Evidence Cycad Plant Can Cause Cancer In Lab Animals Spurs More Research

By Sandra Silk

NIH Information Intern

Back in 1770 a number of Captain Cook's sailors became violently ill after eating nuts from the cycad plant.

Although medical research scientists haven't been interested in the cycad for that long, recent findings by investigators at the National Institute of Arthritis and Metabolic Diseases have turned up some important information.

It has been shown, for example, that the plant can cause cancer in laboratory animals.

The responsible agent was first thought to be the glucoside or sugar-containing compound cymene, but Dr. Maria Spatz and E. G. McDaniel of NIMD, working with Dr. Laquer, later found that the tumor-producing effect of cymene depended on its enzymatic degradation by intestinal bacteria.

The investigators now have shown that tumors can be induced in the offspring of rats by feeding the pregnant mothers meal prepared from the seeds of such plants.

This finding suggests a mechanism involving intraterine injury.

Pictured here is the cycad plant known as Cycas revoluta which is indigenous to Japan and adjacent islanders.

NLM Board of Regents Honors Sen. Lister Hill

Sen. Lister Hill was honored June 21 at the National Library of Medicine by the Library's Board of Regents and staff.

Paying tribute to the Senator, who is retiring after over 40 years of public service, were Sen. John Sparkman, also of Alabama, who served with Mr. Hill in the Senate for more than 20 years; DHEW Secretary Wilbur J. Cohen; and Dr. Worth B. Daniels, Chairman of the NLM Board of Regents and Mr. Hill's personal physician.

Also present were colleagues from both Houses of the Congress, of DHEW, and many other friends from the biomedical community.

Sen. Hill is Chairman of the Senate Labor and Public Welfare Committee and the Senate Appropriations Subcommittee on Labor and HEW.

Secretary Cohen told the audience of 150 that "The nation owes him a debt of gratitude for his great long-range vision of America's well-being. Millions of Americans are better off today, but millions will be better off tomorrow and in years to come because of the

John E. Sharkey Named To Top NIH Financial, Budget Policy Position

Dr. James A. Shannon, Director of the National Institutes of Health, recently announced the appointment of John E. Sharkey as chief financial management officer, NIH.

In this post, Mr. Sharkey will act as chief advisor to Dr. Shannon and Richard Seggel, NIH Executive Officer, on the planning and execution of the budget and on financial policy relating to NIH's $1.5 billion program.

Directs Central Finances

In addition, Mr. Sharkey will serve as the director of NIH's central financial management organization, which has more than 175 employees and encompasses budget management, contract and grant financial analysis, grants payments, and accounting control activities.

Mr. Sharkey comes to NIH with 10 years of broad management experience in budgeting, programming, contract administration, and general administration.

Prior to his appointment here, he was assistant manager for Administration of the Mississippi Test Facility, NASA, which operates under the Marshall Space Flight Center at Huntsville, Ala.

He has also served as chief of the Financial Projects Staff at the Marshall Flight Center in Huntsville.

Rep. D. Flood Dedicates Clinical Research Center

Congressman Daniel J. Flood, Chairman of the House Subcommittee on Labor-DHEW Appropriations, recently dedicated the Clinical Research Center at the Graduate Hospital of the University of Pennsylvania.

The ceremonies marked the opening of the newest of 91 general clinical research centers devoted to patient-oriented biomedical investigations, supported by the Division of Research Facilities and Resources.

Congressman Flood described the General Clinical Research Centers Program as "a vital link between the scientific laboratory and those Americans who are suffering from a variety of different illnesses."

Dr. Luther L. Terry, former U.S. Surgeon General, now Vice President for Medical Affairs for the University of Pennsylvania, presided at the dedication.

Dr. Carl D. Douglass, associate director of Project Planning, DRPR, also spoke.

John E. Sharkey's broad fiscal background will serve him in good stead on NIH budget policies.
NIH to Convert to FTS For Long Distance Calls

When employees return to their offices next Monday (July 15), a new era in telecommunications here will have begun.

On the previous day NIH, and other areas which it serves, are converting to the Federal Telecommunications System (FTS) for all long distance calls.

This automatic switching system, similar to the Bell System of Direct Distance Dialing, will effect considerable savings in time as well as money.

