Analysis |
| 14. Industrial Relations Center | 35. Remote Sensing Laboratory |
| 15. Institute for Financial Studies | 36. Science and Application of Superconductivity, Center for the |
| 16. Institute for Rock Magnetism | 37. Strategic Management Research Center |
| 17. Intercollegiate Nutrition Consortium | 38. St. Anthony Falls Hydraulic Laboratory |
| 18. International Economic Policy, Center for | 39. Transportation Studies, Center for |
| 20. Limnological Research Center | 40. Underground Space Center |
| 21. Minnesota Extension Service — Small Business Development Center | 41. UNITE Instructional Television |
| | 42. Water Resources Research Center |

Faculty Research Awards

This section contains statistics on proposals and awards recently processed by ORTTA. In addition, we have randomly selected awards received by faculty during preceding months. If any faculty member has received an award he or she would like mentioned in future Research Reviews, please call Mike Moore at 624-9398.

Proposal and Award Summary

	Number	Amount
Proposals Submitted		
September, 1990	354	\$38,517,336
Awards Processed		
September, 1990	253	17,983,431
Proposals Submitted		
July, 1990 - September, 1990	841	113,936,919
Awards Processed		
July, 1990 - September, 1990	820	63,017,806
Proposals Submitted		
July, 1989 - September, 1989	860	165,153,419
Awards Processed		
July, 1989 - September, 1989	677	119,242,131

EPIC: Ecobehavioral Programming for Individual Children

Scott McConnell, Educational Psychology
U.S. Department of Education
\$391,319 / 09/90-08/93

Women's Leadership Development and Reproductive Rights

Arvonne S. Fraser, HHH Institute
MacArthur Foundation
\$390,000 / 07/90-06/93

Predictors of Functional Ability

Chad Boulton, Family Practice and Community Health
NIH, NIA
\$309,960 / 09/90-08/95

Minnesota Clinical Comparison and Assessment Project

Robert L. Kane, School of Public Health
Pew Memorial Trust
\$300,000 / 06/90-06/91

Evaluation of Moderate Dietary Protein Restriction in Geriatric Dogs

Carl E. Osborne, Small Animal Clinical Sciences
David Polzin, Small Animal Clinical Sciences
Mark Morris Associates
\$263,224 / 07/90-06/92

Research Explorations for Teachers

Susan K. Henderson, Continuing Education & Extension
Eugene D. Gennaro, Curriculum and Instruction
National Science Foundation
\$225,741 / 08/90-09/94

Acquisition of a High-Pressure, High-Temperature Materials Texting Apparatus

David L. Kohlstedt, Geology and Geophysics
National Science Foundation
\$195,000 / 06/90-11/92

Title III - /Strengthening Institutions Program

Rita S. Meyer, Office of the Chancellor, Crookston
U.S. Department of Education
\$190,051 / 10/90-09/91

Membrane Physiology and Function of Retinal Muller Cells

Eric A. Newman, Physiology
NIH, NEI
\$186,319 / 07/90-03/91

Environmental and Pharmacological Control of Drug Abuse

Marilyn E. Carroll, Psychiatry
ADAMHA, NIDA
\$180,549 / 07/90-06/91

Renal Adaptation and Injury

Thomas Hostetter, Medicine
NIH, NIDDK
\$170,735 / 07/90-06/91

Native Americans into Medicine

James G. Boulger, School of Medicine, UMD
HRSA, Bureau of Health Professions
\$170,418 / 09/90-08/91

Mortality Surveillance of MRFIT Screeners

James D. Neaton, School of Public Health
NIH, NHLBI
\$165,505 / 08/90-07/91

Drug Education and Prevention: Training Model for Educators

John L. Romano, Education Psychology
U.S. Department of Education
\$158,278 / 10/90-03/92

Regulation of Biliary Lipid Metabolism

William Duane, Medicine
NIH, NIDDK
\$146,107 / 07/90-06/91

Antigenic and Immunogenic Components of Borrelia burgdorferi

Russell C. Johnson, Microbiology
NIH, NIAID
\$142,714 / 06/90-05/91

Graduate Fellowships - National Need Program

Paul B. Garrett, School of Mathematics
U.S. Department of Education
\$136,800 / 09/90-08/91

Achieving Membership in Home Schools for Students with Severe Disabilities

Robert H. Bruininks, Educational Psychology
Terri Vandercook, Educational Psychology
U.S. Department of Education
\$119,840 / 09/90-08/91

Open Enrollment and Students with Handicaps

James E. Ysseldyke, Educational Psychology
U.S. Department of Education
\$118,799 / 09/90-09/91

Epizootology and Potential Economic Impact of Influenza A in Swine

Russell F. Bey, Veterinary Pathobiology
U.S. Department of Agriculture
\$113,754 / 08/90-07/93

Study of Disposable Diaper Compost

Thomas R. Halbach, Soil Science
John Moncrief, Soil Science
Carl J. Rosen, Soil Science
Procter and Gamble Company
\$111,000 / 07/90-12/91

Refugee Mental Health

Amos S. Deinard, University Hospital and Clinic
St of MN - Department of Human Services
\$100,000 / 07/90-06/91

Physical-Chemical and Related Analytical Aspects of the Aquatic-based Toxicological Assessment of Contaminated Fresh Water Sediments

Keith B. Lodge, Natural Resources Research Inst, UMD
Environmental Protection Agency
\$99,250 / 10/90-09/93

Preparation of Leadership Personnel

Charles E. Speaks, Communication Disorders
Joe Reichle, Communication Disorders
U.S. Department of Education
\$21,912 / 09/90-08/91

Semi-Parametric Estimation of Sample Selection Models

Lung-Fei Lee, Economics
National Science Foundation
\$34,319 / 08/90-12/91

Infrared Spectroscopy and Imaging of Novae and Supernova

Charles E. Woodward, Astronomy
Robert D. Gehrz, Astronomy
National Research Council
\$27,000 / 09/90-08/91

Reactive Polymer Blending

Chris Macosko, Chemical Engineering and Materials Science
Frank S. Bates, Chemical Engineering and Materials Science
National Science Foundation
\$90,702 / 08/90-01/92

Electron Microscopy of Catalyst Particles

Lanny D. Schmidt, Chemical Engineering and Materials Science
National Science Foundation
\$19,000 / 08/90-01/93

Mechanistic Study of Radicals in Biology Catalysis

Hung-Wen Liu, Chemistry
NIH, NIGMS
\$70,000 / 07/90-06/91

An Environmental Approach to Enhanced Retention and Recruitment

William Ronald Gentry, Chemistry
National Science Foundation
\$64,000 / 08/90-01/92

Determination of Earth Pressure in a Braced Excavation

Joseph F. Labuz, Civil and Mineral Engineering
Johnson Brothers Corporation
\$18,000 / 06/90-06/91

Performance Driven Layout

David H. Du, Computer Science
National Science Foundation
\$18,231 / 10/90-03/93

Filtered Fractal Analysis for Intelligent Systems

Ahmed H. Tewfik, Electrical Engineering
National Science Foundation
\$60,000 / 07/90-12/92

A Study of Data Compression Algorithms and Related Algorithm for Statistical Parameter Estimation

John Kieffer, Electrical Engineering
National Science Foundation
\$74,324 / 09/90-02/92

Experimental Study of Downstream Fining on Coarse-Grained River Channels

Christopher Paola, Geology and Geophysics
Gary N. Parker, St. Anthony Falls Hydraulic Lab
National Science Foundation
\$118,570 / 08/90-01/93

Molecular Modelling of Molten GEO2

David A. Yuen, Geology and Geophysics
National Science Foundation
\$32,200 / 08/90-01/93

History of Nuclear Physics Between the Wars

Roger H. Stuewer, History of Science and Technology
National Science Foundation
\$40,000 / 09/90-02/92

A Comparative Rock Magnetic and Calcite Strain Study

Subir K. Banerjee, Geology and Geophysics
Michael J. Jackson, Geology and Geophysics
National Science Foundation
\$54,641 / 08/15-01/92

Rheology, Attenuation, and Melt Migration in Partially Molten Mantle Rocks

David L. Kohnstedt, Geology and Geophysics
National Science Foundation
\$80,000 / 07/90-12/91

Impact of Packaging Process on Field Reliability

Avram Bar-Cohen, Mechanical Engineering
Subbiah Ramalingam, Mechanical Engineering
Bell Northern Research, Ltd.
\$56,000 / 07/90-12/90

Chip-Breaking in Turning

Barney Klamecki, Mechanical Engineering
National Science Foundation
\$49,457 / 08/90-10/91

Wake-Body Interactions and the Formation of Vortex Shedding Behind Bluff Bodies

Paul J. Strykowski, Mechanical Engineering
Engineering Foundation
\$20,000 / 09/90-08/91

Localization and Isolation of the SCA1 Gene

Harry T. Orr, Laboratory Medicine and Pathology
Stephen S. Rich, Laboratory Medicine and Pathology
National Ataxia Foundation
\$10,000 / 07/90-06/91

Mapping and Isolation of the Gene for Spinocerebellar Ataxia

Laura Ranum, Laboratory Medicine and Pathology
Harry T. Orr, Laboratory Medicine and Pathology
Muscular Dystrophy Association
\$25,000 / 07/90-06/91

Role of Eosinophil Peroxidase in Eosinophilic Endocarditis

Arne Slungaard, Medicine
American Heart Association
\$38,500 / 07/90-06/91

Effects of Increased Oxygen Consumption on Myocardial Stunning

Gregory Path, Medicine
Robert J. Bache, Medicine
American Heart Association, MN Affiliate
\$23,975 / 07/90-06/91

Functional and Molecular Analysis of Susceptibility to Diabetes

Pedro Santamaria, Medicine
Jose J. Barbosa, Medicine
Juvenile Diabetes Foundation
28,000 / 07/90-06/91

Reactivity Based Hazard Assessment for Electrophilic Mutagens

Robert M. Carlson, Chemistry, UMD
Environmental Protection Agency
\$75,000 / 09/90-08/92

The Sponsored Project Information Network (SPIN) is a computerized locator system of funding opportunities (federal, nonfederal, and corporate) for faculty and institutional research, development, and education program support. It is available to University faculty and staff through ORTTA.

Based on a description of your research areas and/or the type of support sought, ORTTA staff will search the SPIN Keyword Index to identify sources within specific areas of interest. The Keyword Index, a taxonomy developed by SPIN to catalog funding sources, is divided into the following ten major classifications:

- **Agriculture/Food/Forestry**
- **Arts/Culture/Humanities/Communications**
- **Business/Economics/Management**
- **Education**
- **Health/Medical Sciences**
- **International Affairs/Area Studies**
- **Miscellaneous/Other**
- **Science/Technology**
- **Social/Behavioral Sciences**
- **Social Welfare/Public Affairs**

The result of a search is a set of profiles of applicable funding sources that provides: 1) the sponsor's name; 2) the sponsor's contact address and telephone number; 3) deadline dates; 4) program titles; 5) objectives or interest areas of the sponsor; and 6) restrictions that would affect the submission of a proposal. This set of profiles is sent to the requestor.

SPIN searches are done free of charge to the requestor. A survey of users of SPIN indicates that the information received from a SPIN search was targeted to their request and a reasonable response time was effected.

For further information regarding the SPIN system or to request a search, please contact ORTTA at 624-5750, 624-0061, or 624-9004

Please Note: SPIN searches are also available through the Research and Development Office in the College of Liberal Arts; the Agricultural Experiment Station; the Research Support Office at Duluth; and the Grants Development Office at Morris. The alphabetical and topical components SPIN may also be accessed through ORTTA's Electronic Bulletin Board.

Technology Transfer at the University of Minnesota

Where Tradition Meets the Future

Videotape (20 min)

A videotape compilation of television, movie, and marketing presentations that mention innovations by University of Minnesota researchers. To borrow or preview, call 624-9398.

In the 1930s, Chief of Surgery Owen Wangensteen invented the Wangensteen Suction Pump, a simple device that reduced mortality from abdominal surgery and war-time stomach wounds by 80 percent.

EXCERPT FROM M*A*S*H program in which Sgt. Potter builds a Wangensteen Suction Pump

In the 1940s and 1950s, Professor of Engineering James J. Ryan invented the "black box" flight recorder and the retractable seat belt.

EXCERPT FROM EMERITUS program in which Ryan describes flight recorder

In the late 1960s, Professor of Physiology Marvin Bacaner discovered that a drug called bretylium could stop otherwise fatal heart arrhythmias. Former President Dwight Eisenhower was one of the first of thousands to benefit from bretylium. So far, E.T. is the only extra-terrestrial saved by bretylium.

EXCERPT FROM MOVIE E.T.: The Extra-Terrestrial in which E.T. undergoes cardiac resuscitation, including the use of bretylium

The Minnesota Landscape Arboretum in Chanhassen is a showcase for new varieties of flowers, shrubs, berries, and trees developed by U of M horticultural researchers.

EXCERPT FROM MATRIX program about Arboretum

Crayfish are the focus of University of Minnesota-Duluth researchers who are trying to improve the value of crayfish as an aquaculture product, to enhance the existing export industry in Northern Minnesota.

EXCERPT FROM UMD program about softshell crayfish research

Wildlife biologists are testing a new type of radio relocation collar that includes data collection devices and syringes that can be triggered to anesthetize the animal, reducing the stress of recapture.

EXCERPT FROM WILDLINK tape showing wolf being anesthetized remotely

Researchers at the Center for the Study of Human-Animal Relationships and Environments (CENSHARE) invented a more humane and effective dog collar and leash, called the Gentle Leader.

EXCERPT FROM AMERI-PET, INC. tape describing Gentle Leader

Researchers from the Cystic Fibrosis Center, directed by Pediatrics Professor Warren Warwick, invented a pneumatic vest that frees people with cystic fibrosis from dependence on others for daily physical therapy.

VIDEOTAPE OF THairAPY System Produced by Baxter CAREMARK

In the 1980s, former Mechanical Engineering Professor Edward Anderson invented a personal rapid transit system as an alternative to commuter automobiles and mass transit systems.

EXCERPT FROM MATRIX program about Anderson and PRT

Now called *Taxi 2000*, Anderson's system is being considered by the Chicago Regional Transportation Authority as the model for an experimental facility that will be built in a Chicago suburb to test the personal rapid transit concept.

ORTTA TELEPHONE NUMBERS

A Quick Reference Guide

Title and/or Area of Responsibility

Name

Number

Fax Number (612) 624-4843

Office of Research and Technology Transfer Administration

Associate Vice President, ORTTA	Tony Potami	624-1648
Communications Coordinator	Mike Moore	624-9398
Administrative Coordinator	Carol Perusse	624-6389

Grants and Contracts

Information		624-5599
Assistant Director	Rick Dunn	626-2265
Assistant Director	Mary Lou Weiss	624-5856
DHHS, NIH, ADAMHA, HRSA, OHD, Misc Private Agencies	Mary Lou Weiss	624-5856
NIH, Other DHHS, St. of MN, Counties, Am Heart Assoc	Todd Morrison	624-5066
NIH, Other DHHS, Voluntary Health Agencies, Cities	Kevin McKoskey	624-1521
NSF (Health Svcs), USDA, DOD, NASA, EPA, NEA, AID, Misc Federal Agencies	Merlin Garlid	624-0288
NSF (IT), DOE, DOC, USDI (IT), Misc Fed	TBA	624-5571
NSF (non-Health Svcs, non-IT), Education, USDI		
USDA, NEH, ST of MN, Other State	Rick Dunn	626-2265
To be Determined	David Lynch	624-5571
To be Determined	Liz Klitzke	626-7718
Foundations, Miscellaneous Private Agencies	Judy Krzyzek	624-2546

Patents and Licensing

Director	John Thuente	624-2816
Technology Licensing (IT)	Tony Strauss	624-0869
Technology Licensing (Health Sciences/Agriculture)	Jim Severson	624-0262
Trademark Licensing	Robert Hicks	626-1585
Technology Licensing	Paul McDowall	625-8826
Grants & Contract Administration	Judy Volinkaty	624-3317

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Assistant Director	Marilyn Surbey	624-4850
Effort Reporting, Indirect Cost & Other Rate Development	TBA	624-2040
Financial Reporting, Accounting Questions	Sandy Kenyon	624-2307

Information Services

Assistant Director	Winifred A. Schumi	624-5750
Research Review, Application Materials, Program Announcements	Tove Jespersen	624-0061

Human Subjects Committee

Administrator	Moir Keane	624-1889
Executive Assistant	Ellen Stewart	624-9829

Duluth

Research Support Office	James Loukes	(218)726-7583
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Morris

Grants Development	Tom Mahoney	589-2211 x6450
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ORTTA NEWSLETTER MAILING LIST INFORMATION

Faculty

The Research Review is automatically mailed to all faculty on the Faculty Mail List holding the rank of Assistant Professor and above.

To add/delete/change a faculty name on this list, departmental officers must submit a Staff Directory Card to Administrative Information Services (AIS).

Please check with your departmental office or AIS (624-9000) if you need assistance.

Staff / Off-Campus

ORTTA maintains a Supplemental Mail List for academic staff not included in the above faculty list; for staff; and for individuals off-campus. Additions/changes/deletions to this list may be initiated by filling out and sending ORTTA the following:

Change	☐
Add	☐
Delete	☐

Name

Department

Campus Address (Bldg)

→ **For changes and deletions please enclose your mailing label.** ←

Return to
ORTTA

Administrative Services Center
1919 University Avenue, 5th Floor
Saint Paul, Minnesota 55104

University of Minnesota

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Administrative Services Center, 5th Floor
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RESEARCH REVIEW

An Overview of Sponsored Program and Technology Transfer Administration

Research and Technology Transfer Administration

December, 1990

Sending and Receiving Biomaterials

Just a few short years ago, University researchers sent off cell lines developed during research to any requestor. Conversely, if they read about an interesting bacterium, virus, monoclonal antibody or peptide, they would ask to be given a sample for their own research. This practice of collegial sharing extended even to biotechnology companies. Management may not have wanted to send out their special lines, but the corporate researchers insisted.

Everyone in the field is aware that times have changed. A request for a cell line nowadays is often answered not with the sample, but with a contract. It is important, therefore, that University of Minnesota researchers consider some of the issues that have arisen regarding the sharing of biological materials, both from the sending and receiving viewpoints.

If you are asked for a biomaterial sample, the first question to be answered is: Should a cell line be sent? If the line was originally received from another person, or was divided from someone else's line, *whether or not it was done under agreement*, the answer is "NO!" Refer the request to the original owner or ask that owner's permission. There have been several acrimonious disputes over cell lines that were passed on to third parties who put them to commercial use. The KG line, Montagnier's LAV cultures, and Moore's hairy cell leukemia cells are only a few that come to mind.

A second consideration is whether a cell line may become commercially valuable in the future. Sending it out may affect ownership and patent rights.

At this point, if it is clear that no third party can claim rights in a line and the researcher and the university are willing to relinquish rights in the line, then the cell line can and should be sent out to a requestor without any restrictions. If the cell line or the product is very popular, it can be time-consuming and expensive to the

researcher to prepare and mail these biomaterials to the many requestors. Consider a deposit with a depository such as the American Type Culture Collection or letting a company that specializes in research biologicals sell the line and/or product.

There is one more possibility: you may be willing to share the biomaterial, but do not want to give up potential future value. That is the point at which you should consider a Biomaterials Exchange Agreement. The staff of the Office of Patents and Licensing can help you prepare a contract that is no more restrictive than necessary, but that protects your rights and the rights of the University.

Biomaterials, Continued on Page 9

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Classifieds

Research Collaborators Wanted

S.A. Irani, Industrial Engineering/Operations Research Division, Department of Mechanical Engineering, wishes to collaborate on research dealing with the development of specialized, discrete optimization algorithms, as they relate to planning problems in manufacturing engineering. For example, he has identified problems such as connectivity and reachability in digraphs, the Traveling Salesman Problem, cluster analysis of strings, etc., that relate to layout configuration, sequencing and machine replacement. He wishes to contact faculty with interests in developing hybrid algorithms that are more complete in their solution of these actual problems. Please call (612) 626-7815, or write: S.A. Irani, 125 Mechanical Engineering, 111 Church Street SE, Minneapolis, MN 55455.

Research Related Ads

ORTTA will place brief advertisements in the *Research Review* that are directly related to the research needs of individual investigators. These might include requests for biological materials or samples, offers to share equipment, or indications of interest in specific research collaborations.

All contacts and financial arrangements will be the responsibility of the interested parties. If you have a prospective advertisement, please send it to Mike Moore, Editor, *Research Review*, ORTTA, Administrative Services Center, 1919 University Avenue, 5th Floor, St. Paul, MN 55104.

RESEARCH REVIEW

Volume XX/Number 6

December, 1990

Editor: **Michael P. Moore**

Associate Vice President: **A.R. Potami**

Research Review is a monthly publication of the Office of Research and Technology Transfer Administration. Its purpose is to inform faculty and administrators who are involved with Sponsored Research and Technology Transfer on procedures and policies of granting agencies; on institutional policy and other information necessary to the preparation of research proposals; and on funding opportunities.

Research Review welcomes ideas and comments from all readers. Write to *Research Review* at 1919 University Avenue, 5th Floor, St. Paul, MN 55104, or call Michael P. Moore at 624-9398.

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, sex, national origin, handicap, age, veteran status, or sexual orientation.

Indirect Cost & Fringe Benefit Rates

Indirect Cost Rates

The rates for July 1, 1989 through June 30, 1990 are listed below. When budgeting for periods beyond 6/30/90, the 7/1/89-6/30/90 rates should be used. **The rate agreement is dated March 28, 1988.** This date should be used where required on proposal applications.

	07/01/89- 06/30/90
Research	
On-Campus	44.0
Off-Campus *	21.5
SAFHL	86.6
Hormel	49.5
Other Sponsored Activity	
On-Campus	33.4
Off-Campus *	16.8
Instruction	
On-Campus	68.7
Off-Campus *	27.9

* A project will be considered off-campus if more than 50% of the direct salaries and wages of personnel employed on the project are incurred at a site neither owned nor leased by the University.

Fringe Benefit Rates

If you have questions regarding fringe benefit rate development or need the breakdown of charges, call **Vivian Fickling at 624-2009.**

Current actual rates through 12/31/90 are:

Faculty	29.00%
Civil Service	24.50%

For proposals being submitted with start dates after January 1, 1991 the estimated fringe benefit rates to be budgeted are:

Faculty	29.00%
Civil Service	24.50%
Nonstudents Academic (100% time)	29.00%
Nonstudents Civil Service (100% time)	24.50%
Students (25-74%)	3.00%
Students (75-100%)	9.17%
(Classes: 9538; 9539; 9540; 9544; 9549; 9553; 9554; 9557; 9564)	
Students (25-100%)	9.17%
(Classes: 9511; 9521; 9531)	

As rates change, they will be reflected in this section

Committee on the Use of Human Subjects in Research

Advertising for Research Subjects

The Committee on the Use of Human Subjects in Research is responsible for ensuring the equitable selection of research subjects. The Committee views advertisements as an extension of the informed consent and subject selection process. Therefore, the Committee must review all means of recruiting subjects to participate in a research study, including advertisements.

Advertising for research subjects requires review and approval by the Committee *prior to publication*. The Committee, or its administrative staff, will review the content of any advertisement to determine that the procedure for recruiting subjects "affords adequate protection" and that it is not misleading to subjects.

Advertisements should be submitted for review by the Committee at the time of initial submission of an application, or at such time as the principal investigator chooses to use ads as a means of recruiting participants. This policy includes, but is not limited to, newspaper ads, radio or television announcements, bulletin board tear-offs, and posters. Requests for approval should be submitted in a timely fashion to allow for necessary revisions prior to publication. Rush requests may not be accommodated.

Advertisements should be limited to:

- name and contact information of the investigators (identify the university by name);
- purpose of the research;
- general eligibility criteria;
- straightforward and truthful description of benefits (payment or free treatment).

No claims should be made, explicitly or implicitly that the research is superior to any current practice.

The Committee is sensitive to extravagant attention-getting devices used in marketing and will restrict the use of extremely large/bold typefaces and the use of coercive techniques in ads such as dollar signs, (\$\$\$\$), etc.

The University's initiative for review and approval of advertising is supported by federal regulations in spirit, and specifically by FDA, 21 CFR 56.111(a) (3): PHS Information Sheet, January 1988.

If you have any questions regarding recruitment of human subjects or other concerns about the use of human subjects in research, please call Moira Keane at 624-9829.

Facilities Modernization Policy

A congressional appropriations bill instructs the Office of Science and Technology Policy (OSTP) to address modernization of U.S. academic research facilities.

The bill's language notes almost total inaction on a 1986 Bromley-Packard report that found \$10 billion was needed for academic research facilities modernization and rehabilitation. The report recommended federal spending of \$500 million annually for the next decade. To date, there is only a "modest" \$20 million National Science Foundation (NSF) program to address that "glaring deficiency in higher education."

The proposed modernization policy should cover all federal R&D agencies, include 5-year projections, and be submitted to appropriations committees by April 1, 1991. A funding profile should be clearly identified in the FY 92 budget submission for all agencies.

Other Instructions to OSTP

The bill also directs OSTP and NSF to identify and report on ways to stimulate specific civilian R&D sec-

tions—such as bioengineering and supercomputers—that will increase the nation's economic competitiveness. Their report should also identify and project costs for the top 20 civilian science projects in the federal budget.

A strategy describing how the President plans to make U.S. students first in math and science by the year 2000 was requested from a Federal Coordinating Council on Science, Engineering and Technology committee. A draft was requested by November 30, 1990.

OSTP was asked to help agencies establish and restructure offices to support science and mathematics education. OSTP should ensure that each office has programs directed at students and teachers from kindergarten through graduate school.

Lastly, OSTP was asked to require federal R&D agencies to establish education offices at their federal laboratories in order to improve internal federal agency science, mathematics and engineering education programs and to foster education partnerships between federal labs and academic institutions.

Panel Discusses Need for National Research Policy

One of the main topics of discussion at a recent conference held by the Council of Academic Societies, which was part of the 101st meeting of the Association of American Medical Colleges, was the need for a national research policy to address priorities such as grants, facilities, education, rising costs, and relationships among industry, academia and government. The panel members were Theodore Cooper, President and CEO, Upjohn Co; Samuel Thier, President, Institute of Medicine; Edward Brandt, former Assistant Secretary of Health; Donald Frederickson, former director, NIH; and Theodore Huller, Chancellor, University of California-Davis.

The question of who should convene the initial meeting to form a national policy is difficult to answer, the panel stated, in part because of the diverse sectors involved and the related question of how and by whom the public would be represented. Differences within the scientific community further muddle the issue. Infrastructure problems must be resolved so as not to drain resources from research, and U.S. science educational policy needs restructuring, the panel noted. The country can no longer afford scientists and engineers who are technocrats and not educationally well-rounded. The panel urged that science and medical education be assimilated into the whole campus.

Theodore Cooper recommended setting up a private research trust fund from scientific and intellectual property royalties which accrue from government-industry-academia partnerships. He further recommended doubling federal funds for the National Institutes of Health.

Packard Fellowship

The Board of Directors of the David and Lucille Packard Foundation has selected Stephen Y. Chou, assistant professor of electrical engineering, to be the recipient of a Fellowship in Science and Engineering for 1990. Dr. Chou received one of twenty such fellowships selected from 98 nominations.

The Packard Fellowships are intended to make a university career more attractive by providing substantial unrestricted funds in the areas of natural sciences or engineering, which can be used with maximum effectiveness by the recipients. Each fellow receives \$100,000 per year for five years.

Reporting Results of Clinical Research

The practice of holding back research results to prevent jeopardizing publication in the most prestigious medical journals is once again raising a storm of controversy.

The most recent case involves an expert panel convened by the National Institute of Allergy and Infectious Diseases (NIAID) to study the effectiveness of steroids in treating pneumocystis carinii pneumonia. Members of the panel included authors of five unpublished studies put before the panel for review. According to an article in the November 14 *New York Times*, the panel concluded in May that the treatment could cut the death rate from this pneumonia—a leading killer of victims of AIDS—in half. An announcement was delayed, the *Times* said, because authors feared it could jeopardize publication by the *New England Journal of Medicine*.

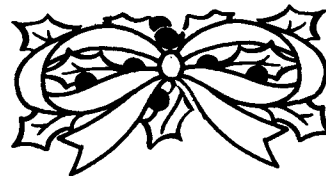
NIAID disputes the article and says the panel didn't reach a consensus until August. The findings were then released to physicians, at scientific meetings and on a news update program devoted to AIDS.

The *New England Journal of Medicine*, which published three of the articles on November 22, also disputes the newspaper article. Editor-in-Chief Arnold Relman said the decision to release information rested with the authors. AIDS research is exempt from the journal's usual policy which bars announcement of results prior to publication, Relman said.

NIH Plans Workshop

Dissemination of research results is a "significant problem at times," especially when postponement endangers lives, said Bill Hall, communication director for the National Institutes of Health's Office of Medical Application of Research (OMAR).

An NIH workshop is scheduled for January 15 to address the problem, Hall said. "Clinical Trials Results: Exploring the Dissemination Process," will offer a roundtable discussion by representatives from the medical journals, the scientific community and the media. The workshop is open to the public but seating is limited. For information, contact Hall at (301) 496-1143.



National Science Foundation

NSF Fiscal Year 1991 Appropriation

Following is the complete text of Important Notice No. 112, published by the National Science Foundation on November 9, 1990.

Important Notice to Presidents of Universities and Colleges and Heads of Other National Science Foundation Grantee Organizations

On November 5, 1990 the President signed into law the "Department of Veterans Affairs and Housing and Urban Development and Independent Agencies Appropriations Act, 1991" which includes a total appropriation of \$2.316 billion for NSF for FY 1991. Together with other budget actions, the passage of this bill removes the possibility of a sequester in FY 1991.

As a result, the reductions projected in Important Notice No. 111 [August 29, 1990—published by ORTTA in the October *Research Review*] will not take place. NSF will be able to make new awards and renew existing awards in accordance with normal procedures.

Continuing increments funded during the period of budget uncertainty were provisionally funded at 50% of committed levels. Those awards will be supplemented by NSF to restore the balance of funding up to the full levels committed for FY 1991 support. These actions will be unilateral supplements, requiring no further action on the part of the grantee institution. Continuing increments not yet awarded will be funded at full committed levels, subject to award terms and conditions.

In addition, the new appropriation no longer contains the \$95,000 per annum cap on salary support charged to grants made with FY 1991 funds, including those already issued this fiscal year. While grantees may reallocate grant funds, if otherwise allowable, to cover this cost, awards will not be supplemented for this purpose. Also, a few awards funded from prior year appropriations may be subject to the cap. Appropriate language will be included in those awards.

We appreciate the patience of the awardee community during this period of uncertainty.

Signed by Frederick M. Bernthal, Acting Director, National Science Foundation

NIH Offers First Outline of Grant Management Plan

National Institutes of Health (NIH) officials revealed a preliminary outline of a future funding plan at the annual meeting of the National Council of University Research Administrators (NCURA) in Washington, D.C., November 5-9. The plan responds to congressional demands for a four-year plan to enable NIH to achieve a stable grant pool of 24,000 total research grants, including 6,000 new and competing grants. Some parts of the plan will affect the first fiscal 1991 awards made this month, the officials said.

In general, the plan calls for an end to across-the-board cuts in award levels as a means of staying within budget. Instead, NIH will limit the average length of grants to four years to reduce its future commitments, and it will adopt cost-management strategies to stay within each year's budget. Congress directed NIH to use much of its fiscal 1991 increase of \$700 million to increase the number of new and competing research grants to nearly 6,000, without employing across-the-board cuts.

At the NCURA meeting, NIH officials said institutes would continue to use reviewer-recommended levels as a basis for establishing the size of competing awards. However, each institute will trim individual requests by varying amounts to meet mandated grant targets. The cuts will be made for program-related reasons, and the institutes will explain their actions to grantees. Unlike current practice, funding amounts for future years of multi-year awards will be based on the reduced first-year level, rather than the reviewer recommended amount.

Continuation grant amounts would increase by a standard 4 percent a year under the new policy. Currently, grantees often request increases of 25 to 30 percent on continuing grants to make up for past years' reductions or anticipated cuts. NIH is urging institutes to calculate 1991 continuation award levels based on 4 percent above the previously reduced fiscal 1990 award level. Institutes also are being directed to monitor the length of new 1991 awards to try to achieve an average of four years, but they will continue to make awards of varying length.

At the NCURA meeting, NIH Deputy Director for Extramural Research John Diggs said that the Congressional mandate is part of a new era of budgetary oversight, and probably signals the end of NIH's favored status with Congress and increased competition with other federal research, health, and social service agencies. He said he will present the grants management plan to NIH constituents and the NIH Director's policy-making advisory council in mid-December. Congress ordered NIH to report in December 1990 on its progress toward meeting the new stable funding goals.

Final NIH Appropriation Signed

The National Institutes of Health (NIH) received \$8.3 billion and a four-year spending plan under an agreement reached during conference by the Labor, Health and Human Services, Education and Related Agencies appropriations subcommittees. The final appropriations bill was signed by President Bush in November.

At one point, NIH had received a mark of \$8.5 billion, but NIH, and all other accounts under the bill, was reduced by 2.41% to fit within the 302(b) allocation, a House source said.

The bill includes a spending plan first unveiled by the House subcommittee. The plan aims to stabilize NIH grants in four years to a total of 24,000, including 6,000 new awards. (See Article on Page 5.) Conferees said the bill would allow NIH to fund grants at the levels approved by the institutes with no arbitrary downward negotiations of the awards.

Below is a chart showing each institute's share of the final mark, along with FY 90 spending. All figures are in millions. (NOTE: "RP" stands for regular program, "RT" for research training.)

	<u>FY 1991</u>	<u>FY 1990</u>
<u>NCI</u>		
RP	1,686.50	1,598.50
RT	37.25	35.79
<u>NHLBI</u>		
RP	1,084.04	1,027.86
RT	46.69	44.47
<u>NIDR</u>		
RP	143.53	129.85
RT	6.05	5.90
<u>NIDDK</u>		
RP	592.62	557.59
RT	24.42	23.87
<u>NINDS</u>		
RP	530.03	477.38
RT	13.42	13.02
<u>NIAID</u>		
RP	892.16	815.40
RT	18.52	17.55
<u>NIGMS</u>		
RP	668.39	629.24
RT	92.08	82.79

	<u>Fy 1991</u>	<u>FY 1990</u>
<u>NICHD</u>		
RP	463.63	426.35
RT	17.23	16.56
<u>NEI</u>		
RP	246.60	229.42
RT	7.29	7.11
<u>NIEHS</u>		
RP	232.18	218.65
RT	10.91	10.59
<u>NIA</u>		
RP	314.98	229.93
RT	9.78	9.52
<u>NIAMS</u>		
RP	186.78	162.19
RT	6.88	6.74
<u>NIDCD</u>		
RP	131.18	114.46
RT	3.99	3.12
<u>NCRR</u>		
RP	332.84	334.61
RT	4.27	0.00
<u>NCNR</u>		
RP	35.52	29.29
RT	4.24	4.22
<u>AHCPR</u>		
RP	82.51	56.56
RT	5.06	2.98
<u>Fogarty International Center</u>		
-	17.62	15.66
<u>NLM</u>		
RP	79.27	72.88
Assistance	12.87	12.85
<u>Office of the Director</u>		
-	98.15	89.92
<u>Business and Finance</u>		
-	168.69	61.04

Below is a correction to the fringe benefit rates (as published in the November Research Review) brought about by changes in health-care coverage for graduate students. Changes are reflected in the eligible classes. Please call Ching Lee Huang at 624-7087 if you have questions on graduate student rates.

Fringe Benefit Rates

**The Fringe Benefit Rates shown below will be charged against salaries during the period
July 1, 1990 through December 31, 1990**

	<u>ACADEMIC %</u>	<u>CIVIL SERVICE %</u>
Health Plan (H)	6.17	9.71
Unemployment Compensation (U)	.03	.26
Worker's Compensation (W)	.00	1.51
Tuition Benefits (T)	3.00	1.08
Group Life and Disability (G)	.30	.00
Retirement (R)	12.50	4.29
F.I.C.A. (F)	<u>7.00</u>	<u>7.65</u>
TOTAL	29.00	24.50

**The following estimated rates should be used for budgeting on sponsored project proposals
beyond December 31, 1990**

NONSTUDENTS	<u>ACADEMIC %</u>	<u>CIVIL SERVICE %</u>
0-74% (hired before 4/1/86)	.03 (UW)	13.71 (UWRF)
0-74% (hired after 4/1/86)	1.48 (UWM)	13.71 (UWRF)
75-99% (hired before 4/1/86)	9.20 (HUWT)	24.50 (HUWTRF/G = Op)
75-99% (hired after 4/1/86)	10.65 (HUWTM)	24.50 (HUWTRF/G = Op)
100%	29.00 (HUWTGRF)	24.50 (HUWTGRF/G = Op)
STUDENTS		
25 - 74%	3.00 (WT) Classes: 9538; 9539; 9540; 9544; 9549	
75-100%	9.17 (HWT) 9553; 9554; 9557; 9564	
25-100%	9.17 (HWT) Classes: 9511; 9521; 9531	

**Please call Vivian Fickling, Accounting Records and Services, 624-2009
with questions regarding fringe benefit rate development**



New RESEARCH!AMERICA President

On January 1, 1991, Mary Woolley will become the new president and chief executive officer of the research organization, Research!America.

Woolley is currently executive director of the Medical Research Institute (MRI) of San Francisco. She succeeds Lowell Weicker, Jr., who was elected governor of Connecticut. In her present position with MRI, Woolley has overall executive, operational and fund development responsibility. She manages an \$8 million operating budget, 120 employees and 40 active research programs.

A Stanford University graduate, Woolley became associated with Research!America as a member of its committee on public affairs. In 1989 she was elected president of the Association of Independent Research Institutes where she led a successful effort to involve more members in active roles as advocates for biomedical research. She has also served as a member of the board of directors and advisor to the Society of Research Administrators.

New Program for Higher-Education Software

Excerpted and reprinted from the Chronicle of Higher Education, October 3, 1990.

Responding to continuing demands for higher-education software, Apple Computer, Inc., has announced a program to find and publish higher-education software written by college and university faculty and staff members.

Apple has chosen **Intellimation**, a Santa Barbara, California electronic publisher, to pull together software that will cover courses in a wide variety of disciplines. Intellimation will establish standards for the technology, the appearance and content of each program, and the pedagogy. The product line will be called the Intellimation Library for the Macintosh.

Higher-education software includes applications that help teach a single topic in one course, whole courses on disks, tools that help researchers analyze results, and packages that help keep track of audio-visual information or of student registration. Such software is often of vital importance for colleges, but the institutions represent a specialized market, and commercial software publishers rarely become involved in it. Also, when college and university faculty develop solutions, they run into a stone wall in their efforts to make known the availability of their work.

Intellimation will recruit software authors to fill gaps in its academic line. The first catalog of academic software for the Apple Macintosh was published in October and included multi-media, full-course software as well as single-application programs.

National Institute of Dental Research

Major New Initiative

Patients at high risk of oral health problems due to underlying conditions or disabilities will be the target of a major new initiative at the National Institute of Dental Research (NIDR), a component of the National Institutes of Health (NIH).

The new initiative is one of NIDR's priorities for the next decade outlined in the institute's recently released report, "Broadening the Scope: Long-Range Research Plan for the Nineties." The institute will shift its focus to the relationship between oral and general health so that research will no longer be dominated by dental caries and periodontal disease.

A second major priority outlined in the NIDR plan is continuation of the "Research and Action Program to Improve the Oral Health of Older Americans and Other Adults at High Risk." The program aims to expand the benefits of prevention, diagnosis and treatment of oral and dental disease, long focused on the young, to meet the needs of growing numbers of mature and aging Americans, many of whom did not have access to preventive dental treatment earlier in life.

NIDR's long-range plan provides more than 200 research recommendations in 11 areas. Among these areas are dental caries, where the plan recommends development of a simpler, less costly and more practical sealant for children's molar teeth; and fluorides, where clinical research will be requested to determine the contribution of several factors in the decline of caries in non-fluoridated communities.

Congressional Authorizations

A Biomedical Research Foundation

A National Center for Rehabilitation Research

Congress has approved a nonprofit Foundation for Biomedical Research and has passed legislation authorizing a National Center for Medical Rehabilitation Research.

Money for the nonprofit Foundation for Biomedical Research will come from private sources, especially pharmaceutical companies. Fund-raising proceeds will support 10 to 12 endowed chairs for senior investigators and 6 to 8 visiting mid-level scientists at the National Institutes of Health (NIH). The Foundation should enhance NIH's recruitment efforts and stimulate interaction with industry and academia.

A National Center for Medical Rehabilitation Research will allow a focused program of medical rehabilitation research at NIH. Located within the National Institute of Child Health and Human Development (NICHD), the center would fund grants and clinical trials, enter into cooperative agreements and contracts, and coordinate federal activities. However, even if endorsed by the President, the center's future remains uncertain since Congress authorized the center but did not provide funding for it.

The National Cell Culture Center

Endotronics, Inc. Awarded Contract

The National Cell Culture Center is a resource available to researchers throughout the country. It is supported by a cooperative agreement award from the National Center for Research Resources, NIH to Endotronics, Inc., in Coon Rapids, Minnesota. The Center will provide biomedical investigators with customized services for large quantity production of animal cells and secreted proteins. The goal is to facilitate basic research and ease the burden placed on scientists by large-scale cell production. The Center, directed by Dr. Mark Hirschel, provides cells in suspension and monolayer cultures in quantities ranging from 25 to 150 liters.

In addition, cell-secreted products such as monoclonal antibodies are available in quantities of 1 to 100 grams.

An application form, obtainable from the Cell Culture Center, must contain a description of the relevant research project. Following approval of the application by the Cell Culture Center's Scientific Advisory Board, the cell line is sent to the Center and grown to the requested amount. Researchers are charged only for the consumable materials and a portion of the labor costs required for each project. Application forms and inquiries should be directed to: Mark Hirschel, Ph.D., Director, National Cell Culture Center, Endotronics, Inc., Minneapolis, MN 55433; 1-800-325-1112.

Growing Backlog of BioTech Patent Applications

The General Accounting Office (GAO) reports that biotech patent applications are piling up because of rising submissions and a shortage of senior examiners to train recruits. As a result, "first actions" on these applications took place on average 13 months after filing, compared with 7 months for other technologies.

The report says that from January 1989 to July 1990, the backlog of unexamined biotech patent applications increased from about 6,200 to 8,200, of which over 40 percent were at least one year old. The GAO says the Patent and Trademark Office does not believe it can meet its 1992 goal of reducing average biotech processing time from the current 26 months to 18 months, the average for other applications.

Some typical terms of a Biomaterials Exchange Agreement are: no transfer to a third party, review of manuscripts before publication, and use only for research. Other terms may be appropriate in a particular case: no analysis, access to derivatives, and acknowledgement in any publication referring to the materials. A company typically asks for the first chance to license any inventions made with a material; universities more generally state that any commercial use cannot be made without a license from the university.

Remember that a recipient of biomaterials under such a legal agreement can and will be held to the terms of the agreement.

Things get trickier when it is necessary to commingle restricted materials in one experiment. For instance, the experiment calls for interferon, interleukin II, interleukin VI and erythropoietin. None of these materials is available for sale. Each is owned by a different company. Each was received under an agreement to offer the company an exclusive license to the results of the research. This puzzle is not easily solved, but it is imperative that a solution be worked out before anything is signed or the research is started. For example, it is possible that the four companies don't really need or want *exclusive* rights. Their actual concern may be that they will be excluded from using their own product in a patented process owned by someone else. In that case, the problem may be solved by giving each company a *non-exclusive* license to the research results.

It has been said that good contracts make good friends. The spirit of collegiality that seems to be slipping away can be maintained by careful analysis of each situation and a carefully written agreement. Here are a few brief guidelines:

1. Don't give away what doesn't belong to you.
2. Don't restrict what has no value.
3. Protect what is valuable with a good agreement.

The staff of the Office of Patents and Licensing is available to help with questions or problems on the sending or receiving of biomaterials.

Editor's Note: This article was submitted by Kathleen R. Terry, campus director of technology transfer for the State University of New York at Buffalo.

U.S. Patents Issued

July - September, 1990

- 1) **Title:** **Acylated Cyanamide Compounds**
Purpose: Safe and effective deterrence of alcohol ingestion by alcoholics
Inventors: Herbert Nagasawa and Chul-Hoon Kwon, Medicinal Chemistry
- 2) **Title:** **Solvent System for Chronic Vascular Infusion of Hydrophobic Drugs**
Purpose: Method for placing drugs such as cyclosporine in liquid form to allow long-term therapy with an implantable infusion device
Inventors: Bruce D. Wigness and Thomas D. Rohde, Surgery
- 3) **Title:** **Dideoxycarbocyclic Nucleosides**
Purpose: Antiviral drug therapy
Inventors: Robert Vince and Mei Hua, Medicinal Chemistry
- 4) **Title:** **Chrysanthemum Plant Named Maroon Pride**
Purpose: New variety of flower with dark red color, blooming in late August
Inventors: Mary C. Stuart, Richard E. Widmer, Peter D. Ascher, Horticultural Science and Minnesota Landscape Arboretum; and Thomas Almquist, Horticultural Science and Landscape Architecture
- 5) **Title:** **Magnetic Resonance Imaging and Spectroscopy Methods**
Purpose: Methods to improve magnetic resonance slice selection using adiabatic excitation
Inventors: Kamil Ugurbil, Biochemistry, Medical School; Michael Garwood, Radiology
- 6) **Title:** **Humane Training Aid with Adjustable Muzzle Loop Having an Adjustable Locking Device**
Purpose: Improved adjustable version of Gentle Leader dog collar
Inventors: Bertyl W. Carlson, School of Public Health; Ruth Foster, Alpha-M, Inc.; and Robert K. Anderson, College of Veterinary Medicine
- 7) **Title:** **Ligament Graft Apparatus and Method**
Purpose: Reconstruction of ligaments following injury
Inventors: William D. Lew, Jack Lewis, and C.W. Kowalczyk, Orthopaedic Surgery
- 8) **Title:** **Cyclone Personal Sampler for Aerosols**
Purpose: Two-stage collection of large and small air particles for analysis
Inventor: Benjamin Liu, Mechanical Engineering

Licenses Negotiated

July - September, 1990

- 1) Title:** Discourse
Purpose: Interactive video education system
Licensee: Interactive Communication Systems, Inc., Milwaukee, WI
Inventor: Jakob Ziv-el, AB Data Graphics, Israel
- 2) Title:** Production of Amino Acids Using Auxotrophic Mutants of Methylophilic Bacillus
Purpose: Potentially more economical method for producing the essential amino acid lysine for livestock feed
Licensee: Blandin Foundation, Grand Rapids, MN
Inventors: Richard S. Hanson, Gray Freshwater Biological Institute; Michael Guettler, formerly GFBI; Michael Flickinger, BioProcess Technology Institute
- 3) Title:** "Autumn Spire" Red Maple
Purpose: New variety of winter-hardy maple tree
Licensee: Biringer Nurseries, Marysville, WA
Inventor: Harold Pellett, Horticultural Science and Minnesota Landscape Arboretum
- 4) Title:** Liquid Membrane System for the Removal of Nitrate from Water
Purpose: Method for reducing harmful levels of nitrates in agricultural water supplies
Licensee: IoneX, Inc., Edina, MN
Inventors: Maurice Kreevoy, Ann Kotchevar, Chemistry

ORTTA Staff Meet 3M New Business Group

Suggestions for increased interaction between the University of Minnesota and the 3M Company were advanced in a presentation to 3M's Outside Business Development Discussion Group on November 13. Associate Vice President Tony Potami, Office of Patents & Licensing Director John Thuente, and Communications Coordinator Mike Moore shared a slide presentation with the group of about 20 3M representatives and discussed ways of increasing the synergy between two of Minnesota's leading research and development organizations.

The major barrier to increased licensing and research activity is the sheer size and complexity of both organizations, all agreed. Written information seldom reaches the right people at the right time to stimulate action, and therefore great opportunities for collaboration go unreal-

ized. As a result of the meeting, ORTTA and the 3M group agreed to organize technology transfer seminars at which University faculty and the appropriate 3M representatives could discuss potential collaboration in specific technical areas.

"We appreciated the chance to share some of the University's past and present technology transfer success stories with the 3M group," Potami said. "The University and 3M already collaborate in many ways, but I think we can engage in even more mutually beneficial licensing and research activity with 3M and with other Minnesota companies. We intend to meet with several other corporations in the near future to stimulate the personal interactions that need to take place between the University and industry."

National Institute on Drug Abuse

Agency Profile

The National Institute on Drug Abuse has released an announcement reflecting its priorities for the current fiscal year. Applications for drug abuse research support will be considered in the following areas:

- Basic biomedical and neuroscientific research at the genetic, molecular, organ, and system level;
- Biochemistry, pharmaceutical/medical chemistry, and metabolic and pharmacokinetic studies;
- Epidemiology and natural history (etiology) of drug abuse;
- Treatment research;
- Prevention research;
- Behavioral and clinical pharmacology research;
- AIDS and drug abuse; and
- Drug abuse in the workplace.

Support mechanisms include: 1) Research Projects (R01), 2) Small Grants (R03), 3) Conference Grants (R13), 4) First Independent Research Support and Transition Awards, (FIRST, R29), 5) Small Business Innovation Research Grants (SBIR, R43 and R44), 6) Program Projects (P01), and 7) Research Demonstration and Dissemination Projects (R18: This program will be announced through a specific RFA).

In addition, NIDA employs a variety of support mechanisms that undergird the research training and professional development of clinicians and scientists upon whom future drug abuse research will depend. These include: 1) Predoctoral and Postdoctoral Individual National Research Service Awards, (NRSA, F31 and F32), 2) Institutional National Research Service Awards (T32), 3) MARC Undergraduate NRSA Institutional Grants (T34), and 4) Research and Scientist Development Awards (K02, K05, K20, and K21).

Application for research grants may be made by public or private non-profit or for-profit institutions such as universities, colleges, hospitals, laboratories, and units of state and local government, and eligible agencies of the Federal government. Women and minorities are encouraged to apply.

A complete copy of this announcement is available from ORTTA and may be requested by calling 624-0061, or by sending a note through the Electronic Bulletin Board.

National Institute of Mental Health

Rapid Assessment Post-Impact of Disaster

The National Institute of Mental Health is issuing a new announcement, the Rapid Assessment Post-Impact of Disaster (RAPID) program, the purpose of which is to provide a mechanism to support research requiring rapid funding to permit access to a disaster area in the immediate aftermath of the event. When an emergency event of potential significance for mental health occurs with little or no warning, prompt assessment of the situation may be crucial.

Applications may be submitted at any time and need not await the regular research grant submission dates. RAPID applications will be handled on an expedited external peer review and award basis to meet the goals for the program. RAPID awards are not to exceed \$50,000 in direct costs, are nonrenewable and are not to exceed 1 year. Continued support may be requested only through a regular research application that will be fully reviewed.

Potential applicants are strongly encouraged to contact the Program Officer before submitting a RAPID application: Susan D. Solomon, Ph.D., Coordinator, Emergency/Disaster Research Program, Epidemiology and Psychopathology Research Branch, National Institute of Mental Health, 5600 Fishers Lane, Rockville, MD 20857; (301) 443-3728.

U.S. Department of Education

The U.S. Department of Education is offering fellowships to enable American Indian students to pursue postbaccalaureate degrees in medicine, psychology, law, education, clinical psychology, and related fields; or undergraduate or postbaccalaureate degrees in business administration, engineering, natural resources and related fields. (The CFDA number is 84.087).

The application deadline is **January 11, 1991**. The estimated range of awarded amounts will be \$1,000 to \$30,000; approximately 50 awards will be made. For information and applications, please contact: Dr. John Derby, Branch Chief, Indian Education Fellowship Program, Office of Indian Education, U.S. Department of Education, 400 Maryland Avenue SW, Room 2171, Washington, DC 20202; (202) 401-1902. Copies of the guidelines are also available from ORTTA and may be requested by calling 624-0061 or by sending a note through the Electronic Bulletin Board.

Program Information

Internal and External sponsors

Public Health Service

Health Resources & Services Administration

The Health Resources and Services Administration (HRSA) announces a second solicitation of applications for two programs:

The first program is **Grants for Faculty Development in Family Medicine**. This authorizes the award of grants to public or nonprofit private hospitals, schools of medicine or osteopathic medicine, or other public or private nonprofit entities to assist in meeting the cost of planning, developing and operating programs for the training of physicians who plan to teach in family medicine training programs. In addition, it assists in supporting physicians who are trainees in such programs and who plan to teach in a family medicine training program. The application deadline is **January 25, 1991**.

The second program is **Grants for Graduate Training in Family Medicine**. This authorizes the award of grants to assist in meeting the costs of planning, developing and operating or participating in approved graduate training programs in the field of family medicine. In addition, it assists in meeting the cost of supporting trainees in such programs who plan to specialize or work in the practice of family medicine. The application deadline is **January 18, 1991**. (The institutional eligibility is the same as with the first program.)

Requests for application materials and questions regarding grants policy should be directed to: Grants Management Officer (D-15), Bureau of Health Professions, Health Resources and Services Administration, 5600 Fishers Lane, Room 8C-26, Rockville, MD 20857; (301) 443-6960. Application materials are also available from ORTTA and may be requested by calling 624-0061 or sending a note through the Bulletin Board.

Minnesota Sea Grant

Minnesota Sea Grant is accepting pre-proposals for the 1991-93 biennium. Research topics include issues relating to Lake Superior and selected water resource issues. Broad research areas include: fisheries and aquaculture, biotechnology, coastal processes, environmental concerns, policy, economics, and law.

Pre-proposals are due **January 22, 1991**. For a pre-proposal packet, please call Minnesota Sea Grant at (612) 625-9288.

Public Health Service

Health Resources & Services Administration

The goal of the Health Care for the Homeless (HCH) grant program is to provide for the delivery of health services to homeless individuals. This is being achieved by providing funds to stimulate and encourage local public and private agencies to increase their efforts to improve the health status of homeless individuals and to increase their coordination with other programs that assist the homeless population.

By implementing this program, the Public Health Service expects to increase access to cost-effective, case managed, and integrated primary care services and substance abuse services provided by existing community-based programs/providers. The challenges facing the program are to:

- Make the individual aware that care and services are available and accessible when needed;
- Center the homeless individual within the flow of care and services that address needs and demands;
- Select an appropriate mix of services so that the individual is not overwhelmed with providers or confused by service options; and
- Better coordinate the primary health care and substance abuse treatment resources in the community to avoid service fragmentation and organizational barriers to service delivery.

Eligible applicants must be private nonprofit organizations or public entities who can demonstrate the capacity to effectively administer the grant, as described in the guidelines. The application deadline is **February 1, 1991**. Complete guidelines and application materials are available from ORTTA and may be requested by calling



Program Information

Internal and External sponsors

U.S. Department of Energy

The U.S. Department of Energy, in conjunction with the DOE Richland Operations Office, announces the availability of financial assistance for the Math/Science Leadership Development and Recognition Program. In view of its critical dependence on advanced technology, DOE is implementing this program in an effort to find a selected number of projects that could serve as models of successful efforts by public and private organizations leading to increased minority participation in mathematics, science and engineering.

Eligibility is restricted to educational institutions, tax exempt organizations and not-for-profit entities with a program designed to increase minority participation in mathematics, science and engineering—excluding social sciences. Programs must be outside of the normal operating requirements associated with progress toward completion of the appropriate education level.

The application deadline is **January 10, 1991**. For further information contact: Ms. Julie A. Riel, Grants Specialist, Procurement Division A7-80, U.S. Department of Energy, Richland Operations Office, PO Box 550, Richland, Washington, 99352; (509) 376-9790. Copies of the Guidelines are also available from ORTTA and may be requested by calling 624-0061 or by sending a note through the Electronic Bulletin Board.

U.S. Geological Survey

The U.S. Geological Survey is accepting applications for research projects under the National Earthquake Hazards Reduction Program (NEHRP) for FY 1992.

The purpose of this program is to support research in earthquake hazards and earthquake prediction to provide earth-science data and information essential to mitigate earthquake losses.

Specifically, the program supports research related to the following general areas of national interest:

1. Current tectonic and earthquake potential studies—analysis of regional seismic network data, identification of source zone characteristics and earthquake potential estimates;
2. Earthquake prediction research—prediction methodology and evaluation, focused earthquake

Office of Energy Research

The Office of Energy Research (ER) of the Department of Energy announces its continuing interest in receiving applications/proposals for Special Research Grants or Research Contracts supporting work in the following ER program offices:

- Basic Energy Sciences
- Health and Environmental Research
- Fusion Energy
- Scientific Computing
- Field Operations Management
- Superconducting Super Collider
- University and Science Education Programs
- High Energy and Nuclear Physics

Applications and proposals may be submitted at any time during the next year but must be received by DOE on or before **October 31, 1991**.

Applicants/proposers may obtain forms and additional information from: Director, Acquisition and Assistance Management Division, Office of Energy Research, ER-64, U.S. Department of Energy, Washington, DC 20585; (301) 353-5544. Information is also available from ORTTA and may be requested by calling 624-0061 or sending a note through the Electronic Bulletin Board.

prediction experiments, and theoretical, laboratory and fault zone studies; and

3. Regional earthquake hazards assessments—geologic and seismic hazard evaluation and synthesis, implementation, loss estimation, and communication.

Applications must be received on or before **January 24, 1991**. For further information contact: Dr. Elaine Padovani, Deputy Chief, External Research Program, Office of Earthquakes, Volcanoes and Engineering--MS 905, U.S. Geological Survey, 12201 Sunrise Valley Drive, Reston, VA 22092; (703) 648-6722. ORTTA has copies of the guidelines that may be requested by calling 624-0061 or sending a note through the Electronic Bulletin Board.

United States Institute of Peace

The United States Institute of Peace announces the 1991 cycle of its annual Solicited Grant competition. This year the Institute is accepting proposals on the following themes:

Solicitation A: Curriculum Development and Teacher Training in International Peace and Conflict Management

Under this solicitation, the Institute invites proposals for the development of educational materials and teacher training programs. Grants of approximately \$50,000 to \$100,000 each will be offered for the creation of courses or course modules to supplement and enrich existing curricula in the social sciences and related fields. Proposals for curriculum development projects should contain a strong training component for secondary school teachers and promise to expand out of a college or university core to reach junior and community colleges, high schools, and the adult out-of-school public.