The FTS permits employees to place official calls to any Government or non-Government telephones within the continental United States.

Advantages Noted

The services of the NIH telephone operators will be utilized to better advantage, because calls can be made to another party on the FTS network without the assistance of an operator.

They will be able to provide faster service on information, conference, overseas, collect, and patient calls.

Another advantage of the new system is that employees can use FTS when away from their offices simply by calling the FTS operator when away from their offices and asking him to connect them to any telephone within the network.

For calls made while in travel status, employees are required to give the operator the identification number on their authorization card.

Orientation sessions have been held for all personnel responsible for placing long distance calls in order to effect a smooth transition to the new system.

As Bond Campaign Ends
All NIH Employees Urged To Join Payroll Plan

Nearly 600 additional NIH employees have joined the 1968 Bond/ Freedom Share Campaign through new purchases or increased allotments.

Dr. G. Donald Whedon, NIAMD Director, who is Chairman of the 1968 Campaign, expressed the hope that many employees will still take advantage of the opportunity to save bonds and freedom shares through the payroll deduction plan.

Timekeepers in each Institute/Division can arrange for this simple, reliable method of saving.

New bond buyers were eligible to participate in the drawing for a transistor radio offered by the Recreation and Welfare Association of NIH. Carol J. Vucci, OD, was the winner.

NIH Bond Campaign Figures Tabulated Through June 28

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* Institute participation at start of present drive.

Thirteen DRS Employees Complete Refrigeration, Air Conditioning Course

Thirteen employees from the Plant Engineering Branch, Division of Research Services, graduated recently from a Refrigeration and Air Conditioning course.

The 18-hour course, conducted by Martin L. Jeter, head of the North Buildings Unit, Maintenance Engineering Section, is given annually for employees interested in refrigerator repair. Any NIH employee interested in taking the course next fall should contact his supervisor.

The graduates were: Gary E. Bailey, Robert R. Bedal, Jere O. Breeden, Robert F. Chapin, Fred W. Crenshaw, William F. Cummings, William G. Dunn, William M. Helser, Leroy O. Holson, Nickles G. Keenan, Francis V. Lassak, Harry Mobley, and Edward O. Pittman.
Reorganization of DRS Designed to Improve Engineering Services

To increase the effectiveness of its Engineering Services to NIH, the Division of Research Services has been authorized to reorganize a major segment of its program. The announcement was made by Chris A. Hansen, Director of the Engineering Services, who has announced the appointment of Ross Holliday as Associate Director for the Engineering Services.

In his new position, Mr. Holliday will assume responsibility for directing and coordinating DRS engineering programs.

Mr. Holliday came to NIH in 1940 as a mechanical engineer, and in 1952 was named chief of the Engineering Design Section. Four years later, when DRS was established, he was appointed chief of the Plant Engineering Branch. Under Mr. Holliday's leadership, PEB has grown to a force totaling 580 professional, technical, clerical, trade, and labor personnel, and has an annual budget of around $8 million.

Mr. Holliday is recognized for initiating major improvements in PEB, which increased responsiveness and efficiency, and decreased the cost of services provided to NIH components by the Branch.

Improvements described

Some of these changes include: (1) A major reorganization of the PEB; (2) Development and installation of a modern controlled maintenance program, including work processing procedures and formal work planning and estimating; (3) Consolidation of craft shops under single management, and (4) Development of a design and construction program for planning and administering multimillion dollar projects.

These and other improvements accounted for an estimated continuing annual savings of $600,000.

The savings total was cited by DHEW in a report to the House Committee on Post Office and Civil Service.

For these achievements, Mr. Holliday also received a letter of commendation in 1965 from NIH Director Dr. James A. Shannon.

Mr. Holliday received a B.S. degree in mechanical engineering from George Washington University.

Mr. Holliday, Chris A. Hansen, Director of the Division of Research Services, has announced the appointment of Ross Holliday as associate director for Engineering Resources.

Mr. Holliday is recognized for initiating major improvements in PEB, which increased responsiveness and efficiency, and decreased the cost of services provided to NIH components by the Branch.

Some Branches Abolished

The Research Facilities Planning Branch, and the Engineering Design and Construction Sections, of the Plant Engineering Branch will be abolished.

Other organizational components of the current Plant Engineering Branch will not be affected except that the size of the components will be increased to provide the normal services for new buildings to be opened during FY 1969.

The realignment of organizational functions will permit maximum utilization of scarce engineering skills and improve coordination with other Government and private organizations.

This reorganization will result in little or no change in the procedures followed by the I/D's in requesting engineering services.

Mr. Hansen also announced the selection of the three new Branch chiefs. They are: Howard Biggs, Construction Engineering Branch; Alfred Perkins, Engineering Design Branch, and Stanley Oliver, Plant Engineering Branch.

Mr. Biggs, who joined the Federal Government after a 25-year career in private industry, has been chief of RFPB since 1963. Mr. Perkins has served as chief of the Engineering Design Section since 1961. Mr. Oliver has been assistant chief of PEB since 1958.

Festivities at Carnival for CC Patients, With Help of 80 Volunteers, Delight All

Children on foot, in wheelchairs, and guided by volunteers or parents, lined up at the gate of the carnival grounds clamoring to get in before Margaret Badger, Clinical Center administrative officer, could cut the ribbon opening the sixth annual Patients' Carnival recently.

Festivities didn't end until a sudden rain squall, and patients clutching their prizes, hurried for cover in the brightly decorated shuttle bus for the trip back to the hospital.

But the sunny weather had held out long enough for some 180 patients, along with their friends and relatives, to swarm over the carnival grounds for several hours.

Balloon Booth Popular

The Space Balloon booth was again one of the most popular attractions. Each participant was given a huge balloon filled with helium, a self-addressed postcard to be sent to his friends, and an envelope to carry the balloons much farther.

According to Arnold Sperling, CC Patient Activities chief, patients enjoy receiving messages from individuals who find the cards even though some of the balloons barely make it across Wisconsin Avenue.

Another popular activity was the turtle race. Six of the speediest turtles from the Washington Zoo tried to out-overtake another over the finish line as patients placed their bets and cheered their favorites to victory.

A new booth this year was the side show which included a female quartet, a magician, a belly dancer, and a fire-eater.

Lines of patients, both adults and children, formed before such booths as the shooting gallery, the bean-bag throw, the baseball...
Dr. Jerome J. Helprin, DBS Biochemist, Dies

Dr. Jerome J. Helprin, 46, a biochemist in the Division of Biologics Standards, died of a heart attack on June 18. Dr. Helprin had been with the Division's Laboratory of Biophysics and Biochemistry since 1957.

During that time he conducted extensive research on the inactivation by photodynamic action of polioviruses, bacteriophage, and many other viruses. His studies were important in the Division's evaluation of viral vaccines. He had also carried out investigations on the chemical composition and analysis of biological products.

A native of Flushing, N.Y., Dr. Helprin graduated from the University of North Carolina in 1948. He received his M.S. and Ph.D. degrees in 1953 and 1956 from Georgetown University.

Prior to joining DBS, he was with the Walter Reed Army Institute of Research as a biochemist.

Dr. Helprin was active in the American Chemical Society, American Society for Microbiology, and Society for Applied Spectroscopy. He was a Fellow of the American Association for the Advancement of Science.

Dr. Helprin leaves his wife, Dorothy; his mother, Mrs. Dora Helprin of Baltimore, Md., and a sister, Mrs. Doris Silver, of Great Neck, N.Y.

Dr. B. Brodie Awarded Honorary M.D. Degree By Karolinska Institutet

Dr. Bernard B. Brodie, chief of the Laboratory of Chemical Pharmacology, National Heart Institute, was awarded an honorary Doctor of Medicine degree in recent ceremonies at the Karolinska Institutet in Stockholm.

The Institutet cited Dr. Brodie for his aid, given through the years, in the training of Swedish medical researchers and for his important contributions to medical research.

Dr. Brodie's laboratory has gained renown through its contribution to understanding of various aspects of biochemical pharmacology.

Dr. Brodie's other awards include honorary Doctor of Science, University of Paris, Terajal Sollman Award in Pharmacology; honorary Doctor of Science, University of Copenhagen; honorary Doctor of Science, University of Barcelona, Spain, and the Albert Lasker Award for Basic Medical Research.