Solicitation B: Conflict and Governance in Latin America

Under Solicitation B, the Institute is interested in projects on Latin America, investigating patterns of conflict resolution and the movement of societies from violence to negotiations, to demobilization of military forces, and to a combination of effective democratic government and social and economic development. Issues of special interest include: civil-military relations, administration of justice and the rule of law, international and regional organizations and conflict management, and demobilization and peacekeeping.

The application deadline is **January 1, 1991**. The Institute encourages applications from nonprofit organizations, official public institutions and individuals. For further information and application materials, please write or call: Solicited Grant Projects, United States Institute of Peace, 1550 M Street NW, Suite 700-CH, Washington, DC 20005-1708; (202) 457-1700.

American Cancer Society

Institutional Research Grant

The American Cancer Society (ACS), through the University Dean's Committee for the ACS Institutional Research Grant, announces the availability of individual Institutional Research Grants. The stated goal of the American Cancer Society is to "foster meritorious research on cancer that cannot be supported through other available types of support." The purpose of the individual grants is to provide "seed" money to permit the initiation of promising new projects or novel ideas by junior faculty investigators.

American Cancer Society Institutional Research Grants to the University of Minnesota have been restructured considerably.

The amount of the individual awards has been increased to \$15,000 in direct costs. Eligible applicants must be faculty members at the level of Assistant Professor or Instructor and *must not* have received a prior ACS Institutional Research grant or have a current competitive national research grant.

Grants are available to anyone engaged in cancer-related research at the University of Minnesota who meet the above criteria. Cancer-related research *includes* analysis of developmental biology, gene regulation, or alteration of intracellular or extracellular processes which may lead to an improved understanding and/or therapy of potential or actual oncogenic events in prokaryotic or eukaryotic cells.

The application deadline is **February 15, 1991**. Instructions and application forms are available from the Pediatric Oncology Office, D-557 Mayo Building, 626-2778.



Faculty Research Awards

This section contains statistics on proposals and awards recently processed by ORITA. In addition, we have randomly selected awards received by faculty during preceding months. If any faculty member has received an award he or she would like mentioned in future Research Reviews, please call Mike Moore at 624-9398.

Proposal and Award Summary

Number Amount

Proposals Submitted		
October, 1990	.362	\$ 50,589,199
Awards Processed		
October, 1990	.427	32,684,368
Proposals Submitted		
July, 1990 - October, 1990	1,203	164,526,113
Awards Processed		
July, 1990 - October, 1990	1,247	95,702,174
Proposals Submitted		
July, 1989 - October, 1989	1,173	237,275,888
Awards Processed		
July, 1989 - October, 1989	.950	142,999,171

Minnesota Heart Health Program

Russell V. Luepker, School of Public Health

NIH, NHLBI
\$1,274,610 / 07/90-06/91

Structure Activity Relationship for Anticonvulsant Drug Development

Subhash C. Basak, Chemistry
Gerald Niemi, Ofc of the Vice Chancellor, UMD
Robert E. Hunter, Orthopaedic Surgery

NIH, NINDS
\$963,556 / 09/90-09/93

Agricultural Commodity Utilization Research Projects

C. Eugene Allen, Ag, Forestry & Home Economics

USDA
\$374,460 / 06/90-05/92

National Center on Assessment of Outcomes for Children & Young Adults with Disabilities

Robert H. Bruininks, Educational Psychology

U.S. Department of Education
\$293,000 / 10/90-09/91

Annual Plan of Work for the Minnesota Research and Development Center for Vocational Education

James M. Brown, Vocational and Technical Education

St of MN - Division of Vocational Technical Education
\$213,812 / 07/90-06/91

Analgesic and Biochemical Responses to Peripheral Opiates in Patients Requiring Root Canal Treatment

Kenneth M. Hargreaves, School of Dentistry

NIH, NIDR
\$212,518 / 09/90-12/92

Agriculture 2000

G. Edward Schuh, HHH Institute of Public Affairs

USDS
\$205,000 / 09/90-09/91

Distribution of Body Fat and Cancer Risk in Women

Aaron Folsom, School of Public Health

NIH, NCI
\$201,300 / 07/90-04/91

Interactions of C3 with Infectious Pathogens

Margaret Hostetter, Pediatrics

NIH, NIAID
\$169,975 / 07/90-06/91

Intensity Coding and Dynamic Processes in Hearing

Neal F. Viemeister, Psychology

NIH, NIDCD
\$152,473 / 09/90-08/91

Controlling Canada Thistle and Leafy Spurge

David D. Biesboer, Plant Biology
Willard L. Koukkari, Plant Biology

St of MN - Dept of Transportation
\$200,000 / 07/90-06/94

A Twin Study of Normal Aging

Matthew McGue, Psychology
Betsy Hirsch, Laboratory Medicine and Pathology
Richard A. King, Medicine

NIH, NIA
\$186,523 / 09/90-08/91

Information Processing System - Cold Regions Pavement Research

James R. Slagle, Computer Science

St of MN - Department of Transportation
\$165,143 / 06/89-07/92

Implement and Evaluate an Integrated Information Center

George D'Elia, School of Management
Joseph Branin, University Libraries

U.S. Department of Education
\$151,850 / 10/90-09/91

Molecular Approaches to Preservation of Insecticide Sensitivity

Ann Fallon, Entomology

USDA
\$150,000 / 09/90-09/93

Sulfur-Sulfur Bridging in Solid-Phase Peptide Synthesis

George Barany, Chemistry

NIH, NIGMS
\$140,724 / 09/90-08/91

Low-Input Agriculture - Minnesota

Pierre Robert, Soil Science
Wallace W. Nelson, Southwest Experiment Station, Lamberton
Donald G. Baker, Soil Science

USDA
\$140,304 / 08/90-07/93

Globin Gene Regulation During Erythroid Differentiation

Gordon Ginder, Medicine

NIH, NIDDK
\$137,405 / 09/90-06/91

Gas/Particle Distributions and Particle Size Distributions of Trace Organic Compounds in the Atmosphere

Peter H. McMurry, Mechanical Engineering
Steven J. Eisenreich, Civil and Mineral Engineering

EPA
\$134,120 / 09/90-09/92

FY 1991 Community Service Grant - KUOM-AM

Andrew J. Marlow, CEE

Corporation for Public Broadcasting
\$130,258 / 10/90-09/92

Facilitating the Self-Determination of Youth with Disabilities

Robert H. Bruininks, Educational Psychology

U.S. Department of Education
\$128,168 / 10/90-09/91

Microbial Recycling of Contaminants at the Sediment-Water Interface in the Great Lakes

Deborah L. Swackhamer, School of Public Health
Randall E. Hicks, Biology, UMD

EPA
\$117,916 / 09/90-09/92

Rational Number Project: Research on Teaching and Learning

Thomas R. Post, Curriculum and Instruction

NSF
\$112,854 / 09/90-02/92

Responses of Plant Microtubules to Low Temperature

John V. Carter, Horticultural Science

USDA
\$110,000 / 08/90-07/92

Nutritional Prevention of Polyps of the Large Bowel

Jack S. Mandel, School of Public Health

Dartmouth-Hitchcock Medical Center
\$109,753 / 09/90-08/91

Diabetes, Endocrinology and Metabolism

Jack H. Oppenheimer, Medicine

NIH, NIDDK
\$106,320 / 08/90-06/91

Ambulatory Cardiac Monitoring

Roger D. Feldman, School of Public Health

Health Care Financing Administration (HCFA)
\$100,000 / 10/90-09/91

Effect of Temperature, Humidity, Soil Moisture and Soil Type on Imazethapyr-induced Corn Injury

Donald L. Wyse, Agronomy and Plant Genetics

American Cyanamid Company
\$100,000 / 07/90-06/92

Accounting Information Systems and Decentralized Learning

James S. Jordan, Economics

NSF
\$85,134 / 08/90-01/93

US-China Cooperative Research: Geography Data Acquisition and Research Agenda in Contemporary Urban China

Mei-Ling Hsu, Geography

NSF
\$32,356 / 08/90-01/93

City and Spectacle in Medieval Europe

Kathryn Reyerson, History
Barbara Hanawalt, History

NEH
\$20,815 / 09/90-09/91

Exercises in Performance Assessment in Precollege Computing

Ronald E. Anderson, Sociology

NSF
\$31,895 / 09/90-08/91

Catalytic Etching

Lanny D. Schmidt, Chemical Engineering and Materials Science
American Chemical Society-Petroleum Research Fund

\$40,000 / 09/90-08/92

Development of Design Guidelines for Shredded Tire Fill

Andrzej Drescher, Civil and Mineral Engineering
David E. Newcomb, Civil and Mineral Engineering

St of MN - Department of Transportation
\$45,000 / 08/90-08/92

Strength Evaluation of Existing Bridges

Roberto Leon, Civil and Mineral Engineering
Catherine E. French, Civil and Mineral Engineering
Theodore V. Galambos, Civil and Mineral Engineering

St of MN - Department of Transportation
\$34,508 / 08/90-08/91

Closed Loop Computer Control of Tube Bending

Kim A. Stelson, Mechanical Engineering

Boeing Military Airplane Company
\$82,945 / 08/90-07/91

Social and Visual Impact Assessment of Beaver Basin Rim Road

David G. Pitt, Landscape Architecture
David Lime, Landscape Architecture

USDI, National Park Service
\$35,093 / 07/90-09/91

University of Minnesota Bicycle Commuting Program

Cynthia McArthur, Minnesota Extension Service

St of MN - Department of Public Safety
\$53,000 / 07/90-06/91

Price Reform in Soviet Agriculture

Karen Brooks, Agricultural and Applied Economics

National Council for Soviet and East European Research
\$50,000 / 06/90-06/92

Child Welfare Training

Esther F. Wattenberg, School of Social Work

U.S. Public Health Service
\$25,000 / 09/90-08/91

Molecular Evaluation of a Vaccine for Canine Lyme Disease

Jesse L. Goodman, Medicine

Fort Dodge Laboratories
\$48,000 / 09/90-08/91

Medicaid: Neonatal Intensive Care Unit Costs

Roger D. Feldman, School of Public Health

Health Care Financing Administration (HCFA)
\$51,133 / 08/90-04/91

Training for Future Biotechnology Development

Michael C. Flickinger, Bioprocess Technology Institute
Arnold G. Fredrickson, Bioprocess Technology Institute

NIH, NIGMS
\$79,344 / 09/90-06/91

A Molecular Approach to the Improvement of Swine Muscling

Charles F. Louis, Veterinary Biology

National Pork Producers Council
\$13,500 / 07/90-06/91

African-American Parent Advocates

Josie Johnson, Educational Policy and Administration
Tim L. Mazzoni, Educational Policy and Administration

St. Paul Companies, Inc.
\$12,500 / 09/90-06/91

Effects of Cocaine on Learning in Infants

Susan C. Hupp, Educational Psychology

Emma B. Howe Memorial Foundation
\$40,000 / 10/90-09/91

Carbon Dioxide Emissions in Minnesota

Peter Ciborowski, HHH Institute of Public Affairs

St of MN - Pollution Control Agency
\$9,900 / 09/90-12/90

Northwest Minnesota Child Care Action Coalition

Marilyn Grave-Shubert, Office of the Chancellor, Crookston

Northwest Minnesota Initiative Fund, Crookston
\$40,000 / 09/90-09/91

Student Literacy Corps Program

Thomas Lindahl, Ofc of Asst Chancellor, Crookston

U.S. Department of Education
\$35,414 / 09/90-08/92

Workers Compensation Insurance Analysis

Edward Drury, Center for Urban and Regional Affairs

St of MN - Department of Labor and Industry
\$8,574 / 09/90-06/91

ORTTA TELEPHONE NUMBERS

A Quick Reference Guide

Title and/or Area of Responsibility

Name

Number

Fax Number (612) 624-4843

Office of Research and Technology Transfer Administration

Associate Vice President, ORTTA	Tony Potami	624-1648
Communications Coordinator	Mike Moore	624-9398
Administrative Coordinator	Carol Perusse	624-6389

Grants and Contracts

Information		624-5599
Assistant Director	Rick Dunn	626-2265
Assistant Director	Mary Lou Weiss	624-5856
DHHS, NIH, ADAMHA, HRSA, OHD, Misc Private Agencies	Mary Lou Weiss	624-5856
NIH, Other DHHS, St. of MN, Counties, Am Heart Assoc	Todd Morrison	624-5066
NIH, Other DHHS, Voluntary Health Agencies, Cities	Kevin McKoskey	624-1521
NSF (Health Svcs), USDA, DOD, NASA, EPA, NEA, AID, Misc Federal Agencies	Merlin Garlid	624-0288
NSF (IT), DOE, DOC, USDI (IT), Misc Fed	TBA	624-5571
NSF (non-Health Svcs, non-IT), Education, USDI		
USDA, NEH, ST of MN, Other State	Rick Dunn	626-2265
To be Determined	David Lynch	624-5571
To be Determined	Elizabeth Klitzke	626-7718
Foundations, Miscellaneous Private Agencies	Judy Krzyzek	624-2546

Patents and Licensing

Director	John Thuent	624-2816
Technology Licensing (IT)	Tony Strauss	624-0869
Technology Licensing (Health Sciences/Agriculture)	Jim Severson	624-0262
Trademark Licensing	Robert Hicks	626-1585
Technology Licensing	Paul McDowall	625-8826
Grants & Contract Administration	Judy Volinkaty	624-3317

Financial Reporting

Assistant Director	Marilyn Surbey	624-4850
Effort Reporting, Indirect Cost & Other Rate Development	TBA	624-2040
Financial Reporting, Accounting Questions	Sandy Kenyon	624-2307

Information Services

Assistant Director	Winifred A. Schumi	624-5750
Research Review, Application Materials, Program Announcements	Tove Jespersen	624-0061

Human Subjects Committee

Administrator	Moir Keane	624-1889
Executive Assistant	Ellen Stewart	624-9829

Duluth

Research Support Office	James Loukes	(218)726-7583
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Morris

Grants Development	Tom Mahoney	589-2211 x6450
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ORTTA NEWSLETTER MAILING LIST INFORMATION

Faculty

The Research Review is automatically mailed to all faculty on the Faculty Mail List
holding the rank of Assistant Professor and above.

To add/delete/change a faculty name on this list, departmental officers must submit a Staff Directory Card to Administrative Information Services (AIS).

Please check with your departmental office or AIS (624-9000) if you need assistance.

Staff / Off-Campus

ORTTA maintains a Supplemental Mail List for academic staff not included in the above faculty list; for staff; and for individuals off-campus. Additions/changes/deletions to this list may be initiated by filling out and sending ORTTA the following:

Change	☐
Add	☐
Delete	☐

Name

Department

Campus Address (Bldg)



For changes and deletions please enclose your mailing label.



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ORTTA

Administrative Services Center
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University of Minnesota

RESEARCH REVIEW

An Overview of Sponsored Program and Technology Transfer Administration

Research and Technology Transfer Administration

January, 1991

Santa's Helpers Wore Tennis Shoes



The men's basketball team helped ORTTA distribute gifts to children at the Variety Club Children's Hospital on December 17. The toys and clothing were solicited by Bob Hicks (left) and Paul Vander Tuig (right) from companies that have licensed University of Minnesota trademarks for use on their products. Walter Bond (center) worked with Hicks in the trademark licensing office in 1989.



Jason Herr, a big fan of the Golden Gophers, visited with (left to right) Nate Tubbs, Chris Clark, Walter Bond, and Bob Martin.



Nate Tubbs had a good time with 10-month-old Connor Ferris.

Inside

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Revised Salary Ceiling on NIH Career Awards

Beginning with awards made from FY 1991 funds, the ceiling for reimbursement of the candidates' base salary on all career awards will be \$50,000. Under this policy, the NIH contribution to the base salary will be consistent with the grantee institution's salary scale up to a maximum of \$50,000. At this time the salary increase will affect the following awards:

<u>Name of the Award</u>	<u>Activity Code</u>
Special Emphasis Research Career Award	K01
Academic Award	K07
Clinical Investigator Award	K08
Physician Scientist Award	K11
Physician Scientist Award (program)	K12
Minority School Faculty Development Award	K14
Dental Scientist Award	K15
Dental Scientist Award (program)	K16

National Science Foundation

Changes in Dissertation Proposal Deadlines

Beginning in 1991, deadlines for dissertation research proposals to the National Science Foundation, Division of Biotic Systems and Resources, will be changed to February 1 and September 1. These grants support research in environmental biology.

RESEARCH REVIEW

Volume XX/Number 7

January, 1991

Editor: Michael P. Moore

Associate Vice President: A.R. Potami

Research Review is a monthly publication of the Office of Research and Technology Transfer Administration. Its purpose is to inform faculty and administrators who are involved with Sponsored Research and Technology Transfer on procedures and policies of granting agencies; on institutional policy and other information necessary to the preparation of research proposals; and on funding opportunities.

Research Review welcomes ideas and comments from all readers. Write to Research Review at 1919 University Avenue, 5th Floor; St. Paul, MN 55104, or call Michael P. Moore at 624-9398.

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, sex, national origin, handicap, age, veteran status, or sexual orientation.

Indirect Cost & Fringe Benefit Rates

Indirect Cost Rates

The rates for July 1, 1989 through June 30, 1990 are listed below. When budgeting for periods beyond 6/30/90, the 7/1/89-6/30/90 rates should be used. **The rate agreement is dated March 28, 1988.** This date should be used where required on proposal applications.

	07/01/89 06/30/90
Research	
On-Campus	44.0
Off-Campus *	21.5
SAFHL	86.6
Hormel	49.5
Other Sponsored Activity	
On-Campus	33.4
Off-Campus *	16.8
Instruction	
On-Campus	68.7
Off-Campus *	27.9

* A project will be considered off-campus if more than 50% of the direct salaries and wages of personnel employed on the project are incurred at a site neither owned nor leased by the University.

Fringe Benefit Rates

If you have questions regarding fringe benefit rate development or need the breakdown of charges, call Vivian Fickling at 624-2009.

Current actual rates through 12/31/90 are:

Faculty	29.00
Civil Service	24.50

For proposals being submitted with start dates after January 1, 1991, the estimated fringe benefit rates to be budgeted are:

Faculty	29.00
Civil Service	24.50
Nonstudents Academic (100% time)	29.00
Nonstudents Civil Service (100% time)	24.50
Students (25-74%)	3.00
Students (75-100%)	9.17
(Classes: 9538; 9539; 9540; 9544; 9549; 9553; 9554; 9557; 9564)	
Students (25-100%)	9.17
(Classes: 9511; 9521; 9531)	

As rates change, they will be reflected in this section

Committee on the Use of Human Subjects in Research

Adverse Event Reporting

To comply with regulations, investigators must report any *unanticipated* adverse events to the Committee on the Use of Human Subjects in Research as they occur. The Committee will review these reports to ensure that the initial review of risks and benefits was accurate. If a pattern of "unanticipated events" should emerge, the Committee may require a change in the study protocol and consent documents to reflect the shift in risks.

Events that were anticipated—factored into the protocol and mentioned in the original consent form—should be reported to the Committee at the time of annual review and renewal. Again, the Committee may require changes in protocol or consent forms if the gravity of risk was underestimated originally. The converse may also occur; the investigators and Committee may have underestimated the *benefit* to research subjects. In such cases,

revisions may be recommended at the time of annual renewal.

It is imperative that investigators complete and sign the renewal forms. A lapse in approval would constitute a violation of human subjects regulations and may result in formal sanctions from regulatory agencies. This requirement applies to all research efforts, irrespective of funding source. (A recent incident at another institution prompted a formal reprimand by federal authorities on a *non-funded* project.)

For further information on adverse event reporting or other human subjects review concerns, contact the Committee on the Use of Human Subjects in Research, 624-9829.

ADAMHA Selects Carroll for MERIT Award

Associate Professor of Psychiatry **Marilyn E. Carroll** was notified in November that her grant, *Environmental and Pharmacological Control of Drug Abuse*, was selected to receive a MERIT Award from the Alcohol, Drug Abuse, and Mental Health Administration. In the notification letter, Charles R. Schuster, director of the National Institute on Drug Abuse, noted that "These awards are given to investigators who have demonstrated superior competence and outstanding productivity in their previous research endeavors." Carroll's research has been devoted to developing animal models of drug abuse and testing drug rehabilitation therapies.

The MERIT (Method to Extend Research In Time) Award from NIH or ADAMHA offers investigators the opportunity to receive up to five years of support by extending a grant for up to five additional years without reapplying through the usual review procedure. Carroll's initial grant of \$653,850 in direct costs, will be more than doubled by the MERIT Award.

Carroll joins the following 12 MERIT Awardees at the University of Minnesota:

Khalil Ahmed, Professor, Lab Medicine & Pathology
"Studies of Normal and Neoplastic Prostate"

Dwight L. Anderson, Professor, Oral Sciences
"Morphogenesis of Bacteriophage PHI-029"

Robert J. Bache, Professor, Medicine
"The Coronary Vascular Response to Ischemia"

Ashley T. Haase, Professor, Microbiology
"The Pathogenesis of HIV Induced Immunodeficiency"

Harry S. Jacob, Professor, Medicine
"Abnormal Blood Cell Membranes in Disease"

Gordon E. Legge, Professor, Psychology
"Psychophysics of Reading: Normal and Low Vision"

William F. Liljemark, Professor, Oral Sciences
"Adherence of Dental Plaque Bacteria to Hydroxyapatite"

Horace Loh, Professor, Pharmacology
"Structural and Functional Studies of Mu Opioid Receptors"

Danuta Malejka, Professor, Lab Medicine & Pathology
"Mammary Carcinogenesis by N-Substituted Aryl Compounds"

Robert F. Miller, Professor, Physiology
"Cell Communication in the Vertebrate Retina"

Chang W. Song, Professor, Therapeutic Radiology
"Vascularity and Reoxygenation in X-Radiated Tumors"

James G. White, Regents' Professor, Pediatrics
"Structural Physiology and Pathology of Blood Platelets"

Proposed NIH Policy Change

A proposed National Institutes of Health (NIH) policy change could shake up how extramural funding is distributed, an NIH official said.

The proposed policy would increase emphasis on the competitive worth of a proposal and decrease the importance of priority scores in award decisions. The change could jar what some see as an "old boy network" that helps keep 38% of extramural funds at 25 of the 1,719 institutions supported by NIH. Name value often contributes to these institutions receiving better priority scores, the official said.

However, the change could prove beneficial to regions where the cost of living is low because these institutions can charge less for indirect costs, which are rising faster than direct costs. Expensive equipment, facilities and faculty also increase indirect costs. Private institutions also have higher indirect costs because public support is limited.

Federation of American Societies for Experimental Biology

Takes Issue with IOM Report on Health Science Research Funding

The Federation of American Societies for Experimental Biology (FASEB) took issue in November with an Institute of Medicine (IOM) report that recommends shifting some funds from research grants to training and facilities.

Titled, "Funding Health Sciences Research: A Strategy to Restore Balance," the IOM report found a 20-year trend in federal biomedical research support that has favored grants over facilities and training. The report recommends shifting about \$182 million annually by the year 2000 from grants to training facilities and centers. It also advises increasing indirect cost recovery for facilities and equipment.

Implementing IOM's recommendations could result in a loss of about 10% of NIH-supported research grants, a FASEB panel said. Conceivably as many as 2,000 fully trained, largely young, investigators would not be able to continue their careers or support their students. The move would also discourage students from biomedical research.

While the overall biomedical enterprise would benefit from expanded support of research grants, training and facilities, "neither research facilities nor training funds

National Science Foundation:

Unilateral Supplements Coming

Salary Cap Removed

The December issue of *Research Review* contained the complete text of NSF Important Notice No. 112, which provided information concerning two developments of interest to faculty who receive funding from the National Science Foundation. First, the NSF appropriation bill for fiscal year 1991, combined with other budget actions, removes the possibility of a sequester in FY 1991. This means that NSF will be able to make new awards and fund continuing increments in accordance with normal NSF procedures. Continuing increments for some projects were provisionally funded at 50% of committed levels during the period of budget uncertainty. For these projects, NSF will soon be issuing unilateral supplements to restore the level of funding to the full levels committed for FY 1991 support. Continuing increments which have not yet been awarded in FY 1991 will be funded at full committed levels.

Second, the FY 1991 NSF appropriation bill also did away with the \$95,000 per year "salary cap" on increments awarded with FY 1991 funds. NSF will *not* be issuing supplements to make up the difference between one's actual monthly salary and the \$7,917 per month permitted under the salary cap. Instead, grantees may rebudget FY 1991 grant funds, as allowable, to cover this additional cost. However, investigators should note that increments funded from FY 1989 and FY 1990 appropriations are still subject to the salary cap.

Please contact Rick Dunn at 626-2265 or Dave Lynch at 624-5571 if you have questions about the allowability of paying salaries in excess of the \$95,000 salary cap on your NSF grant.

will limit (research) productivity in the foreseeable future," the panel said.

The main factor limiting productivity and long-term vitality is the level of support for grants which pay for laboratory personnel, scientific equipment, supplies, stipends for predoctoral and postdoctoral trainees and provide the environment within which training is conducted, FASEB said.

The FASEB panel said it "heartily endorses" Congress' plan to stabilize research support at 6,000 new and competing grants each year for a total of 24,000 awards.

Award Winners

Hurwicz Receives National Medal of Science

Regents' Professor Emeritus of Economics **Leonid Hurwicz** received the nation's highest scientific honor from President Bush on November 13, 1990. Hurwicz was honored for his contributions to economic theory, especially the decentralized allocation of scarce resources. During the White House ceremony, President Bush called the awardees "real life pioneers who press the very limits of their fields." Hurwicz is now one of 264 scientists who have received the National Medal of Science since 1962.

Hurwicz came to the University of Minnesota in 1951. Working closely with the late Professor Walter Heller, he helped build the Economics Department into a national leader in economic education and research. He currently holds the Curtis L. Carlson Professorship in Economics.

Olseth Receives Regents' Award

Dale Olseth, president and chief executive officer of Biometric Systems, has received the University of Minnesota Regents' Award for his volunteerism and philanthropic contribution to the growth and development of the University.

During his 15 years on the University of Minnesota Foundation's Board of Trustees, Olseth served as treasurer, president, and chair. As chair from 1985 to 1988, he oversaw the Minnesota Campaign, which raised \$365 million in private gifts for the University.

Olseth received a bachelor's degree from the University in 1952 and a master's degree in business from the Amos Tuck School of Business Administration at Dartmouth College in 1956. His wife, Nancy, is a graduate of the University's College of Education. Both are members of the Minnesota Alumni Association and the University Presidents Club and Trustees Society.

Tobian Receives Nephrology Award

Professor Emeritus of Medicine **Louis Tobian, Jr.**, was named co-recipient of the John P. Peters Award, the highest honor given by the American Society of Nephrology. The society cited Tobian for his contributions to research on the role of the kidney in the development of high blood pressure. His research focuses on the role of dietary minerals, especially potassium, in preventing vascular damage from high blood pressure.

Improving Science Education

The Department of Energy (DOE) and the Environmental Protection Agency (EPA) have signed a Memorandum of Understanding to help precollege educators develop, implement, and expand programs to improve basic science literacy.

The agreement, which took effect on November 20, provides support to develop instructional and curriculum workshops and materials for elementary and secondary students and teachers, and joint efforts between DOE/EPA laboratories and elementary, secondary and university science education programs.

For more information, call Mary Kay Heinze at (202) 586-5806.

Europe and U.S.A. Forge Closer Links in Science, Technology, and Education

The European Community (E.C.) Commission and the U.S. agreed, at semi-annual ministerial meetings in Brussels in November, to intensify dialogue concerning mutual goals and priorities in science, technology and education.

A joint statement issued after the meetings announced the establishment of a new E.C./U.S. Joint Consultative Group on Science and Technology. The group, which aims "to enhance the exchange of information and facilitate cooperation in all aspects of science and technology," is the outcome of recent and ongoing consultations between E.C. Commission Vice President for Science, Research and Development Filippo Maria Pandolfi, and Allan Bromley, presidential science advisor. The group will also monitor the work of the E.C./U.S. Task Force on Biotechnology Research, established in September to serve as a mechanism for exchange of information on the scientific aspects of biotechnology.

In a separate statement, the two sides announced the creation of a working group on higher education and continuing training. It will develop activities that increase cooperation in these fields and stimulate the exchange of academic faculty, staff and students between the U.S. and Europe. The new working group will enhance existing efforts to "establish enduring linkages of mutual benefit in these important areas" between Europe and the U.S.

PHS Policy: Program Income Earned Under Research Grants

Public Health Service (PHS) policy requires applicants for PHS research grants to include in their grant applications an estimate of the amount and source of program income (defined below) expected to be generated as a result of the project for which support is being sought. The specific policies that govern the treatment of program income under research grants are set forth in the Interim Update to the 10/1/90 edition of the PHS Grants Policy Statement. The contents of the Interim Update, which was issued on 11/15/90 as part of PHS Grants Policy Memorandum Number 54, also will be included in the formal Grants Policy Statement revisions expected to be issued on or about 1/1/91.

Program income is gross income earned by a grant recipient from activities part or all of which is borne as a direct cost by the grant. Examples of program income include:

- Fees earned from services performed under the grant, such as those resulting from laboratory drug testing;
- Rental or usage fees, such as those earned from fees charged for use of computer equipment purchased with grant funds;
- Third-party patient reimbursement for hospital or other medical services, such as insurance payments for patients where such reimbursement occurs because of the grant-supported activity;
- Funds generated by the sale of commodities, such as tissue cultures, cell lines, or research animals.

The current application forms PHS 398 and 2590 will undergo a general revision to accommodate, among other changes, the required information on program income. However, until that occurs, research grant applications must address the subject as follows:

- For both competing applications (Form PHS 398) and noncompeting continuation applications (Form PHS 2590), the OTHER SUPPORT page must indicate yes or no whether program income is anticipated during the period(s) for which grant support is requested. If the answer is "yes", the amount and source(s) of such income by budget period also must be indicated.

The above requirement begins with:

- New (Type 1) applications submitted for the 2/1/91 receipt date;
- Competing Continuation (Type 2) applications submitted for the 3/1/91 receipt date;

- Noncompeting Continuation (Type 5) applications for budget periods beginning 4/1/91.

Consistent with page 8-9 of the Grants Policy Statement (as updated 11/15/90), program income earned under research grants is to be treated by grantees according to one of the following alternatives prescribed by the PHS awarding component:

A. Additional Costs (Regardless of Amount)

The income is used for costs that are in addition to the allowable costs of the grant but that nevertheless further the objectives of the statute under which the grant was made. This alternative routinely will be applied to those research grants that are subject to the expanded grant authorities set forth on pages 8-3 through 8-5 of the Grants Policy Statement (as updated 11/15/90).

B. Deduction (Regardless of Amount)

The income is used for allowable costs of the grant but reduces (rather than increases) the level of funds committed to the grant project. This alternative is applied most commonly to program income earned under nonresearch grants for health services projects, but its use is not limited solely to such projects.

C. Additional Costs (First \$25,000) and Deduction (Amounts in Excess of \$25,000)

This combination of alternatives A. and B., above, represents the routine treatment of program income for those research grants that are not subject to the expanded grant authorities.

D. Other

This acknowledges the latitude of PHS awarding components to prescribe "other" methods of treating program income when deemed appropriate to the particular circumstances.

In all cases the Notice of Grant Award (PHS 1533) will reflect the approved treatment of any program income, whether anticipated at the time of award or not. PHS grants management staff may contact applicants prior to award to discuss the treatment of program income in specific instances. Applicants with questions concerning any aspects of this topic are encouraged to contact the Grants Management Officer of the appropriate PHS awarding component.

Regardless of the disposition instructions on the Notice of Grant Award, all program income earned during the budget period must be identified on the Financial Status Report.

NIH Answers Congress with Six-Point Plan

A financial plan containing six goals was the central topic of a December public forum entitled, "A Plan for Managing the Cost of Biomedical Research."

The plan is the National Institutes of Health's (NIH) response to Congress' "Four-Year Plan for NIH." (See December *Research Review*, page 5.)

The six goals of the NIH plan are to:

- Set four years as the average length of research-project grant awards. Four years would allow NIH to provide funding continuity to investigators while insuring that a sufficient number of competing awards are made each year;
- Implement cost management measures so that the average cost of research project grants increases at the same rate as the Biomedical Research and Development Price Index;
- Stop using the concept of "approving" grant applications and adopt the "success rate" method based on the ratio of applications funded/applications reviewed—a method used by other federal agencies;
- Fund the number of research training grants recommended by the National Academy of Sciences to the extent possible without jeopardizing NIH's ability to provide stipend increases for research trainees;
- Manage the growth of NIH research centers by controlling NIH appropriations for centers rather than by establishing a ceiling on the number of centers; and
- Increase funding for other mechanisms to reflect inflation.

NIH's Flexibility Underlies Plan

NIH stressed that it can manage only those costs under its control. For example, NIH has little control over the indirect costs of research grants and hospital-based costs of clinical research.

NIH must remain flexible enough to allow biomedical science to respond to public health emergencies and scientific opportunities, and this is reflected in the plan, said John Briggs, deputy director of extramural research at NIH and chair of the panel, which heard public testimony from nearly 20 witnesses.

In order for NIH to carry out its mission, each institute and center must maintain a balanced research portfolio

with an appropriate combination of research project grants, center grants, training grants and other mechanisms.

Agricultural Center Awaits Funding

New agricultural research centers authorized under the 1990 Farm Bill await funding because the legislation was signed after the appropriations bill. Under terms of the legislation, the first two of six sites can be selected after \$5 million is appropriated for the Alternative Agricultural Research and Commercialization Revolving Fund. Once established, the regional centers will be supported by federal and private monies through the revolving fund.

Although the program is on hold, a U.S. Department of Agriculture (USDA) source was hopeful that funds would be forthcoming. The source cited an ongoing congressional interest in joint public-private research endeavors.

USDA Encourages Economic Development

The "Alternative Agricultural Research and Commercialization Act" opens the door to new research collaborations between publicly-funded facilities and commercial enterprises.

The goal of the center is to research, develop and produce marketable new nonfood and nonfeed agricultural products. Through Regional Alternative Agricultural Centers, USDA hopes to encourage economic development and take advantage of climates and agricultural resources in different states.

The plan calls for a maximum of six competitively chosen centers to be set up at existing research facilities. Centers will be selected based on:

- the institution's proven ability to carry out the specified research activities of the center, and
- the institution's ability to provide adequate funds or in-kind support from public and/or private sources to match funds for administrative costs provided by the federal government.

The Decline in Natural Resource Research During the 1980s

*The following article was written by Kelly Day, Graduate Research Assistant and Vernon Ruttan, Regents' Professor, Agricultural and Applied Economics. For a more complete report, see **Federal Funding of Natural Resource Research and Development, 1978-1988**; Kelly Day, unpublished thesis, University of Minnesota, August, 1989. A revised version of this article will appear in a forthcoming issue of BioScience.*

The deterioration in the nation's environmental protection resources during the 1980s should be cause for great alarm to environmentalists. Not only was there a reduction in funds for dealing with present environmental problems, but fewer funds were set aside for environmental research. The science policy of the Reagan administration brought about shifts in research priorities that resulted in a divestment in natural resource and environmental research. This trend has continued under the Bush administration.

Given the escalating environmental problems facing this nation, it is crucial that people who are concerned with environmental quality should be equally concerned with reversing the natural resource research deficit. In this article, we review the trends in the research budgets of the several natural resource agencies and discuss some of the implications of these trends for resource management and policy.

Loss of Research Capacity

The capacity of the federal government to respond to the natural resource and environmental problems facing the nation has been severely eroded over the last decade. While interest groups have focused considerable criticism on the direct assault of the Reagan administration on conservation and environmental programs, the weakening of agency research programs may be the most damaging.

Natural resources research is defined by the National Science Foundation as research activities that contribute to the management, conservation, and development of natural resources and the environment and that encourage education and understanding of the environment. Natural resources research underwent a sharp transition between the Carter administration and the first Reagan administration. The Carter administration attempted to develop a science policy from a broad assessment of national needs. His administration maintained that the purpose of federal research and development was to provide a base for education, to stimulate productivity within industry, to provide standards for

regulation, to ensure an adequate energy supply, to improve public health, and to protect the environment and natural resources. Natural resource and environmental research was managed with the conviction that the nation valued natural resources intrinsically and not solely as marketable commodities. The administration believed that research and development policies should be consistent so as to assure long-term research and stable research opportunities.

The Reagan administration founded its natural resource and environmental research policy on a much more limited assessment of national needs. It attempted to formulate a set of policy objectives for the federal natural resource and environmental agencies consistent with the objectives of reduction of regulatory standards and enforcement, greater reliance on the free market for resource management and evaluation, privatization of certain public resources, and a decline in support for research and development.

By exercising the administrative powers of the Office of management and Budget and by appointing to key positions persons sympathetic to Reagan's priorities, the administration was able to make dramatic changes in the level and composition of natural resource and environmental research and development funding. Natural resource and environmental funding fell by 18 percent in real dollar terms between 1980 and 1988 and declined as a percentage of total federal research and development.

During the 1980s, natural resources research remained approximately unchanged in nominal terms and declined sharply in real terms (figures 1 & 2) and as a percentage of non-defense R&D, (figure 3). There were, however, sharp differences among agencies. In general, conservation-oriented research suffered greater reductions than research applicable to industry needs.

Figure 1

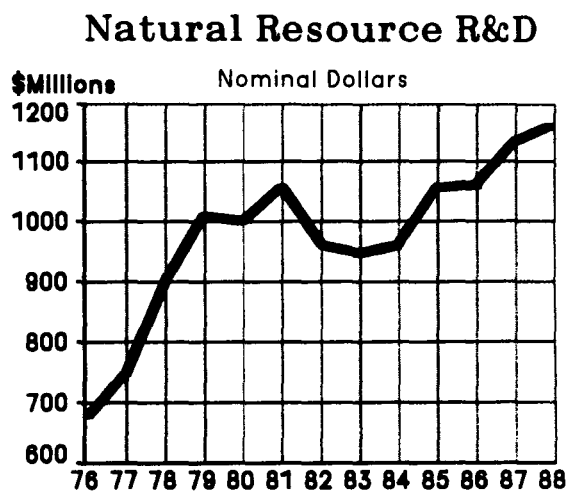
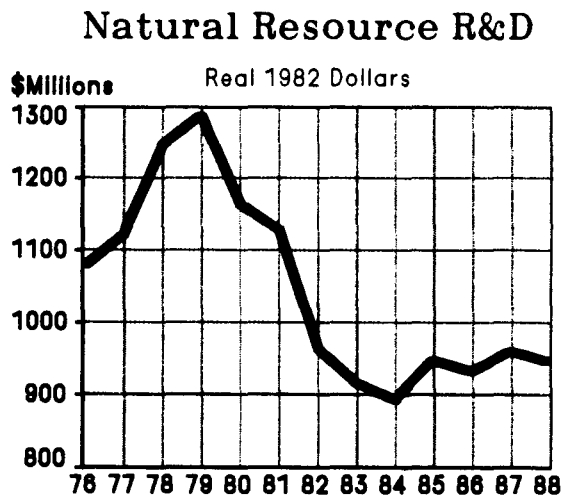


Figure 2



To facilitate discussion we divide natural resource research and development into three categories: environmental and conservation research, land and water research, and mining and minerals research.

Environmental and Conservation Research

Environmental and conservation research is conducted by the Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA), along with the U.S. Fish and Wildlife Service and the National Park Service. The EPA suffered a decline in funding of over 17 percent between 1980 and 1985. The reduction of funding was compounded by leadership problems in the early eighties and recurrent agency reorganization. This led to a shift in the orientation of EPA research. A growing percentage of EPA's declining research budget was dedicated to supporting mandated regulatory objectives. Consequently, anticipatory and long-term research became relatively weak. Research focused on short-term and crisis-oriented problems.

As a result of this short-term focus, EPA's regulatory functions have not been adequately supported by the EPA research program. The scientific basis of EPA regulations has been criticized by the National Academy of Sciences, the General Accounting Office, the House Committee on Science and Technology, and the Science Advisory Board. The EPA has also faced numerous legal contests because standards were not based on adequate research.

The ineffectiveness of EPA research is especially critical as EPA faces a myriad of new and more complex pollutants. The EPA Science Advisory Board has stated that traditional pollution abatement methods probably cannot control these new pollutants, which create problems that are less reversible than those of the past.

It is questionable whether the EPA can solve fundamental problems with its currently limited funds. The decline in funding and the increasing responsibilities have resulted in research focused on solving problems after they impose social costs. The concentration of research efforts on existing problems does not bode well for the early identification and treatment of emerging problems.

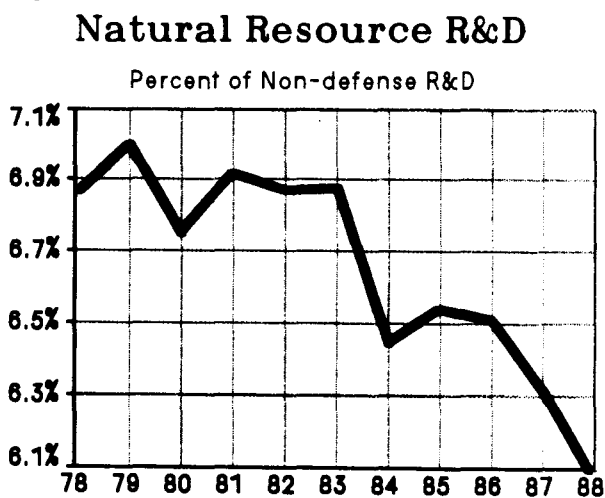
The National Oceanic and Atmospheric Administration, which is responsible for national oceanic, coastal, and atmospheric resources, experienced a significant loss of administration support during the 1980s. Consequently, the agency has been unable to fully achieve its mandated objectives. This is due, in part, to the steep decline in research and development funding, evidenced by the fact that in 1987 NOAA research and development constant dollar funding had fallen to less than the 1980 level of appropriations.

The National Sea Grant College Program, which supports academic research of ocean resources and marine science education, was repeatedly targeted by the Reagan administration for elimination, only to be revived by Congress. According to administrative funding proposals, Living Marine Resource, Endangered Species, and Marine Mammal research budgets would have been reduced to a disabling level had Congress not intervened.

NOAA research funding has changed substantially in composition. Atmospheric programs have maintained funding while oceanic programs have declined considerably as a research priority. Undersea research and ocean dumping research has been eliminated or significantly reduced.

The deterioration in NOAA research funding has significant implications for future ocean and atmospheric management. Like the EPA, the decline in NOAA funding and leadership has resulted in research that is short-

Figure 3



term and crisis-oriented and that reduced the capacity of NOAA to anticipate health and environmental problems before they reach critical and costly levels.

The National Park Service, which traditionally conducts relatively less research, is the only agency within this group to sustain real increases in funding (in 1982 dollars). The Park Service is also the only agency that determines its research appropriations internally. Funding decisions were made by the Service itself, rather than being proposed by the administration and approved by Congress.

Land and Water Research

The U.S. Department of Agriculture's Forest Service is the largest of the land and water resource management agencies. USDA Forest Service research has sustained considerable losses in human and monetary resources since peaking in 1980, despite strong congressional support. In spite of these losses, USDA Forest Service research has fared relatively well compared to most natural resource research agencies because of the agency's perceived ability to contribute to the economy of many communities that depend on forest industries.

In current dollar terms, USDA Forest Service research funding reached its highest level in 1981. However, when corrected for actual purchasing power, USDA Forest Service research appropriations have declined 23 percent since 1977.

The significance of the declines in constant dollar funding becomes more apparent after examining the changes in research scientist years and work units. The last year of the Carter administration marked the peak of scientist years for USDA Forest Service research. From 1980 to 1988, scientist years declined by 27.2 percent and research work units by 20 percent, reflecting a steady and persistent cutback of research programs.

Research priorities also changed during the Reagan administration. The four activities most applicable to industry, Trees and Timber Management Research, Forest Products and Harvesting Research, Forest Insect and Disease Research, and Forest Inventory and Analysis Research, increased from 40.5 percent of total appropriations in 1978 to 48.9 percent of the total in 1986 (U.S. Forest Service, unpublished data).

Watershed Management and Rehabilitation, and Fire and Atmospheric Research declined in priority between 1978 and 1986 (U.S. Forest Service, unpublished data).

Mining and Mineral Research

The mineral research group consists of the Bureau of Mines, the U.S. Geological Survey, the Office of Surface

Mining, and Minerals Management. While mineral research has increased slightly in nominal terms, funding has declined significantly in real terms. Between 1979 and 1986, research funding experienced a decline of over 23 percent in real terms.

Geological Survey is one of two natural resource agencies fortunate enough to have experienced an increase in real dollar funding during the Reagan administration. Two factors account for this. First, Geological Survey has benefited from being a predominately scientific and technical organization while those agencies with conservation, preservationist and regulatory responsibilities found themselves with significant conflicts with the Reagan agenda. Secondly, Geological Survey was designated to conduct resource assessment. The increase in Geological Survey funding was compatible with the designated goals of a strong economy and defense. This increase was a significant component of the shift towards natural resource research that could be utilized by industry.

The Bureau of Mines experienced a funding decline of over 42 percent during the 1980s. According to the National Science Foundation, research declined in the areas of health and safety technology and environmental technology.

The Loss of Research Capacity: What are the Costs?

There are four major consequences of the loss of research capacity in the natural resource agencies that will affect natural resources and environmental programs well into the 1990s. First, environmental regulations are based on increasingly less adequate scientific data. Regulatory systems of federal natural resource and environmental agencies are not supported by sufficient scientific evidence. Often the data are insufficient to justify either the regulation or the basis of the regulatory standard. The most publicized example is the regulatory functions of the EPA. Insufficient research funding has resulted in regulatory functions that are inefficient and ineffective. Toxic and hazardous waste regulation has been especially handicapped by limited scientific information. Unresolved technical controversy and insufficient scientific data have slowed or prevented the expansion of hazardous substance regulation. Research failures to detect or control toxic and hazardous substances are even more serious as potentially dangerous chemicals are not being monitored and evaluated.

Second, long-term natural resource research and development is insufficient. While natural resource and environmental research appropriations have declined, long-term research has been cut much more severely. Those research activities with immediate commercial value were more likely to maintain appropriations under

the Reagan science policy. A bias towards commercially applicable research developed in a number of agencies. USDA Forest Service research became focused on forestry products and disease prevention for commercial forestry, as preservation, recreation, and wildlife functions received less emphasis. The Sea Grant research program of NOAA shifted efforts towards the development of marine commodities resources. Geological Survey's Conservation of Natural Lands and Minerals Research was eliminated. EPA underwent drastic changes in orientation as research priorities emphasized the development of low-cost pollution control equipment.

Research and development programs cannot sustain long-term goals without consistency in leadership, policy, and funding. Unfortunately, without long-term research, prevention of natural resource and environmental problems diminishes and these issues are not explored unless costs are imposed on the health and well-being of society.

Third, the costs of reversing environmental problems increase with delay. At 1990 levels of research appropriations, data gathering is limited and there is a tendency among environmental policy makers to delay action until conclusive evidence is available. Historically, environmental problems have been left unrecognized or untreated until dangerous levels were reached. The hazardous waste crises of the Love Canal and Times Beach were not addressed until massive contamination became apparent. The costs of delaying corrective action on several emerging environmental issues may be enormous. The pesticide/groundwater contamination and acid rain are urgent problems that threaten water quality, soil quality, fish, birds and other animal resources; reversal may be impossible.

Fourth, the pool of scientists is declining. Throughout the 1980s declining appropriations forced a number of natural resource and environmental agencies to reduce their research staffs. The reductions in personnel are even greater if declines in funding and grants to universities are taken into account. For example, the Fish and Wildlife Service has been unable to afford needed scientists and has expressed concerns about the possibility of insufficient scientific personnel in the future. EPA research employment began falling within the first two years of the Reagan administration. The minerals group faced a significant drop in student enrollment in mineral programs. The Forest Service's supply of new scientists declined dramatically, according to college and university enrollment figures. Reduction in support for training will make it increasingly difficult to recruit a new generation of resource and environmental scientists.

The consequences of the Reagan administration's treatment of the natural resource and environmental re-

search establishment are acute as we are now facing more complex environmental problems. A number of significant problems have emerged in the past ten years involving new pollutants that require a substantially higher level of scientific understanding and technical expertise. Three particularly serious problems have arisen: hazardous air pollutants, the greenhouse effect, and acid rain. Future environmental problems will be more costly to solve than those of the past. The declines in long-term research have reduced anticipatory faculties at the time when they may be most needed.

The election of George Bush, a self-declared environmentalist, offered some hope for a reversal in the deterioration in the nation's environmental resources. He appointed a highly regarded conservationist, William Reilly, former president of the Conservation Foundation, as head of the Environmental Protection Agency. Manual Luhan, Jr., Secretary of the Interior, despite a consistently pro-development and anti-conservation congressional voting record, has indicated he shares the President's commitment to the environment.

However, during the first year of the Bush administration, funding for natural resources research declined as a percentage of civilian research. Natural resources research is continuing to decline as a national research priority, according to estimates of current appropriations, and there has been no statement of changed science and technology policies that would provide a base for reversing this decline.

If we have any hope of overcoming the resource and environmental problems facing our country, we must repair the foundation of our effort. Federal research agencies must be able to place a high priority on research if efforts to protect the environment and enhance environmental services are to succeed. Unfortunately, it will not be easy to rebuild the research capacity of the federal resource agencies. The decline in research budgets has been accompanied by an erosion of the salary structure. The federal agencies are less competitive with the private sector and the states than a decade ago. Federal resource research programs continue to lose research program leaders and scientists to both the private sector and to state agencies. The failure of Congress to reform the federal salary structure this past January means that Luhan, Reilly and their colleagues have had great difficulty staffing their research programs.

The deficit in natural resource research funding during the 1980s has resulted in inadequate knowledge on which to base resource policy in the 1990s. Unless the erosion in resource agency research budgets is soon reversed, the economic and environmental costs will be felt well into the next century.

Program Information

Internal and External Sponsors

National Institute on Deafness and Other Communication Disorders

Exploratory Grants to Develop National Multi-Purpose Research and Training Centers (DC-91-02)

The National Institute on Deafness and Other Communication Disorders (NIDCD), a component of the National Institutes of Health (NIH) requests Exploratory Grant applications (P20) from institutions wishing to develop a National Multi-Purpose Research and Training Center (RTC) for the multi-disciplinary study of communication sciences and disorders.

In December, 1989, NIDCD issued an RFA announcing its intent to designate and support a limited number of National Multi-purpose Research and Training Centers. The goal of the RTC was the support of basic and clinical research, research training, continuing education for health professionals, and dissemination of information to the general public in one or more of the program areas of the Institute: hearing, balance, smell, taste, voice, speech and language. (That RFA has been reestablished; see following article.)

The purpose of the current *Exploratory Grant* is to develop and strengthen the essential components of the RTC (noted above) and to enable an institution to compete for such a center. It is expected that particular components for an RTC may already be in place for some institutions. This grant is for the development of the essential research and research-related components not fully in place and not supported by other funds.

Five awards may be made if meritorious grant applications and funds are available. Direct costs for each grant may not exceed \$100,000 per year. The project period should be at least one year and may not exceed two years.

The application deadline is **March 15, 1991** and a letter of intent is requested by February 22, 1991. (A letter of intent is not obligatory.) Copies of the guidelines are available from ORTTA and may be requested by calling 624-9004, or by sending a note through the Electronic Bulletin Board.

National Multi-Purpose Research and Training Centers (DC-91-01)

A National Research and Training Center is a national resource and is dedicated to working with NIDCD in furthering the goals of the Institute through a multi-disciplinary, coordinated approach involving basic and clinical research, research training, continuing education for

health care professionals, and dissemination of information to the public. An RTC may focus on one or more of the major scientific areas of the Institute (hearing, balance, smell, taste, voice, speech, and language) but each of the components, including the research training and education components, must relate to the central theme of the Center. All of the components must be of high quality as judged by NIH standards for biomedical and behavioral research excellence.

National Multi-purpose RTCs will be funded through the Comprehensive Center grant mechanism (P60). Five years of support must be requested at a direct cost not to exceed \$1 million for the first year.

The application deadline is **February 21, 1991**. A letter of intent is requested by January 30, 1991 (not obligatory). Guidelines are available from ORTTA and may be requested by calling 624-9004 or by putting a note through the Electronic Bulletin Board.

Health Resources and Services Administration

AIDS Regional Education & Training Centers

The Health Resources and Services Administration (HRSA) announces that applications are being accepted for new and continuation proposals for AIDS Regional Education and Training Centers (ETCs). ETCs provide multidisciplinary training for primary health care personnel in the care of people with AIDS and other conditions related to infection with the HIV virus.

The proposed project requirements are designed to direct federal resources where the greatest needs exist. Each project must define a geographic region and identify the types of providers to be targeted for training within that region. Concurrently, a needs assessment must be made to guide program implementation. This assessment must be based on current epidemiological data, as well as training and education needs within the defined region.

Approximately 16 new awards, averaging \$900,000 each, should be available. The application deadline is **January 24, 1991**. Application materials are available from: Grants Management Officer (D35), Bureau of Health Professions, Health Resources and Services Administration, Parklawn Building, Room 8C-26, 5600 Fishers Lane, Rockville, Maryland 20857; (301) 443-6857. Application materials are available from ORTTA and may be requested by calling 624-9004, or by putting a note through the Electronic Bulletin Board.

Centers for Disease Control

The Centers for Disease Control (CDC) is accepting proposals for the Public Health Conference Support Grant Program. These grants provide partial support for non-federal conferences on information and education programs in the areas of health promotion and disease prevention. CDC is specifically seeking to fund conferences on the following topics:

- chronic disease prevention
- infectious disease prevention
- control of injury or disease associated with environmental, home, or workplace hazards
- environmental health
- occupational safety and health
- control of risk factors such as poor nutrition, smoking, lack of exercise, high blood pressure, stress, and drug misuse
- laboratory practices

Approximately \$200,000 will be available in FY 1991 to fund approximately 12 awards. The awards will range from \$1,000 to \$30,000 with the average award being approximately \$15,000.

The application dates are **February 1, 1991** and **May 1, 1991**. Contact: Carol J. Tully, Grants Management Branch, Procurement and Grants Office, Centers for Disease Control, Room 300, 255 East Paces Ferry Road NE Atlanta, GA 30305; (404) 842-6630. Guidelines are also available from ORTTA and may be requested by calling 624-9004 or by sending a note through the Electronic Bulletin Board.

National Science Foundation

Improving Science & Mathematics Education

NSF is supporting the participation of private sector organizations and technical personnel in projects to improve science and mathematics education through partnerships with schools, school districts, community colleges, four-year colleges and universities, and other educational organizations. The primary focus of these projects must be the blending of the scientific, technical, organizational and management skills of the non-educational world with the knowledge and pedagogical expertise of educators. Full involvement of private sector people and organizations in both planning and executing proposed projects will be required.

Projects may be targeted toward any aspect of science and mathematics education in the primary, middle, and secondary grades. Of particular interest to this solicitation are those which include significant participation by classroom teachers. Priority will be given to projects that are innovative, that have the potential to be replicated, or that serve the special needs of under-represented groups.

Funding may be requested for one to four years; the maximum award over the life of the project will be \$400,000, including indirect costs. The average award is expected to be about \$200,000.

There are two submission deadlines: **February 15, 1991** and **August 15, 1991**. General inquiries should be directed to Dr. Donald S. Douglas or Dr. Donald E. Sands, Private Sector Partnerships Program, Directorate for Education and Human Resources, National Science Foundation, 1800 G Street NW Room 504, Washington, DC 20550; (202)357-7751; FAX: (202) 357-7009; BIT-NET: ddouglas@nsf.gov or dsands@nsf.gov.

Geological Survey

Coastal Geology Research

The Geological Survey will make assistance awards, with State Geological Surveys, universities and other organizations, on a cost-sharing basis, to conduct geologic research under the Coastal Geology Research Program. The program is focused on increasing our scientific understanding of the physical processes affecting the nation's coastal and wetlands environments. The purpose of the program is to enhance cooperative geologic research on the physical processes, i.e., framework of coastal regions, sediment transport, sea level rise, and geomorphic evolution affecting a variety of coastal regions.

Field investigations, conducted in cooperation with various Federal and State agencies as well as university research scientists, are currently underway in Louisiana, Alabama, Mississippi and southern Lake Michigan. Additional investigations will begin in western Louisiana, east Texas and the Great Lakes region. Studies in the Great Lakes region will concentrate on processes causing wetlands deterioration.

A specific deadline has not been announced; the guidelines are expected to be available on or about January 15, 1991. For further information contact: S. Jeffress Williams, U.S. Geological Survey, 12201 Sunrise Valley Drive, MS 914, Reston, VA 22090; (703) 648-6511.

Program Information

Internal and External Sponsors

Environmental Protection Agency

Antimicrobial Test Methodology

The Environmental Protection Agency (EPA) is soliciting proposals to conduct research and development on the sporicidal test method, and to provide independent statistical analysis on antimicrobial test methodology research. Research results are expected to result in the development of a reproducible, reliable, and statistically valid sporicidal test method used to evaluate the efficacy of antimicrobial products bearing sterilizer or sporicidal claims.

The application deadline is **January 30, 1991**. For further information contact: Research Grant Staff (RD-675), Environmental Protection Agency, 401 M Street SW, Washington, DC 20460; (202) 382-7445. Copies of the guidelines may be obtained by calling ORTTA at 624-9004 or by sending a note through the Bulletin Board.

Department of Energy

Scholarship Program

The U.S. Department of Energy (DOE) is offering a Scholarship Program for students at the associate degree level in Environmental Restoration and Waste Management (ER/WM). The purpose of the ER/WM Scholarship program is to increase the number of technicians, scientists, and engineers trained in technical areas supportive of the DOE ER/WM mission. This educational program is supplemented with practical experience at appropriate DOE facilities.

The applicant must be enrolled at an accredited college in the U.S. offering Associate of Science degrees in relevant science and engineering disciplines. Applicants must be U.S. citizens. The ER/WM Scholarship program provides students a \$600 per month stipend; full tuition and fees are paid directly to the participating institution.

The application deadline is **January 28, 1991**. Please contact: ER/WM Scholarship Program, Science/Engineering Education Division, Oak Ridge Associated Universities, ATTN: Peggy Gibson, PO Box 117, Oak Ridge, Tennessee 37831-0117; (615) 576-9278. Please contact the agency directly for application materials.

Department of Energy

Young Faculty Award Program

The U.S. Department of Energy (DOE) has announced a Young Faculty Award Program in Environmental Restoration/Waste Management (ER/WM). The program is intended to strengthen ER/WM education and training, develop research capabilities and course development, enhance academic teaching of ER/WM subjects, develop linkages to the national academic community with DOE ER/WM research, create a pool of young, creative academic researchers, and create an infusion of new ideas in ER/WM areas.

The applicant must be a full-time, regular non-tenured faculty member holding a doctoral degree in a tenure-track appointment, and must be a U.S. citizen. Each awardee will receive an annual award up to \$50,000, renewable for a second year.

The application deadline is **January 28, 1991**. For further information contact: ER/WM Young Faculty Award Program, Science/Engineering Education Division, Oak Ridge Associated Universities, ATTN: Leila Gosslee, PO Box 117, Oak Ridge, Tennessee 37831-0117; (615) 576-1078. Please contact the agency directly for application materials.

Department of Energy

Nuclear Engineering Research

The Department of Energy (DOE) is accepting applications for special research grants to support nuclear engineering research. Eligibility for these grants is restricted to colleges and universities that have nuclear engineering programs.

Applications should be directed to state-of-the-art research that contributes to the following areas: applied nuclear sciences, reactor operations and control, reactor neutronics, nuclear thermal hydraulics, nuclear materials, advanced reactor concepts, nuclear technology for space, waste management and environmental radiation, and heavy water reactor safety research. Research should be innovative and revolutionary rather than evolutionary.

The application deadline is **January 31, 1991**. For further information contact: James P. McGowan, Financial Assistance Branch, Idaho Operations Office, USDOE, Idaho Falls, Idaho 83402.

Program Information

Internal and External Sponsors

Department of Energy

Special Research Grants

The Department of Energy has announced the availability of awards (Notice 91-3) to support the development of advanced climate models in conjunction with the Computer Hardware, Advanced Mathematics and Model Physics (CHAMMP) Program.

The CHAMMP research program is a multi-year program to accelerate and improve climate prediction on global and regional scales. Its emphasis is on the integration of improved modeling methods with state-of-the-science and next generation high performance computing systems to increase both the throughput and accuracy of computer climate model predictions.

Applications are requested to support research in the following areas:

- 1) The theoretical limits to the prediction of climate and climate change on decade to century time scales;
- 2) The development of new mathematical techniques, algorithms and computer software to efficiently use high parallel computers for climate models;
- 3) The use of current and next generation supercomputing systems to dramatically increase the throughput of climate simulations; and
- 4) The development of improved representations of key climate processes within climate models that properly scale with model resolution.

The application deadline is **February 12, 1991**. Requests for applications should be made to: U.S. Department of Energy, Division of Acquisition and Assistance Management, Office of Energy Research, ER-64, Mail Stop G-236, Washington, DC 20585; (301) 353-3281. ORTTA does not have application materials, but a preliminary program description may be requested by calling 624-9004 or by putting a note through the Bulletin Board.

Nuclear Regulatory Commission

Nuclear Power Safety Research

The Nuclear Regulatory Commission is seeking applications for research related to the safety of nuclear power production. NRC will specifically fund research on

safety assessment of system and subsystem technologies used in nuclear power production. Projects should include elements that enhance institutions' graduate research programs, such as graduate student training. Grantees also may use funds for professional meetings and conferences for the exchange of research findings. The NRC is encouraging educational institutions to submit research grant proposals in 31 different areas.

Awards will be up to \$50,000 a year for up to two years. The application deadline is **March 1, 1991**. Contact: Kimberly Parrott, Nuclear Regulatory Commission, Division of Contracts and Property Management, Office of Administration, Washington, DC 20555; (301) 492-4297. Guidelines are also available from ORTTA and may be requested by calling 624-9004, or by sending a note through the Electronic Bulletin Board.

Women's Research and Education Institute

The Women's Research and Education Institute (WREI) is an independent, national public policy research and education center whose mission is to identify issues affecting women and their roles in the family, workplace, and public arena, and to inform and help shape the public policy debate on these issues. WREI is currently offering fellowship grants designed to train women as potential leaders in public policy formation and to examine issues from the perspective of the experiences and needs of women.

A Fellow works 30 hours per week in a congressional office as a legislative aide on policy issues affecting women; fellows meet once a week in issue seminars directed by the WREI staff. Orientation begins August 5, 1991 and office placement is from September 3, 1991 to April 30, 1992. Any student enrolled in a graduate program anywhere in the United States is eligible. Fellows receive a stipend of \$9,000 for the academic year, August through April, plus a maximum of \$1,500 for the cost of 6 hours of tuition at their home institutions.

The submission deadline is **February 15, 1991**. *Applications can only be requested from the agency.* Please contact: Fellowship Program Director, Women's Research and Education Institute (WREI), 1700 18th Street, NW, Suite 400, Washington, DC 20009.

Program Information

Internal and External Sponsors

U.S. Department of Agriculture

The Cooperative State Research Service, U.S. Department of Agriculture (USDA) is accepting applications for FY 1991 research projects, postdoctoral research awards and workshops, symposia or conferences.

Program priorities are divided into four classifications:

- **Plant systems research.** The plant genome program is a new research opportunity targeted at understanding the structure, control and technology of agriculturally important genes. A new research area — energy and metabolism — expands former programs in photosynthesis and nitrogen fixation/metabolism. Plant systems also expands FY 1990 plant science programs in pathology/weed science, genetic mechanisms and molecular biology, growth and development, and pest science.
- **Studies of natural resources and the environment.** Areas include two new initiatives in water quality and forest/rangeland/crop ecosystems. Support for research into plant responses to the environment continues and funding is provided for utilization of wood and fiber research.
- **Nutrition, food quality and health studies.** A new food-safety initiative will begin focusing on bacteria responsible for foodborne illness. Emphasis will continue on nutritional requirements for optimal health.
- **Animal systems research.** A broad range of animal systems research aimed at enhancing production and addressing areas such as modification of animal products are being offered. Two new program areas — animal molecular genetics and cellular and molecular basis of disease — will begin. Support will continue for projects in reproductive biology and growth and development of animals of agricultural importance.

Areas noted above provide a guide to research either considered of interest or of vital importance. They should not discourage creative proposals. All innovative proposals will receive high priority.

Please note that USDA has revised its application kit. Copies of the guidelines and the new kit are available from ORTTA and may be requested by calling 624-9004, or by putting a note through the Electronic Bulletin Board.

USDA 1991 Deadlines Are : (Area Code 202)

Pathogens	401-4310	January 14
Insects	401-5114	January 14
Nematodes	401-5114	January 14
Weeds	401-4310	January 14
Human nutrient requirements	401-6234	January 22
Plant genome	401-4871	January 28
Plant genetic mechanisms & molecular biology	401-5042	January 28
Photosynthesis	401-6030	January 28
Animal molecular genetics	401-4399	February 04
Alcohol fuels	401-4310	February 11
Wood utilization	401-7002	February 19
Reproductive biology of animals	401-6234	February 25
Molecular & cellular basis of animal disease	401-4399	February 25
Forest/rangeland/crop ecosystems	401-5114	March 04
Plant growth & development	401-5042	March 11
Plant responses to the environment	401-4871	March 11
Water quality	401-4871	March 18
Nitrogen fixation	401-6030	March 18
Cellular growth & development biology of animals	401-6234	March 25
Food safety	401-4399	April 08

March of Dimes

Reproductive Hazards in the Workplace

The March of Dimes Birth Defects Foundation announces the continuation of its broadly based program designed to improve the detection and characterization of human reproductive hazards. A study may include physical, chemical, or biologic agents in the workplace, home, community, and environment that are potentially harmful to normal reproductive and developmental processes.

Proposals are encouraged in the following areas: 1) Development of animal and human markers of xenobiotic exposure, markers of early physiologic and genetic alterations, and markers of changes of individuals' susceptibility to damage; 2) Studies of mechanisms of toxicity of normal reproductive and developmental functions at the molecular, cellular, and organ levels; 3) Improvement in methods of assessing human reproductive risk from animal, laboratory, and biomarker data; and 4) Epidemiologic investigations of abnormal reproductive effects in exposed groups and of factors that may alter the outcome.

Award amounts range from \$25,000 to \$35,000 per year. Requests for applications should be made in the form of a 300-word abstract and received no later than **April 1, 1991**. This abstract should only include objectives and a brief description of methods and approach. Final, invited applications are due **July 1, 1991**. A full copy of the announcement is available from ORTTA and may be requested by calling 624-9004 or by sending a note through the Electronic Bulletin Board.

1991 Summer Science Program

The March of Dimes Birth Defects Foundation announces the 1991 Summer Science Research Program for Medical Students. The program is designed for medical students who are willing to spend a three-month period during calendar 1991, preferably during the summer, working in a laboratory or clinical setting devoted primarily to research in birth defects. The essential purpose of the program is to expose highly-gifted, highly-competent and research-oriented medical students to research in birth defects with which the March of Dimes is vitally concerned.

For an institution to participate in the program, the *Medical School Dean* must submit the name, academic rank, department and telephone number of not more than two individuals on the academic or research staff who are actively engaged in birth defects research and who are will-

ing to undertake the supervision of one or two medical students on a research project. These names must be submitted by **February 15, 1991**. On or about March 1, MOD will request the names of the medical students directly from the staff members recommended by the Dean.

Not more than two students will be selected from the same medical school and each will receive \$2,000. Fifty awards will be made. The complete announcement is available from ORTTA and may be requested by calling 624-9004 or by sending a note through the Electronic Bulletin Board.

American Cancer Society

Institutional Research Grant

The American Cancer Society (ACS), through the University Dean's Committee for the ACS Institutional Research Grant, announces the availability of individual Institutional Research Grants. The stated goal of the American Cancer Society is to "foster meritorious research on cancer that cannot be supported through other available types of support." The purpose of the individual grants is to provide "seed" money to permit the initiation of promising new projects or novel ideas by junior faculty investigators.

American Cancer Society Institutional Research Grants to the University of Minnesota have been restructured considerably.

The amount of the individual awards has been increased to \$15,000 in direct costs. Eligible applicants must be faculty members at the level of Assistant Professor or Instructor and *must not* have received a prior ACS Institutional Research grant or have a current competitive national research grant.

Grants are available to anyone engaged in cancer-related research at the University of Minnesota who meet the above criteria. Cancer-related research *includes* analysis of developmental biology, gene regulation, or alteration of intracellular or extracellular processes which may lead to an improved understanding and/or therapy of potential or actual oncogenic events in prokaryotic or eukaryotic cells.

The application deadline is **February 15, 1991**. Instructions and application forms are available from the Pediatric Oncology Office, D-557 Mayo Building, 626-2778.

Faculty Research Awards

This section contains statistics on proposals and awards recently processed by ORTTA. In addition, we have randomly selected awards received by faculty during preceding months. If any faculty member has received an award he or she would like mentioned in future Research Reviews, please call Mike Moore at 624-9398.

Proposal and Award Summary

	Number	Amount
Proposals Submitted		
November, 1990	281	\$ 31,396,699
Awards Processed		
November, 1990	187	18,330,154
Proposals Submitted		
July, 1990 - November, 1990	1,484	195,922,812
Awards Processed		
July, 1990 - November, 1990	1,434	114,032,328
Proposals Submitted		
July, 1989 - November, 1989	1,437	277,228,173
Awards Processed		
July, 1989 - November, 1989	1,148	158,185,164

Carbamazepine in the Treatment of Cocaine Abuse

James Halikas, Psychiatry
Nina Graves, College of Pharmacy

ADAMHA, NIDA
\$625,442 / 09/90-08/91

A Community-Wide Program to Prevent Adolescent Alcohol Abuse

Cheryl L. Perry, School of Public Health

ADAMHA, NIAAA
\$609,962 / 09/90-08/91

Minnesota Clinical Dental Research Center

Bruce L. Pihlstrom, School of Dentistry

NIH, NIDA
\$563,117 / 09/90-09/91

An Experimental Study of Atmosphere Aerosol Particles That Affect Visibility

Peter H. McMurtry, Mechanical Engineering

Electric Power Research Institute
\$489,231 / 07/90-05/92

Research Training Group in Paleorecords of Global Change

Margaret Davis, Ecology Evolution and Behavior

NSF
\$378,637 / 09/90-02/92

Atmospheric Deposition of Toxic Contaminants to the Great Lakes

Steven J. Eisenreich, Civil and Mineral Engineering
Deborah L. Swackhamer, School of Public Health

\$313,529 / 11/90-10/93

Preliminary Study on the Dietary Modulation of Human Steroid Metabolism by Daily Consumption of Flax Seed

Mindy S. Kurzer, Food Science and Nutrition
Joanne L. Slavin, Food Science and Nutrition

NIH, NCI
\$233,001 / 09/90-09/91

Low Fat Ad Libitum Diet and Weight Loss

Robert W. Jeffery, School of Public Health

NIH, NIDDK
\$225,186 / 08/90-07/91

Rotation of Grazing Systems for Wisconsin and Minnesota Livestock

Craig C. Sheaffer, Agronomy and Plant Genetics

University of Nebraska
\$118,700 / 09/90-09/92

Dropout Prevention & Intervention Programs for Junior High School Students

Robert H. Bruininks, Educational Psychology
Sandra Christenson, Educational Psychology
Martha Thurlow, Educational Psychology

U.S. Department of Education
\$208,394 / 09/90-08/91

National Recurring Data Set: Project on Residential Services

Robert H. Bruininks, Educational Psychology
K. Charlie Lakin, Educational Psychology

OHDS-Administration on Developmental Disabilities
\$175,000 / 09/90-08/91

Computational Approaches to Econometrics and Economic Modeling

John Geweke, Economics

NSF
\$38,900 / 09/90-12/91

Rational Facists: The Political Geography of the Early Nazi Party

William Brustein, Sociology

NSF
\$50,000 / 09/90-02/93

Common Features of the Germanic Group of Languages

Anatoly Liberman, German

National Endowment for the Humanities
\$82,818 / 10/90-09/91

Biosynthesis and Metabolism of the Tobacco Alkaloids

Edward Leete, Chemistry

R.J. Reynolds Tobacco Co.
\$20,400 / 10/90-10/91

Incident Detection Techniques

Richard P. Braun, Civil and Mineral Engineering

St of MN - Dept of Administration
\$45,000 / 11/90-06/92

Effective Modeling/Analysis of Welded/Stiffened Structures

Kumar Tamma, Mechanical Engineering

John Deere Product Engineering Center
\$34,122 / 09/90-09/91

Steered Arc Source for Pratt & Whitney

Subbiah Ramalingam, Mechanical Engineering

United Technologies Corporation
\$37,000 / 10/90-12/90

Hydraulic Transient Modeling of Calumet Tarp Tunnel System

Charles S. Song, SAFHL

Metropolitan Water Reclamation District of Greater Chicago
\$51,047 / 17/90-03/91

Nutrition of Turkey Breeder Hens

Sally L. Noll, Animal Science

Paul E. Waibel, Animal Science

Mohamed E. El Halawani, Animal Science

Minnesota Turkey Growers Assoc
\$34,000 / 08/90-07/91

Molecular Blockade of Candidal Infection

Margaret Hostetter, Pediatrics

American Association for AIDS Research
\$78,000 / 07/90-06/91

Hop Components as Antitumor Agents

Gilbert J. Mannering, Food Science and Nutrition
A. Saari Csallany, Food Science and Nutrition

Kalsac, Inc.
\$25,000 / 09/90-09/91

Dry Edible Bean Extrusion

William M. Breene, Food Science and Nutrition
Yousria A. Ibrahim, Food Science and Nutrition

Greater Minnesota Corporation
\$9,500 / 11/90-09/91

Evaluation of Cold Acclimation Capability of Species and Varieties of Rosa and Ilex Requirements

Harold Pellett, Horticultural Science

USDA
\$9,600 / 09/90-08/91

Planting Trees to Conserve Energy and Fix CO²

Edward I. Sucoff, Forest Resources
Patrick H. Huelman, Forest Resources

St of MN - Dept of Natural Resources
\$37,500 / 10/90-03/91

In Service Training for Child Welfare Workers

Ronald Rooney, School of Social Work

Office of Human Development Services
\$99,970 / 09/90-08/91

Defective Cell Adhesion in Diabetic Retinopathy

Effie C. Tsilibary, Laboratory Medicine and Pathology

Juvenile Diabetes Foundation
\$49,176 / 09/90-08/91

Molecular Basis of Pediatric Disease

Alfred F. Michael, Pediatrics

Minnesota Medical Foundation
\$6,500 / 11/90-11/91

Physiology of Melatonin in Rabbit Retina

Ethan D. Cohen, Physiology
Robert F. Miller, Physiology

NIH, NEI
\$29,250 / 11/90-10/91

Role of Macrophages and T-Cell Subsets in Islet Allograft and Primary Function and Classic Rejection

David E. Sutherland, Surgery

Juvenile Diabetes Foundation
\$49,995 / 09/90-08/91

In-Vivo Evaluation of the Bidirectional Antireflux Catheter

Henry Buchwald, Surgery

Strato Medical
\$27,309 / 10/90-03/91

TA Licensing Monoclonal Antibodies

Donald E. Barber, School of Public Health

Brookhaven National Laboratory
\$19,901 / 01/91-03/91

Genetic Analysis of Peregrine Falcons in the Upper Midwest

Sharon M. Fegley, Bell Museum of Natural History
Harrison B. Tordoff, Bell Museum of Natural History

USDI, Fish and Wildlife Service
\$8,000 / 09/90-10/92

Study of Recombinant Human Erythropoietin in Dogs and Cats

David Polzin, Small Animal Clinical Sciences
Carl E. Osborne, Small Animal Clinical Sciences

AmGen
\$17,260 / 09/90-12/92

Role of Diet Acidification in Progression of Feline Renal Failure

David Polzin, Small Animal Clinical Sciences
Carl E. Osborne, Small Animal Clinical Sciences

Morris Animal Foundation
\$70,387 / 11/90-02/91

Strengthening the Foundation of Public International Law

Betsy Baker, Law School
Fred Morrison, Law School

Ford Foundation
\$90,000 / 10/90-09/92

Minnesota Criminal Justice System DWI Task Force

Stephen M. Simon, Law School

St of MN - Dept of Public Safety
\$14,000 / 10/90-09/91

A District-Wide Approach to Improving K-12 Mathematics

Peggy A. House, Curriculum and Instruction

St of MN - Higher Education Coordinating Board
\$28,000 / 10/90-12/91

Teacher Assistance Team for Low Achieving Students

James E. Turnure, Educational Psychology

Independent School Districts
\$9,140 / 07/90-06/91

Parents as Case Managers

Robert H. Bruininks, Educational Psychology

MN Governor's Planning Council on Development
\$65,000
10/90-09/91

Developmental Maturation of Visual Cortical Function in Humans

Albert Yonas, Institute of Child Development

University of Pennsylvania
\$56,097 / 09/90-08/92

Integration Through Adventure

Gary N. McLean, Vocational and Technical Education

U.S. Department of Education
\$18,000 / 10/90-09/91

The Study of Social, Cultural, and Economic Impacts of Legal and Illegal Gambling in Minnesota

G. Edward Schuh, HHH Institute of Public Affairs

Minnesota Department of Gaming
\$10,000 / 10/90-12/90

Summer Institute Problem Solving in the Elementary Mathematics Classroom

Carol Marxen, Division of Education, Morris

Clark Hoffman, Division of Education, Morris
MN Higher Education Coordinating Board
\$21,600 / 10/90-12/91

Improving Environmental Science Education Among K-6 Teachers

Judy Kuechle, Division of Education, Morris

MN Higher Education Coordinating Board
\$28,457 / 10/90-12/91

The Massacre at Kent State - 20 Years Later

Mariam D. Frenier, Social Work, Morris

Minnesota Humanities Commission
\$1,000 / 09/90-11/90

Entrepreneurial Development Program

Kjell R. Knudsen, Civil and Mineral Engineering

Richard P. Braun, Civil and Mineral Engineering
Northeastern Minnesota Initiative Fund
\$16,000 / 10/90-09/91

DHHS Organizational Listing

The following listing of agencies illustrates the organizational relationships between components of the Department of Health and Human Services.

Department of Health and Human Services (DHHS)

Public Health Service (PHS)

National Institutes of Health (NIH)

- National Cancer Inst (NCI)
- National Heart Lung & Blood Inst (NHLBI)
- National Eye Inst (NEI)
- National Inst of Allergy & Infectious Diseases (NIAID)
- National Inst of Diabetes & Digestive & Kidney Disease (NIDDK)
- National Inst of Arthritis & Musculoskeletal & Skin Diseases (NIAMS)
- National Inst of Child Health & Human Development (NICHD)
- National Inst on Aging (NIA)
- National Inst of Dental Research (NIDR)
- National Inst of Environmental Health Sciences (NIEHS)
- National Library of Medicine (NLM)
- National Inst of Neurological Disorders & Stroke (NINCDS)
- National Inst on Deafness and Other Communication Disorders (NIDCD)
- Fogarty International Center
- National Center for Nursing Research (NCNR)
- National Center for Research Resources (NCRR)
- Office of Human Genome Research

Alcohol, Drug Abuse & Mental Health Administration (ADAMHA)

- National Inst of Mental Health (NIMH)
- National Inst on Alcohol Abuse & Alcoholism (NIAAA)
- National Inst on Drug Abuse (NIDA)

Centers for Disease Control (CDC)

- National Inst for Occupational Safety and Health (NIOSH)

Health Resources & Services Administration (HRSA)

- Bureau of Health Care Delivery & Assistance
- Bureau of Health Professions
- Bureau of Maternal & Child Health & Resources Development

Agency for Health Care Policy and Research (AHCPR)

Office of Population Affairs (OPA)

Food and Drug Administration (FDA)

Family Support Administration (FSA)

Health Care Financing Administration (HCFA)

Office of Human Development Services (OHDS)

Social Security Administration (SSA)

The Sponsored Project Information Network (SPIN) is a computerized locator system of funding opportunities (federal, nonfederal, and corporate) for faculty and institutional research, development, and education program support. It is available to University faculty and staff through ORTTA.

Based on a description of your research areas and/or the type of support sought, ORTTA staff will search the SPIN Keyword Index to identify sources within specific areas of interest. The Keyword Index, a taxonomy developed by SPIN to catalog funding sources, is divided into the following ten major classifications:

- Agriculture/Food/Forestry
- Arts/Culture/Humanities/Communications
- Business/Economics/Management
- Education
- Health/Medical Sciences
- International Affairs/Area Studies
- Miscellaneous/Other
- Science/Technology
- Social/Behavioral Sciences
- Social Welfare/Public Affairs

The result of a search is a set of profiles of applicable funding sources that provides: 1) the sponsor's name; 2) the sponsor's contact address and telephone number; 3) deadline dates; 4) program titles; 5) objectives or interest areas of the sponsor; and 6) restrictions that would affect the submission of a proposal. This set of profiles is sent to the requestor.

SPIN searches are done free of charge to the requestor. A survey of users of SPIN indicates that the information received from a SPIN search was targeted to their request and a reasonable response time was effected.

**For further information regarding the SPIN system or to request a search, please contact ORTTA at
624-0061, or 624-9004**

SPIN searches are also available through the Research and Development Office in the College of Liberal Arts; the Agricultural Experiment Station; the Research Support Office at Duluth; and the Grants Development Office at Morris.

Effective September, 1990 the SPIN indexes became available for on-line review through ORTTA's Electronic Bulletin Board (See the September, 1990 *Research Review* for information on Bulletin Board contents and access instructions.) The Bulletin Board contains a section devoted to SPIN and offers users the opportunity to review the Keyword Index alphabetically or within the topics shown above.

Since the Bulletin Board is accessible anytime, faculty and staff can browse the indexes at their convenience and find *keyword codes* of interest to them. From within the Bulletin Board they can then forward a note to the Bulletin Board Editor requesting a SPIN search based on the chosen keyword codes (Limit, 20 keywords).

ORTTA TELEPHONE NUMBERS

A Quick Reference Guide

Title and/or Area of Responsibility

Name

Number

Fax Number (612) 624-4843

Office of Research and Technology Transfer Administration

Associate Vice President, ORTTA Tony Potami 624-1648
 Communications Coordinator/Research Review Editor Mike Moore 624-9398
 Administrative Coordinator Carol Perusse 624-6389

Grants and Contracts

Information 624-5599
Assistant Director Rick Dunn 626-2265
Assistant Director Mary Lou Weiss 624-5856
 DHHS, NIH, ADAMHA, HRSA, OHD, Misc Private Agencies Mary Lou Weiss 624-5856
 NIH, Other DHHS, St. of MN, Counties, Am Heart Assoc Todd Morrison 624-5066
 NIH, Other DHHS, Voluntary Health Agencies, Cities Kevin McKoskey 624-1521
 NSF (Health Svcs), USDA, DOD, NASA, EPA, NEA, AID, Misc Federal Agencies Merlin Garlid 624-0288
 NSF (IT), DOE, DOC, USDI (IT), Misc Fed TBA 624-5571
 NSF (non-Health Svcs, non-IT), Education, USDI
 USDA, NEH, ST of MN, Other State Rick Dunn 626-2265
 To be Determined David Lynch 624-5571
 To be Determined Amy Levine 626-7441
 To be Determined Elizabeth Klitzke 626-7718
 Foundations, Miscellaneous Private Agencies Judy Krzyzek 624-2546

Patents and Licensing

Director John Thuente 624-2816
 Technology Licensing (IT) Tony Strauss 624-0869
 Technology Licensing (Health Sciences/Agriculture) Jim Severson 624-0262
 Trademark Licensing Robert Hicks 626-1585
 Technology Licensing Paul McDowall 625-8826
 Grants & Contract Administration Judy Volinkaty 624-3317

Financial Reporting

Assistant Director Marilyn Surbey 624-4850
 Effort Reporting, Indirect Cost & Other Rate Development TBA 624-2040
 Financial Reporting, Accounting Questions Sandy Kenyon 624-2307

Information Services

Assistant Director Winifred A. Schumi 624-5750
 Application Materials, Program Announcements Kim Makowske 624-9004

Human Subjects Committee

Administrator Moira Keane 624-1889
 Executive Assistant Ellen Stewart 624-9829

Duluth

Research Support Office James Loukes (218)726-7583

Morris

Grants Development Tom Mahoney 589-2211 x6450

ORTTA NEWSLETTER MAILING LIST INFORMATION

Faculty

The Research Review is automatically mailed to all faculty on the Faculty Mail List holding the rank of Assistant Professor and above.

To add/delete/change a faculty name on this list, departmental officers must submit a Staff Directory Card to Administrative Information Services (AIS).

Please check with your departmental office or AIS (624-9000) if you need assistance.

Staff / Off-Campus

ORTTA maintains a Supplemental Mail List for academic staff not included in the above faculty list; for staff; and for individuals off-campus. Additions/changes/deletions to this list may be initiated by filling out and sending ORTTA the following:

Change	☐
Add	☐
Delete	☐

Name

Department

Campus Address (Bldg)

→ **For changes and deletions please enclose your mailing label.** ←

Return to
ORTTA

Administrative Services Center
1919 University Avenue, 5th Floor
Saint Paul, Minnesota 55104

University of Minnesota

Office of Research and Technology Transfer Adm
Administrative Services Center, 5th Floor
1919 University Avenue
Saint Paul, MN 55104

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University of Minnesota

RESEARCH REVIEW

An Overview of Sponsored Program and Technology Transfer Administration

Research and Technology Transfer Administration

February, 1991

Student Inventors Featured at Science Museum

University of Minnesota student inventors were featured by ORTTA in an exhibit at the Minnesota Science Museum January 7-13. The exhibit was part of the Governor's Tribute to Education, Science, and Technology, held as part of Governor Carlson's inauguration week activities. The ORTTA exhibit included an improved oil pump developed by former graduate student Kevin Mangle (pictured) and his advisor, Mechanical Engineering Professor Arthur Erdman.

Also shown in the exhibit were photos from an improved Confocal Scanning Laser Microscopy System, invented by graduate student Todd Brelje and his advisor, Cell Biology and Neuroanatomy Professor Robert L. Sorenson; and engine parts coated with steered-arc technology invented by a team headed by Mechanical Engineering Professor Subbiah Ramalingam, and including graduate stu-



dent Kyunghoon Kim. Inventions patented by undergraduate students included a Walker For a Small Child, by John Samuelson and Douglas Quast; and a Page-Turning Device, by John Berger and David Emmons.

ORTTA Is Relocating

The University's Office of Research and Technology Transfer Administration (ORTTA) will move in March to leased space in a building next to the Minnesota Supercomputer Center on Washington Avenue. The move will bring ORTTA closer to the majority of its clients on the Minneapolis campus and will add to the University's presence in the Minnesota Technology Corridor. The relocation also will reunite all ORTTA staff under one roof. This includes the Division of Grants and Contracts, the Division of Accounting and Financial Management, the Division of Information Services, the Committee on the Use of Human Subjects in Research, and the Office of Patents and Licensing.

The move is scheduled for **March 15, 1991**. As of this date, all proposals and other documents and mail should be dropped off or sent to the new address:

1100 Washington Avenue South
Suite 201
Minneapolis, MN 55415.

Visitor and drop-off parking spaces will be available in front of the building.

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New NIH Rehabilitation Center

The National Institutes of Health (NIH) is organizing a medical rehabilitation center under the National Institute for Child Health and Human Development (NICHD). This center will foster collaboration among rehabilitation researchers and basic scientists.

Duane Alexander, the director of NICHD, plans to have a comprehensive plan available to the NIH Director's Advisory Committee for the medical rehabilitation research center in 18 months. Alexander's plan will identify existing research initiatives, outline new research opportunities, and set research priorities.

Theodore M. Cole, of the University of Michigan Medical Center, and V. Reggie Edgerton, of the University of California at Los Angeles, will co-chair the NIH task force for the medical rehabilitation center. Advertisements for a director and positions on an advisory board will be announced within the next 60 days. The center is part of the PL-101-613 authorization signed by President Bush in November 1990.

Corrections to MERIT Awards List

The list of NIH/ADAMHA MERIT awards published in the January *Research Review* should have included two other recipients:

Leo T. Furcht, Professor, Lab Med & Path
"Molecular Mechanisms in Metastasis"

Robert P. Elde, Professor, Cell Biology & Neuroanatomy
"Laser Confocal Imaging of Opioid Peptides"

Also, the following is a corrected listing:

Danuta Malejka-Giganti, Assoc Prof, Lab Med & Path
"Mammary Carcinogenesis by N-Substituted Aryl Compounds"

RESEARCH REVIEW

Volume XX/Number 8

February, 1991

Editor: Michael P. Moore

Associate Vice President: A.R. Potami

Research Review is a monthly publication of the Office of Research and Technology Transfer Administration. Its purpose is to inform faculty and administrators who are involved with Sponsored Research and Technology Transfer on procedures and policies of granting agencies; on institutional policy and other information necessary to the preparation of research proposals; and on funding opportunities.

Research Review welcomes ideas and comments from all readers. Write to Research Review at 1919 University Avenue, 5th Floor, St. Paul, MN 55104, or call Michael P. Moore at 624-9398.

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, sex, national origin, handicap, age, veteran status, or sexual orientation.

Indirect Cost & Fringe Benefit Rates

Indirect Cost Rates

The rates for July 1, 1989 through June 30, 1990 are listed below. When budgeting for periods beyond 6/30/90, the 7/1/89-6/30/90 rates should be used. The rate agreement is dated March 28, 1988. This date should be used where required on proposal applications.

	07/01/89 06/30/90
Research	
On-Campus	44.0
Off-Campus *	21.5
SAFHL	86.6
Hormel	49.5
Other Sponsored Activity	
On-Campus	33.4
Off-Campus *	16.8
Instruction	
On-Campus	68.7
Off-Campus *	27.9

* A project will be considered off-campus if more than 50% of the direct salaries and wages of personnel employed on the project are incurred at a site neither owned nor leased by the University.

Fringe Benefit Rates

If you have questions regarding fringe benefit rate development or need the breakdown of charges, call Vivian Fickling at 624-2009.

Current actual rates through 12/31/90 are:

Faculty	29.00
Civil Service	24.50

For proposals being submitted with start dates after January 1, 1991, the estimated fringe benefit rates to be budgeted are:

Faculty	29.00
Civil Service	24.50
Nonstudents Academic (100% time)	29.00
Nonstudents Civil Service (100% time)	24.50
Students (25-74%)	3.00
Students (75-100%)	9.17
(Classes: 9538; 9539; 9540; 9544; 9549; 9553; 9554; 9557; 9564)	
Students (25-100%)	9.17
(Classes: 9511; 9521; 9531)	

As rates change, they will be reflected in this section

Committee on the Use of Human Subjects in Research

The "Human Subjects" Portion of an Investigator's Research Records

Given the rising concern about scientific misconduct, scrupulous record keeping of human subject material is essential. Every investigator is responsible for creating and maintaining records of *all research involving human subjects*. All research records involving human participants, tissues, and records, are subject to review by the Committee on the Use of Human Subjects in Research and by the federal authorities who regulate research with human subjects: Office for Protection from Research Risks (OPRR), and the Food and Drug Administration (FDA).

The Committee on the Use of Human Subjects in Research keeps records of all submissions; these records are not signed originals but rather are copies of materials sent to investigators. The principal investigator's records regarding human subjects should look like a *mirror image of the Committee's records*; where the Committee holds an original, the PI should hold a copy and vice versa.

Signed original consent forms should be maintained by the principal investigator in a secure location separate from the correspondence with the Committee office, but readily available to inspectors, e.g. a locked file cabinet. In every case where a subject is a patient of the UMHC, a copy of the signed consent form should be placed in the patient's medical chart as a precautionary measure in the event that complications with the research protocol occur, requiring emergency medical treatment.

Sanctions for incomplete or non-existent records include: suspension of research funds; fines; exclusion from future funding; suspension of laboratory access; and possible sanctions imposed by institutional officials. A recent incident at another institution prompted formal sanction by the OPRR. The formal reprimand was issued for failure to keep accurate records of subject-signed consent forms for a study which was conducted with *institutional funds*.

The University of Minnesota has assured the OPRR that we will protect human subjects irrespective of funding source for research projects. The University is vulnerable to federal sanctions if *any research project* is not conducted with the highest standards.

All Investigators should keep the following information:

1. Initial submission to the Committee on the Use of Human Subjects in Research:
 - copy of original (signed) application form
 - copy of original consent form (sample submitted for Committee review)
 - copy of original protocol
2. Written (original) response from the Committee following the initial review;
3. Copy of the response to stipulations/additional information requested by the Committee, including cover letters, etc;
4. Notice of Final Approval (original);
5. Copy of "Certification of Committee Approval" as sent by the Committee to the funding agency;
6. Copies of all correspondence sent to the Committee requesting consideration of changes or reporting adverse events;
7. Original responses from the Committee to all requests for changes, etc;
8. Copies of completed "Continuing Review" forms and attachments;
9. Original notice of renewal of approval and certification, where applicable;

THE MOST RECENT CONSENT FORM APPROVED BY THE COMMITTEE SHOULD ALWAYS BE MAINTAINED AND READILY IDENTIFIABLE.

Please Note: The Committee office does not have the staff or resources to routinely duplicate Committee files.

If you have any questions on retention of records or if you wish further information on policies of the Committee on the Use of Human Subjects in Research, please contact Moira Keane at 624-9829.

Research Bulletin Board Gaining Users

The ORTTA electronic bulletin board was accessed 770 times between November 5 and December 2, 1990, a doubling of usage during the previous monthly period monitored by Administrative Information Services. The electronic bulletin board went into production on September 1, 1990, and it has been received very favorably by users, says Winifred A. Schumi, assistant director for information services at ORTTA.

The ORTTA Electronic Bulletin Board is available under a new University Public Access Information Service and is available to users at no charge. The Bulletin Board is menu-driven and is designed to be used with no printed documentation. Once logged onto the Bulletin Board, there should be sufficient information on-screen or within the online Help screens to use the Bulletin Board. If this is not the case, please let us know, since enhancing the Help screens will be an ongoing process.

Within the Bulletin Board, users can send electronic messages to the Bulletin Board Editor to request additional information on program announcements, to request proposal application kits, to request a SPIN search, etc. Within Menu 2 you can perform sort and search functions. In addition, users can download and/or print selected sections of the Bulletin Board. Further functional enhancements are being designed for the Bulletin Board and will be communicated via the *Research Review* and the News section of the Bulletin Board.

We hope this service will facilitate the research efforts of University faculty. Please address any comments or concerns to Winifred A. Schumi at 624-5750.

Contents of the ORTTA Bulletin Board

ORTTA's Bulletin Board contains the following information:

- **NEWS**
Includes recent program announcements, new or changed deadline information, new University and agency research policies, and general research information.
- **CONTACTS**
Includes names and phone numbers of ORTTA staff listed alphabetically by name, by ORTTA unit, or by agency responsibility area for Grants and Contracts staff.
- **PROPHelp**
Includes information needed when developing proposals, such as fringe benefit rates; indirect cost

rates; Research Animal Resources per diem rates; and academic floors, fixed ranges and fixed rates.

- **SPIN**
Includes alpha keyword index and topical keyword index for the Sponsored Program Information Network (SPIN). This is a data base that ORTTA uses to search out funding opportunities.
- **RFP'S**
Includes selected RFP's provided weekly through the SPIN system. New RFP's are posted weekly and are available on the Bulletin Board for four weeks.
- **DEADLINE**
Includes sponsor deadlines for receipt of applications, listed by funding agency and program. This section is updated monthly.
- **NIHGUIDE**
Includes the entire NIH Guide, which is issued weekly—Notices; Notices of Availability (RFPs and RFAs); Ongoing Program Announcements. Titles of RFAs and Ongoing Program Announcements from the NIH Guide are incorporated monthly into the Deadline section of the Bulletin Board under the individual institute. Significant new program announcements may also be highlighted in the News section of the Bulletin Board. The two most recent weeks of the NIH Guide are posted.

How to Access the Bulletin Board

To access the Bulletin Board you need some computer hardware and communications software. If you can access LUMINA, you already have the required hardware and software, and the logon process is similar. Asynchronous users may need to specify a different telephone number and may need to change communication parameters (see #3 below). University Internet users need to specify a different IP Address (see #4 below).

There are several different ways you can access the ORTTA Bulletin Board:

- 1) Through the U of M Public Access Menu located on computer terminals in the University Libraries.
- 2) Through the AIS Public Access ("PA") option on the AIS network. This requires an AIS SecurID card and a connection to AIS via TCP/IP, dial-up, or SNA coax or twisted pair.

Continued on Next Page

- 3) Through asynchronous (dial-up) connection to the Public Access Menu (625-6009). This requires (a) a modem connected to a microcomputer; or a University digital phone with a data option board (DOB) or Asynch Data Interface (ADI-100), and (b) microcomputer communications software capable of vt100 terminal emulation (e.g., ProComm, TinCan, etc.). The dial-up modem settings are 8 data bits, 1 stop bit, no parity.
- 4) Through the University's Internet [IP Address 128.101.109.1 (PUBINFO.AIS.UMN.EDU)]. This requires a connection to the campus internet, an Internet address, and NCSA Telnet with tn3270 software. (AIS currently does not support vt100 emulation through the University Internet.) For a connection to the campus internet, please contact Telecommunications Services at 626-0260.

Once you are in the Bulletin Board, if you need help or have questions, either send a note to the Bulletin Board Editor or call ORTTA at 624-0327. If you need help connecting to the Bulletin Board (hardware connections or communications software problems), please call an AIS Information Center Consultant (626-0505) or call the Help Line at the Microcomputer and Workstation Networks Center (626-4276).

Amy Levine Joins ORTTA Staff

A new staff member has joined ORTTA; Amy Levine began as a Senior Grant Administrator in December.

For the last eleven years Levine has been in Washington, D.C., most recently with the Fulbright Program of the U.S. Information Agency (USIA), where she facilitated Central American Academic Exchanges. Before that she was with America-Mideast Education and Training Services, Inc., (AMIDEAST), a non-profit programming agency for the Mideast.

Levine attended the University of Chicago as an undergraduate and did graduate work at Cornell.

At ORTTA, Levine's responsibilities will include administering proposals and awards for the State of Minnesota and a variety of federal agencies, among them the Departments of Commerce, Justice, Labor, State and Transportation, the National Endowment for the Arts and the National Endowment for the Humanities, the Small Business Administration, and the Veterans' Administration.

Research Explorations for Teachers

Research Explorations, an outreach program developed through Continuing Education and Extension, is launching a branch to offer research experiences to area elementary and secondary teachers. Called Research Explorations for Teachers, it will bring teachers together with University faculty during the summers of 1991 and 1992. The program is supported by grants from the National Science Foundation and the U.S. Department of Education.

Teachers selected to participate in the program will receive stipends as they join University faculty on research projects in social and physical sciences. Secondary teachers will collaborate with faculty a total of four full-time weeks or the equivalent number of hours, while elementary teachers will meet for two full-time weeks or the equivalent number of hours. The program will involve 20 secondary and 10 elementary teachers during the summer of 1991, and 30 secondary and 15 elementary teachers during the summer of 1992.

The teachers also will attend seminars designed to correlate the research experience with their curriculum. The following spring of the academic year, after teaching the material, teachers will analyze their new material. Grant monies will support publication of the best curricular modules at the conclusion of the project.

Research Explorations will be co-directed by Susan Henderson, a program director in Extension Classes, and Eugene Gennaro, professor in the Department of Curriculum and Instruction, College of Education. Henderson hopes to finish compiling proposals for the project during February, and she is still accepting proposals in the areas of field biology, physics, and astronomy. Please contact her at 625-6361 before submitting a proposal.



Grants and Contracts Staff by Agency Responsibility

In order to improve its services to investigators and departments, ORTTA's Division of Grants and Contracts has revised the agency responsibilities assigned to grant administrators. The following table lists major funding agencies and the grant administrator responsible for each. Responsibility for some larger agencies is assigned to more than one grant administrator. For further information on these assignments or for agencies not included on this list, please call ORTTA's Division of Grants and Contracts, at 612/624-5599.

<u>Agency Name</u>	<u>Grant Administrator</u>
Agency for International Development	Garlid
Agriculture, U.S. Department of	Dunn/Garlid
USDA-Cooperative State Research Service	
USDA-Economic Research Service	
USDA-Forest Service	
USDA-National Agricultural Library	
USDA-North Central Forest Experiment Station	
USDA-Pacific Northwest Experiment Station	
USDA-Science and Education Administration	
USDA-Soil Conservation Service	
Air Force, Department of the	Garlid
Alcohol, Drug Abuse and Mental Health Administration	McKoskey/Morrison/Weiss
ADAMHA-National Institute of Mental Health	
ADAMHA-National Institute on Alcohol Abuse and Alcoholism	
ADAMHA-Office of Substance Abuse	
ADAMHA-Office for Treatment Improvement	
ADAMHA-National Institute on Drug Abuse	
American Cancer Society	McKoskey
American Chemical Society	McKoskey
American Heart Association	Morrison
Army, Department of the	Garlid
Centers for Disease Control	McKoskey/Morrison/Weiss
CDC-National Institute for Occupational Safety and Health	
Cities	Klitzke
Colleges and Universities	Morrison
Commerce, U.S. Department of	Levine
DOC-National Oceanic and Atmospheric Administration	
DOC-Office of Sea Grant Programs	
Counties	Klitzke
Defense, Department of	Garlid
DOD-Defense Advanced Research Projects Agency (DARPA)	
DOD-Defense Communication Agency	
DOD-Defense Nuclear Agency	
DOD-Department of the Air Force	
DOD-Department of the Army	
DOD-Department of the Navy	
DOD-National Security Agency	
DOD-Strategic Defense Initiative Organization	
DOD-U.S. Marine Corps	

Education, U.S. Department of	Klitzke
DE-Office of Education	
DE-National Institute of Education	
DE-Fund for the Improvement of Post-secondary Education	
DE-National Institute on Disability and Rehabilitation Research	
DE-National Institute for Handicapped Research	
DE-Rehabilitation Services Administration	
Energy, Department of	Dunn
Environmental Protection Agency	Klitzke
Federal Agencies, Miscellaneous	Levine
Federal Emergency Management Agency	Levine
Food and Drug Administration	McKoskey/Morrison/Weiss
Foreign Entities (non-industry)	Morrison
Foreign Industry	Volinkaty
Foundations, Local	Krzyzek
Foundations, Private and Corporate	Krzyzek
Health Agencies, Voluntary	McKoskey/Morrison
Health and Human Services, Department of	McKoskey/Morrison/Weiss
DHHS-Administration on Development Disabilities	
DHHS-Health Care Financing Administration	
DHHS-Office of Human Development Services	
OHDS-Administration on Aging	
OHDS-Administration on Children, Youth and Families	
DHHS-Social Security Administration	
Health Resources and Services Administration	McKoskey/Morrison/Weiss
HRSA-Bureau of Health Care Delivery	
HRSA-Bureau of Health Professions	
HRSA-Bureau of Maternal and Child Health and Resources Development	
HRSA-Indian Health Service	
Housing and Urban Development, Department of	Levine
Industrial Sponsors	Volinkaty
Information Agency, U.S.	Levine
Interior, U.S. Department of	Lynch
USDI-Bureau of Indian Affairs	
USDI-Bureau of Mines	
USDI-Bureau of Outdoor Recreation	
USDI-Bureau of Reclamation	
USDI-Bureau of Sports, Fisheries and Wildlife	
USDI-U.S. Geological Survey	
International Organizations	Morrison
(World Bank, World Health Organization, etc.)	
Justice, U.S. Department of	Levine
Labor, U.S. Department of	Levine
Minnesota, State of	Levine/Lynch
Miscellaneous Federal Agencies	Levine
National Aeronautics and Space Administration	Garlid

National Foundation on the Arts and Humanities	Levine
NFAH-Institute of Museum Services	
NFAH-National Endowment for the Arts	
NFAH-National Endowment for the Humanities	
National Institutes of Health	McKoskey/Morrison/Weiss
NIH-Division of Research Resources	
NIH-Fogarty International Center	
NIH-National Cancer Institute	
NIH-National Center for Nursing Research	
NIH-National Eye Institute	
NIH-National Heart, Lung and Blood Institute	
NIH-National Institute of Allergy and Infectious Diseases	
NIH-National Institute of Arthritis and Musculoskeletal and Skin Diseases	
NIH-National Institute of Child Health and Human Development	
NIH-National Institute of Deafness and Other Communications Disorders	
NIH-National Institute of Dental Research	
NIH-National Institute of Diabetes and Digestive and Kidney Diseases	
NIH-National Institute of Environmental Health Sciences	
NIH-National Institute of General Medical Sciences	
NIH-National Institute of Neurological Disorders and Stroke	
NIH-National Institute on Aging	
NIH-National Library of Medicine	
National Science Foundation	
U/M Institute of Technology Departments	Dunn/Lynch
All other Departments	Klitzke
Navy, Department of the	Garlid
Nuclear Regulatory Commission	Dunn
Private Agencies, Agricultural Related (Non-Industry)	Dunn
Private Agencies, Others (Non-Industry)	McKoskey/Morrison
Public Health Service, U.S.	
See:	
Health & Human Services	
Alcohol, Drug Abuse and Mental Health Administration	
Centers for Disease Control	
Health Resources and Services Administration	
National Institutes of Health	
Food and Drug Administration	
Small Business Administration	Levine
Smithsonian Institution	Levine
State Justice Institute, U.S.	Levine
State (non-Minnesota) and Local Governments	Klitzke
State, U.S. Department of	Levine
Transportation, U.S. Department of	Levine
Treasury, U.S. Department	Levine
Veterans' Administration	Levine
Voluntary Health Agencies	McKoskey/Morrison

Survey Yields Support for NIH Four-Year Plan

Editor's Note: In December the editors of Washington Fax, a daily facsimile provider of national research news, sent a questionnaire to all subscribers, most of whom represent universities, foundations, and research organizations. The following article summarizes the results of that survey.

Respondents to a survey regarding Congress' four-year plan for NIH clearly advocate its implementation. They expressed considerable disagreement, however, on the longer range goals for NIH research funding and about methods of cost containment.

Uniformity and simplicity were expressed as desirable objectives for implementing the new plan. Eighty percent of respondents felt the plan should be implemented through a single, agency-wide policy, not through new directives within each institute. Sixty-five percent agreed that increasing the number of NIH grants is a positive step, but 42 percent supported stabilizing the grant pool at 6,000 new and 24,000 total grants, and then only if dollar amounts and percentages of total fundable grants increase as well. There was a general consensus that while stabilization may be necessary for this four-year period, it should not be viewed as a long-range goal.

Despite supporting stabilization in the number of grants, the respondents expressed concern that these numbers and the dollar levels available to NIH do not accurately reflect total research needs. Forty-six percent feared that achieving the 6,000/24,000 grant pool would bring cut-backs in support for facilities, equipment, and training. Respondents commonly stated that no sector of biomedical science should be cannibalized to serve another sector.

As for types of grants, top priority was given to supporting investigator-initiated (RO1) grants; 46 percent supported limits on center grants as a cost-containment method, while 38 percent were uncommitted and 15 percent rejected such a limit because it would hurt the synergistic effects centers can have.

On the issue of a four-year maximum funding period for most grants, 62 percent said this was workable and certainly preferable to a three-year limit; 15 percent rejected the limit. Respondents generally agreed that scientists were spending more time preparing proposals in today's more competitive environment, and that making more grants available with clearer guidelines for proposal submission would help.

Not only are researchers spending more time searching for finances, but they also fear losing out on possible grant funding due to expenses. In the survey, 65 percent stated that although cost should be a factor in the peer choosing process, it should only surface between grants of equal merit. And this consideration should relate only to the direct costs of the grant.

A majority of respondents, 54 percent, said indirect costs should be considered minimally, although they felt indirect costs did need to be controlled. To clarify and bring uniformity to indirect cost rates, 77 percent of respondents see the need to develop common definitions for indirect costs, while 54 percent said study sections should work with financial analysts to make judgments about indirect costs.

Fifty percent of respondents approved linking indirect costs to the Biomedical Research and Development Price Index, although acknowledging that indirect costs increase faster than the BRDPI and cannot be controlled by grant applicants. Concern was expressed that in trying to control indirect costs, NIH might prevent researchers from taking needed research avenues over the course of a grant project.

Judging the significance of a project should be, or is already a function of peer review, according to 37 percent of respondents. However, 46 percent said that the "inherent value" of research proposals cannot be measured or predicted. Many respondents noted that a vast foundation of good research always underlies the "break-throughs," and that something of no apparent value today could be tomorrow's cure.

No Dragon to Slay

"There is no indirect-cost dragon whose slaying will make the community safe once again," said Robert Rosenzweig, president of the Association of American Universities. Testifying before the National Institutes of Health public forum on its proposed cost-management plan, Rosenzweig cited figures showing that "direct and indirect costs have risen at very close to the same rate...Indirect cost as a percentage of total grant amount has remained remarkably stable over the years."

National Research Service Award Stipend Increase

Effective October 1, 1990, the annual stipend levels for all individuals receiving support through institutional or individual National Research Service Awards (NRSA) will be as follows:

<u>Level of Training</u>	<u>Years of Experience</u>	<u>FY 1991 Stipend Level</u>
Predoctoral	All	\$ 8,800
Postdoctoral	0	\$ 18,600
	1	19,700
	2	25,600
	3	26,900
	4	28,200
	5	29,500
	6	30,800
	7 or more	32,300

Stipend level adjustments can be made only on the award date of the fellowship or the appointment date of the trainee. These stipend levels are effective only for awards made beginning with FY 1991 funds; no retroactive adjustments or supplementation of stipends with NRSA funds for awards made prior to October 1, 1990, or with funds from FY 1990 is permitted. These stipends do not apply to awards made under the Minority Access to Research Careers (MARC) Honors Undergraduate Program.

The new stipend levels are to be used in the preparation of future NRSA institutional training and individual fellowship applications. They will be administratively applied to all applications now in the review process.

Institute on Deafness to Limit Direct Costs

The National Institute on Deafness and Other Communication Disorders (NIDCD) will implement a new direct-cost limitation policy on June 1, 1991. This policy affects all applicants of program projects and clinical research centers, holding them to the top \$750,000 direct-cost limitation enforced by the policy. Only Competing Continuation Applications already received and reviewed may exceed the direct cost limit, depending on recommendations by the National Advisory Council and the initial review groups.

Principal investigators with grants exceeding the \$750,000 cap must reduce the amount when they apply for renewal. No applications above this limitation will be accepted.

Brown Pushes NASA Toward Unmanned Exploration

The newly elected chair for the House Committee on Science, Space and Technology, Rep. George Brown, D-California, plans to persuade NASA to shift the balance of its programs towards unmanned exploration. Brown also wants to see more legislation move earlier each session. He hopes by doing this to achieve the needed results at a faster pace.

Brown is a physicist and an avid member of the committee since 1965. While serving on the committee, he has encouraged energy development, space technology policy, and environmental protection. He also chairs the Agriculture Subcommittee on Department Operations, Research and Foreign Agriculture.

Minnesota Project Outreach Readies Service

The Office of Research and Technology Transfer Administration (ORTTA) is working closely with Teltech, Inc., to develop the University of Minnesota databases that will be available to users of Minnesota Project Outreach. (For more information see August, 1990 *Research Review*). Teltech is the vendor for the project, which will offer technical information and expertise to 400 small and medium-size Minnesota technical companies and to the public at 75 access sites. The project was initiated by ORTTA director, Associate Vice President Tony Potami, who helped initiate a pilot program and then successfully presented it to the 1989 Minnesota Legislature for funding.

Teltech is now screening applicants to be the first subscribers to receive the MPO services. Companies with a current need for technical information, and with annual revenue less than \$10 million, will be hooked up to Teltech's computer network through an on-site personal computer and modem. They will then have access to Teltech's 1,000-plus technical databases and more than 10,000 technical experts.

MPO access will also be available at 75 public sites established by the Minnesota Project Outreach Corporation. These sites are located throughout Minnesota in offices such as those of the Minnesota Extension Service, state Small Business Development Centers, and Agricultural Utilization Research Institutes.

Most of the new databases being created for MPO will provide access to information about University of Minnesota technologies and expertise. This will include a Licensable Technologies database, which will consist of more than 150 inventions; a Research Centers database (see list below); and a database of faculty research interests. The University of Minnesota Libraries will provide much of the document searching, retrieval, and delivery to MPO users.

In addition to the above databases, between 300 and 400 University faculty will be added to Teltech's list of more than 10,000 experts across the nation who have agreed to be available for telephone consultations on specific technical subjects, for a small fee paid by the MPO Corp. Currently, Teltech has contacted more than 100 University faculty for consideration as technical experts.

University Research Centers

As of January 18, 1991, ORTTA has received information from the following research centers, which have indicated a willingness to be listed on the Minnesota Project Outreach network. Centers can still be added by contacting Winifred Schumi at 612/624-5750, or Mike Moore at 612/624-9398.

1. Accounting Research Center
2. Applied Research and Educational Improvement, Center for
3. Army High Performance Computing Research Center
4. Bell Museum of Natural History
5. Biological Process Technology Institute
6. Biomedical Engineering Center
7. Clinical Research Center for Periodontal Diseases
8. Cloquet Forestry Center
9. Corrosion Research Center
10. Dairy Food Research Center, Minnesota-South Dakota
11. Dental Research Institute
12. Dial U Insect and Plant Information
13. Early Education & Development, Center for
14. Human/Animal Relationships and Environments, Center to Study (CENSHARE)
15. Humphrey Institute of Public Affairs
16. Implantable Devices Laboratory
17. Industrial Relations Center
18. Institute for Financial Studies
19. Institute for Rock Magnetism
20. Intercollegiate Nutrition Consortium
21. Interfacial Engineering, Center for
22. International Economic Policy, Center for
23. Limnological Research Center
24. MES — Small Business Development Center
25. Microelectronics & Information Sciences, Center for
26. Mineral Resources Research Center
27. Minnesota Building Research Center
28. Minnesota Dental Research Center for Biomaterials and Biomechanics
29. Minnesota Clinical Dental Research Center
30. Minnesota Extension Service
31. Minnesota Geological Survey
32. Minnesota Research and Development Center for Vocational Education
33. Minnesota Technical Assistance Program (MnTAP)
34. MIS Research Center
35. National Center for Research in Vocational Education
36. Particle Technology Laboratory
37. Plant Disease Clinic, Plant Pathology
38. Plant Molecular Genetics Institute
39. Plasma-Aided Manufacturing, Center for
40. Population Analysis and Policy, Center for
41. Regional Daylighting Center
42. Regional Instrumentation Facility for Surface Analysis
43. Remote Sensing Laboratory
44. Science and Application of Superconductivity, Center for the
45. Soil Testing and Research Analytical Laboratories
46. Strategic Management Research Center
47. St. Anthony Falls Hydraulic Laboratory
48. Training and Development Research Center
49. Transportation Studies, Center for
50. Underground Space Center
51. UNITE Instructional Television
52. Water Resources Research Center

Are Facilities/Staff Adequate?

By Robert J. Toft, "The Grant Works"

It is counterproductive to play "make believe" when writing a proposal. To pretend that you have a fine set of laboratories or computer facilities or a highly trained staff of scientists at your fingertips, all available for the proposed project, should it be funded, is folly. Any program officer with any experience will know by what you say—and what you do not say—whether or not you are equipped to do the work.

Save time for yourself and the agency by being brutally realistic about the staff and facilities you have ready to use for the project. If they cannot support the proposed project, scale it down to something that can be done. There is nothing wrong with having limited facilities; you just have to do limited projects.

A tough variant of this problem involves grant applications to more than one funder for a given project. You may be asking for equipment from one, and for staff from the other. If both come through, the project will sail along. If either funding source turns you down, the project is dead.

Since funding agents have their own accountability problems, they don't want to take chances on projects which promise to have the facilities and staff on hand, if only they will give the money. Know your resources and plan for projects that are commensurate with them.

Federal Patent Fees Up 69 Percent

Fees for filing and maintaining patents with the U.S. Patent and Trademark Office were raised by 69 percent when President Bush signed the Omnibus Budget Reconciliation Act of 1990. The increase is intended to make the office self-sustaining by providing annual fees of more than \$350 million, compared to current fees of about \$125 million.

The increase went into effect in November 1990 and covers fees for patent application and issue, appeal, maintenance, petition, and other patent processing services. Not included are trademark fees, patent copy and document fees, and service fees. The increase was protested vigorously by the Intellectual Property Owners, Inc., an association of patent attorneys and inventors, but there was very little time allotted for public discussion during the budget debate. ITO says it will continue to lobby for improvements in the quality of the U.S. Patent and Trademark Office.

High-Tech Exposition Set for June

Minnesota Project Innovation and Corporate Report Minnesota are collaborating again this year to bring developers of new technologies and Minnesota corporations together at **Forming Alliances for the '90s II**. The high-technology business development exposition is set for Tuesday, June 4, at the University of St. Thomas.

The exposition offers entrepreneurs, researchers, and small businesses with innovative technologies the opportunity to build partnerships with large corporations and the federal government. This year 10 recipients of Small Business Innovation Research grants will demonstrate their technologies throughout the day as an expected 500 to 1000 people view the more than 150 exhibits.

Scientists, engineers, and small businesses are invited to showcase their innovative ideas. University of Minnesota researchers and research centers interested in participating are encouraged to contact Mike Moore at 624-9398. For registration information, contact Cate Murphy, Minnesota Project Innovation, at 338-3280.

NSF Electronic Proposal Submission Project

In the last few years, NSF has actively pursued the goal of introducing new electronic communications technology into the proposal submission, review, and award processes. The Electronic Proposal Submission (EPS) Project is the initial phase of the transition of NSF's proposal processing from paper-based to electronic. This goal cannot be achieved without similar changes in the universities' processing and submission of proposals to NSF. The EPS Project focuses on converting the paper processing within NSF as well as facilitating, insofar as possible, the analogous process at participating universities.

ORTTA is participating in the test phase of the NSF Electronic Proposal Submission Project. We are currently soliciting the names of faculty who have an interest in working with us on this pilot. Participants must be currently using or be willing to use a computer text processor in the production of their proposals. For more information or to indicate your interest in participating, please call Winifred A. Schumi, 624-5750.

Legislative Commission on Minnesota Resources

What would you like to see funded in the area of natural resources? (in 25 words or less)

The Legislative Commission on Minnesota Resources (LCMR) is planning its 1991 project recommendations, funding for which is anticipated to be in excess of \$30 million. In order to improve the decision making process for project funding, the LCMR is adopting a new technique of gathering information. They are requesting an abstract of natural resource project funding ideas from all interested individuals.

Specifically, the LCMR is asking, "What would you like to see funded in the area of natural resources?" Answers will provide the LCMR with direct advice from a broad range of people — providing they respond.

Guidelines for the preparation of the abstracts are as follows:

Style

- Use any style; be direct and use specific description.

Content

- State clearly what projects you recommend for the benefit of Minnesota natural resources. Avoid negative or critical comments.

Limits

- Submit as many abstracts as you wish; keep each idea separate and limited to 25 words or less.

Example

- Following is a random choice example of a clear and concise abstract: Determine the direct and indirect effects of pesticide use on both upland and wetland wildlife and their habitats.

Include

- Please include your name, address and telephone number.

The submission deadline is **February 15, 1991**. Send abstracts to: John Velin, LCMR, 65 State Office Building, St. Paul, Minnesota 55155.

Program

National Cancer Institute

Surgical Oncology

The treatment of cancer has evolved as a multi-disciplinary effort involving (but not limited to) the disciplines of surgical oncology, medical oncology, pediatric oncology, and radiation oncology. The disciplines of medical, pediatric and radiation oncology have developed strong cadres of academic investigators while academic development in surgical oncology has not kept pace. It is believed that surgical oncology is not keeping pace because of an insufficient number of surgical oncology research programs and an insufficient number of surgeons undertaking research related to cancer.

The National Cancer Institute, therefore, is seeking applications for research grants (R01, R29, P01) concerned with research in surgical oncology. Examples of relevant studies include: 1) mechanisms of metastases; 2) effect of surgery on tumor cell kinetics; and 3) tumor host responses to surgery. Preclinical and clinical research is encompassed in this program.

Categories of specific research include, but are not confined to: 1) pathophysiologic studies related to surgery and cancer in laboratory models or in humans; 2) laboratory and clinical studies that examine the biochemical, cytotoxic, immunological, or nutritional effects of cancer surgery; 3) therapeutic studies in which surgery or a surgical question is the primary treatment modality; 4) novel immunotherapy procedures such as assessment of specific lymphokines, stimulated cells, and autologous vaccines which require surgical input; 5) new surgical techniques relevant to staging or care of patients; 6) studies to identify prognostic factors relevant to the treatment of cancer patients; 7) surgical supportive care; and 8) regional chemotherapy or hyperthermia or radiation in which a surgical approach to the treatment site is a major aspect of the procedure.

This is an ongoing program; deadlines are **February 1, June 1 and October 1**. Applicants are strongly encouraged to contact NCI prior to application preparation. A letter of intent is required prior to a P01 application. The NCI contact is: Roy S. Wu, Ph.D., Cancer Therapy Evaluation Program, Division of Cancer Treatment, NIH/NCI, EPN, Room 734, Bethesda, MD 20892; (301) 496-8866.

National Institute of Diabetes and Digestive and Kidney Diseases

Interdisciplinary Diabetes Research Grants

In hopes of attracting a variety of investigators to diabetes research, the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) is joining forces with the Juvenile Diabetes Foundation International (JDFI) to fund interdisciplinary diabetes grants.

The program's goal is to encourage an interdisciplinary research approach to the etiology and pathogenesis of insulin-dependent diabetes mellitus, or to the genetic susceptibility for the long-term complications of diabetes.

Those interested may contact Joan Harmon, executive director of NIDDK's Diabetes Research Program, (301) 496-7731.

U.S. Department of Agriculture

Aquaculture Research

The U.S. Department of Agriculture (USDA) will award grants to support basic studies in Aquaculture Research and the subareas of Disease and Parasite Control and Integrated Aquatic Animal Health Management. Funds will be awarded to support research seeking solutions to health problems of major aquaculture species.

The objective of this research area is to enhance the knowledge and technology base necessary for the continued growth of the domestic aquaculture industry as a form of production agriculture. Emphasis is placed on research leading to improved production efficiency and increased competitiveness of private sector aquaculture in the United States. Only proposals focused on commercially important aquaculture species in the specific subareas listed above will be considered.

Funding up to \$80,000 will be awarded for each project. The submission deadline is **February 15, 1991**. Application materials are available from ORTTA and may be obtained by calling 624-9004 or by sending a note through the bulletin board.

National Oceanic and Atmospheric Administration

Legislation to establish a joint Environmental Protection Agency (EPA)/National Oceanic and Atmospheric Administration (NOAA) program supporting nine regional marine research boards has been signed into law. Under the program, nine regional marine research boards (in addition to the existing Great Lakes Research Office) will be established to:

- Develop a marine research plan for the region;
- Coordinate research among member institutions;
- Provide for public review and comment on research;
- Ensure high quality research; and
- Prepare reports to Congress.

The program was authorized for \$18 million annually from FY 92 through FY 96, with funds available for research grants (similar to the Sea Grant Funding process). NOAA will be responsible for setting proposal deadlines and for approving projects based on a peer review system.

Commission on Women

Special Grants Program 1991

The University of Minnesota Commission on Women invites proposals for projects that further its goals to improve and enhance the working and learning environments for University women.

Proposals are encouraged for a range of projects including, but not limited to: outside speakers' series, curriculum development, research that benefits women on campus, and program or conference planning. Collaborative projects among units and constituencies are encouraged. Projects that recognize diversity on campus and bring together faculty, staff, and students in both planning and implementation are particularly encouraged. Projects should be implemented by December 31, 1991.

Last year the Commission awarded 13 grants ranging from \$650 to \$2,000 each. This year's submission deadline is **March 1, 1991**. To receive an application form, call Beth Mingo at 624-9547.

Program

Internal and External Sponsors

Exxon Education Foundation

Mathematics Instruction at the College Level Mathematics Education Program – Policy Analysis

The Exxon Education Foundation is currently accepting proposals for two programs: Mathematics Instruction at the College Level and Mathematics Education Program – Policy Analysis.

The first program, Mathematics Instruction at the College Level, is concerned with helping colleges and universities make better use of the available pool of mathematics instructors. Types of projects supported may include, but are not limited to, literature reviews, comparative evaluations, conferences, case studies, and surveys. Grants will range from \$5,000 to \$50,000 and preference will be given to projects that can be completed within one or two years of the award date.

The second program, Mathematics Education Program – Policy Analysis, will underwrite analyses of policy issues bearing on mathematics education in the United States. It is anticipated that at a later stage, some grants will be made to help implement recommendations arising from policy analysis projects.

Policy analysis may look at the entire span of math education, from early childhood through post-graduate training. The program is concerned both with policy issues arising from society's needs for citizens proficient in math, and policy issues relating to internal needs of the educational system as it seeks to provide mathematics education.

Robert Wood Johnson Foundation

Minority Medical Faculty Development Program

The Robert Wood Johnson Foundation is accepting applications under the 1991 Minority Medical Faculty Development Program. The program offers four-year, postdoctoral research fellowships to up to eight minority physicians with superior academic and clinical skills who are committed to careers in academic medicine and biomedical research.

The program provides an annual stipend of up to \$50,000 complemented by a \$25,000 annual grant for support of research activities. The deadline for requesting applications is April 1, 1991; the deadline for the submission of applications is **April 30, 1991**. Applications may be requested from: Harold Amos, Program Director, Minority Medical Faculty Development Program, PO Box 446, Brookline, MA 02147; (617) 732-1947.

American Cancer Society

Institutional Research Grant

The American Cancer Society (ACS), through the University Dean's Committee for the ACS Institutional Research Grant, announces the availability of individual Institutional Research Grants. The stated goal of the American Cancer Society is to "foster meritorious research on cancer that cannot be supported through other available types of support." The purpose of the individual grants is to provide "seed" money to permit the initiation of promising new projects or novel ideas by junior faculty investigators.

American Cancer Society Institutional Research Grants to the University of Minnesota have been restructured considerably.

The amount of the individual awards has been increased to \$15,000 in direct costs. Eligible applicants must be faculty members at the level of Assistant Professor or Instructor and *must not* have received a prior ACS Institutional Research grant or have a current competitive national research grant.

Grants are available to anyone engaged in cancer-related research at the University of Minnesota who meet the above criteria. Cancer-related research *includes* analysis of developmental biology, gene regulation, or alteration of intracellular or extracellular processes which may lead to an improved understanding and/or therapy of potential or actual oncogenic events in prokaryotic or eukaryotic cells.

The application deadline is **February 15, 1991**. Instructions and application forms are available from the Pediatric Oncology Office, D-557 Mayo Building, 626-2778.

Faculty Research Awards

This section contains statistics on proposals and awards recently processed by ORTTA. In addition, we have randomly selected awards received by faculty during preceding months. If any faculty member has received an award he or she would like mentioned in future Research Reviews, please call Mike Moore at 624-9398.

Proposal and Award Summary

	Number	Amount
Proposals Submitted		
December, 1990	244	\$ 32,573,209
Awards Processed		
December, 1990	105	11,943,296
Proposals Submitted		
July, 1990 - December, 1990	1,728	228,496,021
Awards Processed		
July, 1990 - December 1990	1,539	125,975,624
Proposals Submitted		
July, 1989 - December, 1989	1,738	310,223,458
Awards Processed		
July, 1989 - December, 1989	1,324	170,630,211

Center for School Change

Joe Nathan, HHH Institute of Public Affairs
Blandin Foundation
\$2,300,000 - 10/90-09/95

The Establishment of a Facility: The Institute for Rock Magnetism

Subir K. Banerjee, Geology and Geophysics
NSF
\$650,000 - 09/90-02/92

Partial Support for an Institute for Rock Magnetism

Subir K. Ganerjee, Geology and Geophysics
Keck Foundation
\$300,000 - 07/90-06/93

Psychiatric Disorders Among Native American Adolescents

Harry M. Hoberman, Psychiatry
Michael D. Resnick, School of Public Health
ADAMHA, NIMH
\$525,558 - 09/90-08/91

Nanofabrication and Nanometer-Scale High Speed Devices for Future Ultra-small Scale IC's

Stephen Y. Chou, Electrical Engineering
David and Lucile Packard Foundation
\$500,000 - 09/90-08/95

Calcium and Colorectal Epithelial Cell Proliferation

John D. Potter, School of Public Health
NIH, NCI
\$461,691 - 09/90-08/91

Preparation of Botulism A-G Antitoxin Equine F(AB')₂

Richard M. Condie, Surgery
USDOD, Army
\$321,200 - 09/90-12/90

A Test Case for the Minnesota Road Research Project

David E. Newcomb, Civil and Mineral Engineering
St of MN, Department of Transportation
\$143,426 - 10/90-09/91

Design of Dedicated and Programmable VLSI DSP Systems

Keshab K. Parhi, Electrical Engineering
Office of Naval Research
\$139,856 - 10/90-09/93

National Adolescent Health Resource Center

Michael D. Resnick, School of Public Health
HRSA, Maternal and Child Health
\$125,000 - 10/90-09/91

The Action of B-Agonist Turbutaline on Skeletal Muscle

Dennis Dykstra, Physical Medicine and Rehabilitation
Spinal Cord Society
\$38,628 - 11/90-04/91

Dreyfus Teacher-Scholar Award, 1990

Scott D. Rychnovsky, Chemistry
Camille and Henry Dreyfus Foundation
\$50,000 - 12/90-11/95

Analysis of Demand for Transportation in the Upper Midwest

Richard P. Braun, Civil and Mineral Engineering
St of MN, Department of Administration
\$59,150 - 08/90-07/91

Concurrent Architectures for VLSI Signal and Image Processing

Keshab K. Parhi, Electrical Engineering
Army Research Office
\$75,000 - 03/91-02/93

Sediment Matrix Control of Magnetization

Subir K. Banerjee, Geology and Geophysics
NSF
\$53,875 - 01/91-06/92

Analytical Methods of Heavy Metals

Kenneth J. Reid, Mineral Resources Research Center
Dav-Tex Corporation
\$30,000 - 09/90-06/91

Examination of Upper Mississippi Valley-Type Mineralization

Glenn B. Morey, Minnesota Geological Survey
Steven A. Hauck, Minnesota Geological Survey
USDI, Geological Survey
\$5,544 - 09/90-09/91

A Partnership Program to Enhance Junior High Mathematics

Harvey B. Keynes, School of Mathematics
St of MN, Higher Education Coordinating Board
\$7,992 - 11/90-12/91

Federal Interagency Sedimentation Project

Roger E.A. Arndt, St. Anthony Falls Hydraulic Lab
USDI, Geological Survey
\$60,578 - 10/90-09/91

Historic Building Research and Documentation

Robert Mack, Architecture and Landscape Architecture
Minnesota Historical Society
\$3,500 - 10/90-07/91

Second Mayors' Institute for City Design

William Morrish, Architecture
Catherine R. Brown, Architecture
National Endowment for the Arts
\$35,000 - 09/90-06/91

Potato Variety Development - Colorado Potato Beetle

Edward B. Radcliffe, Entomology
Red River Valley Potato Growers Association
\$11,250 - 07/90-06/91

Potato Variety Development — Program Acceleration

Florian I. Lauer, Entomology
Red River Valley Potato Growers Association
\$29,700 - 07/90-12/91

Development of Urban Deer-Control Procedures

Peter A. Jordan, Fisheries and Wildlife
City of North Oaks
\$10,058 - 09/90-06/91

Forest Water Quality BMP Adoption Survey Project

James A. Perry, Forest Resources
Nels Troelstrup, Forest Resources
St of MN, Department of Natural Resources
\$25,000 - 08/90-09/91

Land Cover Analysis for the Twin Cities Metropolitan Area

Marvin E. Bauer, Forest Resources
Metropolitan Council of the Twin Cities
\$30,000 - 07/90-06/91

Topographical Gene Expression in the Developing Retina

Daniel T. Nordquist, Cell Biology and Neuroanatomy
Steven McLoon, Cell Biology and Neuroanatomy
NIH, NEI
\$28,000 - 11/90-10/91

Sexual Perpetrator Treatment Program

S. Margretta Dwyer, Family Practice and Community Health
St of MN, Department of Corrections
\$52,597 - 10/90-06/91

Molecular Biology

Ronald C. McGlennen, Institute of Human Genetics
Anthony J. Faras, Institute of Human Genetics
Ronald S. Ostrow, Institute of Human Genetics
NIH, NCI
\$30,500 - 10/90-09/91

Updating of Chronobiology Computer

Franz Halberg, Laboratory Medicine and Pathology
Minnesota Medical Foundation
\$19,566 - 11/90-11/91

Characterization of Novel 55KDBA Basement Membrane Molecule

Mary Kleppel, Laboratory Medicine and Pathology
Juvenile Diabetes Foundation
\$46,149 - 09/90-08/91

Genetics Counseling: Ethics, Values, Professional Responsibilities

Arthur Caplan, Medical School
NIH, NCHGR
\$35,116 - 09/90-09/91

B2 Microglobulin and CD8+ T Cells in CMV Infection

Gregory Filice, Medicine
Minnesota Medical Foundation
\$5,000 - 12/90-12/91

Iron Overload in Type II Diabetes Mellitus

R. Paul Robertson, Medicine
Juvenile Diabetes Foundation
\$41,917 - 09/90-08/91

Mutant Receptors as a Potential Cause of Excitatory Neurotoxicity and Neurodegenerative Disease

Christopher Gomez, Neurology
Minnesota Medical Foundation
\$7,000 - 12/90-11/91

Renal Autoregulation in Streptozotocin Diabetes in Rats

S. Michael Mauer, Pediatrics
Juvenile Diabetes Foundation
\$46,173 - 09/90-08/91

Role of CCK in Feeding: Anatomy-Aided Behavioral Studies

Patricia L. Faris, Psychiatry
ADAMHA, NIMH
\$74,636 - 09/90-08/91

Biological Priority and Regulatory Mechanisms of Wound Healing

Michael D. Caldwell, Surgery
NIH, NIGMS
\$46,200 - 09/90-11/90

Healthy Roots: Primary Prevention of Fetal Alcohol Damage

Barbara J. Leonard, School of Public Health
ADAMHA, OSAP
\$39,470 - 09/90-08/91

Methane Emissions from Northern Peatlands

Nancy Dise, Ecology, Evolution and Behavior
Eville Gorham, Ecology, Evolution and Behavior
NASA
\$22,000 - 09/90-08/91

Intermittent Compression Therapy: Safety and Efficacy Studies

Ava M. Trent, Large Animal Clinical Sciences
Victor S. Cox, Large Animal Clinical Sciences
Minnesota Racing Commission
\$9,962 - 10/90-06/92

Minnesota Integrated Education Technical Assistance

Robert H. Bruininks, Educational Psychology
Terri Vandercook, Educational Psychology
St of MN, Department of Education
\$90,000 - 07/90-06/91

Adapting Technology for Group Based Learning

Steven L. Robinson, Educational Psychology
Stanley L. Deno, Educational Psychology
Interactive Communication Systems, Inc.
\$16,848 - 09/90-03/91

Grant Evaluation for Development Disabilities Council

Sharon K. Patten, HHH Institute of Public Affairs
St of MN, State Planning Agency
\$20,000 - 10/90-01/92

The CDNA Sequencing of the Glucose Transporter, GLUT1 and GLUT3, from Dog Brain

Wilmar L. Salo, School of Medicine, UMD
American Diabetes Association, MN Affiliate
\$10,000 - 11/90-10/91

Individual Music Lessons

Douglas Rosenberg, Continuing Education and Extension
Minnesota School and Resource Center for the Arts
\$8,750 - 10/90-05/91

Minnesota Prison Education Consortium

Judi Linder, Continuing Education and Extension
Minneapolis Community College
\$4,000 - 07/90-06/91

Rock Magnetic Study of Deep Sea Sediments from Site 808

Subir K. Banerjee, Geology and Geophysics
Texas A&M Research Foundation
\$13,105 - 09/90-04/92

ORTTA TELEPHONE NUMBERS

A Quick Reference Guide

Title and/or Area of Responsibility

Name

Number

Fax Number (612) 624-4843

Office of Research and Technology Transfer Administration

Associate Vice President, ORTTA Tony Potami 624-1648
 Communications Coordinator/Research Review Editor Mike Moore 624-9398
 Administrative Coordinator Carol Perusse 624-6389

Grants and Contracts

Information 624-5599
 Assistant Director Rick Dunn 626-2265
 Assistant Director Mary Lou Weiss 624-5856
 DHHS, NIH, ADAMHA, HRSA, OHD, Other DHHS Mary Lou Weiss 624-5856
 DHHS, NIH, ADAMHA, HRSA, OHD, Other DHHS
 Am Heart Assoc, Voluntary Health Agencies,
 Misc Private (non-agricultural related) Todd Morrison 624-5066
 DHHS, NIH, ADAMHA, HRSA, OHD, Other DHHS
 Voluntary Health Agencies
 Misc Private (non-agricultural related) Kevin McKoskey 624-1521
 USDA, DOD, NASA, AID Merlin Garlid 624-0288
 NSF (IT), USDI, St of MN David Lynch 624-5571
 NSF (IT), USDA, DOE, Misc Private (ag-related) Rick Dunn 626-2265
 NSF (non-IT), EPA, Education, Cities,
 Counties, Other State & Local Government Elizabeth Klitzke 626-7718
 St of MN, NEA-NEH, DOC, Misc Federal Amy Levine 626-7441
 Private and Corporate Foundations Judy Krzyzek 624-2546

Patents and Licensing

Director John Thunte 624-2816
 Technology Licensing (IT) Tony Strauss 624-0869
 Technology Licensing (Health Services/Ag) Jim Severson 624-0262
 Trademark Licensing Robert Hicks 626-1585
 Technology Licensing Paul McDowall 625-8826
 Grants & Contract Administration Judy Volinkaty 624-3317

Financial Reporting

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 Effort Reporting, Indirect Cost & Other Rate Development Liz Warren 624-2040
 Financial Reporting, Accounting Questions Sandy Kenyon 624-6026

Information Services

Assistant Director Winifred A. Schumi 624-5750
 Application Materials, Program Announcements Kim Makowske 624-9004

Human Subjects Committee

Administrator Moira Keane 624-1889
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Duluth

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Morris

Grants Development Tom Mahoney 589-2211 x6450

ORTTA NEWSLETTER MAILING LIST INFORMATION

Faculty

The Research Review is automatically mailed to all faculty on the Faculty Mail List holding the rank of Assistant Professor and above.

To add/delete/change a faculty name on this list, departmental officers must submit a Staff Directory Card to Administrative Information Services (AIS).

Please check with your departmental office or AIS (624-9000) if you need assistance.

Staff / Off-Campus

ORTTA maintains a Supplemental Mail List for academic staff not included in the above faculty list; for staff; and for individuals off-campus. Additions/changes/deletions to this list may be initiated by filling out and sending ORTTA the following:

Change	☐
Add	☐
Delete	☐

Name

Department

Campus Address (Bldg)

→ **For changes and deletions please enclose your mailing label.** ←

Return to
ORTTA
Administrative Services Center
1919 University Avenue, 5th Floor
Saint Paul, Minnesota 55104

University of Minnesota

Office of Research and Technology Transfer Adm
Administrative Services Center, 5th Floor
1919 University Avenue
Saint Paul, MN 55104

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RESEARCH REVIEW

An Overview of Sponsored Program and Technology Transfer Administration

Research and Technology Transfer Administration

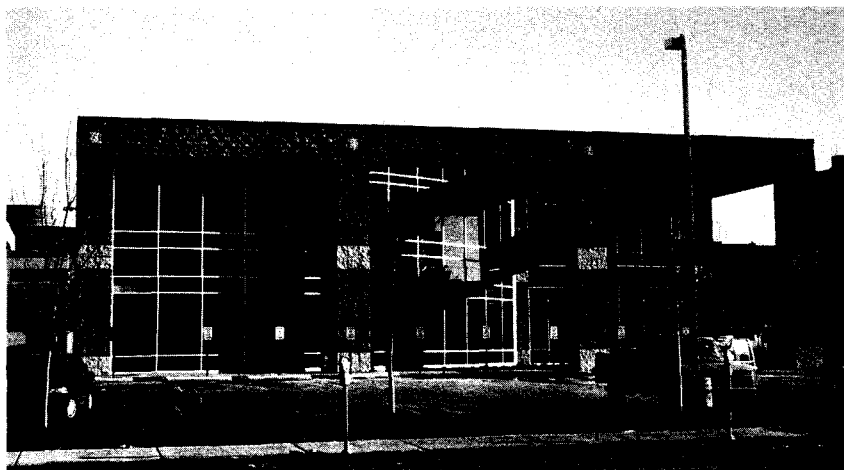
March, 1991

ORTTA Relocating March 18

On March 18, all divisions of the Office of Research and Technology Transfer will begin providing services at a new location:

**Minnesota Technology Center
1100 Washington Avenue South
Suite 201**

This is leased space in an Opus Corporation building next to the Minnesota Supercomputer Center, in the Minnesota Technology Corridor.



PLEASE NOTE:

We will continue to be fully operational in our existing office up to and including March 15.

All proposals and other urgent business should be delivered to 1919 University Avenue, St. Paul, 5th Floor prior to March 18. Mail addressed to our former location will be picked up daily for several months.

All telephone numbers remain the same.

Visitor and Drop-off Parking is available in front of the building, by the main entrance on 11th Street.

The move will necessitate some minor procedural changes. Please see the articles on page three

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American Cancer Society

Stipend Increase

The American Cancer Society has approved an increase in the stipend for Postdoctoral/Physician's Research Training Fellowships. The new stipend levels will become effective with the January 1, 1992 activation date and *will not* be applied to fellowships awarded prior to January 1, 1992.

All fellowship applications submitted for the March 1, 1991 deadline, and all subsequent deadlines, should reflect this change. The new stipend levels are:

	<u>New Level</u>	<u>Current Level</u>
First Year	\$22,000	\$20,000
Second Year	\$24,000	\$21,000
Third Year	\$26,000	\$22,000

The institutional allowance remains unchanged at \$2,000 per year. If you have questions, contact the appropriate ORTTA Grant Administrator or the American Cancer Society, 1599 Clifton Road NE, Atlanta, GA 30329; (404) 320-3333.

RESEARCH REVIEW

Volume XX/Number 9

March, 1991

Editor: Michael P. Moore

Associate Vice President: A.R. Potami

Research Review is a monthly publication of the Office of Research and Technology Transfer Administration. Its purpose is to inform faculty and administrators who are involved with Sponsored Research and Technology Transfer on procedures and policies of granting agencies; on institutional policy and other information necessary to the preparation of research proposals; and on funding opportunities.

Research Review welcomes ideas and comments from all readers. Write to Research Review at 1919 University Avenue, 5th Floor, St. Paul, MN 55104, or call Michael P. Moore at 624-9398.

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, sex, national origin, handicap, age, veteran status, or sexual orientation.

Indirect Cost & Fringe Benefit Rates

Indirect Cost Rates

The rates for July 1, 1989 through June 30, 1990 are listed below. When budgeting for periods beyond 6/30/90, the 7/1/89-6/30/90 rates should be used. **The rate agreement is dated March 28, 1988.** This date should be used where required on proposal applications.

	<u>07/01/89</u> <u>06/30/90</u>
Research	
On-Campus	44.0
Off-Campus *	21.5
SAFHL	86.6
Hormel	49.5
Other Sponsored Activity	
On-Campus	33.4
Off-Campus *	16.8
Instruction	
On-Campus	68.7
Off-Campus *	27.9

* A project will be considered off-campus if more than 50% of the direct salaries and wages of personnel employed on the project are incurred at a site neither owned nor leased by the University.

Fringe Benefit Rates

If you have questions regarding fringe benefit rate development or need the breakdown of charges, call Vivian Fickling at 624-2009.

Current actual rates from January 1, 1991 through June 30, 1991 are:

Faculty	29.00
Civil Service	24.50

For proposals being submitted with start dates after July 1, 1991, the estimated fringe benefit rates to be budgeted are listed on pages 8 and 9 of this publication.

In using these rates to develop budgets for future projects, be sure to reflect the actual rate for each period of time rather than calculating an average for the entire budget period.

Procedural Changes Necessitated by Change in Location

Document Review and Approval

Effective March 18, the Office of Research and Technology Transfer will no longer be housed in the same building (Administrative Services) as the budget desk, purchasing, and accounts payable. For the vast majority of the services provided by ORTTA, this will require no change in procedure. One occasion which will require change is the emergency processing of "walk through" documents.

Although ORTTA recommends that walk-through documents be held to a minimum, we do recognize that there are occasions that require emergency action. **Therefore, effective March 18, 1991, emergency walk-through documents for sponsored accounts should be brought directly to ORTTA for review and approval prior to delivery to the budget desk.** This is a change from the previous procedure that will be necessary due to our distance from 1919 University Avenue.

Walk-through documents meeting the criteria noted below *must* reflect ORTTA approval prior to delivery to the budget desk:

1. All type 06 requisitions and quick orders in excess of \$500;
2. All type 36 reimbursements in excess of \$500;
3. All travel documents and transfers of funds, *regardless of dollar amount*;
4. All journal voucher transactions in excess of \$500;
5. All memoranda of agreement or contracts for service in excess of \$2000.

Procedures pertaining to normal, day-to-day document processing will not change. Documents other than walk-throughs, once the necessary departmental/collegiate approvals have been obtained, should be transmitted directly to accounting records and services, as is the current practice. Daily courier service between ORTTA's new location and Accounting Records and Services will ensure the timely processing of these documents. Questions about the above new procedure should be directed to the ORTTA grant administrator who handles the accounts involved.

Based on the pending implementation of the new CUFS accounting system, we anticipate that further changes to document review will be required. Updated information will be provided as it becomes available.

Effort Certification

The Effort Certification Office, part of the Office of Research and Technology Transfer, will be moving to the Washington Avenue location on March 18, 1991.

This move necessitates a change in procedure. Effective March 18, all Type 38's (payroll journal vouchers) affecting sponsored projects *should be routed through effort certification first.* Type 38's affecting *non-sponsored accounts only* can be sent directly to payroll and need not be reviewed by effort certification. *No Type 38's should be sent directly to the budget desk.*

Please note that this change *does not* supersede other effort certification policies concerning Type 38's. Type 38 payroll adjustments *submitted without accompanying effort cards* will be returned to the department that prepared the journal voucher, with the following exceptions:

- **Journal vouchers affecting the period May 1 - June 30, because of the fiscal year-end document cut-off dates.** A journal voucher affecting the period April 1 - June 30 will be returned to the department only if April effort certification is not on file in ORTTA. Copies of the Type 38 journal vouchers will be held in ORTTA and checked against the effort certification when it is submitted. Discrepancies will be brought to the attention of the department and corrected Type 38 journal vouchers will be required immediately.
- **Journal vouchers affecting the current month if they are submitted to ORTTA at least four working days before the month-end general ledger document deadline cut-off date.** These are permissible because the journal voucher adjustment will be processed during the month it affects and thus will be reflected in the payroll distribution percentages on the effort card. ORTTA will attempt to process all Type 38's received before month end, but cannot guarantee that documents received during the last four working days of the month will be processed in time for the general ledger cut-off. Journal vouchers that cannot be processed in time for the general ledger cut-off will be returned to the department that prepared the document. The journal vouchers should be resubmitted with the applicable effort cards.
- **Journal vouchers charging for contributed effort that was originally certified as cost-sharing.**
- **Payroll charges can be made to sponsored accounts as long as there is certified effort to justify the charge.**
- **Journal vouchers moving unused vacation time.**
- **Journal vouchers crediting a sponsored account for which a card is already on file.**

House Panel Hears U of M Research and Technology Transfer Report

*The following news release was issued February 15
by Representative Rick Krueger (DFL-Staples).*

The International Trade and Technology Division of the Minnesota House Economic Development Committee recently heard a report from the technology transfer office of the University of Minnesota. Representative Rick Krueger (DFL-Staples), chairman of the division, commented, "I am very impressed with the University's efforts in technology transfer. Technological research at the University is bringing significant benefits to Minnesota."

According to University spokesmen, [Tony Potami and John Thunte] the four leading research organizations in the state of Minnesota are 3M (\$780 million), Control Data (\$300 million), Honeywell (\$300 million), and the University (\$250 million). The University patents nearly as many scientific discoveries as such leading institutions as MIT, the University of California, Stanford, and Caltech.

The University's Office of Research and Technology Transfer has had great success in helping University students and faculty patent and license their inventions. This office has issued licenses to develop University-sponsored innovations to 160 companies throughout Minnesota, the nation, and the world.

Rep. Krueger noted that each of Minnesota's major industries — agriculture, mining, manufacturing, and health care — has benefitted from research conducted at the University. He stated that, "University of Minnesota research has helped create such life-saving devices as heart valves, pacemakers, and implantable pumps. It has also generated new varieties of crops, as well as improvements in forest products."

Krueger concluded that "research has long been a part of the University's mission. I support the efforts of University research to bring about a higher quality of life for all Minnesotans."

Committee on the Use of Human Subjects in Research

The Inclusion of Women and Minorities in Study Populations

One of the basic principles for the protection of human subjects is "justice" — fairness in the distribution of research benefits and burdens. An injustice occurs when an individual or group is denied access to a clinical trial that might be beneficial, or when individuals are singled out to bear the burden of risks associated with a study.

A determination of equitable distribution of benefits and risks is required prior to approval from the Committee on the Use of Human Subjects in Research.

The National Institutes of Health, in response to renewed legislative interest in the issue of access to clinical trials by underserved populations, have instituted new policies regarding subject population composition. A new initiative in Women's Health has spurred this effort with new programs and funding opportunities. Researchers who are applying for federal funds are now asked to explain the gender and minority distribution of their anticipated subject populations. If women and minorities are not included in a study population, "a specific justification of this exclusion must be provided with the grant application". Exceptions are made for those diseases or conditions that occur in only one gender. Failure to adequately justify, with scientifically sound arguments, the exclusion

of one gender or any minority group is cause for denial of a funding proposal.

It is not clear yet whether this new initiative will require the Institutional Review Boards (IRBs — locally known as the Committee on the Use of Human Subjects in Research) to document the distribution of study subjects across racial/ethnic or gender lines, or whether this function will be left entirely to the study sections.

However, the Committee on the Use of Human Subjects in Research is concerned with justice issues and has begun to request of investigators a written rationale for exclusion of a gender or minority group in any proposal *irrespective of funding source*. Studies with the potential to address issues relevant to both sexes will require recruitment of both genders into the overall study population. Again, where feasible, minority populations should be included in a study population. No deliberate, unjustified exclusion of either gender or any minority group will be tolerated.

If you have any questions concerning the new federal initiative and compliance with human subjects regulations, please call Moira Keane at 624-9828.

Biological Licensing Symposium Highlights Challenges, Objectives

In welcoming attendees to the **Second Annual Biological Forum Symposium: Licensing Biological Technology**, Associate Vice President Tony Potami stated the challenge for the day: "Because we are in a time of rapid and profound technological advancement, it is crucial that we address the issues raised in the process of technology transfer, while making the most of the opportunities that arise from faculty research. This is especially true in terms of biological discoveries."

Attendees to the January 28 symposium then heard from a number of experts in technology transfer, as well as from individuals peripheral to the process and critical of some trends in university involvement in technology transfer.

Ernest Jaworski, director of biological science R&D for Monsanto, discussed his company's commitment to and fundamental appreciation for joint academia/industry efforts. From his point of view, fears most often expressed regarding industry funding of research, including subversion of basic research, publication delays, and pressure to produce products, are all unrealistic. "Good science leads to good products," Jaworski stated, explaining that most companies understand and support the importance of basic research and peer review of findings. "Industry and academia both benefit from the unique synergies we can develop, and the public benefits from the reduced time between discoveries and application of new technologies."

Roger Ditzell, director of technology management for the University of California system, reported progress and insights from one of the nation's leaders in university patenting and licensing. He said the UC system now has about 570 licenses in effect, with patents and licensing income up from \$2 million in 1982 to \$12.2 million in 1990. Five of UC's top seven royalty earners are agricultural or biological technologies, he reported. He stressed, however, that this income is small in relation to research funding, and it is slow in coming: "95 percent of our royalty income is from disclosures we received more than eight years ago, although it will continue for an average of 12 years after a product hits the market."

Ditzell said that it's important for universities to clearly and adequately support the patenting and licensing of inventions, and to have clear and well-enforced policies to prevent conflict of interest. In response to a question about the possibility that faculty will change their research to focus on patentable, money-making areas, he said: "Given the low percentage of patents that make money, changing one's line of research to try to make money is like mining fool's gold."

John Thuente, director of the University's Office of Patents and Licensing, outlined the university's technology transfer system and results so far. In evaluating the University's progress, he pointed to the experience of the UC system and other leaders in technology transfer, such as MIT and Stanford, who have been active in this area for 20 years or more. The University of Minnesota is at a point that these universities were at in the early 1980s, Thuente pointed out. We now have a total of 160 licenses to 106 companies, but barring a "big hit" on one of these products, we will remain at about the break-even level in royalties for several more years. "Every technology transfer program is looking for that big hit — another gene-splicing technology, warfarin, or cisplatin — but there are very few of those."

The licensing process at the University of Minnesota was then explained by Signe Betsinger, assistant director of the Minnesota Agricultural Experiment Station.

In the afternoon session, Steven Price, biotechnology industrial liaison for Iowa State University, addressed the licensing of plant intellectual property agreements. He said that with the enactment of the federal Plant Variety Protection Act of 1970, plant licensing began to gain momentum as a method of transferring horticultural and agricultural technologies. Iowa State University is very aggressive in seeking plant patents and in gaining the maximum amount of claims coverage in those patents, Price said. "At Iowa State, we treat plant researchers and their patents the same as we do any of our other inventors and patents, which I think is the most effective way to protect the public's investment in plant research."

An opposing view of agricultural technology transfer was presented by Marty Strange, director of the Center for Rural Affairs in Nebraska. He said he is worried that "many farmers see no place for themselves on the path that agriculture is taking. The institutions I see arising in universities do not encourage me that biotechnology will play a role in sustainable agriculture." He pointed to a number of policy gaps he sees as possible threats to the public interest, including failure to disclose private interests of public researchers, pressure to withhold results that hurt or don't support commercial interests, the length of protection given under the U.S. patent system (17 years), and lack of attention to evaluating the economic impact of new technologies before patenting and licensing them.

Symposium, Continued on Page 7

President Proposes Increases for R&D and Basic Research

President Bush is proposing a 13 percent increase for research and development funding, and an 8 percent increase in funding for basic research in the fiscal 1992 budget he sent to Congress in February. If enacted, the increases would bring total R&D funding to \$75.6 billion and total basic research funding to \$13.3 billion.

"This budget is intended to counter the declining investment in civilian research and development prevalent since the 1960's," said Richard Darman, director of the Office of Management and Budget. Bush also proposed to make the R&D tax credit permanent, so as to encourage more private funding for R&D.

The largest percentage increase proposed by Bush would go to the National Science Foundation, which would receive 18 percent (\$406 million) more than its current budget. It includes a \$50 million instrumentation initiative for construction, repair, and modernization of facilities, as well as additions of major research equipment. The NSF program will be a merit-based competitive process in which the federal funds are matched 50/50 with grantee institutions.

The National Institutes of Health would receive a six percent hike (\$498 million) over FY 91, with a nine percent funding increase slated to provide about 600 additional individual research projects. NIH's basic biomedical research budget would receive about \$5 billion, a seven percent (\$334 million) increase.

Allan Bromley, presidential science advisor, said that, "both the NIH and NSF increases in the FY 92 budget are designed to strengthen the individual and small group investigator component of the scientific enterprise."

The proposed Department of Energy budget would include \$1.76 billion for basic research into biological, environmental, and basic energy science, and for nuclear and high-energy physics research. This excludes funding for the superconducting super collider, which Bromley said is included in facilities funding. Of the \$464 million (15 percent) increase for facilities improvement, \$291 million is slated for the super collider.

The U.S. Department of Agriculture's National Research Initiative would be increased by 71 percent to \$125 million, and it would gain \$25 million for facility improvement under the merit-based, matching funds process.

Nearly half of the President's \$3.1 billion budget request for the Alcohol, Drug Abuse and Mental Health Administration (ADAMHA) is for drug abuse research, prevention, and treatment. The agency's research budget would increase by \$83 million over FY 91, to \$1 billion. Included in the proposal were \$245 million for HIV/AIDS programs, \$147 million for research on child and adolescent mental health, \$114 million for schizophrenia research, and expanded research activities on a variety of other mental illnesses.

Type/Activity	Budget Authority (In Millions)			
	1991 Enacted	1992 Proposed	Dollar change	Percent change
Basic Research				
NSF Budget	\$ 2,316	\$ 2,722	\$+ 406	+ 18%
NIH Basic Biomedical Research	4,634	4,968	+ 334	+ 7%
Human Genome Project	135	169	+ 35	+ 26%
Agricultural Research Initiative	73	125	+ 52	+ 71%
Superconducting Super Collider	243	534	+ 291	+ 120%
Applied Research				
High Performance Computing and Communications	489	638	+ 149	+ 30%
Energy R&D	676	903	+ 227	+ 34%
Advanced Manufacturing and Materials	1,316	1,310	- 6	—
HIV/AIDS	1,152	1,210	+ 58	+ 5%
Moving Fusion Energy from Science to Engineering	275	337	+ 62	+ 23%
Aeronautics R&D	482	543	+ 61	+ 13%
Expanding R&D at the National Institute of Standards & Technology	215	248	+ 33	+ 15%
Defense R&D	37,783	43,247	+ 5,464	+ 14%
Space Exploration				
Space Transportation Infrastructure	4,801	5,517	+ 716	+ 15%
Space Science	1,774	2,141	+ 367	+ 21%
Global Change	954	1,186	+ 232	+ 24%
Mission from Planet Earth	2,199	2,470	+ 271	+ 12%
Biotechnology	3,788	4,107	+ 319	+ 8%

Research Centers Invited to High-Tech Exposition in June

The Office of Research and Technology Transfer invites the University's technical research centers to consider participating in a community technology fair in June. Called "Forming Alliances for the '90s II," the second annual event will be held at the University of St. Thomas, on Tuesday, June 4. Minnesota Project Innovation and *Corporate Report Minnesota* are collaborating again this year to bring together developers of new technologies and Minnesota corporations.

The exposition offers entrepreneurs, researchers, and small businesses with innovative technologies the opportunity to build partnerships with large corporations and the federal government. This year 10 recipients of Small Business Innovation Research grants will demonstrate their technologies throughout the day as an expected 500 to 1000 people view the more than 150 exhibits. The Office of Research and Technology Transfer and the Office of Patents and Licensing will participate.

University of Minnesota researchers and research centers interested in participating are encouraged to contact Mike Moore at 624-9398. For registration information, contact Cate Murphy, Minnesota Project Innovation, at 338-3280.

Math and Science Education to Gain Funding and Resources

Under the Bush administration's proposed fiscal 1992 budget, over \$1.9 billion would be devoted to a 16-agency collaborative math and science education program. That level of funding would be \$225 million more (13 percent) than last year's federal investment.

Undergraduate programs would receive \$477 million, a \$60 million (14%) increase over this year's funding. Student incentives and support were targeted for a 13 percent increase of \$26.6 million.

Graduate programs would receive \$803 million, an increase over FY 91 of \$19 million (2%). The FY 92 request includes an additional \$15 million for postdoctoral fellowships.

Besides additional funds, other federal resources will be committed to the campaign to improve math and science education and science literacy, said James Watkins, secretary of energy and chair of the Office of Science and Technology Policy's Committee on Education and Human Resources. "The national network of federal scientific laboratories, technical facilities, and science and math related materials will be used for educational improvement ... and for improving science literacy," he said.

Symposium, Continued from Page 5

The philosophy of the University/Public relationship in terms of technology transfer was discussed by a legislator, a retired industrial scientist, and a faculty member. Representative Leo Redding of Austin, Minnesota, led the discussion by remarking that the University is not providing the input it should, nor getting the media coverage it needs, in order to explain the technology transfer process to the public. "You have to find a constituency that will listen to your message," he said. Redding also called for consideration of changes to the Minnesota Extension Service, to strengthen relationships between extension agents and industry.

Lester Krogh, chairperson of the Minnesota High Technology Council and retired senior vice president of 3M Company, discussed the importance of supporting laboratory research in both academia and industry. "Information is the product of labs; if you have good laboratories and good communication among laboratory scientists and administrators, then you have good information and good products." He said that 3M encourages the flow of information and exchange of ideas through a Technical Council of technology directors, and a Technical Forum in which laboratory scientists meet monthly to discuss their work.

Mark Brenner, associate dean of the Graduate School and chairman of the Research Executive Council, reported on recent discussion regarding changes to the policy on Disclosure of Financial Arrangements with Industry. He said that the new reporting threshold will probably be reduced from \$2,000 to \$1,000 annually in financial interests or 5% equity in a company, or \$1,000 annually in gifts, loans, or services from a company. Ongoing consulting services and status as an administrator, director, or employee of a company also are viewed as conflicts of interest, especially when conducting clinical research, he said.

Following a reception and dinner, a town meeting was held at which C. Eugene Allen, vice president, Institute of Agriculture, Forestry, and Home Economics; David M. Brown, dean, Medical School; Robert T. Holt, dean, Graduate School; Paul T. Magee, dean, College of Biological Sciences; Richard A. Skok, dean, College of Natural Resources; and David G. Thawley, dean, College of Veterinary Medicine, responded to questions that arose during the symposium. Each mentioned technology transfer issues specific to research in his area of the University, and all stated strong support for the entire spectrum of academic research, and for the University's responsibility to patent and license inventions that arise from research.

Fringe Benefit Rates

The Fringe Benefit Rates shown below will be charged against salaries during the period
January 1, 1991 through June 30, 1991

	<u>ACADEMIC %</u>	<u>CIVIL SERVICE %</u>
Health Plan	5.67 (H)	9.71
Unemployment Compensation	.06 (U)	.26
Worker's Compensation	.00 (W)	1.54
Tuition Benefits	3.23 (T)	1.05
Group Life and Disability	.30 (G)	.00
Retirement	12.50 (R)	4.29
F.I.C.A.	<u>7.24 (F)</u>	<u>7.65</u>
TOTAL	29.00	24.50

Please call Vivian Fickling, Accounting Records and Services, 624-2009,
with questions regarding fringe benefit rate development

**In using the following rates to develop budgets for future projects BE SURE to
reflect the actual rate for each period of time, rather than calculating an average for
the entire budget period.**

The following rates should be used for budgeting on sponsored project proposals
July 1, 1991 through December 31, 1991

NONSTUDENTS	<u>ACADEMIC %</u>	<u>CIVIL SERVICE %</u>
0-74% (hired before 4/1/86)	.07 (UW)	13.82 (UWRF)
0-74% (hired after 4/1/86)	1.52 (UWM)	13.82 (UWRF)
75-99% (hired before 4/1/86)	8.55 (HUWT)	25.00 (HUWTRF/G = OP)
75-99% (hired after 4/1/86)	10.00 (HUWTM)	25.00 (HUWTRF/G = OP)
100%	29.25 (HUWTGRF)	25.00 (HUWTGRF/G = OP)
STUDENTS		
25-100%	8.48 (HWT) (Classes 9511; 9521; 9531)	
24-74%	3.27 (WT) (Classes 9538; 9539; 9544; 9549; 9553; 9557)	
75-100%	8.48 (HWT) (Classes 9538; 9539; 9540; 9544; 9546; 9549; 9553; 9557)	
25-74%	11.09 (WTF) (Class 9554)	
75-100%	16.30 (HWTF) (Class 9554)	

The following estimated rates should be used for budgeting on sponsored project proposals
January 1, 1992 through June 30, 1992

NONSTUDENTS	<u>ACADEMIC %</u>	<u>CIVIL SERVICE %</u>
0-74% (hired before 4/1/86)	.07 (UW)	14.06 (UWRF)
0-74% (hired after 4/1/86)	1.52 (UWM)	14.06 (UWRF)
75-99% (hired before 4/1/86)	10.31 (HUWT)	27.25 (HUWTRF/G = OP)
75-99% (hired after 4/1/86)	11.76 (HUWTM)	27.25 (HUWTRF/G = OP)
100%	32.25 (HUWTGRF)	27.25 (HUWTGRF/G = OP)
STUDENTS		
25-100%	10.24 (HWT) (Classes 9511; 9521; 9531)	
24-74%	4.03 (WT) (Classes 9538; 9539; 9544; 9549; 9553; 9557)	
75-100%	10.24 (HWT) (Classes 9538; 9539; 9540; 9544; 9546; 9549; 9553; 9557)	
25-74%	12.21 (WTF) (Class 9554)	
75-100%	18.42 (HWTF) (Class 9554)	

**The following estimated rates should be used for budgeting on sponsored project proposals
July 1, 1992 through December 31, 1992**

NONSTUDENTS	ACADEMIC %	CIVIL SERVICE %
0-74% (hired before 4/1/86)	.07 (UW)	14.45 (UWRF)
0-74% (hired after 4/1/86)	1.52 (UWM)	14.45 (UWRF)
75-99% (hired before 4/1/86)	11.19 (HUWT)	28.25 (HUWTRF/G = OP)
75-99% (hired after 4/1/86)	12.64 (HUWTM)	28.25 (HUWTRF/G = OP)
100%	33.50 (HUWTGRF)	28.25 (HUWTGRF/G = OP)
STUDENTS		
25-100%	11.12 (HWT) (Classes 9511; 9521; 9531)	
24-74%	4.41 (WT) (Classes 9538; 9539; 9544; 9549; 9553; 9557)	
75-100%	11.12 (HWT) (Classes 9538; 9539; 9540; 9544; 9546; 9549; 9553; 9557)	
25-74%	13.04 (WTF) (Class 9554)	
75-100%	19.75 (HWTF) (Class 9554)	

**The following estimated rates should be used for budgeting on sponsored project proposals
January 1, 1993 through June 30, 1993**

NONSTUDENTS	ACADEMIC %	CIVIL SERVICE %
0-74% (hired before 4/1/86)	.07 (UW)	14.84 (UWRF)
0-74% (hired after 4/1/86)	1.52 (UWM)	14.84 (UWRF)
75-99% (hired before 4/1/86)	12.13 (HUWT)	30.00 (HUWTRF/G = OP)
75-99% (hired after 4/1/86)	13.58 (HUWTM)	30.00 (HUWTRF/G = OP)
100%	35.00 (HUWTGRF)	30.00 (HUWTGRF/G = OP)
STUDENTS		
25-100%	12.06 (HWT) (Classes 9511; 9521; 9531)	
24-74%	4.41 (WT) (Classes 9538; 9539; 9544; 9549; 9553; 9557)	
75-100%	12.06 (HWT) (Classes 9538; 9539; 9540; 9544; 9546; 9549; 9553; 9557)	
25-74%	13.57 (WTF) (Class 9554)	
75-100%	21.22 (HWTF) (Class 9554)	

U = Unemployment; W = Workers' Compensation; M = Medicare; T = Tuition Benefits; H = Health Insurance; G = Group Life;
R = Retirement; F = F.I.C.A.; OP = Optional

Biotechnology Investments Paying Off, OMB Reports

In an analysis accompanying the President's proposed federal budget for fiscal year 1992, the Office of Management and Budget reports that biotechnology contributes roughly \$2 billion to the Gross National Product. In light of that payoff and the need to remain competitive with other nations, especially Japan, President Bush is asking for a \$319 million increase for biotechnology, bringing the federal investment in this area to \$4.1 billion. The private sector provides another \$2 billion to biotech R&D.

The OMB report also stated that:

- more than 400 start-up biotech firms have been founded in the U.S. since 1975;
- more than 200 established firms have diversified into biotechnology;
- more than 200 supply firms provide the U.S. biotech industry with equipment and services;

- over the past five years, NIH scientists have entered into over 400 cooperative research and development agreements with industry, mostly in biotechnology;
- the Human Genome Initiative is one of the most significant components of the federal government's biotechnology initiative, and it would receive \$169 million, a \$35 million increase, under Bush's proposed budget.

Over 80 percent of the proposed FY 1992 biotechnology funds are targeted for the National Institutes of Health, which would receive \$3.557 billion, an increase of \$261 million over FY 1991. Other agencies slated for biotechnology increases are the departments of agriculture (\$139 million, up \$20 million or 17%), energy (\$140 million, up \$30 million or 27%), and defense (\$123 million, up 5 million or 4%), and the National Science Foundation (\$132 million, up \$2 million or 2%).

New Oil Pump Design Reduces Size, Increases Efficiency

Seeking a novel approach to converting rotary power into straight-line pumping motion, a graduate student and his advisor in the Department of Mechanical Engineering may have created the oil pump of the future.

The oil pump project started as an academic exercise aimed at designing a mechanism to more efficiently convert a rotary input motion to a straight-line reciprocating output stroke. That, basically, is what existing oil pumps do. The result, designed by Kevin Mangle, a graduate student in the Department of Mechanical Engineering, is a pumping mechanism that could deliver a stroke equivalent to existing pumps but at only one third to one half their size, and with approximately 25 percent greater energy efficiency.



Past business relationships between Associate Vice President Tony Potami (right) and Robert Fox (left) former CEO of American Holst & Derrick, led to a meeting with AmClyde Engineered Products, Inc.

Mangle, an engineer at Honeywell, Inc., decided to tackle the problem for his master's project, at the suggestion of his graduate advisor, Professor Arthur Erdman, Department of Mechanical Engineering. During a speaking engagement at a major oil company, Erdman was asked if anyone was studying ways to reduce the cost of pumping oil, which runs about \$60,000 to build each pump and \$500 per day to operate it.

The size of existing pumps is the major factor in their manufacturing and operating costs. "The problem with the horsehead pumps is that they require a large 'walking beam' to provide the leverage needed to lift the sucker rod that draws up the oil," Mangle says. "This translates into a large 'footprint,' or area occupied by the pump, which is a disadvantage especially with offshore pumping stations."

Another drawback with the horsehead pump is that it relies on a flexible cable to convert the rotary motion of a motor into the straight-line motion needed to operate the sucker rod. As the walking beam pivots back and forth, it stresses and fatigues the cable. The cable must therefore be periodically inspected and replaced before it snaps,

which would drop the sucker rod into the well and make it inoperable.

The flexible-cable design also limits pumping speed, because to prevent the cable from slackening and then snapping tight, the downstroke of the cable can be no faster than the free-fall descent of the sucker rod.

Mangle's challenge was to design a compact pumping mechanism that is significantly more efficient and no less reliable than the traditional pump. "Fortunately, I had three things going for me," Mangle says. "I had the expertise and advice of Professor Erdman, and the help of Kenneth H. Hunt, a visiting professor from Australia who is the 'guru' of straight-line mechanisms. And finally, I had access to the computer simulation laboratory in Mechanical Engineering, whose faculty have developed software analysis packages that provide state-of-the-art ability to design and test linkages on the computer."

After spending about a year in the computer laboratory, working nights and weekends in addition to his Honeywell job, Mangle came up with a design that contains none of the three major elements of existing pumps: there is no walking beam, no horsehead, and no cable. His design converts rotary to straight-line motion through six simple pin-joint linkages, arranged in a vertical stack that dramatically reduces the pump's footprint.



Professor Arthur Erdman (second from left), Kevin Mangle (second from right) and John Thuente (far right) explained the model to AmClyde representatives.

Analysis of the dynamic variables in the new design suggests that Mangle's pump could offer the following improvements over current American Pumping Institute (API) configurations:

- Size reduction of one half to two thirds compared to current API devices with the same stroke.
- Higher energy efficiency because of less torque fluctuation from downstroke to upstroke, with bias counterbalancing of the oil and rod load during upstroke.

Oil Pump, Continued on Page 15

Patents Issued for the Year 1990

- 1) **Title:** **Method for Metal and Cyanide Recovery from Plating Baths and Rinse Waters**
Patent #: **4,895,659** **Date:** January 23, 1990 **Status:** Available
Purpose: A method employing acid treatments and a microporous membrane to form a sodium cyanide solution that can be returned to a plating bath.
Inventors: Michael J. Semmens, Edward L. Cussler, Chemical Engineering

- 2) **Title:** **Bovine Antigen Glycoprotein, Related Antibody, and Use in Detection of Pregnancy in Cattle**
Patent #: **4,895,804** **Date:** January 23, 1990 **Status:** Available
Purpose: An isolated, substantially pure bovine pregnancy antigen used for detecting and determining pregnancy in cattle.
Inventors: Eileen F. Bostwick, Alan G. Hunter, Animal Science

- 3) **Title:** **Gravity Lumbar Traction Device**
Patent #: **4,896,659** **Date:** January 30, 1990 **Status:** Licensed
Purpose: A support that uses gravity and the patient's own body weight to produce traction for lumbar reduction.
Inventors: Gary D. Goldish, Physical Medicine and Rehabilitation

- 4) **Title:** **Novel High-Speed Integrated Heterostructure Transistors, Photodetectors and Optoelectronic Circuits**
Patent #: **4,899,200** **Date:** February 6, 1990 **Status:** Available
Purpose: To increase the speed of integrated circuits.
Inventors: Michael Shur, John G. Simmons, Electrical Engineering

- 5) **Title:** **Electronic and Optoelectric Devices Utilizing Light Hole Properties**
Patent #: **4,899,201** **Date:** February 6, 1990 **Status:** Licensed
Purpose: New p-channel, complementary, and optoelectronic semiconductor devices having the advantage of high speed.
Inventors: Jingming Xu, Michael Shur, Mark Sweeny, Electrical Engineering

- 6) **Title:** **Method and Apparatus for Monitoring and Diagnosing Hypertension and Congestive Heart Failure**
Patent #: **4,899,758** **Date:** February 13, 1990 **Status:** Licensed
Purpose: Provides a vascular impedance monitor for determining distal compliance properties in the diagnosing and monitoring of patients with hypertension and congestive heart failure.
Inventors: Stanley M. Finkelstein, Jay N. Cohn, Medicine

- 7) **Title:** **Double-Base Hot Carrier Transistor**
Patent #: **4,901,122** **Date:** February 13, 1990 **Status:** Available
Purpose: Using this transistor device, the efficiency of launching and collecting ballistic carriers is substantially increased.
Inventors: Jingming Xu, Michael Shur, Electrical Engineering

- 8) **Title:** **Modulation Doped Radiation Emitting Semiconductor Device**
Patent #: **4,905,059** **Date:** February 27, 1990 **Status:** Available
Purpose: To increase the efficiency and extend the output power of semiconductor devices.
Inventors: Michael Shur, Electrical Engineering

- 9) **Title:** **Metal Accumulation and Polysaccharide Production**
Patent #: **4,908,317** **Date:** March 13, 1990 **Status:** Licensed
Purpose: Use of a microorganism to interact with metal ions in mining waste water and to efficiently produce polysaccharides for use in oil recovery.
Inventors: John M. Wood, Francis E. Engle, Gray Freshwater Biological Institute

- 10) **Title:** **Automatic Needle Cover**
Patent #: **4,911,706** **Date:** March 27, 1990 **Status:** Available
Purpose: A simple, low cost and easily operated needle guard that provides for safety against accidental scratching or puncturing of the skin.
Inventors: Michael D. Levitt, Medicine

- 11) **Title:** **Amplitude and Frequency/Phase Modulated Pulses to Achieve Plane Rotations of Nuclear Spin Magnetization Vectors with Inhomogeneous B₁ Fields**
Patent #: 4,914,392 **Date:** April 3, 1990 **Status:** Available
Purpose: Provides a means for using surface coils or coils of any other geometry that posses variations in their B₁ field profiles for successful imaging or spectroscopy applications.
Inventors: Kamil Ugurbil, Biochemistry; Michael Garwood, Radiology

- 12) **Title:** **Dideoxycarbocyclic Nucleosides**
Patent #: 4,916,224 **Date:** April 10, 1990 **Status:** Available
Purpose: Potential antiviral and antitumor therapy.
Inventors: Robert Vince, Mei Hua, Medicinal Chemistry

- 13) **Title:** **Process for the Chemical Vapor Deposition of Aluminum**
Patent #: 4,923,717 **Date:** May 8, 1990 **Status:** Available
Purpose: Chemical vapor deposition of mirror-like thin films of aluminum, having low resistivity and permitting the use of substantially lower deposition temperatures.
Inventors: Wayne L. Gladfelter, Chemistry; David C. Boyd, Chemical Engineering

- 14) **Title:** **Integral Acoustic Emission Sensor for Manufacturing Processes and Mechanical Components**
Patent #: 4,927,299 **Date:** May 22, 1990 **Status:** Available
Purpose: A low-cost method of sensing fractures, cracking, micro-cracking, pitting, friction and other deterioration processes in machine tooling.
Inventors: Subbiah Ramalingam, Darrell A. Frohrib, Mechanical Engineering

- 15) **Title:** **Intelligent Insert with Integral Sensor**
Patent #: 4,927,300 **Date:** May 22, 1990 **Status:** Available
Purpose: A high-speed steel, carbide or ceramic cutting tool carrying an integrally mounted sensor that permits the sensor to determine whether the cutting insert is operating efficiently and effectively.
Inventors: Subbiah Ramalingam, Darrell A. Frohrib, Mechanical Engineering

- 16) **Title:** **Cardiac Assist Pump with Steady Rate Supply of Fluid Lubricant**
Patent #: 4,927,407 **Date:** May 22, 1990 **Status:** Licensed
Purpose: An implantable left ventricular or whole heart assist pump to bypass the heart during open heart surgery or to assist a dysfunctional heart or left ventricle.
Inventors: Frank Dorman, Mechanical Engineering

- 17) **Title:** **Electronic Pressure Algometer Apparatus and Method**
Patent #: 4,928,707 **Date:** May 29, 1990 **Status:** Available
Purpose: To provide objective evaluation of pain perception and rehabilitation progress.
Inventors: Eric L. Schiffman, James R. Friction, Diagnostic and Surgical Science

- 18) **Title:** **System for Airborne Particle Measurement in a Vacuum**
Patent #: 4,928,537 **Date:** May 29, 1990 **Status:** Available
Purpose: A particle measurement apparatus for obtaining accurate information relating to airborne particles as small as .01 microns in a gas under vacuum.
Inventors: Benjamin Y.H. Liu, Wladyslaw W. Szymanski, Mechanical Engineering

- 19) **Title:** **Cervical Range of Motion Measuring Device**
Patent #: 4,928,709 **Date:** May 29, 1990 **Status:** Licensed
Purpose: An inexpensive device and process for measuring neck range of motion in three axes.
Inventors: John D. Allison, Gordon Hanson, Physical Medicine and Rehabilitation

- 20) **Title:** **Optically-Active Isomers of Dideoxycarbocyclic Nucleosides**
Patent #: 4,931,559 **Date:** June 5, 1990 **Status:** Available
Purpose: Potential antiviral and antitumor therapy.
Inventors: Robert Vince, Mei Hua, Medicinal Chemistry

- 21) **Title:** **Method and Device for Pharmacological Control of Spasticity**
Patent #: **4,932,936** **Date:** June 12, 1990 **Status:** Available
Purpose: A method and apparatus for pharmacological control of spastic urethral sphincters, particularly in patients with spinal cord injuries. A toxin can be injected directly into skeletal muscle tissue, rather than connective tissue, to denervate and thus relax the sphincter.
Inventors: Dennis D. Dykstra, Abraham A. Sidi, Physical Medicine and Rehabilitation
- 22) **Title:** **Acylated Cyanamide Compounds**
Patent #: **4,940,816** **Date:** July 10, 1990 **Status:** Available
Purpose: Alcohol sensitizing drugs producing physiological effects that deter further drinking by alcoholics.
Inventors: Herbert T. Nagasawa, Chul-Hoon Kwon, Medicinal Chemistry
- 23) **Title:** **Humane Training Aid with Adjustable Muzzle Loop Having an Adjustable Locking Device**
Patent #: **4,941,313** **Date:** July 17, 1990 **Status:** Licensed
Purpose: A humane training aid to put pressure against the muzzle and neck of a dog to provide a calming effect and control.
Inventors: Robert K. Anderson, Ruth E. Foster, Bertyl W. Carlson, School of Public Health
- 24) **Title:** **Cyclone Personal Sampler for Aerosols**
Patent #: **4,941,899** **Date:** July 17, 1990 **Status:** Licensed
Purpose: A method for separating out particles below 0.8 microns from larger particles for analysis.
Inventors: Benjamin Y.H. Liu, Mechanical Engineering
- 25) **Title:** **Solvent System for Chronic Vascular Infusion of Hydrophobic Drugs**
Patent #: **4,943,560** **Date:** July 24, 1990 **Status:** Available
Purpose: Useful for the intravascular infusion of the hydrophobic immunosuppressive drug, cyclosporin.
Inventors: Bruce D. Wigness, Thomas D. Rohde, Surgery
- 26) **Title:** **Magnetic Resonance Imaging and Spectroscopy Methods**
Patent #: **4,947,119** **Date:** August 7, 1990 **Status:** Available
Purpose: Methods for slice selection and solvent suppression using adiabatic excitation.
Inventors: Kamil Ugurbil, Biochemistry; Michael Garwood, Radiology
- 27) **Title:** **Ligament Graft Apparatus and Method**
Patent #: **4,950,271** **Date:** August 21, 1990 **Status:** Available
Purpose: An apparatus and method for repairing ligament damage in a joint by providing a ligament graft member with proper position and fixation.
Inventors: Jack L. Lewis, William D. Lew, C.W. Kowalczyk, Robert E. Hunter, Orthopaedic Surgery
- 28) **Title:** **Optically-Active Isomers of Dideoxycarbocyclic Nucleosides**
Patent #: **4,940,758** **Date:** August 21, 1990 **Status:** Available
Purpose: Potential antiviral and antitumor therapy.
Inventors: Robert Vince, Mei Hua, Medicinal Chemistry
- 29) **Title:** **Phospholipase A₂ Inhibitor**
Patent #: **4,959,357** **Date:** September 25, 1990 **Status:** Available
Purpose: To treat or prevent mitochondrial damage and damage to other membranous structures in injured or diseased mammalian tissue thereby limiting permanent damage and improving healing.
Inventors: Martin Reers, Douglas R. Pfeiffer, Hormel Institute
- 30) **Title:** **Optically Nonlinear Pyridine-N-Oxide Complexes**
Patent #: **4,959,477** **Date:** September 25, 1990 **Status:** Available
Purpose: A new type of compound that may be useful in optical devices such as lasers and microscopes.
Inventors: Margaret C. Etter, Gayle M. Frankenbach, Thomas W. Panunto, Chemistry

- 31) **Title:** **Method of Removing Organic Volatile and Semi-Volatile Contaminants from an Aqueous Solution**
Patent #: **4,960,520** **Date:** October 2, 1990 **Status:** Available
Purpose: A water purification method, efficiently removing volatile organic contaminants from water using a gas phase membrane.
Inventors: Michael J. Semmens, Civil and Mineral Engineering
- 32) **Title:** **Process for Surface and Fluid Cleaning**
Patent #: **4,962,776** **Date:** October 16, 1990 **Status:** Licensed
Purpose: For removing small particulate matter from surfaces using pressure change or fluid freezing to clean the surface effectively without damage.
Inventors: Benjamin Y.H. Liu, Kang H. Ahn, Mechanical Engineering
- 33) **Title:** **Freeze-Dried Liposome Mixture Containing Cyclosporin**
Patent #: **4,963,362** **Date:** October 16, 1990 **Status:** Available
Purpose: A method of preparing a mixture of cyclosporin so it can be stored for long periods and then given intravenously to patients.
Inventors: Yueh-Erh Rahman, Suresh Venkataram, Pharmaceuticals
- 34) **Title:** **CAF₂ Passivation Layers for High Temperature Superconductors**
Patent #: **4,965,244** **Date:** October 23, 1990 **Status:** Available
Purpose: A method of applying a thin coating on superconductive ceramic oxides to prevent their reaction with the exterior environment, and without causing disruption of their desirable properties.
Inventors: John H. Weaver, Robert K. Grasselli, David L. Nelson, Harry M. Meyer, III, Donald M. Hill, Chemical Engineering
- 35) **Title:** **Anisodamine to Prevent and Treat Eye Disease**
Patent #: **4,971,976** **Date:** November 20, 1990 **Status:** Licensed
Purpose: A new therapeutic use of anisodamine, a vasodilator isolated from a Chinese herb plant, to prevent and alleviate diabetic eye disease and senile macular degeneration.
Inventors: Stanley Einzig, Shu-Lun Zhang, Pediatrics
- 36) **Title:** **Particle Concentrating Sampler**
Patent #: **4,972,957** **Date:** November 27, 1990 **Status:** Licensed
Purpose: A device for sampling and counting the number and size of particles in areas such as clean rooms, without having to sample large volumes of air.
Inventors: Benjamin Y.H. Liu, Virgil A. Marple, Mechanical Engineering
- 37) **Title:** **Fitting and Tuning Chest Compression Device**
Patent #: **4,977,889** **Date:** December 18, 1990 **Status:** Licensed
Purpose: An improvement to a previously patented therapeutic system for cystic fibrosis patients, to maximize effectiveness for individual patients.
Inventors: Jeffrey Budd, Pediatrics

Plant Patents

- 38) **Title:** **Apple Tree: Honeycrisp**
Patent #: **PL7197** **Date:** March 30, 1990 **Status:** Licensed, Non-exclusive; Available
Purpose: A new variety of apple that ripens early, stores well, and has a juicy, crisp flavor.
Inventors: James J. Luby, David S. Bedford, Horticultural Science and Landscape Architecture
- 39) **Title:** **Chrysanthemum Plant Named Maroon Pride**
Patent #: **PL7269** **Date:** July 10, 1990 **Status:** Licensed, Non-exclusive; Available
Purpose: A new variety of cold-hardy flower with a dark red color.
Inventors: Richard E. Widmer, Peter D. Ascher, M.C. Stuart, T. Almquist, Horticultural Science and Landscape Architecture

Licenses Negotiated

October - December, 1990

- 1) **Title:** **Laser for Confocal Microscopy**
Purpose: An improvement to a type of microscope used to image intact structures within thick biological sections.
Licensee: **Bio-Rad Laboratories**, Hercules, California
Inventors: Robert Sorenson, Todd Brelje, Martin Wessendorf, Cell Biology and Neuroanatomy

- 2) **Title:** **Use of Photofrin for Selective Injury to the Rabbit Orbicularis Oculi Muscle Using Photochemomyectomy**
Purpose: A research technique used in studies of eye disorders.
Licensee: **Quadra Logic Technologies, Inc.**, Vancouver, British Columbia, Canada
Inventors: Joseph Valentino, Otolaryngology; Jonathan Wirtschafter, Ophthalmology

- 3) **Title:** **Design Guidebook**
Purpose: A book written with assistance of the University of Minnesota Underground Space Center.
Licensee: **Shimizu Corporation**, Tokyo, Japan
Inventor: Ray Sterling, Underground Space Center

- 4) **Title:** **Temperature Sensitive E Coli Vaccines for Turkeys**
Purpose: Prevention of colibacillosis, a major cause of death among poultry.
Licensee: **Schering-Plough Corporation**, Kenilworth, New Jersey
Inventors: Kakambi Nagaraja, Veterinary Pathobiology; Daryll Emery, Veterinary Biology

Current Licenses

Total Agreements	161
Total Companies	106
In Minnesota	42
Other States	56
Foreign	8

Oil Pump, Continued from Page 10

- Better barrel filling because of the design's higher crank-angle degrees on the upstroke.
- Higher cycle rate, because the new pump will not be limited by the cable going slack, since the design does away with the cable and uses straight-line coupler points connected directly to the polished sucker rod.
- Improved reliability because it uses simple pin joints, no cable, and has lower joint loads.
- Greater flexibility because the rod connection can be adjusted to pump at an angle to the ground, and the counterweight can be adjusted according to the depth of the well.

Mangle notes that the flexibility of his design is such that it could even be built as a portable unit for exploratory pumping, or for pumping liquids other than oil, such as

for water wells. Having seen the design take shape on the computer screen and then pass the critical scrutiny of his mentors, he is eager to see it put to the real test: in the field.

Mangle and Erdman filed a patent application on their improved oil pumping mechanism in 1990. With help from the University's Office of Patents and Licensing, and with the visual aid of a mechanical scale-model, they now are discussing possible licensing arrangements with oil companies and equipment manufacturers. They and a group from the Office of Research and Technology Transfer recently met with representatives of AmClyde Engineered Products, Inc., a St. Paul company that designs mechanical equipment for the oil and shipping industries. The company has indicated an early interest in acquiring rights to the design.

Program Information

Internal and External Sponsors

National Cancer Institute

Analyses and Physiology of Anticarcinogens in Soybeans

The Division of Cancer Prevention and Control, National Cancer Institute (NCI), is accepting applications for grants to quantify levels of total and individual anticarcinogens in soybeans and soy products and to study their absorption and metabolism in humans. (RFA CA-91-06)

When feasible, dose-response relationships between soy product/anticarcinogen intake and anticarcinogen levels in blood and urine, and/or feces and bile should be conducted. When available, both commonly consumed soy products as well as soybean extracts or pure soybean anticarcinogens should be studied. Both long-term feeding studies, in which anticarcinogen levels in subjects consuming soy products/extracts over an extended period of time, and short-term studies, in which anticarcinogen levels for a minimal period after the consumption of single administration of soy products, extracts, or pure compounds are studied, are appropriate under this RFA.

Approximately \$900,000 in total costs per year for three years will be committed to fund applications for this program, under the RO1 mechanism. The submission deadline date is **April 29, 1991**. Potential applicants should write or phone: Mark J. Messina, Ph.D., Program Director, National Cancer Institute, DCPC, 9000 Rockville Pike, EPN 212C, Bethesda, MD 20892; (301) 496-8573. A copy of the RFA is available from ORTTA and may be requested by calling 624-9004 or by putting a note through the Bulletin Board.

National Institute of Child Health and Human Development

Child Health Research Centers

The National Institute of Child Health and Human Development (NICHD) invites Center Core Grant applications for a program of Child Health Research Centers (CHRC), RFA-HD-91-04. These Centers are intended to provide resources to speed the transfer of knowledge gained through studies in basic science to clinical applications that will benefit the health of children. This is to be accomplished by increasing the number and effectiveness of pediatric investigators who have a research grounding in basic science and the number of pediatric services that can facilitate the application of these investigators' skills to research on pressing pediatric problems.

Under the aegis of a CHRC grant, an institution identifies and develops a scientific area that is relevant to the pediatric

research mission of NICHD. Established investigators whose research is already funded by NIH or other competitively reviewed grants or contracts combine to establish in their institution a center of excellence in the chosen subject area. Individuals with a wide range of scientific backgrounds, especially those with basic science orientation, are thus encouraged to interact with each other and with newly trained pediatricians just embarking on their research careers. A shared core laboratory that provides services to complement and extend the capabilities of the established investigators and to facilitate the career development of new investigators may be a part of the Center. The established investigators make available their expertise and laboratory facilities that, together with the shared core laboratory comprise the laboratory resources of the Center to be utilized by junior investigators for new research projects that will enhance their basic science knowledge and skills.

The application receipt deadline is **April 9, 1991**. Please contact Ephraim Y. Levin, M.D., Medical Officer, Center for Research for Mothers and Children, NICHD, Executive Plaza North, Room 637, Rockville, MD 20852; (301)

National Institute on Aging; National Institute of Neurological Disorders and Stroke

Alzheimer's Disease and Related Cerebral Degenerative Disorders

The National Institute on Aging (NIA) and the National Institute of Neurological Disorders and Stroke (NINDS) jointly announce the availability of an RFA (NS-AG-91-03) on Alzheimer's Disease and Related Cerebral Degenerative Disorders under an R01 mechanism.

NIA and NINDS are interested in enhancing the support of innovative research projects designed to elucidate the etiology or pathogenesis of cerebral degenerative disorders such as Alzheimer's disease, to improve diagnosis, and eventually to provide sound bases for effective therapy. Topics of interest include studies in genetics, mechanisms of cell death, nerve growth factors, animal modeling, neuroimaging, and various aspects of differential diagnosis. Applications on related topics or other problem areas are also encouraged.

A letter of intent should be submitted by April 1, 1991; the application deadline is **May 6, 1991**. A copy of the RFA is available from ORTTA and may be requested by calling 624-9004, or by sending a note through the Electronic Bulletin Board.

Program Information

Internal and External Sponsors

NIH and ADAMHA

Intramural Research Training Award Program

The National Institutes of Health (NIH) and the Alcohol, Drug Abuse and Mental Health Administration (ADAMHA) announce the availability of training fellowships under the Intramural Research Training Award (IRTA) Program. The IRTA Program is designed to provide opportunities for developmental training and practical research experience in NIH laboratories and in NIMH and NIAA labs, as components of ADAMHA.

Fellowship awards are granted in the following categories:

- Postdoctoral IRTA Fellowship Awards: for individuals with less than three years postdoctoral research experience.
- Predoctoral IRTA Fellowship Awards: for students enrolled in a doctoral program (Ph.D., M.D., D.D.S., D.M.D., D.V.M.).
- Summer IRTA Fellowship Awards: for promising high school, undergraduate, graduate, or professional (e.g. medical, dental) school students.

Interested persons may apply at any time to a specific NIH research institute, to NIMH or to NIAAA, or through the Office of Education, Building 10, Room 1C129, National Institutes of Health, 9000 Rockville Pike, Bethesda, MD 20892, for concurrent referral to all research institutes.

A copy of the guidelines is available from ORTTA and may be requested by calling 624-9004 or by putting a note through the Electronic Bulletin Board.

Electric Power Research Institute

Contractor Capabilities Data Base (CCDB)

The Electric Power Research Institute (EPRI) is in the process of developing a new, improved capabilities database. Until the new program is developed, potential investigators are encouraged to make personal contact with the Institute's technical staff to acquaint them with the University's ability and willingness to support EPRI in the research areas they manage. When the new database is implemented, EPRI will invite the University to participate in the system. If you have questions, please call Donna Wight, Proposal Administrator, (415)855-2860, or Tommi Smith, Contracts Manager, (415)855-2226.

National Center for Nursing Research; National Institute on Aging

Management of Alzheimer's Disease Symptoms

The National Center for Nursing Research (NCNR) and the National Institute on Aging (NIA) invite applications for R01 research proposals for preliminary investigations that will lead to large-scale clinical studies on the assessment and nonpharmacological management of secondary symptoms exhibited by patients with Alzheimer's disease and related disorders. (RFA NR-AG-91-01)

Although it may not yet be possible to prevent, treat, or permanently alter the course of the underlying disease, interventions can be developed and systematically tested that reduce an Alzheimer's disease patient's secondary symptoms and preserve function. In addition to cognitive symptoms, non-cognitive secondary symptoms, which are frequently seen across the course of Alzheimer's disease and present significant management problems, are of special concern. These may include, but are not limited to, wandering, disturbed sleep, pacing, agitation, feeding and dressing difficulties, incontinence and toileting difficulties, screaming and other vocalizations, aggression and violence, and inappropriate sexual behavior.

While there exists a great deal of clinical and anecdotal information about methods that can effectively deal with individual symptoms, little data exist that have been obtained with the rigor of design and procedures of the controlled clinical trial. Therefore, applications are solicited for preliminary investigations and feasibility studies that will lay the groundwork for the development of rigorously controlled clinical trials to test interventions for the management of the secondary symptoms.

An optional, non-binding letter of intent is requested by April 8, 1991; the final application deadline is May 20, 1991. Potential applicants are strongly encouraged to contact: Mary D. Lucas, Ph.D., RN, Chief, Acute and Chronic Illness Branch, National Center for Nursing Research, Building 31, Room 5B03, Bethesda, MD 20892; (301) 496-0523; or Teresa S. Radebaugh, Sc.D., Chief, Dementias of Aging and Neuroscience and Neuropsychology of Aging, National Institute on Aging, Building 31, Room 5C21, Bethesda, MD 20892; (301) 496-9350. Copies of the RFA are available from ORTTA and may be requested by calling 624-9004, or by sending a note through the Bulletin Board.

National Institute of Standards and Technology

Materials Science and Engineering

The Materials Science and Engineering Laboratory, National Institute of Standards and Technology, is continuing its research grants program to eligible academic institutions, nonfederal agencies, and independent and industrial laboratories. Applications are currently being accepted for grants in the areas of: 1) Ceramics, 2) Metallurgy, 3) Polymer Sciences, 4) Reactor Radiation Physics; and 5) Spectroscopy.

All grant proposals submitted must be in accordance with the program objectives listed below. Please contact the individuals listed in each area for further information.

1. **Office of Nondestructive Evaluation:** To measure the far infrared (FIR) and mid-infrared continuum absorption of primarily nonpolar gases and liquids found in the atmospheres of the outer planets, in particular, gaseous and liquid CH₄, and gaseous mixtures of N₂ and CH₄, and to analyze these data. (G. Birnbaum (301) 975-5727).
2. **Ceramics Division:** to supplement division activities in the area of ceramic processing and sample preparation, tribology, composites, machining, interfacial chemistry, and microstructural analysis. (Steve Hsu (301) 975-6119).
3. **Polymers Division:** contracts for synthesis of polymers for research purposes, and collaborative research efforts in which the contractor provides mechanical, electrical, optical, transport, or structure data on polymeric materials. (B. Fanconi (301) 975-6770).
4. **Metallurgy Division:** develops techniques to predict, measure and control transformations, phases, microstructures and kinetic processes in metals and their alloys. (J. Manning (301) 975-6157).
5. **Metallurgy Division:** to develop new and improved sensors for nondestructive evaluation and processes, and process models for intelligent processing of materials. (H.T. Yolken (301) 975-6140).
6. **Reactor Radiation Division:** to develop cold neutron research approaches and related physics and materials applications. (J. Rush (301) 975-6220).

National Science Foundation

Arabidopsis Genome Research Initiative

The Directorate for Biological, Behavioral, and Social Sciences (BBS) of the National Science Foundation, has announced a new research initiative entitled, Arabidopsis Genome Research Project: Arabidopsis as a Model System for Plant Science Research. The scope of the project encompasses all areas of plant biology under the purview of BBS, including:

- Development and use of Arabidopsis as a model experimental system for studies of life processes for the flowering plant at all organization levels ranging from the population to the molecular level;
- Development of innovative techniques, methods and research tools (e.g., construction on genetic maps) for plant genome research;
- Establishment of biological resource centers designed to maintain, catalogue and distribute seeds, DNA probes and other biological materials useful for Arabidopsis research;
- Informatics to facilitate exchange of research results;
- Training and short-term visits for U.S. scientists; and
- Workshops and symposia.

Individual research proposals should be submitted to appropriate disciplinary programs within the Divisions of Molecular Biosciences, Cellular Biosciences, and Biotic Systems and Resources. These programs will also consider well-justified requests for supplemental funding to existing grants for support of short-term visits and additional postdoctoral or graduate students. The Division of Instrumentation and Resources will accept proposals that address instrumentation and facilities needs, the development of techniques, methods and research tools, group training, postdoctoral fellowships, informatics, and biological resource centers. Support for workshops and symposia will be considered by the appropriate program in all four divisions mentioned above.

There is no application deadline. Inquiries should be directed to the relevant program director or the coordinator for the Arabidopsis genome research project, Dr. Machi Dilworth, (202) 357-7652, or E-mail: mdilwort@nsf.gov (Internet).

National Institute of Allergy and Infectious Diseases

Development of Models for Pediatric AIDS

The National Institute of Allergy and Infectious Diseases (NIAID) is playing a central role in the investigation of methods to treat AIDS. The disease that occurs in the pediatric population infected with HIV is different from that occurring in adults. Animal models of fetal and neonatal infection with lentiviruses related to HIV are needed to study aspects of HIV infection and therapeutic approaches unique to the pediatric population.

NIAID invites applications for individual research projects (R01) grants to develop animal models and *in vitro* models for pediatric HIV infection and disease. Research considered responsive to this RFA (AI-91-04), will develop and use 1) an *in vitro* model of infection of placenta with HIV suitable for examining the regulation and pathogenesis of HIV and for identifying unique targets for new therapies; and/or 2) an animal model of transmission of virus, studying transplacental transport of virus or infected cells, the mechanisms of infection and targets for therapies; and/or 3) an animal model of lentivirus infection of fetal or neonatal animals for studying the pathogenesis of the virus, development of disease, and the action of therapies; and/or 4) an animal model, using a lentivirus or relevant retrovirus, to define the viral and/or cellular factors that effect transplacental infection and that represent potential targets for new therapies. Investigators should plan to apply the models described above to the design and evaluation of anti-HIV therapies to prevent or interrupt the transmission of HIV from mother to offspring.

A letter of intent is requested, to be submitted by March 11, 1991. The application receipt date is April 22, 1991. Inquiries may be directed to Polly R. Sager, Ph.D., Developmental Therapeutics Branch, Division of AIDS, NIAID, 6003 Executive Boulevard, Room 244P, Bethesda, MD 20892 (301) 496-0636. A copy of the RFA is also available from ORTTA and may be requested by calling 624-9004, or by putting a note through the bulletin board.

Department of Energy

The Office of Energy Research (ER) of the Department of Energy announces its interest in receiving applications for Special Research Grants that will support research in the medical applications of lasers, (Notice 91-4). DOE is interested in establishing up to seven hospital-based, multidisciplinary Centers of Excellence for the development of new or improved laser medical applications.

Applicants must be able to undertake broad new programs leading to new or improved instrumentation and medical applications. Improvements in laser instrumentation involve physics, chemistry and engineering; clinical applications involve a wide spectrum of medical specialties; and evaluation of the results requires services of pathologists, statisticians and computer programmers. Consortiums among hospitals and laboratories will be acceptable.

Demonstration projects will be expected to concentrate on innovative applications of conventional lasers that are simpler, less expensive, more versatile, more controllable, and more widely available than the larger, more expensive stationary devices that have limited flexibility for medical applications.

The application deadline is March 15, 1991. For further information contact: Mr. Donald W. Cole, Office of Health and Environmental Research, ER-73, Washington, DC 20585; (301) 353-3268.

Faculty Research Awards

This section contains statistics on proposals and awards recently processed by ORTTA. In addition, we have randomly selected awards received by faculty during preceding months. If any faculty member has received an award s/he would like mentioned in future Research Reviews, please call Mike Moore at 624-9398.

Proposal and Award Summary

	Number	Amount
Proposals Submitted		
January, 1991	408	\$73,548,815
Awards Processed		
January, 1991	247	17,163,710
Proposals Submitted		
July, 1990 - January, 1991	2,136	302,044,836
Awards Processed		
July, 1990 - January, 1991	1,786	143,139,334
Proposals Submitted		
July, 1989 - January, 1990	2,151	361,933,762
Awards Processed		
July, 1989 - January, 1990	1,522	189,240,051

The Molecular Pathogenesis of the Slow Infection Visna

Ashley T. Haase, Microbiology

NIH, NINDS
\$299,854 - 12/90-11/91

An Assessment of Rural Health Care in the Northwest

Ira S. Moscovice, School of Public Health
Jon Christianson, School of Public Health

Northwest Area Foundation
\$282,556 - 01/91-12/92

Piecewise-Parabolic Methods for Hyperbolic Systems of Conservation Laws in Multiprocessing Environments

Paul R. Woodward, Astronomy

U.S. Department of Energy
\$219,991 - 01/91-12/91

Organ Procurement: Dilemmas of Required Request

Arthur Caplan, Medical School

University of Pittsburgh
\$194,942 - 09/90-09/91

A Molecular Marker for Invasive Candida Albicans

Margaret Hostetter, Pediatrics

NIH, NIAID
\$174,479 - 12/90-11/91

Using Historical Data and Public Health Decision Making

Donald A. Berry, School of Statistics

Agency for Health Care Policy and Research
\$163,463 - 09/90-09/91

Application of the Solvatochromic Comparison Method to Chromatographic Retention & Selectivity

Peter W. Carr, Chemistry

NSF, Division of Chemistry
\$151,900 - 12/90-06/92

Atmospheric Deposition of Toxic Contaminants to the Great Lakes

Deborah L. Swackhamer, School of Public Health

Great Lakes Protection Fund
\$146,825 - 11/90-10/93

Mobile DNA in Candida Albicans Biology and Epidemiology

Stewart Scherer, Microbiology

NIH, NIAID
\$145,363 - 12/90-11/91

HIV GP120 Effects on Neurotransmission

Richard J. Ziegler, School of Medicine, UMD
George J. Trachte, School of Medicine, UMD
Edward K. Stauffer, School of Medicine, UMD

NIH, NINDS
\$129,034 - 12/90-11/91

Course on Gene Manipulation for Undergraduate Faculty

Perry B. Hackett, Genetics and Cell Biology
James A. Fuchs, Biochemistry (CBS)
Anath Das, Biochemistry (CBS)

NSF
\$126,148 - 11/90-04/93

Multivariate Analysis of Saliva Antimicrobial Proteins

Joel Rudney, Oral Sciences

NIH, NIDR
\$100,576 - 12/90-11/91

Cooperating for Ecological Interdependence: A Study of Wetlands

Luther P. Gerlach, Anthropology

Weyerhaeuser Family Foundation
\$30,000 - 01/91-12/91

Representation in Science

Ronald N. Giere, Philosophy

NSF
\$40,000 - 11/90-10/91

Summer Faculty Development Seminar

Sara M. Evans, Women's Studies Program
Allen F. Isaacman, History

MacArthur Foundation
\$70,000 - 01/91-12/91

Control Formulations for the Active and Passive Damping of Flexible Structures

Thomas A. Posbergh, Aerospace Engineering and Mechanics

USDOD, Air Force
\$20,000 - 01/91-12/91

Infrared Photometry and Spectroscopy of Bright Comets

Robert D. Gehrz, Astronomy
Terry J. Jones, Astronomy
Edward P. Ney, Astronomy

NASA
\$50,000 - 12/90-11/91

Flexible Coordination in Collaborative Software Engineering

John Riedl, Computer Science

Purdue University, NSF Subcontract
\$54,839 - 08/90-08/92

Continued Studies of Single Layer Buckle Folding in Non-Linear Fluids and Rocks

Peter J. Hudleston, Geology and Geophysics

NSF
\$40,670 - 01/91-06/92

Phase Transitions and Free Boundaries

Avner Friedman, Institute for Mathematics
Willard Miller, Institute for Mathematics

USDOD, Navy
\$40,000 - 10/90-09/91

Small Business Initiative

D. Fennell Evans, Institute of Technology

Greater Minnesota Corporation
\$75,000 - 10/90-10/91

Underground Station Design Issues for Light Rail Transit

Raymond L. Sterling, Underground Space Center
John Carmody, Underground Space Center

Regional Transit Board
\$45,000 - 07/90-06/91

The Development of an Annotated Bibliography and Prioritized Agenda for Research Concerning the St. Croix River Valley

David G. Pitt, Landscape Architecture
Minnesota-Wisconsin Boundary Area Commission
\$3,220 - 09/90-06/91

Screening of Soybean Breeding Lines for Soybean Cyst Nematode

David H. MacDonald, Plant Pathology
James H. Orf, Plant Pathology
Minnesota Soybean Research and Promotion Council
\$35,000 - 09/90-08/91

Development and Testing of SCN Field Management Information

Ward Stienstra, Plant Pathology
Minnesota Soybean Research and Promotion Council
\$15,000 - 09/90-08/91

Develop and Implement Education Programs

Frederick G. Bergsrud, Agricultural Engineering
Steven B. Laursen, Agricultural Engineering
James L. Anderson, Agricultural Engineering
St of MN, Pollution Control Agency
\$80,000 - 08/90-09/91

Oil Composition in Corn Mutants

David A. Somers, Agronomy and Plant Genetics
A. Saari Csallany, Agronomy and Plant Genetics
Greater Minnesota Corporation
\$8,500 - 09/90-06/91

Jack Pine Budworm Decision Support System

Herbert M. Kulman, Entomology
USDA
\$6,700 - 12/90-06/91

Trail Planning and Management

Dorothy H. Anderson, Forest Resources
David Lime, Forest Resources
St of MN, Department of Natural Resources
\$28,000 - 11/90-06/91

Family Caregiving Types

Daniel F. Detzner, Family Social Science
Alzheimer's Disease and Related Disorders Association
\$24,566 - 12/90-11/91

Proteoglycans that are Involved in Growth of Spinal Cord Axons

Paul C. Letourneau, Cell Biology and Neuroanatomy
James B. McCarthy, Cell Biology and Neuroanatomy
American Paralysis Association
\$30,000 - 10/90-10/91

Effect of Social Support and Maternity Leave on Health

Dwenda K. Gjerdingen, Family Practice and Community Health
Minnesota Medical Foundation
\$4,000 - 01/91-12/91

Immunotherapy of Murine Autoimmune Diabetes with Monoclonal Antibody Immunotoxins

Bruce Blazar, Pediatrics
Daniel A. Vallera, Therapeutic Radiology
American Diabetes Association, MN Affiliate
\$10,000 - 11/90-10/91

Studies of Recurrent Diabetes in Diabetic Pancreas Recipients

Jose J. Barbosa, Medicine
American Diabetes Association, MN Affiliate
\$10,000 - 11/90-10/91

The Role of Growth Hormone in the Development and Function of the Immune System

Carroll Brennan, Pediatrics
Ronald McDonald Children's Charities
\$13,000 - 10/90-09/91

A Multi-Center, Double-Blind, Placebo Controlled Evaluation of Pilocarpine Hydrochloride in Head and Neck Cancer Patients for the Treatment of Xerostomia Associated with Radiation - Induced Salivary Gland Hypofunction

Nelson Rhodus, Diagnostic/Surgical Sciences
Molecular Genetics, Inc.
\$8,025 - 11/90-06/91

Evaluation of State of Arizona's Health Care Group

Jon Christianson, School of Public Health
Flinn Foundation
\$58,714 - 12/90-11/92

Epidemiologic Study of 3M Chemolite Plant

Jack S. Mandel, Environmental and Occupational Health
3M Company
\$72,719 - 02/91-01/92

PRV Epidemiology Report

Robert Morrison, Large Animal Clinical Sciences
USDA
\$5,000 - 11/90-09/91

Extended Leadership in Minneapolis Public Schools - Phase II

Thomas R. Post, Curriculum and Instruction
St of MN, Higher Education Coordinating Board
\$28,000 - 10/90-12/91

Speech Understanding by Elderly Listeners in Everyday Settings

Faith C. Loven, Allied Clinical Health, UMD
Deafness Research Foundation
\$12,764 - 01/91-12/91

Woodland Caribou Habitat Assessment

John J. Pastor, Natural Resources Research Institute, UMD
David Mladenoff, Natural Resources Research Institute, UMD
USDA, Forest Service
\$28,500 - 01/91-10/91

Evaluation of Pelletizing Plant Water Quality

Rodney L. Bleifuss, Natural Resources Research Institute, UMD
Harold E. Goetzman, Natural Resources Research Institute, UMD
Cyprus Minerals
\$13,750 - 11/90-03/91

Red River Corridor Project

Bruce Brorson, Division of Business, Crookston
Northwest Regional Development Commission
\$24,000 - 11/90-06/91

Local Capacity to Augment Housing Programs in Minnesota

William J. Craig, Center for Urban and Regional Affairs
St of MN, Housing Finance Agency
\$13,764 - 10/90-03/91

Paternity Decisions of Non-AFDC, Young, Unmarried Parents

Esther F. Wattenberg, School of Social Work
McKnight Foundation
\$20,000 - 01/91-12/91

ORTTA TELEPHONE NUMBERS

A Quick Reference Guide

Title and/or Area of Responsibility

Name

Number

Fax Number (612) 624-4843

Office of Research and Technology Transfer Administration

Associate Vice President, ORTTA	Tony Potami	624-1648
Communications Coordinator/Research Review Editor	Mike Moore	624-9398
Administrative Coordinator	Carol Perusse	624-6389

Grants and Contracts

Information		624-5599
Assistant Director	Rick Dunn	626-2265
Assistant Director	Mary Lou Weiss	624-5856
DHHS, NIH, ADAMHA, HRSA, OHD, Other DHHS	Mary Lou Weiss	624-5856
DHHS, NIH, ADAMHA, HRSA, OHD, Other DHHS		
Am Heart Assoc, Voluntary Health Agencies,		
Misc Private (non-agricultural related)	Todd Morrison	624-5066
DHHS, NIH, ADAMHA, HRSA, OHD, Other DHHS		
Voluntary Health Agencies		
Misc Private (non-agricultural related)	Kevin McKoskey	624-1521
USDA, DOD, NASA, AID	Merlin Garlid	624-0288
NSF (IT), USDI, St of MN	David Lynch	624-5571
NSF (IT), USDA, DOE, Misc Private (ag-related)	Rick Dunn	626-2265
NSF (non-IT), EPA, Education, Cities,		
Counties, Other State & Local Government	Elizabeth Klitzke	626-7718
St of MN, NEA-NEH, DOC, Misc Federal	Amy Levine	626-7441
Private and Corporate Foundations	Judy Krzyzek	624-2546

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Technology Licensing (Health Services/Ag)	Jim Severson	624-0262
Trademark Licensing	Robert Hicks	626-1585
Technology Licensing	Paul McDowall	625-8826
Grants & Contract Administration	Judy Volinkaty	624-3317

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Application Materials, Program Announcements	Kim Makowske	624-9004

Human Subjects Committee

Administrator	Moira Keane	624-1889
Executive Assistant	Ellen Stewart	624-9829

Duluth

Research Support Office	James Loukes	(218)726-7582
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Morris

Grants Development	Tom Mahoney	589-2211 x6450
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ORTTA NEWSLETTER MAILING LIST INFORMATION

Faculty

The Research Review is automatically mailed to all faculty on the Faculty Mail List holding the rank of Assistant Professor and above.

To add/delete/change a faculty name on this list, departmental officers must submit a Staff Directory Card to Administrative Information Services (AIS).

Please check with your departmental office or AIS (624-9000) if you need assistance.

Staff / Off-Campus

ORTTA maintains a Supplemental Mail List for academic staff not included in the above faculty list; for staff; and for individuals off-campus. Additions/changes/deletions to this list may be initiated by filling out and sending ORTTA the following:

Change

Add

Delete

☐
☐
☐

Name

Department

Campus Address (Bldg)

→ **For changes and deletions please enclose your mailing label.** ←

Return to

ORTTA

Administrative Services Center
1919 University Avenue, 5th Floor
Saint Paul, Minnesota 55104

University of Minnesota

Office of Research and Technology Transfer Adm
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RESEARCH REVIEW

An Overview of Sponsored Programs and Technology Transfer

Research and Technology Transfer Administration

April, 1991

Alfred O.C. Nier: Physicist-Gadgeteer Extraordinaire

By Michael P. Moore

In 1939, a young researcher at the University of Minnesota found himself in the middle of a scientific revolution. Nuclear fission had been discovered in uranium research the year before by the German physicist Otto Hahn, launching the scientific community into a quest to understand the splitting of atoms. The subject of special interest, of course, was the expected release of energy during the process and how it might be harnessed.

"I was 28 years old at the time, and I was one of the few people who had worked with uranium," says Regents' Professor Emeritus Alfred O.C. Nier. "In fact, I was the only person in the world who could tell how much of each uranium isotope was contained in a sample."

That expertise gained Nier a great deal of attention at the 1939 meeting of the American Physical Society. The general topic of the meeting was the splitting of uranium atoms, which Hahn and his Austrian colleague Lise Meitner had predicted would release radioactive energy. "John Dunning, a physicist at Columbia University, introduced me to Enrico Fermi of Italy, who was then at Columbia and was closely following Hahn's work in Europe. We talked about my ability to separate uranium isotopes, because Fermi and the others working on fission were very interested in finding out which isotope, uranium-235 or uranium-238, was responsible for the release of energy during fission."

Alfred Nier, Continued on Page 11

NOTE:

See page 2 for correct campus and U.S.
Mail addresses for ORTTA's new location.



Alfred O.C. Nier, 29, with the mass spectrograph tube he used to isolate the first sample of uranium-235 in 1940. The tube is now in the Smithsonian Institution in Washington, D.C.

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Addressing Mail to ORTTA

Campus mail delivers daily to the new location of the Office of Research and Technology Transfer. To be deliverable, campus mail envelopes must have the following information:

(Person or division name)

ORTTA

Suite 201, 1100 Washington Avenue S.

If sending mail through the U.S. Postal Service, the address is as follows:

(Person or division name)

ORTTA

Suite 201

1100 Washington Ave. S.

Minneapolis, MN 55415-1226

Proposals and other documents may also be dropped off between 8 a.m. and 4:30 p.m., Monday through Friday. ORTTA is located on the second floor of the Minnesota Technology Center, which is at the corner of Washington Avenue South and 11th Avenue next to the Minnesota Supercomputer Center). Visitor parking is available in front of the building, just off the 11th Avenue entrance.

The 13-A inter-campus bus leaves Lyon Labs on the East Bank for the Supercomputer Center and ORTTA at 27 minutes after each hour, 8:27 a.m. to 4:27 p.m. and leaves the Supercomputer Center at 40 minutes after each hour, 8:40 a.m. to 4:40 p.m.

RESEARCH REVIEW

Volume XX/Number 10

April, 1991

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Research Review is a monthly publication of the Office of Research and Technology Transfer Administration. Its purpose is to inform faculty and administrators who are involved with Sponsored Research and Technology Transfer on procedures and policies of granting agencies; on institutional policy and other information necessary to the preparation of research proposals; and on funding opportunities.

Research Review welcomes ideas and comments from all readers. Write to Research Review at 1100 Washington Avenue South, Suite 201, Minneapolis, MN 55415-1226, or call Michael P. Moore at 624-9398.

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, sex, national origin, handicap, age, veteran status, or sexual orientation.

Indirect Cost & Fringe Benefit Rates

Indirect Cost Rates

The rates for July 1, 1989 through June 30, 1990 are listed below. When budgeting for periods beyond 6/30/90, the 7/1/89-6/30/90 rates should be used. The rate agreement is dated March 28, 1988. This date should be used where required on proposal applications.

	07/01/89	06/30/90
Research		
On-Campus	44.0	
Off-Campus *	21.5	
SAFHL	86.6	
Hormel	49.5	
Other Sponsored Activity		
On-Campus	33.4	
Off-Campus *	16.8	
Instruction		
On-Campus	68.7	
Off-Campus *	27.9	

* A project will be considered off-campus if more than 50% of the direct salaries and wages of personnel employed on the project are incurred at a site neither owned nor leased by the University.

Fringe Benefit Rates

If you have questions regarding fringe benefit rate development or need the breakdown of charges, call Vivian Fickling at 624-2009.

Current actual rates from January 1, 1991 through June 30, 1991 are:

Faculty	29.00
Civil Service	24.50

For proposals being submitted with start dates after July 1, 1991, the estimated fringe benefit rates to be budgeted are listed on pages 8 and 9 of the March, 1991 Research Review.

In using these rates to develop budgets for future projects, be sure to reflect the actual rate for each period of time rather than calculating an average for the entire budget period.

As rates change they will be reflected in this section.

Committee on the Use of Human Subjects in Research

Committee Membership

The Committee on the Use of Human Subjects in Research is a "duly constituted" Institutional Review Board that complies with all of the federal guidelines and regulations regarding the use of human subjects in research. The guidelines require that the Committee be comprised of individuals with certain expertise, such as medical background, research interest, etc., and that it also include community representatives and members whose background is non-scientific. Additionally, a balance of men and women, and representation of diverse populations is required. If the Committee reviews a significant number of research proposals involving vulnerable or special populations, those groups should be represented on the Committee as well.

At the University of Minnesota, the Committee on the Use of Human Subjects in Research is comprised of more than sixty members from faculty, staff, student populations and the local community. The Committee also has a representative from the University of Minnesota, Duluth. Membership requires dedication and a willingness to work hard. On an annual basis, the Committee manages the review and approval of 3,000 active studies.

The Committee is structured into three panels: two panels review Health and Biological Sciences applications and the third reviews Social and Behavioral Sciences research. Assignment to a panel is made by the Administrator to the Committee and is based on need and the interests of new members.

Persons interested in serving on the Committee on the Use of Human Subjects in Research are encouraged to call Moira Keane at 612/624-1889. You may also write to the Committee at: 1100 Washington Avenue South, Suite 201, Minneapolis, Minnesota 55415.

Minnesota Project Innovation

Minnesota Project Innovation continues to hold monthly workshops on the Small Business Innovation Research (SBIR) program, free of charge, for interested parties. These sessions: a) focus on how to get started with the federal SBIR program; and, b) look at agency objectives, budgets, schedules, and technology topic areas. Each session features information on a particular SBIR agency and features a Minnesota SBIR award winner. Workshops are held at MPI conference facilities, 1200 Washington Avenue South, from 11:30 A.M. to 1:00 P.M. once or twice monthly. For more information, call Minnesota Project Innovation 612/338-3280.

New Center Will Blend Math and Computer Visualization

The University of Minnesota has received a \$10.3 million, five-year grant from the National Science Foundation to establish the National Science and Technology Research Center for the Computation and Visualization of Geometric Structures. The Center will be directed by Professor Albert Marden of the School of Mathematics in the Institute of Technology. It will be housed in the FMC building, near the Minnesota Supercomputer Center in the Minnesota Technology Corridor.

The Center's mission will be to bring together leading mathematicians and computer scientists to explore new ways of integrating supercomputer technology with the field of pure mathematics. A specific focus for that mission will be to use computers to create visual representations of mathematical theories, adding an experimental approach to math research. This will include development of software to be used in generating three-dimensional computer graphics.

Marden and IT Dean Ettore Infante said that the Center also will provide programs for high school mathematics teachers, to expose them to the latest research and to help them stimulate their students' interest in the field.

NCURA/SRA Meeting In Minneapolis

A joint, regional meeting of the National Council of University Research Administrators (NCURA) and the Society of Research Administrators (SRA) will be held May 1-3, 1991 at the Hyatt Regency Hotel, downtown Minneapolis. The general theme of the meeting is, "Ethics and Values in a Changing Research Environment."

Included on the agenda is a presentation by Winifred Schumi, Mary Cybyske, and Dan Cummings, ORTTA, on Electronic Communications, at which they will demonstrate the ORTTA Electronic Bulletin Board. Also included on the agenda is a panel discussion on Animal Welfare on which Patrick Manning, Cynthia Gillett, and Daniel Sadoff will represent the University of Minnesota. Lastly, Thomas Fiutak, Conflict and Change Center, will speak on, "Conflict Management for the Pragmatist: A Practical Guide for Managing Differences in Your Organization."

For a complete copy of the agenda, including registration information, please call Julie Westmoreland or Joan Sagstetter, ORTTA, 5-2821.

Patent and Technology Transfer Policy

An Abbreviated, Informal Translation

The University of Minnesota Patent and Technology Transfer Policy was enacted by the Board of Regents in October, 1986, as revised by the Patent and Technology Transfer Council and recommended by the University Senate. Copies of the policy are available from the Office of Patents and Licensing, 624-0550.

Introduction

The policy is intended to advance the University's education, research and public service missions by providing a means to transfer University technologies directly to external parties for beneficial use. It also contains mechanisms for obtaining and distributing income from such transfer, so as to encourage and reward inventors and to pay for the costs of patenting, licensing, and protecting the technologies. By encouraging and assisting patenting and licensing, the policy helps obtain recognition for the University's role in advancing technology that is beneficial to society.

Definitions

The following terms are used to describe who and what is covered by the policy:

Personnel are all persons employed or otherwise compensated by the University, including visiting faculty and researchers, but excluding consultants to the University.

University Funds are funds provided by the University for the specific purpose of supporting research, and funds received by the University through federal and state appropriations to various University units.

University Administered Funding is provided to the University by external entities—public or private—to support research.

Developments are the results of research by University personnel, not including matter that is primarily educational, literary, or artistic in nature. Developments are categorized in three ways:

- Category (1) includes developments involving University Funds or University Administered Funding, where disclosure and disposition of developments are required by the terms of the funding arrangement;
- Category (2) includes developments involving University Funds or University Administered Funding

where disclosure and disposition of developments are not required;

- Category (3) includes developments that didn't involve the use of University Funds or University Administered Funding.

Developers are all Personnel who produce a Development, such as an invention on which a patent is filed.

Transferee is any legally constituted organization or individual that acquires rights in a Development under a license negotiated by the University's Office of Patents and Licensing.

Net Income means the gross monetary payments received by the University as a result of transferring rights in a Development, minus the University's out-of-pocket costs for protecting, developing, and transferring the Development.

Application

The policy is a condition of employment and applies to all Personnel.

Rights and Obligations

The policy does not infringe on the right to publish. It usually requires a limited waiting period before publication to allow the Office of Patents and Licensing to review the Development and to file for protection if warranted.

Personnel are required to disclose Category 1 developments to the Office of Patents and Licensing, usually by sending a draft of a research paper or abstract. Disclosure of Category 2 Developments is not required unless Developers decide to protect and/or commercially exploit a Development, in which case they must fully and confidentially disclose the Development to the University, which has the first right to acquire title. Disclosure of Category 3 Developments is voluntary but is encouraged because it complements the University's mission and provides Developers with free legal services and protection for the Development.

The Office of Patents and Licensing is required to evaluate each disclosed Development and, within two weeks, to contact the Developers to discuss the nature and extent of protection, if any, to be sought. If the University decides not to proceed with the Development, it will waive rights of ownership to the Developers, if permitted by the terms of the funding arrangement. If the University decides to protect or commercialize a development, Developers must assign title to the University and provide whatever

assistance is needed to obtain suitable protection. Developers shall also help the Office of Patents and Licensing identify potential Transferees and provide them with information about the Development. The Office of Patents and Licensing will, at University expense, use its best efforts to suitably protect and transfer the Development, and will keep Developers fully informed of such efforts.

Distribution of Income

Gross income from a Development will first be used to reimburse the University for associated costs. Then, for Category 1 and 2 Developments, net income will be distributed as follows:

33⅓% to the Developer(s)

25⅓% to the Developer(s) research (or department, if a Developer leaves the University)

8% to the Developer's college

33⅓% to the Office of Patents and Licensing, to be used to cover costs for technology protection, development, and transfer activities concerning other Developments.

Net income from Category 3 Developments will be distributed as agreed to by the Developer and the Office of Patents and Licensing.

Additional Considerations

The Office of Patents and Licensing, may, as circumstances warrant, negotiate other forms of compensation, such as shares of stock in a company. In such cases, suitable arrangements must be made to compensate all persons and units that have a right to a share of net income, with the express agreement of all parties. The Office of Patents and Licensing may also, at its discretion, pay Developers for extraordinary efforts in identifying potential Transferees and interesting them in the Development.

Developers should be aware that the obligations and procedures in this policy are subject to terms and conditions of any funding arrangement related to a Development. Generally, industry sponsors will acquire some rights in Developments made under research projects they fund.

In seeking to apply this policy to transfer Developments and maximize their public utility while obtaining a fair return for Developers and the University, the Office of Patents and Licensing shall apply the following principles:

- Rights to a Development will not be granted without fair compensation in the form of royalties, stock, or research funding.

- Exclusive rights to a Development may be granted to a Transferee, but terms will be negotiated to obligate the Transferee to adequately attempt to exploit the Development to meet a public market. The University shall retain the right to terminate the agreement and reacquire all rights if the Transferee does not adequately exploit the Development.
- The University may enter into agreements with an organization that will itself attempt to transfer a Development for commercialization. This type of sub-licensing agreement has been made with some faculty who have formed their own companies to license their Developments.

National Institutes of Health

Type Size in PHS 398 Applications

*This notice appeared in the NIH Guide,
February 1, 1991*

In an effort to clarify the current guidelines and in response to some excellent suggestions, we [NIH] have modified the current guidelines regarding the type size in the PHS 398 application kit. The following revised guidelines replace the paragraph under Specific Instructions - Section, (page 12, PHS 398, Rev. 10/88). They are effective with the February 1, 1991 application receipt deadline.

"It is also essential that type size limitations be observed throughout the application, or the application will be returned without review. For the first (face) page, the type density must be 10 characters per inch (cpi). This limit is to assure that all data typed on this page can be captured for computer processing without truncation. For the rest of the application, the type must be standard size, which is 10 to 12 points (approximately 1/8 inch in height for capital letters). If constant spacing is used, there should be no more than 15 cpi, whereas proportional spacing should provide an average of 15 cpi. Finally, there must be no more than six lines of text within a vertical inch. Figures, charts, tables, figure legends, and footnotes may be smaller in size but must be clear and readily legible. Applications not meeting these requirements will be returned without review, or may be subject to deferral."

Starting the Technology Transfer Process

Disclosing the Invention

Editor's note: This article is written as an introduction for those unfamiliar with the process of technology transfer at the University of Minnesota, and to encourage faculty, staff, and students to take advantage of the services offered by the Office of Patents & Licensing.

Technology transfer at the University of Minnesota is a process by which inventions and other original creations are protected by patent, copyright, or trademark rights, and then those rights are transferred to industry or other users through negotiation of license agreements that return royalties and other benefits to the inventors and the University. The process of transferring University inventions to industry begins with a communication called a "disclosure."

A disclosure is simply a written statement informing the Office of Patents & Licensing that a development with potential commercial value has taken place. The statement can be in the form of a memo, a draft of an abstract or journal article, a copy of a poster or other scientific presentation, or a proposal for research funding.

A licensing professional in the Office of Patents & Licensing will review the disclosure and do some preliminary background research to help in making a decision to protect the University's proprietary interest in the development being disclosed. Depending on the type of development, proprietary interests can be protected by applying for a patent (devices, methods, novel plants and organisms), or by registering for copyright (software and books), or trademark (logos and names) protection. The person making the disclosure will be involved in the process of deciding whether and how to protect the development, and in the filing of an application for patent, copyright, or trademark.

If a development is potentially patentable, it is important that the Office of Patents & Licensing receives the disclosure in time to file a patent application before the development is published or presented to others. This is necessary to protect the international patentability of the invention, which is becoming increasingly important to companies when they decide whether or not to invest in a potential new product.

However, if the invention has already been publicly disclosed, all is not lost. The U.S. Patent and Trademark Office will consider a patent application filed within one year of the public disclosure.

Submitting a disclosure according to the following guidelines will speed the process of evaluating the invention's patentability and minimize time spent by the inventor in helping prepare a patent application. If time is an issue, however, the Office of Patents & Licensing is willing to review any written disclosure and will follow up with the inventor as quickly as possible to protect patenting rights as well as publishing obligations.

Guidelines for Preparing an Invention Disclosure

The following guidelines illustrate the preferred layout and content for invention disclosures. Completeness is very important in preparing the disclosure in order that it can serve as a basis for a worthwhile patent search and for preparing the patent application. To be complete, the disclosure should include all the pertinent experimental data available, both pro and con, which have a bearing on the inventive concept. (The data, if voluminous, may be attached as an appendix.)

It is also important that the inventor have considered the various alternative ways of constructing (in the case of an apparatus) or performing (in the case of a process) the invention. This is something a potential infringer would do, and having the alternative embodiments on hand permits the preparation of a patent application that is broad in scope. The inventor should, however, specify which embodiment is preferred.

The Disclosure

The disclosure should contain the following elements:

A. A Title and Funding Source

The ideal title is brief but comprehensive, technically accurate, and descriptive. The source of the funding under which the invention was made is very important. It should include the granting agency and the grant/contract number.

B. An Abstract of the Invention to be Disclosed

About 100 words.

C. Statement of the Background of the Invention

The disclosure should state the field of art to which the invention pertains. The basis for this requirement is that an accurate description will permit a future

patent application to be properly classified in the Patent Office, and therefore, it is helpful if the inventor can accurately categorize his invention within the field of his endeavor.

D. Description of the Prior Art

A statement of the prior art known to the applicant should be set forth. This will include a description of the various existing devices or processes and their shortcomings that are remedied by the present invention. If published material such as scientific papers, patents, or commercial literature relating to or describing the prior art is known to exist, it should be cited (or supplied, if available).

E. Summary of the Invention.

1. In this section describe in detail:

- a. How the invention is designed, and where alternative designs are available, describe these and select the preferred embodiment. To clarify, attach and refer to descriptive drawings, flow sheets, circuit diagrams, etc.
 - b. Where conditions such as time, temperature, pressure, etc. are relevant to the invention, ranges of operating conditions should be recited. Preferably, these should be in terms of broad ranges of conditions and narrower optimum or preferred ranges. Where materials may be varied, list specific alternatives to illustrate the range of usable materials. A sufficient number of specific working examples should be set forth to illustrate the variations in conditions and materials.
 - c. How the invention operates to produce a result or results not achieved in the prior art.
 - d. What new concept has been invented; describe succinctly.
 - e. All advantages such as efficiencies, cost benefits, etc., produced by these new results.
2. Indicate briefly and in general terms the utility of the invention, particularly for chemical cases. Where the utility is evident from the earlier sections, this section may be omitted.
 3. List (and append, if possible) all publications in which the invention has been described or occasions on which it was described orally to others; for example, at symposiums.

4. Provide all budget numbers used to defray any research costs that are invention-related.

F. Signatures, Witnesses, and Dating

Each inventor should sign the disclosure before a witness who understands the invention. The witness will also sign. Each set of signatures (inventors and witness) should be dated.

It is helpful if each inventor includes his/her Social Security Number. This is needed in order to process royalty payments.

Volunteers Assist Young Inventors Fair

Two representatives of the Office of Patents & Licensing recently applied their skills to evaluate disclosures from a different source: inventors in grades 4 through 9 who submitted entries for the Eleventh Annual Young Inventors Fair, which will be held April 13, noon to 4 P.M., at the Science Museum of Minnesota. Participating in the judging from the University were licensing professionals Paul McDowall and Jim Severson, as well as communications coordinator Michael Moore and long-time University of Minnesota inventor Otto H. Schmitt, a member of the Minnesota Inventors Hall of Fame. They joined other volunteers from local schools and companies to review 1,000 inventions submitted by young inventors and their teachers.

The judges' task was to select 100 inventions to be exhibited at the Science Museum, located at 10th and Wabasha in downtown St. Paul. During the fair the students will explain their inventions to the public and will discuss them with professional inventors. Admission to the event is free. A brief recognition program will be held at 3:45, and, with Paul McDowall serving as one of the judges, 12 inventors will be selected to attend the Student Inventors Congress in Redwood Falls, Minn., on June 8.

The Young Inventors Fair is a metro-wide program designed to stimulate and encourage creative young students to identify problems and develop novel and workable solutions. It is coordinated by the Metro Educational Cooperative Service Unit, and is cosponsored by the Metro Chapter of Educators of the Gifted and Talented, Minnesota Council for the Gifted and Talented, and the Science Museum of Minnesota.

U of M Ranked Fourth in 1990 Patents

The University of Minnesota received 38 utility patents and three plant patents from the U.S. Patent and Trademark Office in 1990, placing it fourth among U.S. universities. The ranking was compiled by Charles C. Cary and Kathleen R. Terry of the Office of Technology Transfer, State University of New York at Buffalo, and was released February 24 at the annual meeting of the Association of University Technology Managers, held in San Francisco.

Here are the top ten universities in terms of U.S. patents issued in 1990:

	<u>Utility Patents</u>	<u>Plant Patents</u>
1. Massachusetts Institute of Technology	112	
2. University of California	64	1
3. University of Texas	58	
4. University of Minnesota	38	3
5. Cornell University	37	1
6. University of Florida	36	
7. Stanford University	35	
8. California Institute of Technology	30	
Iowa State University	30	
10. University of Michigan	27	

In 1989, the University of Minnesota ranked seventh, with 41 patents. In terms of cumulative patents issued from 1986-1990, the University of Minnesota ranks sixth, with 148.

The University of Minnesota currently has 161 license agreements, under which companies have acquired rights to use, produce, and/or market an invention made at the University. Such rights are now held by 106 companies, 42 of which are in Minnesota, 56 are in other states, and 8 are in other countries.

A listing and description of the patents issued to the University of Minnesota in 1990 was published in the March 1991 issue of *Research Review*. Inadvertently omitted from that listing were the following two patents:

Title: **Method for Promoting Hair Growth**

Patent#: **4,957,742**

Date: September 18, 1990

Status: Licensed

Inventor: David R. Knighton, Surgery

Title: **Chrysanthemum Plant Named Snowsota**

Patent#: **P7,381**

Date: November 20, 1990

Status: Licensed, Non-exclusive, Available

Inventors: Richard Widmer, Peter D. Ascher, M.C. Stuart, T. Almquist, Horticultural Science and Landscape Architecture

National Science Foundation:

Bush Proposes 17.5% Increase

President Bush's recommended budget for fiscal year 1992 includes \$2.72 billion for the National Science Foundation, a 17.5 percent increase over the FY 1991 appropriation of \$2.32 billion.

"NSF is at the center of what is important to our nation today, as we prepare to meet the challenges of the 21st century," said Frederick M. Bernthal, acting NSF director, in a news release. "In the current global economy, a nation's competitiveness is highly dependent on the generation and application of new knowledge, as well as on a technically trained workforce and a scientifically literate public. NSF's role in supporting science and engineering research and education has become critical to the world economy of the 21st century.

"It is within this context that NSF's FY 1992 budgetary and program strategies have been shaped. The President's budget recognizes that funding these activities is an investment in the future economic growth and prosperity of our nation. And NSF's budget is a central component of the President's commitment to the U.S. R&D effort."

Bernthal said that 75 percent of the budget request would support research and instrumentation, emphasizing support for individual investigators and the research infrastructure. Increases would be especially directed at high-priority areas such as:

- High performance computing and communications (\$213 million);
- U.S. global change research, (\$118 million); and
- Materials synthesis and processing (\$84 million), including semiconductors, advanced ceramics, photonics, and biomolecular materials.

Support for unique national scientific facilities would include:

- Major instrumentation and operations support for the U.S. Antarctic Program (\$193 million), which will include continuation of a multi-year safety, environment, and health initiative begun in 1990;
- Academic research instrumentation (\$50 million);

- Laser interferometry gravitational wave observatory (LIGO) (\$23.5 million), to begin construction on two identical but widely separated detectors to be used in verifying the existence of gravitational waves and black holes; and
- Construction of two 8-meter optical/infrared telescopes (\$16 million), in a joint project with the United Kingdom and possibly Canada that is expected to total \$176 million over eight years.

The NSF budget request asks for \$582 million to support education and human resources development, of which \$390 million would go toward education activities and \$192 million for other human resource development activities. Education highlights include:

- Improving science and mathematics instruction in elementary and secondary schools (\$212.6 million, a 19 percent increase);
- Curriculum development to revitalize introductory undergraduate courses in all fields of science, engineering, and mathematics (\$133 million); and
- Increasing federal-state cooperation in improving precollege education (\$31 million, up from \$15.5 million).

NSF proposes nearly \$88 million (up 10 percent from FY91) to support programs for women and at minority institutions, and programs for minority and disabled students and investigators. Other human resource highlights include:

- The Experimental Program to Stimulate Competitive Research (\$15 million, up from \$11 million), which assists states that have been relatively less competitive in obtaining federal R&D support, would begin an Advanced Development Program; and
- An Alliance for Minority Participation Program (\$10 million) will generate a coordinated approach to increase the number and improve the skills of minority students receiving baccalaureate degrees and beginning graduate studies in science, engineering, and mathematics.

Agriculture Research, Facilities Would Gain in Proposed Budget

In his proposed budget for fiscal year 1992, President Bush has recommended \$125 million for the U.S. Department of Agriculture research initiative, and \$25 million for USDA competitively awarded facilities grants. Bush asked for \$100 million in FY 1991 and Congress appropriated \$73 million. The USDA National Research Initiative (NRI) has a goal of \$500 million per year, to be reached by an average increase of \$50 million each year.

Requested funding levels for the six categories of USDA research funding were:

- \$53 million for plant systems, including \$18 million for the plant genome mapping program;
- \$30 million for animal systems research;
- \$23 million for natural resources and the environment, including \$9.4 million for global change and \$4.6 million for water quality;
- \$13 million for nutrition, food, and health; and
- \$4 million for developing new products, plus \$2 million for markets, trade, and policy research.

USDA's John Patrick Jordan, Administrator of the Cooperative State Research Service, told the Senate Agriculture, Rural Development and Related Appropriations Subcommittee that the key to the NRI program is its balanced focus on both fundamental and applied research. Jordan said that funding for basic research projects will be distributed as follows: 40 percent to individual investigators, 30 percent to multidisciplinary research teams, 20 percent for mission-linked studies, and 10 percent for institution-strengthening grants.

The \$25 million proposed for buildings and facilities would be provided through institution-matching grants to be used for construction, acquisition, and remodeling of buildings, laboratories, and other facilities. The President recommended that the facilities portion of USDA's funding be maintained at a level equal to 20 percent of the research initiative funding level.

New NSF Director Walter Massey Rallies Scientists and Engineers

In his first meeting with reporters since taking office as the new director of the National Science Foundation on March 4, Dr. Walter Massey called on members of the academic and scientific communities to do more "to bring a better understanding of science and technology issues to decision-makers at state and federal levels.

"Getting the NSF budget through Congress will be my highest priority," he said, "but colleges and universities need to do more to build support. Scientists and engineers should invite decision-makers into their laboratories and classrooms to observe and more fully appreciate the value of their research and teaching. Members of the science and engineering communities should play a more significant role in our representative democracy. Being a member of these professions does not preclude participation in the political process."

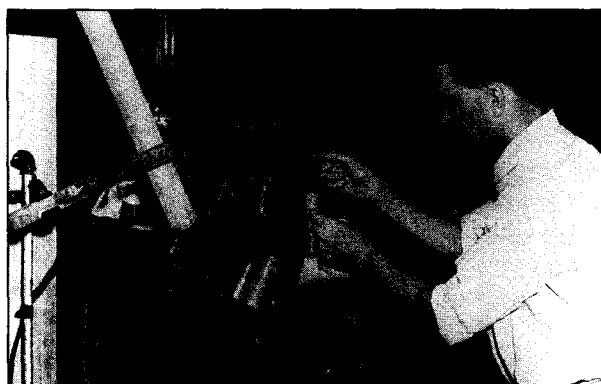
Massey said that in his meetings with congressional representatives he has been pleased at the support expressed for NSF. "Many members recognize that NSF is integrally involved with many of the most substantive problems the nation faces," he said. "However, while NSF is high on many members' priority lists, it is rarely the key priority for any of them." Massey expressed concern that when the tough budget decisions are made later this year, NSF might not fare as well as hoped for in its request and in President Bush's recommendation. "Congressional members believe they rarely get the kind of attention from scientists and engineers that they get from other constituents."

Discussing NSF's future priorities, Massey said that the agency "will continue to give very high priority to supporting individual investigators. Yet, there also is a need for group-oriented research to address problems that require collaboration, including partnerships between the academic and industrial sectors."

Separating the two isotopes was especially difficult because natural samples of uranium contain 99 percent uranium-238 and only .7 percent uranium-235. And it was the uranium-235 that most experts felt had the best chance of initiating a self-sustaining fission reaction, but only if isolated from other isotopes and elements. The task of isolating this rare radioactive isotope fell to the young physicist from the University of Minnesota.

Knowledge + Ingenuity = Invention

Nier was well-qualified for that assignment for several reasons. He had earned undergraduate (1931) and graduate (1933) degrees in electrical engineering, and then a doctorate in physics (1936), all from the University of Minnesota. He had worked among scientists who were in the process of developing the first mass spectrometers and using them to chart new territory in isotopic composition and atomic masses.



Just before joining the Manhattan Project, Nier invented a scaled-down mass spectrograph that helped make gas and isotope analysis practical for scientists in many other fields, such as biology, physiology, and botany.

And he was, by his own admission, "more of a gadgeteer than most physicists." He had, therefore, both the knowledge and the ingenuity to advance the state of the art in terms of both instrumentation and atomic physics.

In fact, had it not been for the lack of job opportunities caused by the Great Depression, Nier probably would have become an electrical engineer. Set on that course by his immigrant parents, he was wooed to physics by Professor Henry Erikson, chairman of the Physics Department. Erikson sought out Nier during an undergraduate physics class, based on his perfect scores on the first three quizzes. "He came to my seat one morning just before class began and, without asking my name (students sat in assigned, numbered seats), invited me to come to his office. I was apprehensive, as were the students around me; one asked me if I had been caught cheating!"

Erikson suggested that Nier consider a career in physics, and even offered him a part-time job as an assistant in his research. Nier accepted the job and the 50 cents-per-hour wage, but he insisted that he was committed to a career in engineering.

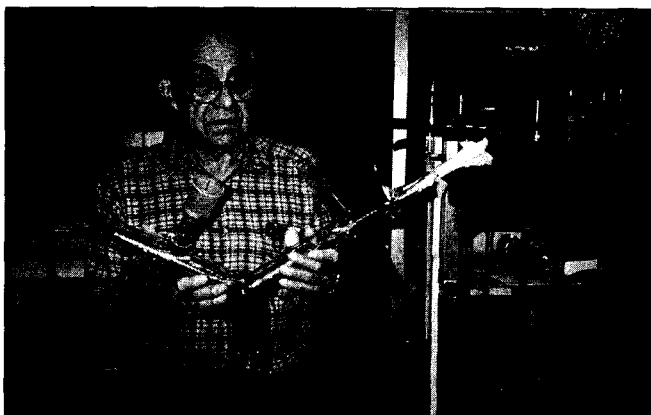
Even after earning his undergraduate degree, Nier turned down Erikson's offer of a physics teaching assistantship in order to search for an engineering position. However, only five of his 80 classmates found jobs in industry, and he was fortunate to be offered an electrical engineering teaching assistantship by Professor Henry Hartig. That led him to complete his master's degree, most of which consisted of physics coursework, which brought him again to Erikson's attention. Nier this time accepted his offer of a teaching assistantship, and earned a Ph.D. in physics as a result.

Nier's graduate adviser was Professor John T. Tate, editor of the *Physical Review* and a spell-binding teacher of Contemporary Experimental Physics. Added to Tate's stimulation and guidance was the established excellence of the Minnesota Physics Laboratory and the scientists who had already significantly influenced the future of mass spectrometry. Walker Bleakney, one of Tate's graduate students, in 1929 introduced improvements in the electron acceleration system and ion removal arrangement, setting the stage for all future work on gases. As it turned out, Bleakney was Nier's first undergraduate laboratory instructor.

One of the fundamental skills developed at the Minnesota Physics Laboratory under Tate's leadership was the ability to construct "clean" vacuum systems. These all-glass, mercury-pumped vacuum systems were free of grease and wax-sealant impurities that might be mistaken for rare isotopes. This technical proficiency, added to the theoretical genius of John

Tate, gave the University physicists world-leading abilities in the study of isotopes and the search for rare isotopes.

Taking advantage of "spare parts" left over from the projects of others in the laboratory, most notably a large solenoid from an abandoned electromagnet, Nier built his



Nier in his laboratory in 1991 holding a mass spectrograph tube for a scaled-down mass spectrograph he invented in the 1940s.

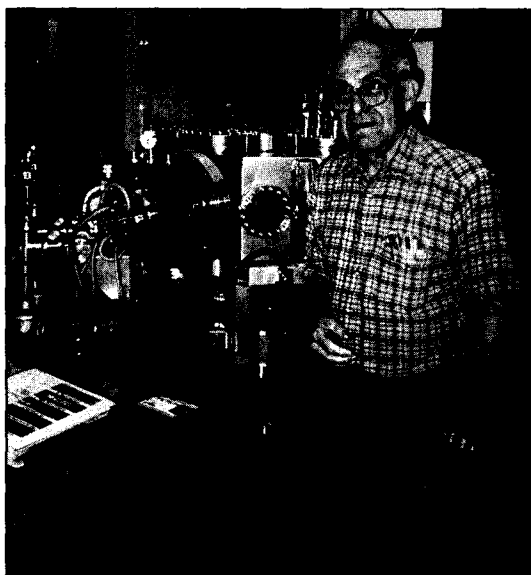
first mass spectrometer. He used a design based on an instrument built by Tate and P.T. Smith, to construct a 180-degree deflection mass spectrometer that gave higher mass resolution than ever achieved. After confirming the existence of the recently discovered argon-38, he broke new scientific ground with research on potassium. In 1935 Nier reported a naturally occurring third isotope of potassium, ^{40}K , with an abundance only 1/8600 of ^{39}K .

Nier's skill in measuring rare isotopes attracted the interest of Professor K.T. Bainbridge, of Harvard University. Renowned for his work in studying the masses of isotopes, Bainbridge in 1936 invited Nier to Harvard following Nier's selection to receive a National Research Council Fellowship. Bainbridge included in his invitation a \$5,000 grant from Harvard's Milton Fund for the construction of a mass spectrometer superior to any Nier had used before. The offer was too good to refuse — huge by depression-era standards — and after receiving his Ph.D. from Minnesota, Nier spent two memorable years at Harvard.

During his Harvard fellowship, Nier studied the isotopic compositions of 19 elements and discovered four new isotopes, sulphur-36, calcium-46 and 48, and osmium-184. He also was drawn to an evolving science in which Harvard had taken the lead: geochronology, the dating of mineral samples by measuring their isotopic composition. A lead-uranium method had been the mainstay of such dating studies, but its weakness was an inability to accurately distinguish between lead resulting from uranium decay and common lead impurities in the sample. Also missing was an accurate determination of the isotope abundance ratio for $^{235}\text{U}/^{238}\text{U}$.

Nier filled that gap with the quantity 139, later more accurately measured as 137.8. Also, in his final weeks at Harvard and on resumption of his research at the University of Minnesota in 1939, Nier reported some of the first carbon isotope measurements, establishing that the relative abundance of carbon varies in nature. He also employed a new technique of using thermal diffusion columns to separate isotopes of carbon, which earned him many biologist-collaborators who coveted his ability to produce rare enriched ^{13}C for their tracer studies.

The year 1940 brought forth two results from Nier's laboratory that would change not just the conduct of science, but the conduct of everyday life as well.



Nier with the device he built in order to analyze the effects of high-speed particles striking objects in a vacuum. The project is sponsored by NASA.

First, in response to a follow-up letter from Fermi urging him to proceed with the experiment on the uranium isotopes, Nier succeeded in separating a sample of ^{235}U from the vastly more abundant ^{238}U . He shipped the sample through the mail to an eagerly awaiting John Dunning at Columbia. "Dunning received it on a Saturday and with colleagues Eugene Booth and A.V. Grosse, he worked all that night to conduct the experiment to see if ^{235}U was responsible for slow neutron fission. Dunning called me ecstatic the next morning to report that it was," Nier says.

The Nier/Dunning confirmation begged the question of whether the process of uranium fission

could be made to proceed as a chain reaction that would release large amounts of energy. Answering that question became an issue of national urgency and the mission of the top-secret Manhattan Project.

Before joining the Manhattan Project, Nier employed his ingenuity to change the very nature of mass spectroscopy. Following the lead of others studying the magnetic focusing of ion beams by mass spectroscopes, he constructed an instrument using a 60-degree (rather than the common 180-degree) wedge magnet. He proceeded to show in experiments that this new tool, which saved substantially in weight and power consumption, had essentially the same focusing properties as the much larger 180-degree instruments. In so doing, he expanded the utility of mass spectrometry to many more researchers in fields requiring gas or isotope analyses.

Laboratories at War

Nier and more than half of the faculty in the physics department, as well as many other University of Minnesota faculty and students, quickly enlisted in the "laboratory brigade" of the war effort. Funded by the newly created Office of Scientific Research and Development, he and his students built seven uranium analysis instruments and shipped them to the various labs around the country working to enrich ^{235}U . Up until 1943, however, Nier's labora-

tory was the only one in the world capable of measuring uranium isotope abundance ratios. It served, therefore, as the Manhattan Project's benchmark facility for isotope analysis of uranium samples provided by other laboratories working on various means of separating and enriching ^{235}U .

"We were a young and hardworking group," Nier remembers. At 31, he directed the construction of new instruments and the testing of samples. Much of the actual laboratory work was carried out by students in their early 20s, including graduate student Mark Inghram and undergraduate Ed Ney. In 1942, Inghram was sent with two uranium analysis instruments to take over the analyses at Columbia University, and Ney went off with two instruments to the University of Virginia, to help with work on a centrifuge used to separate large amounts of ^{235}U .

Nier sent another one of his instruments to General Electric, a federal contractor for equipment needed by the atomic bomb project. GE sold more than 500 mass spectrometers during the war, including models based on Nier's designs for analysis of uranium and gases, and a model for detecting helium leaks. The latter were portable mass spectrometer-based instruments Nier had designed and built to detect leaks in the vacuum-tight low-pressure chambers used in a gas diffusion process of isolating ^{235}U , and later plutonium as fuel for the bomb.

With the basic instruments in place, work on the Manhattan project turned to scaling up the process of uranium production. From 1943 to 1945, Nier directed an instrument development laboratory for the Kellogg Corporation in New York City, working on problems related to the large-scale ^{235}U separation process in Oak Ridge, Tennessee. The assignment was ended by the dropping of atomic bombs on Japan, and he returned to the University of Minnesota in October 1945. He was soon joined on the faculty by his former student, Ed Ney, beginning a close professional and personal relationship they still maintain.

Boom-Time for Science

The success of the Manhattan project and the many other scientific contributions to the allied success in World War II led to a tremendous boom in federal funding for science. Although many people focus on the bomb as the primary scientific contribution and the reason we won the war, the atomic bomb just ended it sooner, Nier says.

"The war was won with radar and other devices that came right out of university laboratories devoted to basic science," he says. "There resulted a great appreciation of science, especially by the Navy, which had involved civilian scientists in its Office of Research and Invention during the war. This became the Office of Naval Research following the war and initiated many of the federal funding pro-

grams now carried out by the National Science Foundation and other agencies."

In the 1950s Nier joined Dunning in efforts to establish a permanent fund for basic research. "He had an idea that we could patent the process for isolating uranium-235 and license it to companies that were starting to pursue peaceful uses of nuclear energy." Dunning wanted to use the royalties to set up a research foundation to fund basic scientists. The trouble was that it took some time for the government to declassify the work, even though there were already dozens of companies making and selling the devices used in the process. And as far as getting a patent covering the process of enriching uranium-235 to be used in nuclear power plants: "Well, I guess that was too valuable to assign to just one group of scientists," Nier says. Instead, the government gave Dunning and Nier a plaque and a small monetary award.

On a much smaller scale than the envisioned research foundation, some monetary benefits did accrue to the University of Minnesota, which patented Nier's instruments in the 1940s and 1950s, and to Nier himself. A small amount of royalties came in from companies producing helium-leak detectors for the semiconductor and nuclear submarine industries. And the Veeco Company, one of the largest manufacturers of the devices, gave the University \$50,000 to establish a scholarship fund in Nier's honor.

Even more significant, however, were the many uses Nier's portable and large-scale mass spectrometers found in diverse areas of research. Not the least of those was the application of the devices in medical research and patient care. "I worked with Nathan Lifson, former head of the Department of Physiology, to start studies of human metabolism using a mass spectrometer. And at the request of my friend Owen Wangenstein (chief of surgery from 1930 to 1974) I built a portable mass spectrometer that was used to monitor patient respiration during surgery. It saved at least one life by detecting a problem with the anesthetic mixture."

In recent decades, Nier has seen his pioneering work applied by others to achieve numerous scientific and biomedical applications. And he has been far from idle as those results evolved. In the 1950s he directed a team that built a high-resolution mass spectrometer and used it to make most of the precise atomic measurements in use today. In the 1960s his experience with geologic analysis led to studies of the rare gases found in meteorites. And since the 1970s he has directed his pioneering intellect to space research.

In fact, in the 1970s Nier found himself again in the midst of a Manhattan Project-type team of multidisciplinary

scientists, working on the Viking Project. Their mission was to land a spaceship on Mars and take scientific measurements to determine if any type of life could, or did, exist there. Miniaturized mass spectrometers were to sample the Martian atmosphere during entry and the Martian soil on landing. From the 70 scientists chosen for the project, Nier was placed on two teams: Entry Science and Molecular Analysis. Both achieved their objectives and contributed to the first successful visit to and analysis of another planet.

Although he retired in 1980, Nier continues to work full time without pay in his laboratory, surrounded by the high-tech gadgetry he continues to invent and employ in pioneering research. He receives most of his research support from NASA, for studies of helium/neon concentrations in extraterrestrial dust the Earth passes through. He also studies the effect of high-speed particles striking objects in a vacuum, a subject of particular interest to NASA. True to form, he does the work using a room-size device he designed and built.

Nier says the only thing he misses from his pre-retirement days is the stimulation of working with graduate students. But for the many friends and colleagues who often venture into his laboratory in the basement of the Tate Physics Building, there is always an old story or a new invention to discuss.

And there's the future, which Nier believes soon will bring a rendezvous with a comet, in search of elemental remnants of the early days of the universe. He is confident that when that day arrives, instruments based on his gadgets will be central to the mission.

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Research Centers Invited to High-Tech Exposition in June

The Office of Research and Technology Transfer invites the University's technical research centers to consider participating in a community technology fair in June. Called "Forming Alliances for the '90s II," the second annual event will be held at the University of St. Thomas, on Tuesday, June 4. Minnesota Project Innovation and Corporate Report Minnesota are collaborating again this year to bring together developers of new technologies and Minnesota corporations.

The exposition offers entrepreneurs, researchers, and small businesses with innovative technologies the opportunity to build partnerships with large corporations and the federal government. This year 10 recipients of Small Business Innovation Research grants will demonstrate their technologies throughout the day as an expected 500 to 1000 people view the more than 150 exhibits. The Office of Research and Technology Transfer and the Office of Patents and Licensing will participate.

University of Minnesota researchers and research centers interested in having materials displayed in the ORTTA booth are encouraged to contact Mike Moore at 624-9398. For individual registration information, contact Cate Murphy, Minnesota Project Innovation, at 338-3280.

Program Information

Internal and External Sponsors

National Library of Medicine

Medical Informatics Research Training

The National Library of Medicine (NLM) invites training grant applications in a single competition for predoctoral and postdoctoral research training in medical informatics. (RFA LM-91-01) Applications may be for the creation of new training centers or for the renewal of existing NLM-supported training programs. This training will help meet a growing need for qualified, talented investigators, well prepared to address information problems in health care, health professional education, and biomedical research.

Applications must clearly indicate that the primary intent of the program is preparation for an academic career in Medical Informatics. Applications must describe the process by which trainees will become familiar with the many relevant disciplines. It is expected that the core of training will emphasize the synthesis, organization, retrieval, and effective management of knowledge. The curricula should be inter-disciplinary by including topics in medicine and the biological sciences, the cognitive sciences, information science, and computer science.

Applicants are asked to submit a letter of intent by May 1, 1991 including a descriptive title, the name and address of the principal investigator, the names and addresses of any other key investigators, and any other participating institutions. The receipt deadline for full applications is June 10, 1991. Contact: Roger W. Dahlen, Ph.D., Chief, Biomedical Information Support Branch, NLM, Building 38A, Room 5S522, 8600 Rockville Pike, Bethesda, MD 20894; 301/496-4221. Guidelines are available from ORTTA and may be requested by calling 624-9004 or by putting a note through the electronic bulletin board.

National Science Foundation

Stars and Stellar Evolution Program

The National Science Foundation, Division of Astronomical Sciences, is requesting proposals under its Stars and Stellar Evolution Program (STE). The STE program covers the following topical areas of stellar astronomy: sun, binaries, circumstellar gas/nebulae, variable stars, supernovae, compact objects, high-energy stellar processes, basic stellar data, and atomic/molecular constants.

The announced target date is April 15, 1991. The NSF contact is Dr. Myron Smith, STE program director, 202/357-7622.

National Institute of Allergy and Infectious Diseases

Improved Strategies for Diagnosis of Lyme Disease

The National Institute of Allergy and Infectious Diseases (NIAID) invites grant applications for research that applies to understanding the biology of *Borrelia burgdorferi* and host responses to infection by this organism, which will lead to development of reliable and sensitive diagnostic tests for the detection of Lyme disease. (RFA AI-91-03).

The goal of this RFA is to stimulate programs of multidisciplinary basic and clinical research focused on determining the most effective approach(es) for diagnosis of Lyme disease. Applications are expected to focus on developing and testing new diagnostic strategies, including (but not limited to) innovative approaches to the following:

- Identification and characterization of antigens, antibodies, and DNA sequences that are good candidates as reagents, probes, or targets for use as a basis for a Lyme disease diagnostic test.
- Identification and recruitment of three patient populations (patients who have a firm diagnosis of Lyme disease, patients who have no history of signs of Lyme disease, and patients who have symptoms of Lyme disease but test negative using a defined set of diagnostic tests currently available).
- Evaluation of the sensitivity and specificity of candidate diagnostic assays relative to one another and to selected commercially available diagnostic kits using a standard panel of clinical specimens from each of the individuals in the recruited patient populations described above.

The application receipt date is May 3, 1991. Contact: Dr. Robert L. Quackenbush, Chief, Bacteriology and Mycology Branch, NIAID, Westwood Building, Room 738, Bethesda, MD 20892; 301/496-7728. Guidelines are available from ORTTA and may be requested by calling 624-9004, or by putting a note through the electronic bulletin board.

Program Information

Internal and External Sponsors

National Cancer Institute

Small Grants to Stimulate Correlative Laboratory Studies and Clinical Trials in Radiation Therapy

The Division of Cancer Treatment of the National Cancer Institute (NCI) announces the availability of an RFA (CA-91-04) for tightly focused, basic science laboratory studies that interface with radiation therapy clinical trials or for radiation therapy clinical trials that attempt to correlate new and/or unique developments in the laboratory.

NCI is using the small grant (R03) mechanism to provide complementary research support for short-term, pilot, radiation therapy clinical trials that test and verify basic laboratory findings.

This is a non-renewable, one-time solicitation. All awards will be limited to a \$50,000 direct-cost ceiling for a period of up to two years. The application receipt date is May 22, 1991. Written or telephone inquiries are encouraged. Contact: Thomas A. Strike, Ph.D., Radiation Research Program, NCI, 6130 Executive Boulevard, Suite 800, Rockville, MD 20852; 301/496-9360. Guidelines are available from ORTTA and may be requested by calling 624-9004 or by putting a note through the electronic bulletin board.

National Science Foundation

Equipment and Facilities for Research at Biological Field Stations and Marine Laboratories

The National Science Foundation, Directorate of Biological, Behavioral and Social Sciences, is accepting proposals for the Equipment and Facilities for Research at Biological Field Stations and Marine Laboratories Program. The purpose of the program is to improve research facilities and to provide for the acquisition of research equipment at biological field stations and marine laboratories. Some planning grants also will be awarded.

The maximum award will be \$500,000 per facility. Submitting institutions will be expected to provide appropriate cost sharing. Planning grants are for up to \$25,000 and do not require cost sharing.

The due date originally announced was February 15, 1991. This has been changed to April 15, 1991. Thereafter, the annual deadline will be December 15. For further information, call David Schindel at 202/357-7652. Copies of the guidelines may be obtained from ORTTA by calling 624-9004 or by putting a note through the electronic bulletin board.

Department of Defense

University Research Initiative

The Army Research Office, Office of Naval Research and the Defense Advanced Research Projects Agency are inviting applications to support multidisciplinary, high-priority research in key defense-related areas under the Defense Department's University Research Initiative (URI). (The Air Force Office of Scientific Research will announce its multidisciplinary URI program in 1992).

U.S. academic institutions with degree-granting programs in science and engineering are eligible to receive these awards. ARO will fund 29 awards at \$16 million, with award amounts ranging from \$400,000 to \$800,000; ONR will fund 11 awards at \$8 million, with award amounts ranging from \$500,000 to \$1 million a year; and DARPA will fund 13 awards at \$17 million, with awards ranging from \$500,000 to \$1.2 million.

The application deadline is July 11, 1991. Contact: Office of Naval Research, URI 92-96, Code 11SP, Room 811, 800 North Quincy Street, Arlington, VA 22217; 703/696-4108. *Enclose a self-addressed label.* Guidelines may also be requested from ORTTA by calling 624-9004 or putting a note through the electronic bulletin board.

NASA/NSF

Joint Projects for Polar Research

The National Aeronautics and Space Administration (NASA) and the National Science Foundation (NSF) are seeking joint projects, to be conducted in polar areas, that are applicable to long-duration space flight, as well as those beneficial to future polar science. Among areas of interest are: circadian rhythms and sleep disturbances, epidemiology of infectious illness, energy balance and thermoregulation, telecommunication, habitat design, workload assessment, multicultural factors, group dynamics, and mental health.

The guidelines are in the process of being published. For further information call: Janis Stoklosa, NASA, 202/453-1527; or Polly Penhale, NSF, 202/357-7894.

Program Information

Internal and External Sponsors

Jessie Smith Noyes Foundation

The Jessie Smith Noyes Foundation is interested in nurturing ideas and institutions until they have taken root. It is willing to take chances and prefers to support innovative organizations. The Foundation believes in the central importance of individuals to any undertaking, is willing to offer a chance to the dreamers and visionaries, and continues to identify areas of world need on which its grants can focus most productively.

Presently, it is committed to two goals: preventing irreversible damage to the natural systems upon which all life depends; and strengthening individuals and institutions committed to protecting natural systems and ensuring a sustainable society. Funds are allocated to projects in the interrelated areas of environment and population. The components of the program are: population and family planning, tropical ecology, water resources, and sustainable agriculture. The Foundation favors projects that address connections between these concerns and their global implications, especially those activities that have a potentially widespread impact or applicability.

In addition to grants awarded under the areas mentioned above, several grants are made each year for projects exploring new approaches to the stated goals of the Foundation.

Two-page letters of inquiry will be acknowledged by the Foundation within one month of receipt. Formal proposals, if requested, are due in most cases within one month of the request and are considered at board meetings, usually held in March, June, and November. Contact: Stephen Viederman, President, Jessie Smith Noyes Foundation, 16 East 34th Street, 22nd Floor, New York, New York 10016; 212/684-6577.

The ARCA Foundation

The ARCA Foundation supports a wide variety of organizations struggling for social and economic justice in both the domestic and international arenas. It is concerned with fostering profound democratic change, respect for human rights, and peaceful resolution of conflict. Grants are made for projects involving U.S. foreign policy in the Third World, with special focus on Central America, Latin America, South Africa, and the Middle East.

In the international category, the Foundation supports projects in the U.S. that promote a foreign policy based on respect for human rights, national sovereignty, and international law. Priority areas include those where U.S. influence is strong, and where a change in U.S. policy could make a significant contribution to democratization and the peaceful resolution of conflict.

In the domestic category, the Foundation emphasizes projects seeking to revitalize our own democracy, by holding public officials accountable to their constituencies instead of monied interests, and by promoting broad participation in policy debates.

Institutions, organizations, and public charities in the U.S. are eligible. Grants range from \$1,000 to \$125,000, averaging \$5,000 to \$25,000 per year. Deadlines are April 1 and November 7 each year. Formal proposals are required; letters of inquiry are *discouraged*. Contact: Janet Shenk, Executive Director, The ARCA Foundation, 1425 21st Street NW, Washington, D.C. 20036; 202/822-9193.

BFGoodrich Company

Collegiate Inventors Program

To stimulate interest in scientific and technological creative problem solving, the BFGoodrich Company, in cooperation with the National Invention Center, a private, non-profit institution in Akron Ohio, has created the BFGoodrich Collegiate Inventors Program. The program encourages successful student/advisor problem-solving relationships and promotes understanding of the U.S. system of patent laws and intellectual property rights.

Cash prizes of \$5,000 will go to as many as three students. Each student's advisor will receive a \$2,500 prize. A "patent-to-go" workshop — highlighting the patent process — will visit the winning institutions. Students and their advisors will be given their awards at the annual Induction Ceremony of the National Inventors Hall of Fame in Akron, Ohio, May 1992.

The competition is open to any student enrolled full-time in a college or university in the 50 United States. Applications for the second annual competition will be available May 1, 1991; the deadline for submission is March 1, 1992. For more information write or call: The BFGoodrich Collegiate Inventors Program, Kathryn Shafer, Ph.D., National Outreach Coordinator, 80 West Bowery Street, Akron, Ohio 44308; 216/762-4463.

Robert Wood Johnson Foundation

Changes in Health Care Financing and Organization

Recent changes in health care financing and organization include limits on payments to physicians, increases in co-payment and deductible expenses for insured employees, pressure on hospitals to reduce expenses, increases in the number of managed care plans offered by employers and insurers, and new efforts to base payments for health services on evidence of their impact on patients.

Although these changes have had a major impact on the way people receive medical care, there has been little research on how they affect costs, access, or quality; therefore, the Robert Wood Johnson Foundation is seeking proposals for research, demonstration, and evaluation projects to examine and test how these and other changes in the financing and organization of health services affect health care costs, access or quality.

Three types of projects will be considered: 1) research to analyze and design major health care financing and organization strategies, 2) demonstration projects to test new strategies, and 3) evaluations of major strategies already in place.

Grant periods are flexible but are generally not expected to exceed three years. Institutions wishing to apply for funds should submit three copies of a letter of intent by **May 15, 1992**. Letters of intent should include:

- a brief description of the topic to be addressed and its significance;
- a statement of the project's objectives;
- a description of the research or evaluation methodology or the demonstration approach;
- research dissemination plans, including target audiences;
- an estimated project timetable and budget;
- the qualifications of the applicant and key project staff; and
- the name of the primary contact person.

Based on a review of the letter of intent, a full proposal may be requested by the Foundation. Letters should be addressed to: Alpha Center, Attn: HCFO, Suite 1100, 1350 Connecticut Avenue NW, Washington, DC 20036; 202/296-1818. Contact David Helms or Anne Gauthier at the Alpha Center.

The W.K. Kellogg Foundation

Wholesome Food Supply Program

Under the Wholesome Food Supply program, the Kellogg Foundation encourages creative, cost-efficient uses of modern information systems (computer, telecommunications and other methods) to:

- meet the needs of rural citizens;
- improve university programs in agriculture and human nutrition by providing leadership development for administrators and faculty and encouraging research, teaching, and extension work in human nutrition;
- improving leadership in agriculture and food systems by encouraging comprehensive curriculum review and revitalization, and
- developing educational programs that acquaint college students, community leaders, and public officials with agricultural policy alternatives aimed at ensuring adequate, wholesome food supplies.

Seed money is provided for pilot projects which, if successful, can be continued by the initiators and be adapted by other communities, institutions, or organizations to solve similar problems. The geographic scope of programming is the U.S., Latin America, the Caribbean, and the countries of southern Africa.

Applicants should submit a one- or two-page pre-proposal letter that describes the basic problem and plans for its solution. There are no application receipt dates; inquiries may be made at any time. Contact: Norman A. Brown, President and Chief Programming Officer, The W.K. Kellogg Foundation, 400 North Avenue, Battle Creek, MI 49017-3398; 616/968-1611.

Faculty Research Awards

This section contains statistics on proposals and awards recently processed by ORTIA. In addition, we have randomly selected awards received by faculty during preceding months. If any faculty member has received an award s/he would like mentioned in a future Research Review, please call Mike Moore at 624-9398.

Proposal and Award Summary

	Number	Amount
Proposals Submitted		
February, 1991	330	\$ 43,193,767
Awards Processed		
February, 1991	135	8,734,448
Proposals Submitted		
July, 1990 - February, 1991	2,466	345,238,603
Awards Processed		
July, 1990 - February, 1991	1,921	151,873,782
Proposals Submitted		
July, 1989 - February, 1990	2,598	441,508,451
Awards Processed		
July, 1989 - February, 1990	1,751	205,624,993

Research Program USS/NRRI

Rodney Bleifuss, Natural Resources Research Institute, UMD
U.S. Steel Corporation
\$485,000 - 01/91-12/91

Chemoprevention of Cancer of the Large Bowel in Human Subjects

Lee W. Wattenberg, Laboratory Medicine and Pathology
Richard D. Estensen, Laboratory Medicine and Pathology
Jack S. Mandel, School of Public Health
American Cancer Society
\$250,000 - 01/91-12/92

Regulation of Hematopoiesis in CML by Gamma Interferon

Philip B. McGlave, Medicine
NIH, NCI
\$201,533 - 01/91-12/91

Mechanisms of Biosynthetic Formation of Deoxy Sugars

Hung-Wen Liu, Chemistry
NIH, NIGMS
\$200,551 - 01/91-12/91

Phencyclidine: A Behavioral Profile in Monkeys

Marilyn E. Carroll, Psychiatry
ADAMHA, NIDA
\$193,025 - 01/91-12/91

A New Bioreactor as a Potential Mechanical Support for Liver Failure

Wei-Shou Hu, Chemical Engineering & Materials Science
Whitaker Foundation
\$180,000 - 01/91-12/93

Forced-Convection Phase-Change Heat Transfer with Curvature

Terrence W. Simon, Mechanical Engineering
National Science Foundation
\$176,071 - 01/91-06/94

Studies of Normal and Neoplastic Prostate

Khalil Ahmed, Laboratory Medicine and Pathology
NIH, NCI
\$161,025 - 12/90-11/91

Bubble Dynamics and Two Phase Flow in Tip Vortices and Turbulent Flow Fields

Roger E.A. Arndt, St. Anthony Falls Hydraulic Laboratory
Charles C.S. Song, St. Anthony Falls Hydraulic Laboratory
USDOD, Navy
\$150,000 - 10/90-09/93

Hemoglobin-Based Blood Substitutes and Enhanced Susceptibility

John W. Eaton, Laboratory Medicine and Pathology
USDOD, Army
\$107,529 - 01/91-02/93

Bone Marrow Heparin Sulfate and Myeloid Leukemia

Sharon Luikart, Medicine
American Cancer Society
\$103,000 - 01/91-12/91

Methodology for Solving of Timing Problems in VLSI

Eugene Shragowitz, Computer Science
Mentor Graphics Corporation
\$102,064 - 01/91-12/91

Small Business Development Center

Robert E. Heller, Center for Economic Development, UMD
Kjell Knudsen, School of Business and Economics, UMD
St of MN: Trade and Economic Development
\$95,163 - 01/91-12/91

Adsorption and Diffusion in Zeolites

Alon V. McCormick, Chemical Engineering and Materials Science
Dow Chemical Company
\$37,500 - 11/90-10/91

Characterization of Ionic Pathways in the Stratum Corneum

Henry S. White, Chemical Engineering and Materials Science
Medtronic, Inc.
\$30,000 - 12/90-11/91

Electrochemistry and Photochemistry of Organometallic Complexes

Kent Mann, Chemistry
Minnesota Mining and Manufacturing
\$36,000 - 10/90-09/91

A Science Experience for Native American Students in the Upward Bound/Vision Quest Summer Program

Louis H. Pignolet, Chemistry
Camille and Henry Dreyfus Foundation
\$20,000 - 02/91-05/93

Transportation and Economy of the Upper Midwest 1990-1991

Richard P. Braun, Civil and Mineral Engineering
St of MN: Department of Administration
\$46,520 - 09/90-08/91

Photonic Ram Program

P. Paul Ruden, Electrical Engineering
Honeywell
\$23,000 - 11/90-10/93

Advanced Generation Control and Dispatch System

Bruce F. Wollenberg, Electrical Engineering
ABB Power Authorization
\$26,050 - 12/90-08/91

Simulations of Thermal and Compositional Convection in Magma Bodies

David A. Yuen, Geology and Geophysics
National Science Foundation
\$30,500 - 01/91-06/92

Computerized Landscape Quality Assessment of Olmsted County

Joan I. Nassauer, Landscape Architecture
USDA
\$13,000 - 09/90-09/91

Preservation and Improvement of Wild Rice Germplasm

Robert F. Nyvall, North Central Experiment Station, Grand Rapids
Raymond Porter, North Central Experiment Station, Grand Rapids
Ervin Oelke, North Central Experiment Station, Grand Rapids
Northwest Minnesota Initiative Fund
\$26,840 - 02/91-01/92

Lipid Oxidation

A. Saari Csallany, Food Science and Nutrition
General Mills
\$15,000 - 12/90-12/91

Characterization of By-Products from Coal Combustion for Agricultural Utilization

Edward A. Nater, Soil Science
Northern States Power Company
\$19,707 - 02/91-01/92

Chemoprevention of Carcinogenesis by Lovastatin and Terpenes

Lee W. Wattenberg, Laboratory Medicine and Pathology
American Cancer Society
\$75,000 - 12/90-11/91

Intrinsic Neural Regulation of the Cerebral Circulation

Costantino Iadecola, Neurology
Minnesota Medical Foundation
\$18,000 - 02/91-01/92

Treatment of Parkinsonism Using Sustained Release NGF

Timothy Ebner, Neurosurgery
Paul J. Camarata, Neurosurgery
United Parkinson Foundation
\$20,000 - 01/91-12/91

Epidemiology of Early Otitis Media

Kathleen Daly, Otolaryngology
G. Scott Giebink, Otolaryngology
Judith E. Brown, Otolaryngology
Deafness Research Foundation
\$14,878 - 01/91-12/91

Studies of IL-2 Liposomes in Cancer of the Lung

Peter M. Anderson, Pediatrics
NIH, NCI
\$96,502 - 01/91-12/91

Evaluation of a Liquid Hydrolysate Infant Formula & Premature Formula in Low Birthweight Infants

Michael Georgeiff, Pediatrics
Bristol Myers Company
\$3,120 - 10/90-10/91

The Action of the B-Agonist Turbutaline on Skeletal Muscle

Dennis D. Dykstra, Physical Medicine and Rehabilitation
Spinal Cord Society
\$38,628 - 11/90-04/91

Evaluation of Sustain Dental Implant System

Paul S. Olin, School of Dentistry
James Q. Swift, School of Dentistry
Lifecore Biomedical
\$60,000 - 11/90-11/95

Crystal Engineering of Oral Iron Chelators

David J.W. Grant, Pharmaceutics
Pharmaceutical Manufacturers Association Foundation
\$5,000 - 01/91-12/91

3M Chemolite Plant Study

Jack S. Mandel, School of Public Health
Minnesota Mining and Manufacturing
\$72,719 - 01/91-12/91

Interventions to Decrease Disruptive Behaviors in Dementia

Mariah Snyder, School of Nursing
Ken Burns, School of Nursing
Ellen Egan, School of Nursing
Minnesota Nurses Association Foundation
\$1,000 - 02/91-12/91

Development of Immunological Probes for the Glucagon Receptor

Victoria Iwanij, Genetics and Cell Biology
Zymogenetics, Inc.
\$80,000 - 01/91-12/92

Lichen Elemental Monitoring

Clifford M. Wetmore, Plant Biology
USDI, National Park Service
\$23,998 - 10/90-01/94

Function of Thioredoxins in Cyanobacteria

Florence K. Gleason, Plant Biology
National Science Foundation
\$65,000 - 02/91-07/92

Microscopic Study of Urine Sediment

Carl A. Osborne, Small Animal Clinical Sciences
Hill's Pet Products
\$4,800 - 01/91-12/91

Family Role Learner Outcomes

Marilyn A. Rossmann, Vocational and Technical Education
St of MN: Department of Education
\$10,000 - 11/90-06/91

Device Diagnosis and Feedback Expert System

Paul E. Johnson, Carlson School of Management
IBM
\$79,832 - 10/90-10/91

Hearing All the Voices

Gale Gunter, Academic Affairs, Morris
Phalanthrofund Foundation
\$300 - 10/90-09/91

Minority High School Student Research Apprentice Program

Gerald L. Hill, Indian and Minority Health, UMD
NIH, DRR
\$41,000 - 03/91-02/92

Woodland Caribou Habitat Assessment

John Pastor, Natural Resources Research Institute, UMD
David Mladenoff, Natural Resources Research Institute, UMD
North Central Caribou Corporation
\$10,000 - 11/90-10/91

Diseases in Ancient Man: Identification Through the DNA of Infectious Organisms

Wilmar L. Salo, School of Medicine, UMD
Arthur C. Aufderheide, School of Medicine, UMD
National Science Foundation
\$11,788 - 02/91-07/92

Minnesota State Survey, 1990

William J. Craig, Center for Urban and Regional Affairs
St of MN: Department of Revenue
\$9,840 - 11/90-06/91

A Foster Training Program for the 1990's

Mary Lou Gilstad, Continuing Education and Extension
Sheltering Arms Foundation/ Carolyn Foundation
\$16,315/\$14,771 - 01/91-12/91

Basic Modification and Validation of Existing Child Abuse Risk Assessment Tools

Mary Lou Gilstad, Continuing Education and Extension
USDOD, Army
\$97,000 - 09/90-09/91

The Sponsored Project Information Network (SPIN) is a computerized locator system of funding opportunities (federal, nonfederal, and corporate) for faculty and institutional research, development, and education program support. It is available to University faculty and staff through ORTTA.

Based on a description of your research areas and/or the type of support sought, ORTTA staff will search the SPIN Keyword Index to identify sources within specific areas of interest. The Keyword Index, a taxonomy developed by SPIN to catalog funding sources, is divided into the following ten major classifications:

- **Agriculture/Food/Forestry**
- **Arts/Culture/Humanities/Communications**
- **Business/Economics/Management**
- **Education**
- **Health/Medical Sciences**
- **International Affairs/Area Studies**
- **Miscellaneous/Other**
- **Science/Technology**
- **Social/Behavioral Sciences**
- **Social Welfare/Public Affairs**

The result of a search is a set of profiles of applicable funding sources that provides: 1) the sponsor's name; 2) the sponsor's contact address and telephone number; 3) deadline dates; 4) program titles; 5) objectives or interest areas of the sponsor; and 6) restrictions that would affect the submission of a proposal. This set of profiles is sent to the requestor.

SPIN searches are done free of charge to the requestor. A survey of users of SPIN indicates that the information received from a SPIN search was targeted to their request and a reasonable response time was effected.

**For further information regarding the SPIN system or to request a search, please contact ORTTA at
624-9004**

SPIN searches are also available through the Research and Development Office in the College of Liberal Arts; the Agricultural Experiment Station; the Research Support Office at Duluth; and the Grants Development Office at Morris.

Effective September, 1990 the SPIN indexes became available for on-line review through ORTTA's Electronic Bulletin Board (See the September, 1990 *Research Review* for information on Bulletin Board contents and access instructions.) The Bulletin Board contains a section devoted to SPIN and offers users the opportunity to review the Keyword Index alphabetically or within the topics shown above.

Since the Bulletin Board is accessible anytime, faculty and staff can browse the indexes at their convenience and find *keyword codes* of interest to them. From within the Bulletin Board they can then forward a note to the Bulletin Board Editor requesting a SPIN search based on the chosen keyword codes (Limit, 20 keywords).

ORTTA TELEPHONE NUMBERS

A Quick Reference Guide

Title and/or Area of Responsibility

Name

Number

Fax Number (612) 624-4843

Office of Research and Technology Transfer Administration

Associate Vice President, ORTTA	Tony Potami	624-1648
Communications Coordinator/Research Review Editor	Mike Moore	624-9398
Administrative Coordinator	Carol Perusse	624-6389

Grants and Contracts

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Assistant Director	Rick Dunn	626-2265
Assistant Director	Mary Lou Weiss	624-5856
DHHS, NIH, ADAMHA, HRSA, OHD, Other DHHS	Mary Lou Weiss	624-5856
DHHS, NIH, ADAMHA, HRSA, OHD, Other DHHS Am Heart Assoc, Voluntary Health Agencies, Misc Private (non-agricultural related)	Todd Morrison	624-5066
DHHS, NIH, ADAMHA, HRSA, OHD, Other DHHS Voluntary Health Agencies Misc Private (non-agricultural related)	Kevin McKoskey	624-1521
USDA, DOD, NASA, AID	Merlin Garlid	624-0288
NSF (IT), USDI, St of MN	David Lynch	624-5571
NSF (IT), USDA, DOE, Misc Private (ag-related)	Rick Dunn	626-2265
NSF (non-IT), EPA, Education, Cities, Counties, Other State & Local Government	Elizabeth Klitzke	626-7718
St of MN, NEA-NEH, DOC, Misc Federal	Amy Levine	626-7441
Private and Corporate Foundations	Judy Krzyzek	624-2546

Patents and Licensing

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Director	John Thuente	624-2816
Technology Licensing (IT)	Tony Strauss	624-0869
Technology Licensing (Health Services/Ag)	Jim Severson	624-0262
Trademark Licensing	Robert Hicks	626-1585
Technology Licensing	Paul McDowall	625-8826
Industrial Grants & Contracts	Judy Volinkaty	624-3317

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Effort Reporting, Indirect Cost & Other Rate Development	Liz Warren	624-2040
Financial Reporting, Accounting Questions	Sandy Kenyon	624-6026

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Administrator	Moir Keane	624-1889
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Duluth

Research Support Office	James Loukes	(218)726-7582
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Morris

Grants Development	Tom Mahoney	589-2211 x6450
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Research Review Mailing List Information

Faculty:

- The *Research Review* is automatically mailed to all faculty on the Faculty Mail List holding the rank of Assistant Professor and above.
- To Add/Delete/Change a faculty name on this list, departmental officers must submit a Staff Directory Card to Administrative Information Services (AIS).
- Please check with your departmental office or AIS (624-9000) if you need assistance.

Staff / Off Campus:

- ORTTA maintains a supplemental mail list for:
 - a) academic staff not included in the above faculty list;
 - b) staff; and
 - c) off-campus
- Additions/changes/deletions to this list may be initiated by filling out and sending ORTTA the following:

Change	☐	Name: _____
Add	☐	Department: _____
Delete	☐	Campus Address (Bldg) _____
		City/State (if off-campus) _____

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Return To:

Tove Jespersen
Office of Research and Technology Transfer
1100 Washington Avenue South, Suite 201
Minneapolis, MN 55415-1226

For U.S. or Campus Mail

University of Minnesota

RESEARCH REVIEW

An Overview of Sponsored Programs and Technology Transfer

Research and Technology Transfer Administration

May, 1991

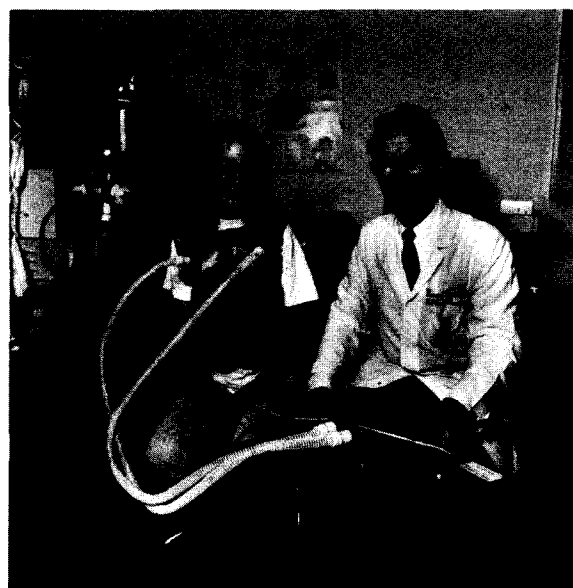
Warren Warwick Receives Medical Alley Association Award

The Minnesota Medical Alley Association presented the 1991 award for Outstanding Contribution in Research & Development to Warren J. Warwick, M.D., at its annual banquet March 21. Warwick is a professor of pediatrics and director of the Cystic Fibrosis Care, Research and Teaching Center at the University of Minnesota Hospital and Clinic.

Warwick was honored for his work in developing a therapeutic device that enables people with cystic fibrosis to administer their own daily physical therapy to clear mucous secretions from their lungs. Buildup of the abnormally sticky mucus can lead to infections that further complicate the digestive and pulmonary symptoms caused by cystic fibrosis. The disease is the most common potentially fatal genetic disorder among white Americans, affecting about 30,000 in this country.

Warwick spent nine years developing the device with Leland G. Hansen, a scientist in the Department of Pediatrics. The invention occurred to Warwick when he became aware of research that identified the role of pulmonary cilia in clearing mucus from the lungs. The cilia are absent or dysfunctional in people with cystic fibrosis. He reasoned that a compressed-air device could be used to provide pulsed bursts of air to the chest and back of patients, simulating the wave-like action with which cilia move mucus to large airways from where it can be expelled. "I sat down one night and wrote almost the entire specifications for the invention," Warwick says.

Warwick and Hansen's device consists of an electrically powered air compressor that delivers rapid bursts of air at various controlled frequencies through two hoses connected to a vest, which contains bladders that direct the air bursts at the patient's chest and back. The device is intended to replace traditional manual physiotherapy, in



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Warwick, Continued on Page 11

AR&S Procedural Changes

Sponsored Project Requisitions Will No Longer Encumber Funds Beginning Fiscal Year 1991-92

The Office of Research and Technology Transfer has been informed by Accounting Records & Service staff of two changes that will affect sponsored projects accounts effective with fiscal year 1991-92 transactions:

1. Requisitions processed after the established cut-off date for the June 1991 ledger will no longer provide encumbrance of funds. Instead, the ledger obligation will occur when an actual purchase order is issued to a vendor(s). It is therefore *imperative* that principal investigators and departments allow for sufficient lead time — taking into consideration preparation time and the approval and bidding processes — when planning acquisitions near the end of a grant period.
2. Purchase orders will no longer be issued on “blanket requisitions,” effective with FY 91-92 transactions. Therefore, these funds will no longer be encumbered and/or obligated on the ledger. While departments and/or investigators may find the use of blanket requisitions helpful for internal budgeting purposes, please be aware that they will no longer provide for obligation/encumbrance of funds on the ledger.

Please call the appropriate ORTTA grant administrator if you have questions regarding these changes.

RESEARCH REVIEW

Volume XX/Number 11

May, 1991

Editor: Michael P. Moore

Editorial Assistant: Tove Jespersen

Associate Vice President: A.R. Potami

Research Review is a monthly publication of the Office of Research and Technology Transfer Administration. Its purpose is to inform faculty and administrators who are involved with Sponsored Research and Technology Transfer on procedures and policies of granting agencies; on institutional policy and other information necessary to the preparation of research proposals; and on funding opportunities.

Research Review welcomes ideas and comments from all readers. Write to Research Review at 1100 Washington Avenue South, Suite 201, Minneapolis, MN 55415-1226, or call Michael P. Moore at 624-9398.

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, sex, national origin, handicap, age, veteran status, or sexual orientation.

Indirect Cost & Fringe Benefit Rates

Indirect Cost Rates

The rates for July 1, 1989 through June 30, 1990 are listed below. When budgeting for periods beyond 6/30/90, the 7/1/89-6/30/90 rates should be used. **The rate agreement is dated March 28, 1988.** This date should be used where required on proposal applications.

	07/01/89	06/30/90
Research		
On-Campus		44.0
Off-Campus *		21.5
SAFHL		86.6
Hormel		49.5
Other Sponsored Activity		
On-Campus		33.4
Off-Campus *		16.8
Instruction		
On-Campus		68.7
Off-Campus *		27.9

* A project will be considered off-campus if more than 50% of the direct salaries and wages of personnel employed on the project are incurred at a site neither owned nor leased by the University.

Fringe Benefit Rates

If you have questions regarding fringe benefit rate development or need the breakdown of charges, call Vivian Fickling at 624-2009.

Current actual rates from January 1, 1991 through June 30, 1991 are:

Faculty	29.00
Civil Service	24.50

For proposals being submitted with start dates **after July 1, 1991**, the estimated fringe benefit rates to be budgeted are listed on **pages 8 and 9 of the March, 1991 Research Review.**

In using these rates to develop budgets for future projects, *be sure to reflect the actual rate for each period of time* rather than calculating an average for the entire budget period.

As rates change they will be reflected in this section.

McKnight Professorships Awarded

The University of Minnesota has awarded ten McKnight-Land Grant Professorships for 1991-1993. Established by the University in 1986, the award is a share of funds from the Permanent University Fund and a gift from the McKnight Foundation. These awards were granted to support the careers of promising assistant professors and to encourage them to remain at the University.

The 1991-1993 McKnight Professors are listed below with the central question underlying each scientist's research.

Patricia J. Bauer, Institute of Child Development

BA, Indiana Central University;
PhD, Miami University

How do infants and young children develop the ability to recall past experiences?

Paul F. Chapman, Department of Psychology

BA, Washington and Lee University;
PhD, Stanford University

How do nerve cells change their activity when confronted with new stimuli?

Steven Chou, Department of Electrical Engineering

BS, University of Science & Technology (China);
PhD, Massachusetts Institute of Technology

Can a new generation of ultra-small, high-speed electronic and optoelectronic semiconductor devices be used as building blocks for future microelectronics?

Jeffrey J. Derby, Department of Chemical Engineering and Materials Science

BS, California Institute of Technology;
PhD, Massachusetts Institute of Technology

How can large-scale computational simulation be used to provide the physical insight for advances in modern materials operations such as crystal growth methods, ceramics processing, and metallurgical casting and welding operations?

Michal Kobialka, Department of Theatre Arts

MA, Warsaw University;
PhD, City University of New York

Will a re-examination of Regularis Concordia, a tenth century monastic code, contribute to a deeper understanding of the emergence and development of theatre in the West?

Jane D. McLeod, Department of Sociology

BS and PhD, University of Michigan

Will a better understanding of interrelationships between community and family characteristics help us understand the social sources of mental and health disorders?

Jeffrey T. Roberts, Department of Chemistry

BS, University of California-Berkeley;
PhD, Harvard University

How do chemical reactions occur on crystalline surfaces in three areas: surface decomposition of gaseous semiconductor precursors, gaseous molecules on ice surfaces, and certain molecules in the water-to-hydrogen conversion that is initiated by solar energy?

Kathryn A. Sikkink, Department of Political Science

BA, University of Minnesota;
PhD, Columbia University

What is the role of foreign policy in creating improved human rights practices in Latin America? A focus on four case-study countries from 1976-1986: Argentina, Chile, El Salvador, Guatemala.

Stanley A. Thayer, Department of Pharmacology

BS and PhD, University of California-Irvine

How do nerve cells regulate their calcium levels? Calcium overload is thought to underlie a number of disorders, such as stroke and epilepsy.

Luise S. White, Department of History

BA, University of California-Berkeley;
PhD, Cambridge University

What will an examination of African colonial history reveal about the ambiguities and tensions of African social life in this century?

Healthy People 2000

The Public Health Service is committed to achieving the health promotion and disease prevention objectives of Healthy People 2000, a PHS-led national activity for setting priority areas.

Interested parties may obtain a copy of Healthy People 2000 (Full Report, Stock No. 017-001-00474-0) or Healthy People 2000 (Summary Report, Stock No. 017-001-00473-1) through the Superintendent of Documents, Government Printing Office, Washington, DC 20402-9325; 202/783-3238.

Committee on the Use of Human Subjects in Research

Applicability of Regents' Policy for "Affiliated Faculty"

The University of Minnesota has assured the federal regulatory agencies that the institution will review and approve all research involving human subjects before it is initiated. This assurance covers all research *irrespective of funding*.

Clarification of the extent of this requirement should assist adjunct faculty and faculty who hold multiple appointments in determining whether University of Minnesota IRB review is necessary for a given project.

The Regents' Policy on the Use of Human Subjects in Research, June 1987 (in process of revision) and the Multiple Project Assurance filed with the Office for Protection from Research Risks (M1337) describe those circumstances under which the Committee on the use of Human Subjects in Research must review research. If an investigator's proposed research falls into any of the following categories, the University's IRB must review the research.

- The research is conducted by salaried faculty/staff, students; or
- The procedures are performed on the premises of the University; or
- The procedures are performed with or involve the use of facilities or equipment belonging to the University; or
- The research involves University patients, students, staff or faculty; or
- The research project satisfies a requirement imposed by the University as the condition for the award of a degree or for completion of a course of study in the University; or
- A Dean or Department Head certifies that the research project satisfies an obligation of the faculty appointment at the University, as consistent with departmental research goals and objectives, including "clinical or Adjunct" appointments. (emphasis added)

(The standard affiliation agreement used to describe relationships between UMHC and cooperating hospitals includes similar language).

If an investigator's proposed research does not fall into any of the categories listed above, the University's IRB will not review the research. *However*, an investigator may not represent himself/herself or the study as "University" research. If the investigator chooses to use the University's name or in any way associate himself/herself with the institution in representing the study, that re-

search *must* be reviewed and approved by the Committee on the Use of Human Subjects in Research. If the University does not review the research, the investigator should determine whether an IRB at another institution should review the research.

If an IRB review is required at more than one institution, the investigator should check with the IRB administrators to determine whether a "reciprocal" review arrangement can be made. There are standing agreements with some institutions to streamline the review process for projects requiring review by more than one institution.

To address questions regarding this policy or other human subject review procedures, please call Moira Keane at 612/624-1889.

Greater Minnesota Corporation Holds Board Meeting at Minnesota Technology Center

The Greater Minnesota Corporation's Board of Directors met April 16 in the conference room of the Army High Performance Computing Research Center, in the Minnesota Technology Center. The GMC Board heard remarks from E. Peter Gillette Jr., new commissioner of Trade and Economic Development, and Rep. Don Frerichs, (I-R, Rochester) regarding legislative proposals to reorganize the GMC. Board members then discussed how they best can assist in the transition to a new GMC and a new board of directors. Consensus was that the organization must be given some long-term direction and financial stability to cushion it somewhat from political redefinitions of its mission, goals, and objectives.

The GMC Board then heard from Tony Potami, University of Minnesota associate vice president for research and technology transfer. He reinforced the importance of having a long-term focus on technology transfer and economic development. "We recently heard a report from the University of California system, one of the nation's leaders in technology transfer, that it takes an average of eight years from the licensing of a new technology before significant royalties are generated." Potami then presented an overview of the University's research and technology transfer programs, providing a historical perspective of contributions in agriculture, horticulture, medical devices, and taconite, and discussing recent results in patenting and licensing, company start-ups, and development of new programs such as Minnesota Project Outreach.

Regents See ORTTA Annual Report

The Office of Research and Technology Transfer presented its annual report on activities for the 1990 year to the Board of Regents April 12. The audiovisual presentation covered sponsored project summaries for fiscal year 1989-90, patents & licensing activity for calendar year 1990, selected newly disclosed inventions, and a talk by Vern Heath, CEO of Rosemount, Inc.

Senior Vice President and Provost Leonard Kuhl introduced the presentation by telling President Hasselmo and the Regents that the continuing strength being shown by faculty in research and patenting activities is critical to the success of the academic priorities for research, technology transfer, and outreach. He then introduced Tony Potami, associate vice president for research and technology transfer.

Potami began his remarks by thanking the Regents for supporting President Hasselmo's Academic Priorities, saying that in his meetings with business leaders and legislators concerned about science and technology, he was hearing a great deal of optimism about the University's ability and willingness to improve its undergraduate education and to play a larger role in Minnesota's economic development. He then described some of the highlights of the past year, including:

- Sponsored expenditures for research, training, and public service rose above \$200 million for the first time, to \$214 million;
- Awards rose from \$205 million to \$275 million, largely on the strength of the five-year \$66.9 million contract for the Army High Performance Computing Research Center;
- Proposal amounts rose to \$618 million, nearly tripling during the past decade from the \$230 million requested in 1981, indicating the increased costs of funding competitive research;
- Patents leveled off at 41 in calendar year 1990, but because the same occurred at most other universities according to data released by the Association of University Technology Managers, the University of Minnesota rose from seventh in 1989 to fourth among all U.S. universities in 1990, behind only the Massachusetts Institute of Technology (112), the University of California (65), and the University of Texas (58).

For a more detailed report of ORTTA's recent activities Potami referred to the annual report booklet mailed to each of the University's Regents, Vice Presidents, Chancellors, and President Hasselmo. A copy of this report was included in the Regents' docket materials.

Potami then introduced John Thuente, director of patents & licensing, to provide descriptions of selected inventions disclosed, patented, and/or licensed during the past year. Thuente began by showing a nine-minute videotape of recent inventions:

- Discourse, an interactive computer learning system given to the University by 3M and now being tested at the University by Steve Robinson, College of Education, and in several St. Paul high schools and elementary schools. Discourse was recently licensed to Interactive Communication Systems, Inc.
- ThAIRapy™ Bronchial Drainage System, invented by Pediatrics Professor Warren Warwick and scientist Leland Hansen (see article, page 1).
- Diamond Film Deposition, in which a group led by Mechanical Engineering Professor Emil Pfender is using a high-temperature plasma torch device to destroy hazardous wastes, while at the same time producing microscopic diamonds that may be useful for protecting industrial tools and glass surfaces, lubricating machines, and as electronic insulators and heat-sink dispersants in microelectronic components.
- Surface-Modified Rubber, invented by Wilhelm Reindl, Civil & Mineral Engineering, who prepared shredded-tire rubber that readily absorbs oil and remains afloat, making it potentially useful for cleaning up oil spills and for early detection of leaking underground storage tanks.
- Potato Scab Disease, a long-term project of Professor Neal Anderson's laboratory in Plant Pathology, in collaboration with Associate Professor Janet Schottel's laboratory in Biochemistry; working to characterize a natural competitor to the scab-causing pathogen in order to produce a treatment that might eliminate the disease from the fields of potato growers.

Thuente answered several questions about the video subjects and then described a prototype of a new design for an oil pump, invented by graduate student Kevin Mangle and Mechanical Engineering Professor Arthur Erdman (see Research Review, March, 1991, page 10). He also discussed progress on the Taxi 2000 project. The Chicago Regional Transportation Authority has presented one of two \$1.5 million planning awards for a personal rapid transit demonstration site to a group including the Taxi 2000 Corporation, licensee of technology invented by Professor Edward Anderson when he was with the

Regents, Continued on Page 8

New 'Locate' Feature Added to ORTTA Electronic Bulletin Board

An additional locate feature has been added to the University's Public Access Electronic Bulletin Boards, including the one offered by ORTTA. When a specific posting has been selected and displayed, there are three methods that can be used to locate a character string (key words) in the text:

- enter the search string on the command line and press PF3;
- on the command line, type 3, followed by a space, then the search string and press ENTER;
- on the command line, type LOCATE, followed by a space, then the search string and press ENTER. LOCATE may be abbreviated to only one or more letters, e.g., L /AIDS research/ will locate the words "AIDS research".

The user will then see a double underscore under the line in which the search string was located. Continue to press ENTER to display additional occurrences of the string.

This should be a useful tool when looking through a large posting for a specific character string (e.g. searching the SPIN alphabetical keyword list or the NIH Guide).

Research Centers Invited to High-Tech Exposition in June

The Office of Research and Technology Transfer and several of the University's technical research centers will be participating in a community technology fair in June. Called "Forming Alliances for the '90s II," the second annual event will be held at the University of St. Thomas, on Tuesday, June 4. Minnesota Project Innovation and Corporate Report Minnesota are collaborating again this year to bring together developers of new technologies and Minnesota corporations.

The exposition offers entrepreneurs, researchers, and small businesses with innovative technologies the opportunity to build partnerships with large corporations and the federal government. This year 10 recipients of Small Business Innovation Research grants will demonstrate their technologies throughout the day as an expected 500 to 1000 people view the more than 150 exhibits.

University of Minnesota researchers and research centers interested in having materials displayed in the ORTTA booth are encouraged to contact Mike Moore at 624-9398. Individual registration for the conference and exposition is \$25. For materials, contact Cate Murphy, Minnesota Project Innovation, at 338-3280.

Software Development and Licensing are Increasing

Software development by University of Minnesota faculty and staff has accelerated in recent years, creating diverse opportunities for distribution of these tools. Protection of the developers' and the University's proprietary interest in software is important if marketing and/or licensing are the desired distribution means.

Currently, the Office of Patents and Licensing is assisting with proprietary protection and licensing of only those software developments supported by University funds or University-administered funding. Applications for protection are filed with the Library of Congress, under guidelines set out by the U.S. Copyright Law. Licensing negotiations begin with a reservation of right for internal University use, and then the University offers either exclusive or non-exclusive terms to potential licensees, depending on the desired distribution strategy.

Over the past couple of years, software licensing agreements have been negotiated with Apple Computer's software house, Intellimation, Inc.; Exceller Software Corp.; the American Institute of Physics; Queue Inc.; Research Design Associates; and Chariot Software. Site licenses have been negotiated with Gillette, Deere & Co., University of Singapore, the Internal Revenue Service, and Shell Oil Company. Corporations currently reviewing University software include NCR, AT&T, Lotus, Belcore Laboratories, and MacMillan Publishing, the nation's largest textbook publishing house.

While the domestic market is paramount in the University's licensing program, numerous international software distribution agreements are in effect, including Mexico, Australia, New Zealand, the United Kingdom, Asia, Peru, and Canada.

The Office of Patents and Licensing welcomes disclosures of funded software that may have application in academia or industry. Contact Paul McDowall, 625-8826.

Did You Know...?

Clara Barton, who later founded the American Red Cross, was employed as a clerk in the Patent Office in 1855, and worked there for a total of seven years. Sarah E. Goode was the first black woman to obtain a U.S. patent; on July 14, 1885, she received Patent No. 322,177 for a Folding Cabinet Bed.

National Heart Lung and Blood Institute

New Review Procedures for Program Project Grants

This notice appeared in the March 22, 1991 issue of the NIH Guide.

Effective with the receipt of applications due June 1, 1991 and October 1, 1991, new and amended new competitive program project grant applications assigned to the National Heart, Lung, and Blood Institute (NHLBI) will be reviewed on a schedule longer than has been the custom in the past. This is necessary in order to carry out the usual NHLBI peer review process for program project grant applications at a time when the number of applications has greatly increased. These applications will be reviewed by NHLBI review branch in as timely a manner as is practicable.

The submission of many program project grant applications in excess of the usual workload has already necessitated the delay in review of many applications and has placed a significant burden on review staff, reviewers, and scheduling. The increased percentage of amended applications has contributed to this problem.

The nature of the program project grant has evolved greatly since its inception in the early 1960s. Because of the recent circumstances, NHLBI is taking the opportunity in the next 9 months to examine the program project grant mechanism. To this end, two NHLBI staff committees are being established to revise program project guidelines and review procedures. The National Heart, Lung, and Blood Advisory Council and extramural scientists will be part of this process. It is currently expected that new program guidelines and review procedures will be presented to the Council in October, 1991 with implementation for the February 1, 1992 deadline.

For these reasons, new (Type 1 and amended Type 1) program project grant applications will experience delays in the review cycle. Competing renewal and amended renewal applications will be reviewed under previous schedules in order to avoid gaps in funding and to lessen any problems associated with phasing out of ongoing research efforts and to maintain, where possible, personnel and institutional commitments of currently funded programs.

Questions about this announcement should be directed to:

Ronald G. Geller, Ph.D., Director
Division of Extramural Affairs
National Heart, Lung, and Blood Institute
Westwood Building, Room 7A/17
Bethesda, MD 20892
301/496-7416

ADAMHA

NRSA Institutional Training Applications

This announcement appeared in the April 12, 1991 issue of The NIH Guide.

The Alcohol, Drug Abuse and Mental Health Administration announces that beginning October 1, 1991, National Research Service Awards for Institutional Training applications (T32) will have only one receipt date: May 10. The applications will receive an October peer review by the appropriate Initial Review Group and be reviewed by the appropriate Advisory Council in early February. Funding decisions will be made in late February.

The earlier notification of funding decisions will enable the timely recruitment of trainees. Requests for start dates as early as March 1 will be accepted, but the start date for most training programs will continue to be July 1.

This notice applies to all T32 applications submitted to the National Institute on Alcohol Abuse and Alcoholism, the National Institute on Drug Abuse, and the National Institute of Mental Health.

Training applications received after May 10 will be returned without review. The receipt and review of short-term training grants (T35s) will not change.

Department of Defense

Graduate Assistance Support

The Defense Department will soon announce a new \$50 million, three-year program to enable research grantees to hire more graduate assistants.

The first round of Augmenting Awards for Science and Engineering Research Training (AASERT) will give grantees and applicants who have received awards from DoD and who are expecting their funding by September 1, until October 31 to ask for extra funds to add a graduate student to their project.

AASERT aims to enhance the science training aspects of research grants. DoD hopes to support as many as 350 graduate students. The program will be similar to the minority supplement programs run by the National Institutes of Health. Unlike the NIH program, however, the DOD initiative will be open to all graduate students.

DoD is still working out details on the selection process. Program brochures will be mailed to appropriate university grants offices within the next month. Information will be published in the *Research Review* and the Bulletin Board as it is received.

University's Department of Mechanical Engineering (see Research Review, November, 1990, page 1). Thuentel told the Regents that numerous developers and urban planners around the country are studying applications of the Taxi 2000 technology, but the lack of a demonstration track remains a major barrier to potential purchasers.

Thuentel concluded his remarks by introducing Vern Heath, CEO and cofounder of Rosemount Inc., a major Minnesota corporation that develops controls and instruments for the aerospace and manufacturing industries. Heath told how he helped found the company in 1956 to produce a temperature probe developed by scientists Frank Werner and Robert Keppel at the University's Aeronautical Research Laboratory in Rosemount. The Air Force was very interested in using the device, which enabled jet pilots to track the exact outside air temperature and speed, and the temperature inside jet and rocket engines. The utility of the Rosemount Model 101 Total Temperature Sensor expanded beyond military applications to commercial aircraft, and it is now used on nearly all jets.

Heath emphasized the importance of offering students the ability to do research with leading faculty scientists while expanding their knowledge and preparing for careers. "That was the environment offered by the Rosemount laboratory, and that is why so many innovative people and technology companies came out of it," he said. Besides Rosemount, MTS Systems Corp., Research Inc., DataMyte Corp., Fluidyne Engineering Corp., and Micro Dynamics Corp. also were founded by former faculty or students who worked at the laboratory.

Heath cited several benefits the University provides Rosemount and other local companies, and he said the most important is the highly prepared and motivated graduates who make up a large proportion of his company's new hires each year. "There is an inside joke that to get ahead at Rosemount, you have to have a University of Minnesota connection. It's only partly true, of course, but I do think it reflects the high value our people place on the education students can get from this university."

Regents Chairman Charles Casey thanked Mr. Heath for taking time from his busy schedule to speak to the Board, and he thanked Potami and Thuentel for their presentation.

National Attention Focuses on Indirect Cost Recovery Issues

In recent weeks a great deal of media attention has been devoted to problems regarding indirect cost recovery at several major research universities. Much of the attention is being generated by legislative inquiries held by the House Subcommittee on Oversight and Investigations, chaired by Rep. John Dingell, D-Mich. At the present time, most of the congressional scrutiny is directed at private universities, which tend to have higher indirect cost rates (see list at right).

Recovery of the indirect costs of research, often referred to as overhead, is extremely important to universities in order to support the research-related proportions of physical facilities and their operation and maintenance, administrative infrastructure, equipment, and libraries. The Minnesota legislature, which allocates much of the money to pay for these infrastructure items, has enabled the University of Minnesota to retain indirect cost recovery funds. These funds are used to support faculty set-ups, matching grants for large centers and equipment purchases, and distributed to colleges for support of research.

Universities are governed by several federal requirements in developing their indirect cost rate. These cost principles have had varying interpretations over the years by universities and the government. The current inquiries are revealing that some institutions have been more liberal than others in interpreting the requirement that indirect costs be related to the pursuit of research. This varying interpretation may be partly responsible for the wide variance in rates among universities, although there are many other differences, such as costs of utilities, that also contribute to the differences.

The Office of Research and Technology Transfer believes that the University of Minnesota's indirect cost rate (currently 44 percent) has been developed in accordance with the cost principles set out by the federal government, and that it provides reasonable reimbursement for the indirect costs of sponsored research conducted by faculty. If Congress institutes new rules or suggests limits on indirect cost recovery, any reduction in the University's rate would result in a comparable reduction in the budget for support of its research infrastructure.

ORTTA will keep you informed of developments on this issue, especially as they might impact the University.

Leading Recipients of Federal R&D Expenditures* in Fiscal Year 1989 and Their IDC Rates in Fiscal Year 1990

Fiscal Year 1989

	R&D Funds (Millions)	Indirect Cost Rate
1. Johns Hopkins University	** \$ 590	65.0
2. Stanford University	239	72.0
3. Massachusetts Institute of Technology	215	57.5
4. University of Washington	182	53.0
5. University of Michigan	175	59.0
6. University of California, San Diego	171	49.0
7. University of Wisconsin, Madison	169	44.0
8. University of California, San Francisco	160	38.5
9. University of California, Los Angeles	159	48.0
10. Cornell University	158	70.0
11. Columbia University	147	74.1
12. Harvard University	143	68.5
13. Yale University	139	68.0
14. University of Minnesota	133	44.0
15. University of California, Berkely	124	49.0
<u>Rest of Big Ten</u>		
19. University of Illinois, Champaign/Urbana	114	51.7
33. Ohio State University	75	45.0
34. University of Iowa	74	42.0
42. Purdue University	64	49.0
47. Indiana University	58	49.0
50. Northwestern University	58	52.0
54. Michigan State University	52	45.0

* Source: National Science Foundation

**Includes \$422 million for Applied Physics Laboratory

University of Minnesota

Provisional On-Campus Indirect Cost Rate Components

	1990-91
Building Use Allowance	2.26
Equipment Use Allowance	1.26
Plant Operations and Maintenance	17.92
General Administration	5.90
Departmental Administration	13.99
Libraries	.68
Research Administration	1.99
Total	44.00

NIH/ADAMHA

Instructions for Including Women and Minorities in Study Populations

*This Policy Notice appeared in the April 19, 1991
NIH Guide, Volume 20, Number 16*

The purpose of this notice is to provide special instructions to research grant and cooperative agreement applicants using Form PHS 416-1, regarding NIH and ADAMHA policies concerning the inclusion of women and minorities in clinical research study populations. These policies were published in the NIH Guide for Grants and Contracts on February 8, 1991, Vol. 20, No. 6.

Priority Announcement

Special instructions to applicants using Form PHS 416-1 regarding implementation of the NIH/ADAMHA policy concerning inclusion of women and minorities in clinical research study populations.

NOTE: These instructions apply only to the limited number of grant and cooperative agreement applicants who propose clinical research studies which include human biomedical and behavioral studies of etiology, epidemiology, prevention (and preventive strategies), diagnosis or treatment of diseases, disorders, or conditions, including, but not limited to, clinical trials.

NIH and ADAMHA policy is that applicants for NIH/ADAMHA clinical research grants, cooperative agreements and contracts will be required to include minorities and women in study populations so that research findings can be of benefit to all persons at risk of the disease, disorder or condition under study; special emphasis should be placed on the need for inclusion of minorities and women in studies of diseases, disorders and conditions which disproportionately affect them. If women or minorities are not included or are inadequately represented in clinical research, particularly in proposed populations-based studies, a clear, compelling rationale should be provided.

Applicants are urged to assess carefully the feasibility of including the broadest possible representation of minority groups. However, NIH and ADAMHA recognize that it may not be feasible or appropriate in all research projects to include representation of the full array of United States racial/ethnic minority populations [i.e. Native Americans (American Indians or Alaskan Natives), Asian/Pacific Islanders, Blacks, Hispanics]. The rationale for studies on single minority population groups should be provided.

Beginning immediately, all applications submitted to NIH/ADAMHA will be required to address this policy.

Instructions to Applicants

Applications must include a description of the composition of the proposed study population in terms of gender and racial/ethnic group, together with a rationale for its choice. In addition, gender and racial/ethnic issues should be addressed in developing a research design and sample size appropriate for the scientific objectives of the study. This information should be included in the form PHS 416-1 in Part I (Applicant), Item 29.b. (1) - (3) of the Research Proposal AND summarized in 29.b. (5) Human Subjects/Vertebrate Animals, and in Part II (Sponsor), Item 36. Human Subjects.

Applications must employ a study design with gender and/or minority representation (by age distribution, risk factors, incidence/prevalence, etc.) appropriate to the scientific objectives of the disease, disorder or condition being studied.

It is not an automatic requirement for the study design to provide statistical power to answer the questions posed for men and women and racial/ethnic groups separately; however, whenever there are scientific reasons to anticipate differences between men and women with regard to the hypothesis under investigation, applicants should include an evaluation of gender and minority group differences in the proposed study.

If adequate inclusion of women or minorities is impossible or inappropriate with respect to the purpose of the research, the health of the subjects, or other reasons, or if in the only study population available there is a disproportionate representation of one gender or minority/majority group, the rationale for the study population must be well explained and justified in the application.

The usual NIH policies concerning research on human subjects also apply. Basic research or clinical studies in which human tissues cannot be identified or linked to individuals are excluded. However, every effort should be made to include human tissues from women and racial/ethnic minorities when it is important to apply the results of the study broadly, and this should be addressed in the application.

Peer Review

Scientific Review Administrators (formerly Executive Secretaries) of the Initial Review Groups (IRGs) will request written clarification from the applicant when the application does not describe and justify the gender or minority

Policy Notice, Continued on Next Page

composition of the study population. If such information is not contained within the application, and is not provided upon request, the application will be deferred without IRG review until it is complete, or be returned to the applicant. In the case of responses to RFAs with single receipt dates, applications that are not brought into compliance will be returned without review, rather than deferred.

Scientific Review Administrators of all scientific IRGs will instruct the IRG members that the assessment and scientific and technical merit of applications must include an evaluation of the proposed gender and minority composition of the study population and its appropriateness to the scientific objectives of the study and to this policy. If the representation of women and minorities in a study design is inadequate to answer the scientific question(s) addressed AND the justification for the selected study population is inadequate, it will be considered a scientific weakness or deficiency in the study design and will be reflected in the assigned score given to the application. When preparing the summary statement, the Scientific Review Administrator will summarize the findings and recommendations of the reviewers on this policy in a special section at the end of the Critique sub-headed: Women and Minority Subjects.

Regardless of the priority score, percentile ranking or program relevance of the proposed research, NIH and ADAMHA funding components will not fund/award grants that do not comply with this policy.

Applicants should contact NIH/ADAMHA program staff for additional guidance in interpreting this policy in the context of any specific institute, center or division research program of NIH/ADAMHA.

For further information or for questions concerning this notice, contact: Dr. Samuel Joseloff, Chief, Office of Grants Inquiries, Division of Research Grants, National Institutes of Health, Westwood Building, Room 449, Bethesda, MD 20892; 301/496-7441.

which a trained helper or physical therapist pounds vigorously on the patient for two or more hours daily to clear mucus.

In developing their invention, Warwick and Hansen strove to both improve on the effectiveness of traditional therapy, and to reduce the time and dependence on others it requires. That dependence leads to rebellion and rejection of therapy by many children and teenagers, and it prevents young adults from leading independent lives. Warwick's hallmark at the Cystic Fibrosis Center has been overcoming such psychosocial barriers to help young people and families accept the need for lifelong, daily preventive therapy.

The two inventors based their development of the air compressor on mathematical models of how airflow into and out of the lungs helps move mucus, work performed by Daniel Fife, a resident at the time. They went through several prototype compressor systems without success, until Hansen found a special type of blower for which he developed a rotary valve that could be opened and closed very rapidly to provide bursts of air at various frequencies. The vest component also posed difficulties, but the inventors finally discovered a virtually non-stretch plastic fabric that could be tailored into a vest custom-fitted to each patient.

About 16 patients were involved in the development and testing of the various prototypes, but none more so than Annalisa Marzotto. Her wealthy Italian family brought her to Minnesota when she was 15, after hearing of Warwick's and the Center's reputation. She became both the primary subject and the financial supporter of much of the prototype testing, and many of her suggestions are incorporated in the final model, Warwick says. For instance, "Annalisa wanted it to be portable, and she took a prototype with her to Italy every summer and then returned with it in the fall to live here. That is something many of our older patients have appreciated most, the ability to travel independently."

Annalisa died in June 1990, at the age of 32, of diabetic complications of cystic fibrosis. Her family was so grateful for the care she received at the Clinic that they endowed the \$1 million Annalisa Marzotto Chair in Cystic Fibrosis. The University selected Warwick as the first holder of the chair, and promised to match the Marzotto's challenge grant by raising a comparable amount for a chair in cystic fibrosis research. "Mr. Marzotto felt that not enough attention is paid to patient care, yet he also wanted to encourage progress toward a cure for cystic fibrosis," Warwick says.

Bernadine Healy Named NIH Director, Sets Priorities

Bernadine Healy, newly confirmed director of the National Institutes of Health, began her new job with two days of testimony before Congress April 10 and 11. Asked about her priorities, she said that the "first and foremost priority for a successful NIH is its human talent base. We have an obligation to nourish that talent base because it is the only way to fulfill our goals." She said that her administration would be one of strong management, with cost control and long-term planning as tools for getting the most science out of funds provided by Congress.

Healy said that she would first like to deal with the low morale in the scientific community and the discouraging effect it is having on those thinking of entering science. "The 26 percent award rate is part of the reason we are not getting people into science," she said.

As a partial solution, Healy announced a new category of awards for 1991 that would provide one-year grants of \$40,000 to \$50,000 to scientists whose current grant applications were within a percentage point or so of NIH's existing award success rate. Named the James Shannon awards, after the popular former NIH director, the grants could be used to keep a scientist's work going or to do feasibility studies or pilot projects. The idea is to hold scientists until they can refine their idea and reapply for funding, Healy said. The money for the first year of the awards, about \$30 million to fund between 300 and 400 awards, will come from the director's discretionary funds and reallocation of some funds from each institute.

Offering a sign that she will get NIH more involved in indirect cost issues, Healy said that the Shannon awards would include no more than 20 percent in indirect cost reimbursement; each university would have to decide whether to accept the awards at that level. She said that NIH must become "proactive" in cost management, and indirect cost is a part of the reason. "NIH has not played a role in indirect costs and it is time it did," she said. "Indirect cost is about \$2 billion of the NIH budget and must be dealt with. The question is how we can deal with it without harming the diverse network of universities, colleges, and other research institutions."

Addressing issues related to direct costs, Healy said that she will halt downward negotiations and across-the-board cuts of grants already awarded, in favor of negotiations prior to awards. In support of Healy's assertion, John Diggs, deputy director for NIH extramural research, said that careful cost analysis of grant budgets will replace downward negotiations, and that applicants will know the funding level before awards are made.

Healy said NIH will continue the current two-step scrutiny of direct costs in grant applications—initial review by

a peer-review section, and then by NIH scientific staff—before the grant is moved to council for action, she said. The current average funding request for a grant before the budget is scrutinized by peer and NIH scientific staff is about \$300,000; the average approved funding is about \$246,000, which is about \$20,000 more than last year.

Concluding her testimony, Healy responded to questions about the adequacy of President Bush's fiscal-year '92 budget request for NIH, calling it "adequate to maintain science's status quo. We could certainly do well with more because the current scientific opportunities are extraordinary. If we don't take advantage of them others in the world will."

This article was compiled from reports in the Washington Fax.

Warwick, Continued from Previous Page

Until a cure or more effective treatment is found, the device Annalisa helped develop offers other people with cystic fibrosis more freedom and independence, as well as improved therapy. Based on two years of clinical trials conducted so far with Clinic patients, Warwick and Hansen seem to have achieved both of the objectives they set their sights on nine years ago. Their preliminary trials, which are being repeated by others, revealed that patients' mucus production with the vest exceeds the amount produced by the same patients when manual therapy is performed by professional physical therapists. Better yet, the improved results are achieved in about half the time. Therefore, Warwick has settled on two half-hour sessions per day as the standard prescription for the device, although as with manual therapy, that time is increased for patients experiencing infections or pulmonary problems.

During each half-hour session, patients are advised to go through six five-minute periods, changing to different airburst frequencies that have been found most effective in moving mucus out of the lungs. "In effect, what the device does is to produce nearly 36,000 miniature coughs per session, and each miniature cough pushes mucus a little farther along toward the larger airways, from where it can be actively coughed up by the patient and expelled," Warwick says.

After reaching a stage of development where they felt they had achieved their main objectives for the chest-thumper device, Warwick and Hansen disclosed it in 1986 to Tony Strauss, assistant director of patents and licensing, and a U.S. patent issued in June, 1989. Warwick and pediatrics scientist Jeffrey Budd received another patent

in 1990 for an improvement to the device, involving a method for fitting and tuning the device to achieve maximum effectiveness for individual patients.

Early in 1989 Strauss negotiated an exclusive license agreement with a small company in Marine-on-St. Croix, Minn., American Biosystems, Inc. (ABI). Wayne Gruis, ABI president, had been contacting universities for some time, looking for a medical product that could be manufactured and brought to market fairly quickly. He liked what he saw when Strauss and Warwick presented the vest and the results achieved with Clinic patients. "We thought it was a very cost-effective alternative to traditional therapy," Gruis says.

Despite early anxiety about the ability of such a small company to make the vest a success, Warwick now says "they have done a fantastic job. It's nice to have the company close by, and to know the president, the R&D people, and the sales people. When they hear something from users, they let us know right away, and they listen to what we are learning from our patients. I don't think we could have done as well as quickly with a larger company that wasn't devoted to making this product a success."

Partly because of the extent of product development done by Warwick and Hansen, and partly because of the aggressiveness with which ABI launched the product, the "ThAIRapy™ Bronchial Drainage System" is now on the market, years ahead of the time required for most medical devices. ABI obtained Food and Drug Administration approval, third-party payment assurances, and a major distribution agreement with the CAREMARK Division of Baxter Healthcare, Inc., all in a little more than one year. ABI retained the rights to sell the device to U.S. hospitals and for export.

Now in its second year manufacturing the device, ABI says it expects to deliver 380 systems by the end of the fiscal year June 30, and to be profitable with over \$3 million in sales. The company expects 1990 royalties to the University to total about \$100,000. Gruis is happy with the cooperative effort between his company and the University, and he says it should be repeated more often. "It's a good deal for the taxpayers, the University of Minnesota, and the business community, because it brings dollars from out of the state and from other countries. It just makes sense for the whole community."

NIH Research Project Grants Awards, Success Rates

The following table outlines the estimated number of competing research project grants and estimated success rates at the National Institutes of Health by Institute for FYs 91 and 92.

NIH Institute	FY 91		FY 92	
	# Competing Awards	Success Rate	# Competing Awards	Success Rate
NCI	840	28.8%	897	30.8%
NHLBI	730	26.9%	793	28.6%
NIDR	135	26.0%	119	22.5%
NIDDK	529	26.7%	569	26.7%
NINDS	475	27.3%	519	28.4%
NIAID	664	27.4%	599	22.4%
NIGMS	860	26.7%	863	26.2%
NICHD	372	22.1%	409	23.9%
NEI	225	33.4%	251	37.2%
NIEHS	101	24.2%	104	25.7%
NIA	381	37.0%	225	22.1%
NIAMS	221	27.6%	219	25.8%
NIDCD	138	33.3%	118	25.4%
NCRR	28	-----	13	-----
NCNR	44	12.4%	45	10.3%
NCHGR	42	22.2%	42	18.1%
TOTAL	5,785	27.4%	5,785	26.4%

Program Information

Internal and External Sponsors

National Institute of Environmental Health Sciences

Superfund Hazardous Substances Research Program

The National Institute of Environmental Health Sciences (NIEHS) is proposing the continuation of a special program of basic research and training grants directed towards understanding, assessing, and attenuating the adverse effects on human health resulting from exposure to hazardous substances. Grants made under this program will be for coordinated, multicomponent, interdisciplinary programs, and the objective is to establish and maintain a unique program linking biomedical research with related engineering, hydrogeologic, and ecologic components.

The program's approach primarily emphasizes the use of advanced basic research to improve the sensitivity and specificity of techniques for detecting adverse effects in humans or in ecological systems. Among those areas of research judged to be of interest are:

- Development of sensitive methods that would be useful for human dosimetry following environmental exposures; e.g., the identification of toxic chemicals in human target tissues, the development of new biomarkers of effects.
- Epidemiological studies and models to assess exposure and effects in actual, (e.g., occupational) and potentially exposed human populations, more effective identification and validation of new and existing biomarkers of human exposure; studies to determine inter- and intra-individual variability.
- Development of better methods to detect very low concentrations of chemicals that could pose toxic threats to humans; establishment of dose-response relationships for pollutants likely to be found in the environment.
- Improvement of better techniques for measuring and modeling movement and alternation of chemicals through the media surrounding the waste dump.
- Study of behavioral, neurological and neuroendocrinological effects of toxic chemical exposures, especially to chronic/delayed exposures at low levels.
- Study of the reproductive effects of toxic chemicals, especially in population-based studies and in studies on fecundity.
- Analysis and evaluation of pollutant impact on toxicity endpoints, especially effects on the respi-

ratory, renal and cardiovascular systems, on the integument (skin), and on hearing and vision.

- Analysis and studies of specific toxic agents, such as metals, and simple and complex mixtures (sequential and concomitant).

An optional, nonbinding Letter of Intent is requested by May 1. The Application deadline is **June 13, 1991**. Guidelines are available from ORTTA and may be requested by calling 624-9004 or by sending a note through the bulletin board.

National Science Foundation

Young Scholars Program

The National Science Foundation (NSF) has announced its Young Scholars Program for FY 1991. NSF initiated this program to assist students in reaching an informed decision about a potential career in science. It offers two-year continuing awards providing enrichment experiences in science, mathematics and engineering for high ability secondary school students.

There are three categories of eligibility for the Young Scholars Program. Proposals must meet the requirements in all three categories:

- **Submitting Organization.** Includes, among others, colleges or universities engaged in significant advanced research efforts and having experience in interacting with pre-college students. Academic institutions are encouraged to combine efforts with industries with appropriate research facilities.
- **Activities.** The program actively seeks innovative approaches to cost-effective enrichment activities for young students. Particular attention should be paid to environment, i.e. the creation of a learning environment that challenges students' intellectual abilities and encourages the development of requisite skills for use of these abilities, with opportunities for both formal and informal interaction.
- **Discipline Focus.** The Young Scholars program will not support activities focused on clinical or health science disciplines.

The application deadline is **August 5, 1991**. Copies of the guidelines are available from ORTTA and may be requested by calling 624-9004 or by sending a note through the Electronic Bulletin Board.

Program Information

Internal and External Sponsors

National Institute of Arthritis and Musculoskeletal and Skin Diseases

Diagnosis and Treatment of Lyme Disease

The National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) invites applications for grants to conduct research on the diagnosis and treatment of Lyme disease (RFA: AR-91-04).

The goal of this RFA is to stimulate research to effect better diagnosis and treatment of Lyme disease. Applications are expected to concentrate on:

- Developing and testing methods of diagnosis that are more reliable, accurate, and sensitive than current techniques to detect Lyme disease in patients; and/or
- Developing and testing improved ways to treat all aspects (arthritic, cardiac, neurologic, etc.) and stages of the disease.

Approximately seven awards are expected to be made for this RFA. An optional, nonbinding Letter of Intent is requested by May 1. The application deadline is **June 17, 1991**. Copies of the guidelines are available from ORTTA and may be requested by calling 624-9004 or by sending a note through the bulletin board.

Centers for Disease Control

Epidemiological Research Studies of AIDS and HIV

The Centers for Disease Control (CDC) announces a program for competitive cooperative agreement and/or research project grant applications to conduct epidemiologic research studies of AIDS and HIV infection. These include studies of the heterosexual and perinatal transmission of HIV infection, specific HIV infection in women, behavioral factors contributing to HIV infection in small cities and rural areas, and in populations of adolescents and young adults. The study of these research areas as they pertain to minority populations is particularly encouraged. This announcement is related to the priority area of HIV Infection as part of the Health People 2000 initiative.

The application deadline is **May 31, 1991**. Guidelines and application materials may be obtained from: Gordon R. Clapp, Grants Management Specialist, Grants Management Branch, Procurement and Grants Office, Centers for Disease Control, 255 East Paces Ferry Road, NE, Room 300, Atlanta, Georgia 30305; 404/842-6508. Information is also available from ORTTA and may be requested by calling 624-9004 or by sending a note through the bulletin board.

Arms Control and Disarmament Agency

Hubert H. Humphrey Fellowship

The Arms Control and Disarmament Agency (ACDA) is conducting a competition for one-year Hubert H. Humphrey Fellowships in support of unclassified doctoral dissertation research in arms control and disarmament.

Law candidates for the Juris Doctor or any higher degree are also eligible if they are writing a substantial paper in partial fulfillment of degree requirements.

The fellowship stipends for the Ph.D. candidates will be \$5,000 plus applicable tuition and fees up to a maximum of \$3,400. Stipends and tuition for law candidates will be prorated according to the credits given for the research paper. Awards will be for the twelve-month period beginning January, 1992. Fellows must be citizens or nationals of the U.S. and degree candidates at a U.S. university.

The application deadline is **June 1, 1991**. For information and application materials, write: Hubert H. Humphrey Fellowship Program, Operations Analysis, U.S. Arms Control and Disarmament Agency, Washington, DC 20451. Guidelines are also available from ORTTA and may be requested by calling 624-9004 or by sending a note through the bulletin board.

Leukemia Society of America

The Leukemia Society of America is accepting applications for 1992 grants to encourage research at both the basic science and clinical levels in the fields of leukemia and related diseases.

The Society offers three awards: 1) Five-year *Scholar* grants, which total \$200,000, to researchers who have demonstrated over a period of not less than five years their abilities to conduct original investigations in the specified fields; 2) Three-year *Special Fellow* grants, which total \$89,000, for those investigators in the intermediate stages of career development; and 3) Three-year *Fellow* grants, which total \$70,500, for promising investigators with no or minimal prior experience, assisting and training with scientists and physicians in the related fields. In all categories, candidates should hold a Ph.D., M.D. or equivalent degree. An award will not be made to an individual with full institutional salary support.

The application deadline is **October 1, 1991**. For application forms and additional information write to: Research Grant Coordinator, Leukemia Society of America, 733 Third Avenue, New York, New York 10017.

Program Information

Internal and External Sponsors

Energy Foundation

Three major U.S. foundations recently announced that they have created the Energy Foundation, the nation's only grant-making foundation solely devoted to energy issues.

The John D. and Catherine T. MacArthur Foundation, Pew Charitable Trusts, and Rockefeller Foundation have made an initial three-year commitment of \$20 million to the Energy Foundation. The new foundation will promote energy efficiency and the development of renewable energy supplies in the United States.

The foundation intends to make grants totaling less than \$5 million during 1991; over \$5 million in 1991; and \$10 million by 1993.

The San Francisco-based foundation will focus on developing new solutions and implementing existing ones in four key sectors: electric utilities and industry, buildings, transportation, and renewal energy. Specifically, the foundation will provide grants for research and analysis, support of promising strategies, implementation and replication of successful modes, and training. In addition to grant making, the foundation also will take direct steps to influence energy practices through activities such as workshops and studies.

Proposals are due three times a year: **July 1, November 1 and March 1**. For applications and guidelines contact the Energy Foundation, 75 Federal Street, San Francisco, CA 94107; 415/546-7400; Fax: 415/546-1794. Guidelines may also be obtained from ORTTA by calling 624-9004 or by sending a note through the bulletin board.

National Council for Soviet and East European Research

Special Summer Competition

The National Council for Soviet and East European Research invites proposals for support of research and related activities dealing with the USSR and/or Eastern Europe, in a special open national competition. This competition includes supplementary support for existing projects as well as funding for new projects.

Proposals are invited for funding of new projects of post-doctoral research and related activities. Appropriate fields of research include:

- The nature, causes, and consequences of long-term trends and current development in the Soviet and East European societies and their parts, and the forces at work or latent;
- Studies in the social sciences and humanities designed to contribute to comprehension of the contemporary societies, including historical, geographic and environmental studies;
- Studies of relationships among those societies and between them and others, past, present and potentially future, as well as intentions, objectives, and policy options.

Research proposals may include related activities such as: meetings and workshops; research-specific training, especially involvement of graduate students in research projects; contact among scholars and specialists in government and private enterprise; development of data banks and other research aids; and dissemination of research data, methodology, and findings.

The application deadline is **June 15, 1991**. Funds are limited and applicants are encouraged to seek supplementary awards from other sources. Guidelines are available from: The National Council for Soviet and East European Research, 1755 Massachusetts Avenue, NW, Suite 304, Washington, DC 20036; 202/387-0168.

Gannett Foundation

National/International Freedom Fund Grants

The Gannett Foundation has established this program to promote the Foundation's primary concern — fostering First Amendment freedoms in the U.S. and in selected areas around the world. The Foundation is looking for the best ideas on how to promote the First Amendment freedoms of speech, press, assembly, petition, and religion, and the free exercise thereof. The program will support projects that are creative and innovative and that provide national or international leadership in fostering these freedoms.

Projects eligible for funding include:

- National and international programs, conferences, and seminars pertaining to First Amendment freedoms;
- Improvement of the quality of journalism through programs of continuing education for journalists;
- Efforts to help minorities and women advance in the media;

Program Information

Internal and External Sponsors

- Efforts to improve news coverage of minorities and women;
- National and international projects to bolster the exercise and understanding of the free flow of information;
- Advocacy for those whose freedom of expression is limited or threatened; public programs about the First Amendment; assurance of the rights to petition the government and to practice freedom of religion; and
- Coordination and cooperation with other First Amendment advocacy groups.

Proposals may be submitted at any time. Grants are for one year. You may write or call the Gannett Foundation at: 1100 Wilson Boulevard, Arlington, VA 22209; 703/528-0800. Guidelines are available from ORTTA and may be requested by calling 624-9004 or by sending a note through the bulletin board.

Alzheimer's Association

The Alzheimer's Association announces the establishment of a new research award program, the Zenith Awards. The awards will be granted to talented scientists who have already contributed substantially to the advancement of Alzheimer's research and who are likely to continue to make significant contributions to Alzheimer's research for many years to come. Awardees will receive a grant of \$100,000/year for 1, 2, or 3 years with a provision for possible competitive renewal. Up to five Zenith awards are expected to be funded in 1991.

All applications should consist of a brief proposal (10 pages maximum) outlining a creative plan for research on Alzheimer's disease. Also included should be copies of the investigator's five most important, recent, peer-reviewed scientific papers, references from three senior scientists outside of their own institution, and a complete curriculum vitae.

Only one investigator at a given institution may receive an award each year. Applications are due **August 15, 1991**. For further information and application forms, contact: Medical and Scientific Affairs, Alzheimer's Association, 70 East Lake Street, Chicago, IL 60601; 312/853-3060. Guidelines are also available from ORTTA and may be requested by calling 624-9004 or by sending a note through the bulletin board.

American Epilepsy Society

Nominations are currently being accepted by the American Epilepsy Society for its 1991 Awards Program. This is a public recognition program designed to encourage and reward clinical and basic science investigators whose research contributes importantly to understanding and conquering childhood-onset epilepsy. Recipients of these awards will be selected competitively from nominations made by their peers. There can be no more than one nomination submitted from a single institution. There are two categories of recognition awards:

Category 1 is an award of \$100,000 which will be made to senior individuals who have a distinguished history of research achievements and professional excellence related to pediatric aspects of epilepsy. One award will go to a clinical investigator and the other to a basic scientist.

Category 2 is an award of \$50,000 to be made to individuals whose current research holds promise of leading to important advances in the understanding, diagnosis and treatment of childhood-onset seizures and epilepsy.

The deadline for nominations is **July 15, 1991**. Nominations should be made by two individuals, a proposer and a seconder. Guidelines are available from ORTTA and may be requested by sending a note through the bulletin board or calling 624-9004. The agency contact is: American Epilepsy Society, Awards Program, 638 Prospect Avenue, Hartford, CT 06105-4298; 203/232-4825.

Council for International Exchange of Scholars

The Indo-U.S. Subcommittee on Education and Culture announces the availability of 12 long-term (six- to 10-month) and nine short-term (two- to three-month) awards for research in India during 1992-93. Any U.S. citizen with a Ph.D. or comparable qualifications may apply. Awards may be used for research in any discipline except clinical medicine. The fellowship program seeks to open new channels of communication between academic and professional groups in the U.S. and India. Scholars and professionals with no previous experience in India are especially encouraged to apply.

The deadline for applications is **June 15, 1991**. For more information, contact the Council for International Exchange of Scholars, Attn: Indo-American Fellowship Program, 3007 Tilden St. N.W., Suite 5M, Washington, DC 20008-3009; 202/686-4017.

Faculty Research Awards

This section contains statistics on proposals and awards recently processed by ORTTA. In addition, we have randomly selected awards received by faculty during preceding months. If any faculty member has received an award s/he would like mentioned in a future Research Review, please call Mike Moore at 624-9398.

Proposal and Award Summary

	Number	Amount
Proposals Submitted		
March, 1991	268	\$ 35,699,685
Awards Processed		
March, 1991	261	23,349,358
Proposals Submitted		
July, 1990 - March, 1991	2,734	380,938,288
Awards Processed		
July, 1990 - March, 1991	2,182	175,223,140
Proposals Submitted		
July, 1989 - March, 1990	2,858	471,849,816
Awards Processed		
July, 1989 - March, 1990	2,039	232,059,639

Treatment of Mild Hypertension Study

Richard Grimm, Jr, School of Public Health
NIH, NHLBI
\$1,931,000 - 09/90-09/91

School-Based Secondary Prevention for Children with Attention-deficit Hyperactivity Disorder

Gerald J. August, Psychiatry
ADAMHA, NIMH
\$374,807 - 02/91-01/92

Molecular Genetics of Fertilization in Arabidopsis

Robert E. Pruitt, Genetics and Cell Biology
National Science Foundation
\$360,000 - 04/91-09/94

Research in Theoretical Nuclear Physics

Joseph I. Kapusta, School of Physics and Astronomy
Larry McLerran, School of Physics and Astronomy
U.S. Department of Energy
\$328,000 - 02/91-01/92

Increasing Aspen Production Through Mechanical Strip-Thinning

William E. Berguson, Natural Resources Research Institute, UMD
David F. Grigal, Soil Science
Blandin Foundation
\$260,000 - 04/91-03/95

Neurochemical Basis of Narcotic Addiction

Horace Loh, Pharmacology
ADAMHA, NIDA
\$323,863 - 01/91-12/91

The Use of Fractal and Chaos Theory to Verify, Simplify and Extend Forest Ecosystem Models

Yosef Cohen, Fisheries and Wildlife
John Pastor, Natural Resources Research Institute, UMD
National Science Foundation
\$220,975 - 02/91-07/93

Polyamine-Polynucleotide Interactions

Victor A. Bloomfield, Biochemistry (CBS)
NIH, NIGMS
\$198,338 - 02/91-01/92

Upper Midwest Hemophilia Diagnostic and Treatment Center

J. Roger Edson, Laboratory Medicine and Pathology
Great Lakes Hemophilia Foundation
\$196,315 - 10/90-09/91

Rehabilitation Research Training Project

Robert H. Bruininks, Educational Psychology
Robert W. Blum, School of Public Health
James E. Ysseldyke, Educational Psychology
U.S. Department of Education
\$185,912 - 03/91-02/92

Structure and Role of Sterol Carrier Protein

Mary E. Dempsey, Biochemistry (MS)
NIH, NHLBI
\$173,359 - 12/90-11/91

Family and Labor Market Behavior

Margaret Mooney Marini, Sociology
NIH, NICHD
\$170,264 - 02/91-01/92

Nuclear Physics Studies at Intermediate Energies

Norton M. Hintz, School of Physics and Astronomy
U.S. Department of Energy
\$170,000 - 01/91-12/91

Cerebral Ischemia and Mechanisms of CNS Repair and Functional Recovery

Walter Low, Neurosurgery
American Heart Association
\$273,391 - 09/90-06/95

Minnesota Twin Family Registry

David T. Lykken, Psychiatry
Thomas J. Bouchard, Jr., Psychology
Auke Tellegen, Psychology
ADAMHA, NIMH
\$168,412 - 03/91-02/92

Modulation of Glucose Transporters in Brain

Lester R. Drewes, Biochemistry, UMD
NIH, NINCDS
\$154,936 - 04/91-03/92

Immunotoxins in Human Bone Marrow Transplantation

Daniel A. Vallera, Therapeutic Radiology
NIH, NCI
\$153,269 - 01/91-12/91

Respirable Dust Research - Diesel Exhaust Contamination of Mine Atmospheres

Virgil A. Marple, Mineral Resources Research Center
Pennsylvania State University/USDI Prime
\$150,000 / 10/90-09/91

Early Malnutrition and Later Bone Development

John H. Himes, School of Public Health
NIH, NICHD
\$127,795 - 01/91-12/91

Openness in Adoptive Family Relationships

Harold D. Grotevant, Family Social Science
NIH, NICHD
\$126,700 - 01/91-12/91

Spectroscopic Studies of Light-Driven Electron Transfer

Bridgette A. Barry, Biochemistry (CBS)
NIH, NIGMS
\$107,748 - 01/91-12/91

Structure and Chemistry of Catalysts for Oxidative Hydrocarbons

John D. Lipscomb, Biochemistry (MS)
Amoco Production Company
\$104,000 - 01/91-12/91

Deformational Studies in the Intact and Internally Fixed Skull Using an Artificial Oral Environment

William H. Douglas, Oral Sciences
Myer S. Leonard, Oral Maxillofacial Surgery
A.O. Stiftung-ASIF-Foundation
\$101,045 - 01/91-12/92

Video Selection for Computer Accelerated Language Learning

Wesley M. Jacobsen, East Asian Studies
Nippon Television Network Cultural Society
\$2,976 - 01/91-03/91

New Ligands for Metal-Mediated Enantioselective Recognition

William B. Tolman, Chemistry
American Chemical Society, Petroleum Research Fund
\$18,000 - 01/91-08/93

Jura-Cretaceous Back-Arc Basin Evolution and Collisional Tectonics of West-Central British Columbia

Karen Kleinspehn, Geology and Geophysics
National Science Foundation
\$56,593 - 03/91-08/92

Semiconductors

Avner Friedman, Institute for Mathematics and its Applications
Willard Miller, Institute for Mathematics and its Applications
USDOD, Navy
\$10,000 - 01/91-09/91

Fine Particle Emission Control

Benjamin Y. Liu, Mechanical Engineering
Peter H. McMurtry, Mechanical Engineering
Metropolitan Waste Control Commission
\$49,900 - 01/91-12/91

Extended Data Analysis-Dynamic Explorer Satellites

Laurence J. Cahill, Jr., School of Physics and Astronomy
NASA
\$24,159 - 04/91-03/92

Wild Rice Breeding and Genetics

Robert F. Nyvall, North Central Experiment Station
U.S. Department of Agriculture
\$47,400 - 03/91-02/92

Characterization of Hop Components

Gilbert J. Mannering, Food Science and Nutrition
A. Saari Csallany, Food Science and Nutrition
Minnesota Mining and Manufacturing
\$42,000 - 01/91-01/92

Guidelines for Assessing Forest Values

Hans M. Gregersen, Forest Resources
Allen L. Lundgren, Forest Resources
United Nations
\$85,000 - 01/91-12/91

Methods for Monitoring Natural Resources with Next-Generation Earth Observing Satellites

Robert Martin, Entomology
Lindbergh Fund
\$10,480 - 04/91-03/92

Sensitivity of Peatland Watertables to Climate Changes

Kenneth Brooks, Forest Resources
U.S. Department of Agriculture
\$11,400 - 01/91-12/93

Rapid Assay for Cancer Chemopreventive Agents

Richard D. Estensen, Laboratory Medicine and Pathology
Minnesota Medical Foundation
\$8,000 - 03/91-03/92

Transgenic Targeting of CNS Tumorigenesis

Rod Feddersen, Laboratory Medicine and Pathology
Harry T. Orr, Laboratory Medicine and Pathology
American Cancer Society
\$47,000 - 01/91-12/92

Genetic Studies of Systemic Lupus Erythematosus

Stephen S. Rich, Laboratory Medicine and Pathology
Lupus Foundation of America, MN Chapter
\$8,750 - 02/91-12/91

Human Muscle Spectrin

John C. Winkelmann, Medicine
Muscular Dystrophy Association
\$40,000 - 01/91-12/91

Structures of Antibodies to Similar Sites on Cytochromes

Ronald Jemmerson, Microbiology
National Science Foundation
\$85,000 - 02/91-07/92

Bradykinin Vascular Influence and ACE Inhibition

Ben G. Zimmerman, Pharmacology
NIH, NHLBI
\$94,902 - 02/91-01/92

A Study of the Effects of Caffeine and Caffeine Withdrawal on Learning and Performance in Juvenile and Adult Monkeys

Marilyn E. Carroll, Psychiatry
Minnesota Medical Foundation
\$75,000 - 03/91-02/92

Workload Analysis Using the Micromix Compounder

Shabir Somani, Pharmacy Practice
Paul W. Abramowitz, Pharmacy Practice
Clintec Nutrition Company
\$7,690 - 01/91-06/91

T-Helper Epitopes in Myasthenia Gravis

Bianca M. Conti-Tronconi, Biochemistry (CBS)
Muscular Dystrophy Association
\$40,000 - 01/91-12/91

The Structure and Function of Cytoplasmic Dyenin

Thomas S. Hays, Genetics and Cell Biology
American Cancer Society
\$90,500 - 01/91-12/93

Minority High School Student Research Program for 1991

Henricus C. Hogenkamp, Graduate School
NIH, NCRR
\$12,000 - 03/91-02/92

Minority High School Student Research Apprentice Program

Gerald L. Hill, School of Medicine, UMD
NIH, NCRR
\$41,000 - 03/91-02/92

A Foster Care Training Program for the 1990's

Mary Lou Gilstad, CEE
Grotto Foundation
\$5,000 - 01/91-12/91

Southeast Asian Refugee/Social Service

Amos S. Deinard, University Hospital and Clinic
United Way
\$83,000 - 01/91-12/91

DHHS Organizational Listing

The following listing of agencies illustrates the organizational relationships between components of the Department of Health and Human Services.

Department of Health and Human Services (DHHS)

Public Health Service (PHS)

National Institutes of Health (NIH)

- National Cancer Inst (NCI)
- National Heart Lung & Blood Inst (NHLBI)
- National Eye Inst (NEI)
- National Inst of Allergy & Infectious Diseases (NIAID)
- National Inst of Diabetes & Digestive & Kidney Disease (NIDDK)
- National Inst of Arthritis & Musculoskeletal & Skin Diseases (NIAMS)
- National Inst of Child Health & Human Development (NICHD)
- National Inst on Aging (NIA)
- National Inst of Dental Research (NIDR)
- National Inst of Environmental Health Sciences (NIEHS)
- National Library of Medicine (NLM)
- National Inst of Neurological Disorders & Stroke (NINCDS)
- National Inst on Deafness and Other Communication Disorders (NIDCD)
- Fogarty International Center
- National Center for Nursing Research (NCNR)
- National Center for Research Resources (NCRR)
- Office of Human Genome Research

Alcohol, Drug Abuse & Mental Health Administration (ADAMHA)

- National Inst of Mental Health (NIMH)
- National Inst on Alcohol Abuse & Alcoholism (NIAAA)
- National Inst on Drug Abuse (NIDA)

Centers for Disease Control (CDC)

- National Inst for Occupational Safety and Health (NIOSH)

Health Resources & Services Administration (HRSA)

- Bureau of Health Care Delivery & Assistance
- Bureau of Health Professions
- Bureau of Maternal & Child Health & Resources Development

Agency for Health Care Policy and Research (AHCPR)

Office of Population Affairs (OPA)

Food and Drug Administration (FDA)

Family Support Administration (FSA)

Health Care Financing Administration (HCFA)

Office of Human Development Services (OHDS)

Social Security Administration (SSA)

The Sponsored Project Information Network (SPIN) is a computerized locator system of funding opportunities (federal, nonfederal, and corporate) for faculty and institutional research, development, and education program support. It is available to University faculty and staff through ORTTA.

Based on a description of your research areas and/or the type of support sought, ORTTA staff will search the SPIN Keyword Index to identify sources within specific areas of interest. The Keyword Index, a taxonomy developed by SPIN to catalog funding sources, is divided into the following ten major classifications:

- Agriculture/Food/Forestry
- Arts/Culture/Humanities/Communications
- Business/Economics/Management
- Education
- Health/Medical Sciences
- International Affairs/Area Studies
- Miscellaneous/Other
- Science/Technology
- Social/Behavioral Sciences
- Social Welfare/Public Affairs

The result of a search is a set of profiles of applicable funding sources that provides: 1) the sponsor's name; 2) the sponsor's contact address and telephone number; 3) deadline dates; 4) program titles; 5) objectives or interest areas of the sponsor; and 6) restrictions that would affect the submission of a proposal. This set of profiles is sent to the requestor.

SPIN searches are done free of charge to the requestor. A survey of users of SPIN indicates that the information received from a SPIN search was targeted to their request and a reasonable response time was effected.

**For further information regarding the SPIN system or to request a search, please contact ORTTA at
624-9004**

SPIN searches are also available through the Research and Development Office in the College of Liberal Arts; the Agricultural Experiment Station; the Research Support Office at Duluth; and the Grants Development Office at Morris.

Effective September, 1990 the SPIN indexes became available for on-line review through ORTTA's Electronic Bulletin Board (See the September, 1990 *Research Review* for information on Bulletin Board contents and access instructions.) The Bulletin Board contains a section devoted to SPIN and offers users the opportunity to review the Keyword Index alphabetically or within the topics shown above.

Since the Bulletin Board is accessible anytime, faculty and staff can browse the indexes at their convenience and find *keyword codes* of interest to them. From within the Bulletin Board they can then forward a note to the Bulletin Board Editor requesting a SPIN search based on the chosen keyword codes (Limit, 20 keywords).

Title and/or Area of Responsibility

Name

Number

Fax Number (612) 624-4843

Office of Research and Technology Transfer Administration

Associate Vice President, ORTTA	Tony Potami	624-1648
Communications Coordinator/Research Review Editor	Mike Moore	624-9398
Administrative Coordinator	Carol Perusse	624-6389

Grants and Contracts

Information		624-5599
Assistant Director	Rick Dunn	626-2265
Assistant Director	Mary Lou Weiss	624-5856
DHHS, NIH, ADAMHA, HRSA, OHD, Other DHHS	Mary Lou Weiss	624-5856
DHHS, NIH, ADAMHA, HRSA, OHD, Other DHHS		
Am Heart Assoc, Voluntary Health Agencies,		
Misc Private (non-agricultural related)	Todd Morrison	624-5066
DHHS, NIH, ADAMHA, HRSA, OHD, Other DHHS		
Voluntary Health Agencies		
Misc Private (non-agricultural related)	Kevin McKoskey	624-1521
USDA, DOD, NASA, AID	Merlin Garlid	624-0288
NSF (IT), USDI, St of MN	David Lynch	624-5571
NSF (IT), USDA, DOE, Misc Private (ag-related)	Rick Dunn	626-2265
NSF (non-IT), EPA, Education, Cities,		
Counties, Other State & Local Government	Elizabeth Klitzke	626-7718
St of MN, NEA-NEH, DOC, Misc Federal	Amy Levine	626-7441
Private and Corporate Foundations	Judy Krzyzek	624-2546

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Trademark Licensing	Robert Hicks	626-1585
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Effort Reporting, Indirect Cost & Other Rate Development	Liz Warren	624-2040
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Application Materials, Program Announcements	Kim Makowske	624-9004

Human Subjects Committee

Administrator	Moir Keane	624-1889
Executive Assistant	Ellen Stewart	624-9829

Duluth

Research Support Office	James Loukes	(218)726-7582
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Morris

Grants Development	Tom Mahoney	589-2211 x6450
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Research Review Mailing List Information

Faculty:

- The *Research Review* is automatically mailed to all faculty on the Faculty Mail List holding the rank of Assistant Professor and above.
- To Add/Delete/Change a faculty name on this list, departmental officers must submit a Staff Directory Card to Administrative Information Services (AIS)
- Please check with your departmental office or AIS (624-9000) if you need assistance.

Staff / Off Campus:

- ORTTA maintains a supplemental mail list for:
 - a) academic staff not included in the above faculty list;
 - b) staff; and
 - c) off-campus
- Additions/changes/deletions to this list may be initiated by filling out and sending ORTTA the following:

Change

Add

Delete

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☐
☐

Name: _____

Department: _____

Campus Address (Bldg/Rm #) _____

City/State (if off-campus) _____

**For Changes and Deletions, PLEASE ENCLOSE
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RESEARCH REVIEW

An Overview of Sponsored Programs and Technology Transfer

Research and Technology Transfer Administration

June, 1991

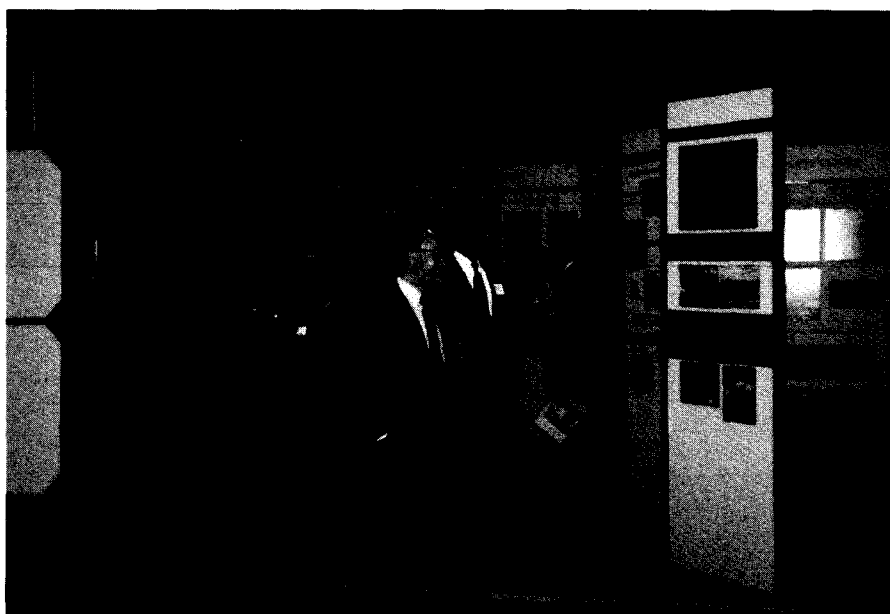
Technology Transfer Exhibit Hits the Road

The technology transfer exhibit developed for and shown at the 1990 Minnesota State Fair has since been helping to communicate the importance of research at other gatherings. This photo shows attendees viewing the exhibit at the 1991 Annual Meeting of the Minnesota Alumni Association, held May 7.

The exhibit, prepared by External Relations and Media Resources with assistance from Mike Moore of ORTTA, was also set up in October, 1990 for Academia in Review and this April at the annual convention of the Minnesota chapter of Future Leaders of America.

From June 7-9, the exhibit moves down to Redwood Falls for the 34th annual convention of the Minnesota Inventors Congress (MIC). At this year's convention, MIC is presenting ORTTA with an award for corporate sponsorship, recognizing past support and volunteer work done for MIC, which provides help to inventors and entrepreneurs throughout the year. On June 6, Paul McDowall, an ORTTA assistant director of patents and licensing, will be one of the leaders at the MIC Inventors Workshop, "Going Into Business for Yourself."

ORTTA would like to display the technology transfer exhibit and a smaller display of University of Minnesota research and inventions at other public and professional meetings throughout Minnesota. Anyone with ideas for such outreach roadtrips is encouraged to call Mike Moore at 624-9398.



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Cruising with CUFS

Cruising with CUFS is a phrase you will be reading and hearing in upcoming months as the University continues its communication concerning the Financial Management Systems (FMS) project and moves toward the November 1 CUFS implementation. Actually, ORTTA has been cruising with CUFS for quite some time; Marilyn Surbey has been representing the needs of sponsored programs since the beginning of CUFS planning and is a member of the FMS Steering Committee.

As we move closer to CUFS implementation, more ORTTA staff will be learning the "ins-and-outs" of CUFS in order to modify ORTTA's current processes and procedures. Several ORTTA staff attended a one-day training session in May and will be completing their CUFS training in June. They will be ORTTA's expert users and will be training the remainder of ORTTA staff in July.

ORTTA has completed the conversion of old account numbers to the new CUFS account numbers for those accounts in existence as of December 31, 1990. These conversions were sent to departments for verification and were due to be returned to ORTTA on June 3. Account numbers assigned after December 31 will be converted later in the summer. In order to facilitate the conversion process, ORTTA grant administrators will be assigning the budget numbers for new accounts in accordance with CUFS object codes, beginning immediately. It is anticipated that departments will be seeing this new budget set-up in June.

If you have any questions concerning CUFS and sponsored projects, please contact Marilyn Surbey at 4-4850, or the appropriate grant administrator.

RESEARCH REVIEW

Volume XX/Number 12

June, 1991

Editor: Michael P. Moore

Editorial Assistant: Tove Jespersen

Associate Vice President: A.R. Potami

Research Review is a monthly publication of the Office of Research and Technology Transfer Administration. Its purpose is to inform faculty and administrators who are involved with Sponsored Research and Technology Transfer on procedures and policies of granting agencies; on institutional policy and other information necessary to the preparation of research proposals; and on funding opportunities.

Research Review welcomes ideas and comments from all readers. Write to Research Review at 1100 Washington Avenue South, Suite 201, Minneapolis, MN 55415-1226, or call Michael P. Moore at 624-9398.

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, sex, national origin, handicap, age, veteran status, or sexual orientation.

Indirect Cost & Fringe Benefit Rates

Indirect Cost Rates

The rates for July 1, 1989 through June 30, 1990 are listed below. When budgeting for periods beyond 6/30/90, the 7/1/89-6/30/90 rates should be used. The rate agreement is dated March 28, 1988. This date should be used where required on proposal applications.

	07/01/89 06/30/90
Research	
On-Campus	44.0
Off-Campus *	21.5
SAFHL	86.6
Hormel	49.5
Other Sponsored Activity	
On-Campus	33.4
Off-Campus *	16.8
Instruction	
On-Campus	68.7
Off-Campus *	27.9

* A project will be considered off-campus if more than 50% of the direct salaries and wages of personnel employed on the project are incurred at a site neither owned nor leased by the University.

Fringe Benefit Rates

If you have questions regarding fringe benefit rate development or need the breakdown of charges, call Vivian Fickling at 624-2009.

Current actual rates from January 1, 1991 through June 30, 1991 are:

Faculty	29.00
Civil Service	24.50

For proposals being submitted with start dates after July 1, 1991, the estimated fringe benefit rates to be budgeted are listed on pages 8 and 9 of the March, 1991 Research Review.

In using these rates to develop budgets for future projects, be sure to reflect the actual rate for each period of time rather than calculating an average for the entire budget period.

As rates change they will be reflected in this section.

Material Transfer Agreements Revisited

The Office of Research and Technology Transfer continues to receive a steady flow of Material Transfer Agreements (MTAs), most of which are required by companies providing materials for research. These agreements, and the materials made available under their terms, are increasingly important to research. Therefore, it is appropriate to readdress some salient points of these agreements at this time (see also *Research Review* December, 1990, pg. 1).

1. The MTA must be compatible with the agreement governing the grant for the research in which the materials will be used. NIH is particularly concerned about this. NIH policy is that research materials developed on an NIH grant must be freely distributable. This means the derivatives or progeny of the material received under the MTA and made under NIH funding must be freely distributable. The difficulty arises when the MTA defines "research material" as the material delivered *and all its* derivatives and progeny. Virtually all MTA's place restriction on further transfer of the research materials. This broad definition then restricts transfer of derivatives and progeny, which violates NIH policy.
2. Most MTAs grant some rights in the outcome of the research. Typically, the company supplying the material has the option to the technology developed under the research. A problem may occur when an investigator obtains research materials from two different sources. This may give conflicting rights to the technology developed through the research program. If materials are needed from two different sources, it may be possible to work out non-conflicting agreements. Principal Investigators should be aware of how such conflicts can arise.

A second aspect of this is that if technology is developed on a grant, the Patent Office must know if materials were obtained under an MTA. By knowing this, ORTTA will be able to determine what obligations, if any, are due the provider of the materials. It is quite possible that a license to the technology will have to first be offered to the provider of the materials. The Principal Investigator should inform ORTTA at the time that an invention disclosure is made that materials were obtained under an MTA.

3. Many of the MTAs have publication clauses that require the P.I. to submit a proposed publication to the company providing the materials in order that the proposed publication may be reviewed. This must

be accomplished during a certain period, typically 30 days prior to publication. This is an obligation that the P.I. must bear in mind. It can be a nettlesome obligation that is easy to overlook.

4. All MTAs have restrictions on how the materials can be used. The Principal Investigator must review these to ensure that they don't conflict with the Investigator's intended use. In the past, a serious problem arose when an Investigator permitted another researcher to use a portion of the materials. That researcher used the materials in a manner that upset the provider in a major way.

ORTTA understands the need to obtain materials for research. Unfortunately, the easy days when these materials were freely transferred are gone, and now strings often are attached that affect both the P.I. and the University. ORTTA will try to get a satisfactory agreement concluded quickly in order to get the materials. To speed things along, the P.I. needs to provide a BA23, marked appropriately in Item 8. The title, agency, and U/M account number for the research program on which the materials will be used should also be provided on the BA23. The BA23 and proposed MTA should be routed through the department head and dean, and then to ORTTA. The Grant Administrator for the grant on which the materials will be used will normally be responsible for processing the MTA.

These agreements merit careful review by the P.I. and ORTTA because the companies providing the materials under these legally binding agreements take them very seriously. Please direct questions or comments on this topic to Rick Dunn, Assistant Director, ORTTA, 626-2265.

Industry-University R&D

"While payoffs ultimately may take the form of new products and processes commercialized, it would be a mistake to ignore or downplay the value of other types of interaction. For example, evaluations of industry-university R&D consortia consistently identify access to networks of researchers working at the forefront of knowledge as one of the most important benefits to participating firms." (From: J. David Roessner and Alden S. Bean; "Industry Interactions with Federal Laboratories," *Journal of Technology Transfer*, Fall, 1990).

Committee on the Use of Human Subjects in Research

Improperly Conducted Research

The National Institutes of Health recently released findings of an inspection that resulted in charges of improperly conducted research. This inspection of another university's research records was carried out by federal authorities; the distinguishing feature of the inspection is that the specific study was *not federally funded*.

The Committee office is often asked why research projects funded by private sources or departmental funds still require review even though federal regulations say that all *funded* research must receive approval from the IRB. The University of Minnesota Committee on the Use of Human Subjects in Research has filed an official "assurance of compliance" with federal regulatory agencies. This assurance document states that the Committee will review research *irrespective of funding*. The Regents' policy on the Use of Human Subjects in Research supports that claim.

The Committee does not review projects based on funding status. Research applications are not given preference or scrutinized differently based on the source of funds. Research projects are reviewed solely for an assessment of the risks and benefits to human participation. The result is that *all* University research is subject to audit or inspection by federal regulatory agencies.

This recent report of an investigation of a university in Florida describes the audit and findings of a study in which poor women were allegedly "coerced" into participating in a drug trial without adequate measures of ensuring informed consent. A class-action suit prompted the investigation. Two important points emerge that are germane to the University of Minnesota:

First, this inspection exercised a federal agency's prerogative to inspect research records irrespective of funding source; the study was not federally funded.

Second, the inspection found that the women enrolled in the drug trial may have been "coerced" into participation because they were not adequately informed of the nature of the study and their rights as subjects. The subjects received a consent form, but the forms were not written in language that was considered understandable by subjects with a limited educational background. The forms were presented only in English, a second (spoken-only) language to most of the subjects.

Though the outcome of the legal action is still pending, there are lessons in this report for this institution. All University of Minnesota investigators should examine their research methods to determine whether they are as

scrupulous about record keeping and documentation of informed consent on their non-federally funded research as they are on their federally funded research projects. Different standards should not apply and if they do, they are subject to formal sanction.

A last point, and one that has been of high priority for the Committee in recent months, is that the readability and comprehensibility of the consent form are appropriate to the subject population. The "reasonableness" of the consent form is the key to ensuring that subjects are aware of their rights and obligations with respect to research participation.

Review Procedures for NICHD Program Project Grant Applications

This notice appeared in the NIH Guide, May 3, 1991

Effective for the June 1, 1991 receipt date, Program Project (P01) applications assigned to the National Institute of Child Health and Human Development (NICHD) will no longer be routinely site-visited. These applications will be considered by the relevant Initial Review Group (IRG) without interaction with the applicant. The IRG will have the option of deferring an application for a site visit, although this will be the exception rather than standard practice.

As a result of this change, NICHD P01 applications must ensure that the description of the proposed research for each component project/core facility is thorough and complete (not to exceed 20 pages), permitting direct evaluation by the reviewers.

Unless otherwise indicated, NICHD Center Core (P30) Grant and Specialized Center (P50) Grant applications will continue to receive site visits as part of the review process.

Programmatic questions about this announcement should be directed to: Laurance S. Johnston, Ph.D. Acting Director, Division of Scientific Review, NICHD/NIH, Executive Plaza North, Room 520, Bethesda, MD 20892; 301/496-1696. Grants management questions should be directed to: Donald Clark, Chief, Office of Grants and Contracts, NICHD, Executive Plaza North, Room 501, Bethesda, MD 20892; 301/496-5001.

Proposals as Patent "Prior Art"

The Office of Patents and Licensing was recently in contact with both the National Science Foundation and the National Institute of Health regarding a holding in a court case. The case summary essentially said that proposals submitted to the Federal Government were "prior art" to any later filed patent applications. We received a response from Charles H. Herz, general counsel of NSF, which is reprinted below:

SUBJECT: NSF funding as a divestive publication

We are aware of the recent case (*E.I. duPont de Nemours v. Cetus Corp*, N.D. CA, December 11, 1990) that held that a research proposal funded by the National Science Foundation was a divestive publication because of its availability under the Freedom of Information Act and NSF cataloging and disclosure procedures. You should note that case involved a proposal submitted to the Foundation before we amended our Freedom of Information Act (FOIA) regulation (published as part 612 of title 45 of the Code of Federal Regulations) in June 1984. Now, a funded proposal will be released only after the submitting organization is notified and allowed to identify portions that it wishes withheld (§612.7 (c)) and the statutory FOIA exemption contained in section 205 of the "Bayh-Dole Act" (35 U.S.C. Ch.18) is specifically mentioned (§612.8 (a)(3)). NSF believes that those changes sufficiently restrict and record access to funded proposals that the holding of the California case would not apply to proposals funded after June 1984.

I must remind you that the best way to protect the patentability of your institution's inventions would be to identify them before proposals describing them are submitted to us and then either file patent applications or at least segregate and mark relevant portions of the proposals as proprietary (see discussion under the heading "Proposals as Public Record" on page 15 of the *Grants for Research and Education in Science and Engineering*, NSF 90-77, August 1990.)

If you have further questions, D. Matthew Powell is the attorney responsible for FOIA matters. He can be reached on (202) 357-9435 (voice) and (202) 357-7521 (facsimile) and can receive electronic mail as dpowell@nsf through BITNET and as dpowell@nsf.gov through INTERNET.

Yours Truly,
Charles H. Herz
General Counsel

The advice given in the second paragraph seems sound. If you feel that your proposal contains an enabling disclosure of a potentially patentable idea, identify that portion of the proposal prior to submission. Block 12 of the BA 23 should be marked "YES". The Office of Patents and Licensing will then open a docket on the disclosed idea before the proposal is submitted.

Please contact John Thuente at 624-2816 if you have further questions or comments regarding this issue.

Technologies for the Future

The National Center for Research Resources, NIH, sponsored a workshop on "Technologies for the Future: Opportunities and Needs in Structural Biology and Molecular Medicine" in September, 1990. Participants from universities, industry and federal agencies discussed underlying technologies needed in several biomedical research areas and looked at the technologies needed to meet specific research opportunities.

Twenty-five research experts gave overviews of their research fields. They outlined their future research directions and described technologies that have been and will be essential to their research. Other speakers from NIH, the Department of Energy, and the National Science Foundation joined these experts to give insight to the future of research. The following recommendations resulted from the workshop:

Future Technologies

- Aggressively support synchrotron-related x-ray technologies, such as new detectors, and new methods similar to time-resolved diffraction and multi-wave length anomalous dispersion.
- Support higher-field-strength NMR magnet developments to extend the capability of magnetic resonance methods to proteins of higher molecular weight.
- Support integrated efforts to incorporate high-performance computing and advanced graphic capabilities into resource centers for structural biology.
- Continue funding promising new areas of instrument and technology development, such as scanning tunneling microscopy and electron crystallography, which may well add new dimensions of experimental power to solving tomorrow's problems.

Funding

- Encourage NIH's senior administration to recognize the role and value of biomedical research technologies at all stages of their planning and budgeting.
- Expand BRTP to make vital new technologies available to the structural molecular biology research community.
- Give high priority to full funding of existing key facilities for structural biology in order to increase research productivity and the access of researchers to these facilities.

Cooperation and Collaboration

- Increase cooperation among Federal agencies, including NIH, NSF and DOE to organize government-wide, long-range planning and budgeting for the implementation of new technologies.
- Focus on the development of technological areas of common interest, such as new radiation sources and detectors, through collaboration within DOE national laboratories.

Training

- Establish multidisciplinary training grants to attract talented students to biomedical research technology.
- Encourage increased training in biophysics and structural molecular biology at the undergraduate level while maintaining and expanding training programs for pre- and post-doctoral research scientists.

Future Workshops

The participants at the workshop achieved a good assessment of the accomplishments and new opportunities in structural molecular biology. Clearly, there are many other important technological frontiers that are equally important to the mission of NIH. The participants, therefore, made the following final recommendation:

- Organize similar NCCR-sponsored workshops in other areas of biomedical technology relevant to the mission of NIH.

A View From the Boardroom

A survey of senior industry officials, summarized in a report by the Government-University-Industry Research Roundtable, in conjunction with the Industrial Research Institute, revealed a rather parochial view of how technical innovations arise. The report concluded:

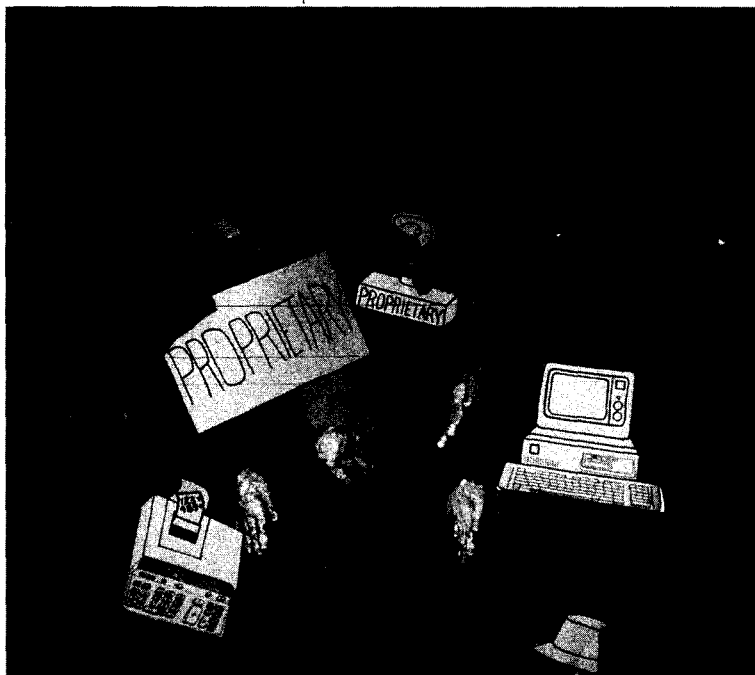
"The limited role of universities in innovation has not been recognized because of the misconception that technological change occurs through a remarkable breakthrough that will revolutionize an industry, because of the excitement that accompanies such radical new ideas regardless of how infrequently they occur, and because university scientists tend to have a simplistic understanding of how product development and commercialization occur."

NCURA/SRA Meeting Held

The regional meeting of the National Council of University Research Administrators (NCURA) and the Society for Research Administrators (SRA) was held jointly in Minneapolis May 1-3 at the Hyatt Regency Hotel. The theme of the meeting was: "Ethics and Values in a Changing Research Environment." ORTTA staff members Carol Perusse and Joan Sagstetter, helped make local arrangements for the conference.

Assistant Director for Information Services Winifred Schumi and members of her staff demonstrated the ORTTA Electronic Bulletin Board at a morning session. ORTTA also showed an exhibit of historic and recent University of Minnesota technology.

Rick Dunn and Judy Krzyzek participated in a fashion show illustrating the proper attire for the well-dressed grant administrator. (See picture). They carry the latest in portable fax, copy machines and computers, with color-coordinated presigned certifications, waivers and predated compliance approvals. The stylish, on-the-go trench coats are equipped with FX boxes and strapping tape and even come with an extra pair of hands. The outfits are accented with headgear especially designed for storing aspirin. Dayglo footwear, for that extra running start on proposal deadline days, complete the ensembles.



AAAS Student Research Awards

As part of an ongoing effort to encourage the development of young scientists and to recognize their achievements in all fields of scientific research, the American Association for the Advancement of Science (AAAS) will highlight exceptional research by college and university students in a special poster session at the AAAS Annual Meeting, February 6-11, 1992, in Chicago.

Undergraduate students and graduate students who wish to be considered for this distinction may apply by submitting brief abstracts of their research. Accepted applicants will have the opportunity to present their research to AAAS members in a one-on-one poster session at the Annual Meeting, and their abstracts will be published in the Annual Meeting *Program*.

In addition, a panel of distinguished scientists will evaluate the poster presentations. The students with the best presentations in their fields will receive cash awards and be recognized during the AAAS awards ceremony at the Annual Meeting.

The deadline for abstracts is **November 1, 1991**. For complete instructions on how to submit abstracts, watch for the "Call for Papers" coming in the September 6, 1991 issue of *Science*, or write: AAAS Meetings, Dept SM, 1333 H Street NW, Washington, DC 20005.

National Cancer Institute

Support of Scientific Meetings

Prospective applicants interested in seeking support of scientific meetings from the National Cancer Institute (NCI) are reminded that as of October 1, 1989, all grant application submissions for support of meetings must adhere to the Division of Research Grants (DRG) regular receipt dates of February 1, June 1, and October 1. These dates are published by DRG in the information and instructions form of the PHS 398 (revised 10/88) application and the booklet on "Support of Scientific Meetings," August, 1988.

Applications received late will be returned or held for the next regular review cycle if the proposed meeting date permits. Waiver of the receipt date(s) will be considered only for exceptional circumstances. Requests must be submitted as instructed in the above referenced booklet which may be obtained from the Office of Grants Inquiries, DRG, at the address below. Specific questions regarding the NCI conference grant program should be directed to the NCI Conference Grant Coordinator at 301/496-7173.

Office of Grants Inquiries, Division of Research Grants, Westwood Building, Room 449, Bethesda, MD 20892; 301/496-7441.

U.S. Patents Issued

January-March, 1991

1. Title: **Electronic and Optoelectric Devices Utilizing Light Hole Properties**
 Purpose: Increasing speed and power of micro-electronic devices.
 Inventors: Mark Sweeny, Jingming Xu, Michael Shur, all formerly from Electrical Engineering
2. Title: **Bacterial Degradation of 4-chlorobiphenyl**
 Purpose: Natural decomposition of a hazardous waste related to PCBs.
 Inventors: Marlene Barton, formerly from the Gray Freshwater Institute
3. Title: **Optically Nonlinear Aromatic Carboxylic Acid Complexes**
 Purpose: New compounds that could be used in laser or light-focusing devices.
 Inventors: Margaret C. Etter, Chemistry; Gayle M. Frankenbach, formerly from Chemistry
4. Title: **Quantitative Analysis of the Active Tablet Ingredient by Power X-Ray Diffractometry**
 Purpose: Evaluation of mass-produced medicinal pills for quality control.
 Inventors: Raj G. Suryanarayanan, Pharmaceuticals
5. Title: **Amplitude and Frequency/Phase Modulated Pulses to Achieve Plane Rotations of Nuclear Spin Magnetization Vectors with Inhomogeneous B₁ Fields**
 Purpose: Improved method of imaging for use in magnetic resonance imaging devices.
 Inventors: Kamil Ugurbil, Biochemistry, Medical School; Michael Garwood, Radiology
6. Title: **Process of and Apparatus for Extruding a Reactive Polymer Mixture**
 Purpose: Improved manufacturing of thin sheets and films coated with polymers.
 Inventors: Christopher Macosko, Thierry Charbonneaux, Chemical Engineering

Licenses Negotiated

January - March, 1991

1. Title: **"Sentences" Software**
 Purpose: Russian language tutorials.
 Licensee: Exceller Software Corporation, Ithaca, New York
 Inventors: Gary Jahn, Russian and East European Studies;
 Tzvee Zahavy, Classical and Near Eastern Studies
2. Title: **"Cochlear Anatomy" Software**
 Purpose: Teaching ear anatomy.
 Licensee: Chariot Software Group, Inc., San Diego, California
 Inventor: Peter Santi, Otolaryngology
3. Title: **Novel Polyethylene Glycol Derivatives as Spacer Arms for Solid-Phase Applications**
Hypersensitive Acid-Labile Anchoring for Solid-Phase Synthesis of Protected Peptide Segments
Xanthenylamide Handle for Use in Peptide Synthesis
 Purpose: Three new, more reliable methods for synthesis and sequencing of peptides and nucleic acids in biotechnology research.
 Licensee: Millipore Corporation, Bedford, Massachusetts
 Inventor: George Barany, Chemistry
4. Title: **Apple Tree: Honeycrisp**
 Purpose: Propagation and sale of a new variety of apple tree.
 Licensee: Swedberg Nursery, Battle Lake, Minnesota
 Inventors: James Luby, David S. Bedford, Horticultural Science & Landscape Arboretum

National Endowment for the Humanities

Summer Stipends

The National Endowment for the Humanities (NEH) Summer Stipends provide support for college and university teachers to pursue two consecutive months of full-time study of research, supported by a stipend of \$3,750. The University of Minnesota Graduate School will supplement this with an additional stipend of \$1,500. Support includes, but is not limited to, the following disciplines: history, philosophy, languages, linguistics, literature, archaeology, jurisprudence, theory and criticism of the arts, ethics, comparative religion, and those aspects of the social sciences that employ historical or philosophical approaches.

The University may nominate three members of its faculty for Summer Stipends via an internal competition managed by the Graduate School. Requests for nomination are due at the Graduate School by **September 3, 1991**. Selected nominees must have their proposals to NEH by **October 1, 1991**.

Internal eligibility requirements and nomination procedures, copies of application forms, and additional information about the program may be obtained by calling the Graduate School Research Office, 625-2356, or by calling Geri Melandra at 625-4801.

International Life Sciences Institute

The International Life Sciences Institute (ILSI) Research Foundation is offering grants to encourage innovative young investigators to apply recent advances in such fields as molecular biology, genetics, neuropharmacology, neurobiology, behavioral sciences, virology and immunology to the study of toxicology and environmental health, including human nutrition.

Proposals will be considered within the following broad areas of toxicology and environmental health:

- **Toxicology:** Investigations on the mechanisms (systemic, cellular, molecular, immunological, and genetic) of toxic effects of agents in different animal species, including man. Results should contribute to increased confidence in applying the results of animal studies to humans. Research on differential toxicological effects is of particular interest.

- **Environmental Health:** Investigations on the mechanisms (systemic, cellular, molecular, genetic and immunological) by which specific environmental influences, including diets and dietary components, affect growth, development and aging. Examples include, but are not limited to, research related to hypersensitivity, cell signaling, and the role of lipids (such as polyunsaturated fatty acids) and calcium.

Applicants should be in their first full-time academic position and should be in the process of establishing an independent laboratory and program of research.

*Only one award will be made of up to \$100,000 to be used for direct research support over a three-year period, starting in mid-1992. Funds will not be available for salary of the principal investigator or overhead. The application deadline is **September 3, 1991**. Contact: Sharon Weiss, 1126 Sixteenth Street NW, Suite 100, Washington, DC 20036; 202/659-0789.*

Spencer Foundation

The Spencer Foundation is currently offering two research grant programs:

Education Grants in the Social and Behavioral Sciences. This program supports research that gives promise of yielding new knowledge about education, in one or another of its forms, in the U.S. and abroad, through a wide variety of disciplinary and interdisciplinary approaches, particularly in the area of behavioral sciences. Contact the agency for specifics: Marion M. Faldet, Vice President, 312/337-7000.

Small Grants Program. This program is intended to facilitate scholars in pursuing exploratory research, problem-finding research, pilot research, modest research projects, and the initial phases of larger investigations. The research topic must be clearly relevant to the field of education. Grants range from \$1,000 to \$7,500 for one year. Contact: Coralie Novotny, Administrator, Small Grants, Program, 312/337-7000.

Applications for both programs may be submitted at any time. The agency address is: The Spencer Foundation, 900 North Michigan Avenue, Suite 2800, Chicago, Illinois 60611.

Program Information

Internal and External Sponsors

National Institute of Environmental Health Sciences

Research on the Effects of Power Frequency Electric and Magnetic Fields

The National Institute of Environmental Health Sciences (NIEHS), in conjunction with the National Institute of Neurological Disorders and Stroke (NINDS) and the National Institute of Child Health and Human Development (NICHD) invite grant applications on basic studies of the effects of electric and magnetic fields.

Electromagnetic fields (EMF) cause biological effects in human beings, in laboratory animals, and in cells and tissues from humans and animals. However, the extant literature does not provide a basis for assessing the risks, if any, from exposure to these fields. Thus, there is a need for additional research on the biological effects of EMF exposure particularly at the frequencies of power lines and electrically powered devices.

This announcement, therefore, is issued to encourage and foster investigator-initiated basic and applied research on the possible health effects of EMF. Research interests include, but are not limited to, studies designed to: 1) Determine the effects/mechanisms of action of EMF on cellular responses such as DNA synthesis, modulation of ion binding, and interaction with hormones and growth factors; 2) Determine the effects on cancer processes *in vivo* and *in vitro*; 3) Determine the effects of EMF on reproductive/developmental and nervous systems *in vivo* and *in vitro*; and 4) Development of well-characterized EMF exposure systems for assessing biological effects.

Because of the limited data on EMF biological effects it is anticipated that some projects may be more focused on identification of EMF than on the possible mechanisms of EMF actions. Such applications must state the means by which the information generated will be useful in risk assessment and/or developing mechanistic hypotheses.

Collaborative research efforts among toxicologists, physicists, engineers, and scientists in closely related disciplines are encouraged.

This is an on-going program with yearly deadlines of February 1, June 1, and October 1. Guidelines are available from ORTTA and may be requested by calling 624-9004 or by sending a note through the bulletin board.

National Institute of Mental Health

Center for Research, Knowledge Dissemination, and Technical Assistance on Housing and Residential Support

The National Institute of Mental Health has authorized funding for one Center for Research, Knowledge Dissemination, and Technical Assistance on Housing and Residential Support for individuals with severe and persistent mental disorders.

The specific purpose of this Center is to provide a research environment and information dissemination center in the area of outreach and other mental health and supportive services related to housing needs for adults diagnosed with severe and persistent mental disorders. The Center will permit individuals with research and program expertise to develop and conduct research studies, disseminate research findings and other relevant information, and interact with and provide assistance to State mental health directors, local programs, researchers, practitioners, mental health consumers, and family members.

It is expected that the Center will be active in research, but the budget itself will support only small-scale studies, pilot projects, or methodologic studies. The core Center support will be used to develop proposals for major studies that will be funded by separate applications or by other sources and to assist other potential applicants to develop proposals for major research or research demonstration projects.

The application deadline is **June 24, 1991**, for up to three years, at an annual cost not to exceed \$250,000 the first year, and not to exceed \$350,000 in subsequent years. A copy of the guidelines is available from ORTTA and may be requested by calling 624-9004 or by sending a note through the bulletin board.

Health Resources and Services Administration

Interdisciplinary Training for Health Care for Rural Areas

The Health Resources and Services Administration (HRSA) announces acceptance of applications for FY 91 Grants for Interdisciplinary Training for Health Care for Rural Areas. Funding for this program is designed to test innovative training approaches that improve access to health care in rural areas and that may be replicated in similar settings. Specifically, projects should:

Program Information

Internal and External Sponsors

- Use new and innovative methods to train health care practitioners to provide services in rural areas;
- Demonstrate and evaluate innovative interdisciplinary methods and models designed to provide access to cost-effective comprehensive health care;
- Deliver health care services to individuals residing in rural areas;
- Enhance the amount of relevant research conducted concerning health care issues in rural areas; and
- Increase the recruitment and retention of health care practitioners in rural areas and make rural practice a more attractive career choice for health care practitioners.

Recipients may use various methods in carrying out the projects described above. Examples include, but are not limited to:

- The distribution of stipends to students of eligible applicants;
- The establishment of a postdoctoral fellowship program;
- The training of faculty in the economic and logistical problems confronting rural health care delivery systems; or
- The purchase or rental of transportation and telecommunication equipment where the need for such equipment, due to unique characteristics of the rural area, is demonstrated by the recipient.

An estimated \$1.5 million is available for competing grants. It is anticipated that 6 grants averaging \$250,000 will be supported for project periods not exceeding three years. The application deadline is **July 15, 1991**. Application materials may be requested from: Grants Management Officer (D-36), Bureau of Health Professions, Health Resources and Services Administration, Parklawn Building, Room 8C-26, 5600 Fishers Lane, Rockville, MD 20857; 301/443-6002. Guidelines are also available from ORTTA and may be requested by calling 624-9004 or by sending a note through the bulletin board.

Office of Naval Research

Young Investigator Program

The Office of Naval Research (ONR) is accepting applications for the Young Investigator Program, which supports young scientists and engineers who show exceptional promise for doing creative research. The objectives of the program are to attract outstanding young university

faculty members to the Navy's research program, to support their research, and to encourage their teaching and research careers.

There are 13 program areas in which ONR is accepting proposals. Applicants should make inquiries of, and send their completed proposal to, the appropriate division director: (Telephone numbers begin with 703/696)

- **Mathematical Sciences:**
Code 1111, Dr. N.L. Gerr, -4321
- **Chemistry,**
Code 1113, Dr. R.A. DeMarco, -5075
- **Physics,**
Code 1112, Dr. M.F. Schlesinger, -4220
- **Electronics,**
Code 1114, Dr. K.L. Davis, -4216
- **Ocean Engineering,**
Code 1121, Dr. S.E. Ramberg, -4358
- **Ocean Biology/Optics/Chemistry,**
Code 1123, Dr. R.W. Spinrad, -4120
- **Ocean & Atmospheric Physics,**
Code 1122, Dr. A.I. Weinstein, -4532
- **Geo-Acoustics/Arctic,**
Code 1125, Dr. G.L. Johnson, -4119
- **Materials,**
Code 1131, Dr. R.C. Pohanka, -4309
- **Computer Science,**
Code 1133, Dr. A.M. van Tilborg, -4312
- **Mechanics,**
Code 1132, Dr. S.G. Lekoudis, -4404
- **Biological Sciences,**
Code 1131, Dr. R.W. Newburgh, -4986
- **Cognitive & Neural Sciences,**
Code 1142, Dr. W.S. Vaughan, Jr. -4505

Approximately 14 awards will be made for \$75,000 per year for three years. The program is open to all U.S. citizens holding tenure-track positions at U.S. universities and colleges who received their Ph.D. or equivalent on or before December 1, 1986. Funds may be budgeted against any reasonable costs related to the conduct of the research, including salary, graduate student support, supplies, etc. Additional funds for equipment may be awarded, based on the needs of the research and the availability of funds. Applicants may double the award by securing up to \$25,000 from other Navy sources (outside ONR); which amount will be matched 2:1 by this program. ONR offices will assist applicants in finding such sources.

The application deadline is September 17, 1991. Contact: Office of Naval Research, Code 11SP, Attn YIP92, 800 Quincy Street, Arlington, VA 22217-5000. Enclose a self-addressed mailing label.

National Science Foundation

Materials Research Laboratories

The National Science Foundation (NSF) is again accepting proposals for its Materials Research Laboratories program. Materials Research Laboratories (MRLs) are supported to undertake materials research of a scope or complexity that would not be feasible under traditional funding of individual projects. MRL funding is intended to provide a central focus for materials research at qualified universities, and to complement, not substitute for, individual investigator awards.

Essential activities include: 1) major research programs or "thrust areas" where sustained, cooperative effort by several investigators with diverse backgrounds is needed to make satisfactory progress; 2) the development, operation and maintenance of central research facilities; and 3) seed funding for new initiatives, new investigators, and novel concepts and ideas in materials research. MRLs address research areas such as: condensed matter physics, materials chemistry and polymers, materials science and engineering, and related science and engineering disciplines. Research is supported in materials synthesis and processing, structure and composition, properties and performance.

Each MRL is expected to provide broad educational and research opportunities for students and faculty, and to foster participation by women and members of under-represented groups. NSF strongly encourages the development of links and the transfer of knowledge between MRLs and other institutions and sectors, including universities, industry and government laboratories, through cooperative research programs, research visitor programs, educational outreach activities and other appropriate mechanisms. MRLs are expected to demonstrate tangible commitments of resources that reflect the priorities of the participating institutions.

NSF plans to establish at least one new MRL in FY 1992; nine are currently supported. Each new MRL award will be made as a cooperative agreement with an initial NSF commitment of five years, eligible for renewed support for subsequent years on a three-year cycle thereafter. Annual support from NSF is anticipated to be in the range from about \$1 million to \$5 million for each MRL.

The application deadline is **September 4, 1991**. A copy of the guidelines is available from ORTTA and may be requested by calling 624-9004. Inquiries about the MRL

program should be addressed to: Program Director, Materials Research Laboratories, Division of Materials Research, National Science Foundation, Washington, DC 20550; 202/357-9791. INTERNET: mrl@note.nsf.gov. BITNET: mrl@nsf. FAX: 202/357-7959.

Office of Naval Research

Defense Personnel Security Research

The Office of Naval Research (ONR) is offering a new program to help fund research addressing issues pertinent to the National Industrial Security Program (NISP) and personnel security. The areas covered by this program include financial and credit candidate screening and crime detection procedures, prescreening, background investigation, adjudication, continuing assessment, employee assistance program, security awareness, security education, polygraph, and NISP research.

Awards include grants for institutional research and support for thesis/dissertation research. Participation is sought from graduate students and from scientists, faculty and practitioners and U.S. financial, research, business, governmental, and educational institutions.

The maximum award for masters-degree thesis awards is \$3,000 per student. For doctoral dissertation candidates, the stipend is \$10,000. The maximum institutional research award is \$20,000 per project; institutions may receive multiple awards.

The application deadline is **July 31, 1992**. *Applications must be requested in writing*, including a self-addressed mailing label, from: Roger Denk, Director, Defense Personnel Security Research and Education Center, 99 Pacific Street, Building 455-E, Monterey, CA 93940-2481; 408/373-3075.

National Science Foundation

Undergraduate Course and Curriculum Development

The National Science Foundation, Division of Undergraduate Science, Engineering and Mathematics Education, is requesting proposals for Undergraduate Course and Curriculum Development programs. NSF will consider proposals for support in all fields supported by the Foundation for the development of undergraduate courses and curricula that meaningfully link the study of science and the humanities. Proposed projects should have potential for leadership and replication at the national level.

The goals of the program are: 1) to encourage course and curriculum development to meet the nation's need for a) high quality scientists, engineers, and mathematicians; b) dedicated and able teachers of pre-college and college science and mathematics, and; c) scientifically and technically literate citizens; and 2) to inspire faculty to devote creative energy to educational activities that address the needs of their students and the nation and that enhance the faculty's professional and scholarly interests.

The application deadlines are **September 16, 1991** and **June 15, 1992**. Guidelines are available from ORTTA and may be requested by calling 624-9004 or by sending a note through the bulletin board. The agency contact is: Undergraduate Course and Curriculum Development Program, Division of Undergraduate Science, Engineering and Mathematics Education, Room 639, National Science Foundation, 1800 G Street, NW, Washington, DC 20550; 202/357-7051. INTERNET: undergradansf.gov; BITNET: undergradansf.

Rockefeller Foundation

Women's Status and Fertility in Developing Countries

The Rockefeller Foundation is requesting proposals for Research on Women's Status and Fertility in Developing Countries. Of interest under this program are projects that would examine concepts such as gender inequality, female autonomy, women's roles or position, and patriarchy; clarify how these concepts should be defined and measured; and analyze how they relate to fertility.

Projects could: 1) develop and test new and/or existing hypotheses about the impact of gender inequality or women's position on fertility; 2) examine development projects aimed at improving women's health or socioeconomic status to determine the effects of these projects on

gender inequality and family size; 3) assess how gender inequality and women's roles influence women's attitudes toward and use of contraceptive technology; 4) determine how birth control and/or family planning and maternal/child health projects affect women's status and roles; or 5) study the role of gender stratification systems in conditioning the impact of socioeconomic change on fertility.

Grants will be in the range of \$30,000 to \$60,000. Funds may be used for data collection and processing, a micro-computer, research supplies and assistance, publications, travel, and professional salaries; no overhead is allowed.

The application deadline is **August 15, 1991**. Contact: Status of Women and Fertility Program, Population Sciences Division, The Rockefeller Foundation, 1133 Avenue of the Americas, New York, NY 10036; 212/869-8500.

Rockefeller Brothers Fund

"One World" Grants

The major objective of the Rockefeller Brothers Fund is to improve the well-being of all people through support of efforts in the U.S. and abroad that contribute ideas, develop leaders, and encourage institutions in the transition to global interdependence. Its grantmaking aims to counter world trends of resource depletion, arms build-ups, protectionism, and isolation that now threaten to move people everywhere further away from cooperation, equitable trade and economic development, arms restraint, and conservation.

The two components of the "One World" Program are: 1) Sustainable Resource Use, which encourages more efficient and renewable use of natural, human, and man-made resources, through an approach that blends social, economic, and ecological concerns; and 2) World Security, which would improve political, security, and economic relations among nations and strengthen arms control—recognizing that world peace is threatened not only by conflicts among competing political philosophies, differing religions, and varying cultural traditions, but also by frustration and aggression arising from inequities in the sharing of the food, energy, goods, and services the world economy produces.

Most grants range between \$25,000 and \$300,000, for not more than three years. Applications may be submitted at any time to: Rockefeller Brothers Fund, 1290 Avenue of the Americas, New York, NY 10104-0233; 212/373-4200.

Faculty Research Awards

This section contains statistics on proposals and awards recently processed by ORTTA. In addition, we have randomly selected awards received by faculty during preceding months. If any faculty member has received an award s/he would like mentioned in a future Research Review, please call Mike Moore at 624-9398.

Proposal and Award Summary

	Number	Amount
Proposals Submitted		
April, 1991	292	\$ 48,563,402
Awards Processed		
April, 1991	240	26,604,499
Proposals Submitted		
July, 1990 - April, 1991	3,026	429,501,690
Awards Processed		
July, 1990 - April, 1991	2,422	201,827,639
Proposals Submitted		
July, 1989 - April, 1990	3,117	510,078,809
Awards Processed		
July, 1989 - April, 1990	2,242	246,346,803

Marrow Transplantation Program Project

John H. Kersey, Jr., Laboratory Medicine and Pathology
Norma K. Ramsay, Pediatrics
Philip B. McGlave, Medicine
NIH, NCI
\$1,920,098 - 03/91-02/92

Vulnerability to Drug Abuse in High-Risk Youth

Richard H. Needle, Family Social Science
ADAMHA, NIDA
\$447,109 - 04/91-03/92

Area Office: Midwest Regional Center for Drug-Free Schools

Jean King, Educational Policy and Administration
North Central Regional Educational Laboratory
\$411,439 - 12/90-09/91

Large Bowel Dietary Intervention Study - Data and Nutrition

I. Marilyn Buzzard, School of Public Health
Westat, Inc.
\$405,128 - 01/91-03/97

Day Treatment for Adolescents - University Day Community

Michael R. Rothweiler, General College
Hennepin County
\$292,455 - 01/91-12/91

Increasing Aspen Production through Mechanical Strip-Thinning

William Berguson, Natural Resources Research Institute, UMD
David F. Grigal, Soil Science
Blandin Foundation
\$260,000 - 04/91-03/95

Center for Filtration Research

Benjamin Y. Liu, Mechanical Engineering
Various Industrial Donors
\$190,000 - 01/91-12/93

A Study of Potent CA Channel Blockers from Spider Venom

W. Dale Branton, Physiology
NIH, NIGMS
\$175,327 - 04/91-03/92

Neurochemistry of the Vestibular Complex

Alvin J. Beitz, Veterinary Biology
John H. Anderson, Otolaryngology
NIH, NIDCD
\$159,523 - 04/91-03/92

Selective Reduction of Immune Clearance by Ethanol

Ronald P. Messner, Medicine
ADAMHA, NIAAA
\$158,744 - 02/91-01/92

Drug Abuse Treatment Waiting Period Reduction Grant

James Halikas, Psychiatry
ADAMHA, Office for Treatment Improvement
\$157,690 - 12/90-12/91

Immunization of Newborns to Hepatitis B

Ruth Bolton, Family Practice and Community Health
Smith Kline Beecham
\$156,000 - 02/91-09/92

Post Hospitalization Outcomes Studies

Robert L. Kane, School of Public Health
Health Care Financing Administration
\$152,286 - 09/90-05/91

Biological Control of Potato Scab

Linda L. Kinkel, Plant Pathology
Neil A. Anderson, Plant Pathology
Roger K. Jones, Plant Pathology
USDA
\$134,439 - 04/91-03/93

Nonenzymatic Glycation of Glomerular Basement Membranes

Aristidis S. Charonis, Laboratory Medicine and Pathology
NIH, NIDDK
\$127,083 - 04/91-03/92

Mesangial Cell Interactions with Glycosylated Matrix

Photini E.C. Tsilibary, Laboratory Medicine and Pathology
Ralph Butkowski, Laboratory Medicine and Pathology
NIH, NIDDK
\$126,147 - 03/91-02/92

Respiratory Action of the Intercostal Muscles

Theodore A. Wilson, Aerospace Engineering and Mechanics
NIH, NHLBI
\$115,176 - 03/91-02/92

Opioid Regulation of Interacellular Ion Concentrations

Stanley A. Thayer, Pharmacology
ADAMHA, NIDA
\$112,490 - 04/91-03/92

Model *in vitro* Assay of Wound Healing and Contraction

Robert T. Tranquillo, Chem Engineering and Materials Science
NIH, NIGMS
\$109,656 - 04/91-03/92

Common Property Resource Network

Carlisle F. Runge, Agricultural and Applied Economics
Ford Foundation
\$100,000 - 02/91-01/93

Effects of Prenatal Cocaine Use on Infants - Comparative Study

Susan C. Hupp, Educational Psychology
General Mills Foundation
\$100,000 - 04/91-03/92

Development of a Strategy for Dynamic Programmed Feeding of Nutrients in Cell Culture

Wei-Shou Hu, Chem Engineering and Materials Science
Boehringer Mannheim Corporation
\$100,000 - 01/91-12/93

The Minnesota Writing Project

Lillian Bridwell, College of Liberal Arts
University of California (Mellon Foundation Prime)
\$15,000 - 03/91-03/92

Spouse Concordance for Mental Health: Behavioral Outcomes

Jane D. McLeod, Sociology
ADAMHA, NIMH
\$95,767 - 04/91-03/92

Fluid Dynamics of Two Miscible Liquids with Slow Diffusion

Daniel D. Joseph, Aerospace Engineering and Mechanics
NSF
\$87,710 - 04/91-09/92

Mechanical Properties of Metal Matrix Composite Interfaces

William W. Gerberich, Chem Engineering and Materials Science
David Kohlstedt, Chem Engineering and Materials Science
Minnesota Mining and Manufacturing
\$83,372 - 02/91-07/91

Iron and Manganese in Biocatalysis: A Dioxygenase Model

Lawrence Que, Jr., Chemistry
Lawrence P. Wackett, Chemistry
NIH, NIGMS
\$86,368 - 04/91-03/92

The Paleoclimatic Record in Small Saline Lakes in the Bolivian Altiplane

Herbert E. Wright, Geology and Geophysics
National Geographic Society
\$12,675 - 02/91-01/92

A Theoretical and Experimental Study on Augmenting Human Motor Cognitive Ability Via Human-Robot Interaction

H. Kazerooni, Mechanical Engineering
NSF
\$76,654 - 04/91-09/92

An Enrichment Program to Encourage Young Mathematically Talented Female Students and Students of Color

Harvey B. Keynes, School of Mathematics
NSF
\$47,422 - 03/91-07/92

Minnesota Intelligent Driving Environmental Research Program

Peter A. Hancock, School of Physical Education and Recreation
St of MN: Department of Transportation
\$30,979 - 04/91-04/92

Photoinduced Electronic Transport and Recombination in Disordered Semiconductors

Boris Shklovskii, School of Physics and Astronomy
NSF
\$45,000 - 03/91-08/92

Separation of Propionic Acid in a Hollow Fiber Reactor

Chang Ho Park, Agricultural Engineering
Greater Minnesota Corporation
\$9,500 - 02/91-10/91

Air Pollution in Eastern Europe

Peter B. Reich, Forest Resources
National Geographic Society
\$24,150 - 03/91-02/92

Immunity to Pneumococcus in Persons with HIV

Edward N. Janoff, Medicine
NIH, NIAID
\$93,918 - 03/91-02/92

Methods for Monitoring Our Natural Resources with the Next Generation of Earth Observing Satellites

Robert Martin, Forest Resources
Charles Lindbergh Fund
\$10,480 - 04/91-03/92

Genetic Control of Virulence in Streptococcus Pyogenes

Paul P. Cleary, Microbiology
Max Kade Foundation
\$22,300 - 04/91-01/92

Mechanism(s) of Resistance to Menadione

Louise M. Nutter, Pharmacology
NIH, NCI
\$88,549 - 04/91-03/92

Microcircuitry of Retinal Ganglion Cells

Thomas B. Woolf, Physiology
Robert F. Miller, Physiology
NIH, NEI
\$21,000 - 04/91-03/92

Immunotherapy of Neonatal Gram-Negative Bacterial Peritonitis

Randall S. Burd, Surgery
David L. Dunn, Surgery
NIH, NIGMS
\$31,200 - 04/91-03/92

The Use of Dental Sealants: An Application of Diffusion Theory

Corrine Miller, Oral Sciences
P. Jean Frazier, Oral Sciences
NIH, NIDR
\$21,600 - 04/91-03/92

Peripheral Neuropeptides and Glutamate in Inflammation

Mary G. Garry, Dentistry, Rehabilitative Sciences
Kenneth M. Hargreaves, Dentistry, Rehabilitative Sciences
NIH, NIDR
\$21,600 - 03/91-02/92

The Use of Parental Leave Policy: Women and Infants at Risk

Patricia McGovern, School of Public Health
Emma B. Howe Memorial Foundation
\$29,500 - 05/91-10/92

Synthesis of PHB with Yeast

Friedrich Srienc, Bioprocess Technology Institute
Greater Minnesota Corporation
\$98,009 - 02/91-01/92

Summer Education Experience '91

Joseph J. Latterell, Science and Mathematics, UMM
NSF
\$60,922 - 02/91-07/92

Bench Scale Test of Benefication of Ilmenite-Longnose Deposits

Rodney L. Bleifuss, Natural Resources Research Institute, UMD
Harlen B. Niles, Natural Resources Research Institute, UMD
St of MN: Department of Natural Resources
\$10,000 - 03/91-06/91

National Career Development Guidelines

Don Cavalier, Student Affairs, UMC
St of MN: Department of Jobs and Training
\$3,000 - 02/91-12/91

The Sponsored Project Information Network (SPIN) is a computerized locator system of funding opportunities (federal, nonfederal, and corporate) for faculty and institutional research, development, and education program support. It is available to University faculty and staff through ORTTA.

Based on a description of your research areas and/or the type of support sought, ORTTA staff will search the SPIN Keyword Index to identify sources within specific areas of interest. The Keyword Index, a taxonomy developed by SPIN to catalog funding sources, is divided into the following ten major classifications:

- Agriculture/Food/Forestry
- Arts/Culture/Humanities/Communications
- Business/Economics/Management
- Education
- Health/Medical Sciences
- International Affairs/Area Studies
- Miscellaneous/Other
- Science/Technology
- Social/Behavioral Sciences
- Social Welfare/Public Affairs

The result of a search is a set of profiles of applicable funding sources that provides: 1) the sponsor's name; 2) the sponsor's contact address and telephone number; 3) deadline dates; 4) program titles; 5) objectives or interest areas of the sponsor; and 6) restrictions that would affect the submission of a proposal. This set of profiles is sent to the requestor.

SPIN searches are done free of charge to the requestor. A survey of users of SPIN indicates that the information received from a SPIN search was targeted to their request and a reasonable response time was effected.

**For further information regarding the SPIN system or to request a search, please contact ORTTA at
624-9004**

SPIN searches are also available through the Research and Development Office in the College of Liberal Arts; the Agricultural Experiment Station; the Research Support Office at Duluth; and the Grants Development Office at Morris.

Effective September, 1990 the SPIN indexes became available for on-line review through ORTTA's Electronic Bulletin Board (See the September, 1990 *Research Review* for information on Bulletin Board contents and access instructions.) The Bulletin Board contains a section devoted to SPIN and offers users the opportunity to review the Keyword Index alphabetically or within the topics shown above.

Since the Bulletin Board is accessible anytime, faculty and staff can browse the indexes at their convenience and find *keyword codes* of interest to them. From within the Bulletin Board they can then forward a note to the Bulletin Board Editor requesting a SPIN search based on the chosen keyword codes (Limit, 20 keywords).

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- Please check with your departmental office or AIS (624-9000) if you need assistance.

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