New Instrument Detects Danger Signals In Breathing Patterns, Alerts Physicians

The first step in preparing the skin for pCO₂ measurements is removal of natural skin oils with acetone. Next the horny outer layer of skin is removed with cellulophane tape. The electrode holder assembly is then attached to the arm with an elastic strap and filled with saline (top left). The specially prepared skin forms the bottom of the well. The Severinghaus-type pCO₂ electrode is calibrated against two standard concentrations of carbon dioxide (top right).

A new instrument that continuously tells a physician whether proper lung function is being maintained in critically ill or injured patients has been devised by scientists supported by the National Institute of General Medical Sciences.

The small, wristwatch-like sensor detects subtle danger signals in breathing patterns by measuring automatically through the intact skin the amount of carbon dioxide in a patient's bloodstream.

CO₂ Level May Rise

A rising blood level of carbon dioxide is a sign of severely disturbed breathing. Physicians alerted to this condition can act immediately to begin life-saving respiration therapy for endangered patients.

Developed by a team of doctors and engineers at Johns Hopkins University School of Medicine, the new instrument is expected to be useful for general hospital use before the end of this year.

The university project is part of a major national biomedical engineering research program supported by NIGMS to improve and expand health services.

It is believed the instrument will help reduce substantially the tragic toll of Americans who die each year from acute respiratory disorders.

This includes 20,000 newborn infants who die in the first 5 days of life from an occult breathing disorder known as "acute respiratory syndrome," more than 17,000 patients who die from asphyxemia, and many others who suffer loss of respiration due to traumatic injuries.

Dr. Richard J. Johns, who heads the research team, said the new sensor is far simpler and requires less time and effort than other procedures now used to monitor respiratory function.

It consists of an electrode and cylindrical holder supported by a contoured lead band that fits around the patient's arm or wrist.

A rising blood level of carbon dioxide is a sign of severely disturbed breathing. Physicians alerted to this condition can act immediately to begin life-saving respiration therapy for endangered patients.

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Latest Participants in NIH Visiting Scientists Program Listed Here

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5/29—Dr. Kevin O'Brien, New Zealand, Cardiology Branch. Sponsor: Dr. Stephen Epstein, NHI, Bldg. 10, Rm. 7B14.

5/30—Dr. Pietro F. Spano, Italy, Laboratory of Preclinical Pharmacology. Sponsor: Dr. Erminio Costa, NIMH, St. Elizabeth's Hospital.

5/31—Dr. Marie Bruckova, Czechoslovakia, Respiratory Virus Section. Sponsor: Dr. Robert M. Chockey, NIAID, Bldg. 7, Rm. 392.

6/1—Dr. Janice Chou, Taiwan, Section on Enzymes and Cellulose Biochemistry. Sponsor: Dr. William B. Jakoby, NIAID, Bldg. 10, Rm. 9N109.

6/3—Dr. V. Raghupathy Sarma, India, Section on Molecular Structure. Sponsor: Dr. David R. Davies, NIAID, Bldg. 2, Rm. 311.

6/4—Miss Marynie Rick, Australia, Division of Environmental Health Sciences. Sponsor: Dr. Paul Kotin, DEHS, Research Triangle Park, N.C.

6/5—Dr. Haruhiko Aogugi, Japan, Laboratory of Chemistry. Sponsor: Dr. Bernard Witkop, NIAID, Bldg. 4, Rm. 330.

6/6—Dr. Pradman K. Qasha, India, Laboratory of Biology of Viruses. Sponsor: Dr. Norman P. Saltzman, NIAID, Bldg. 10, Rm. 1N280.

6/10—Dr. V. Raghupathy Sarma, India, Section on Molecular Structure. Sponsor: Dr. David R. Davies, NIAID, Bldg. 2, Rm. 311.

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2 Nurses Receive Medal For Hazardous Service In Vietnam From AID

Helen V. Foerst and Irene R. Martin, registered nurses in the Division of Nursing, Bureau of Health Manpower, were honored by the Bureau for Vietnam, Agency for International Development, at its recent Annual Honor Awards ceremony.

The two nurses received the Medal for Civilian Service in Vietnam which was given for the first time this year.

This new award, at the suggestion of President Johnson, was established to honor civilians who served in Vietnam under the extraordinary and hazardous conditions existing since January 1962.

Both Miss Foerst and Miss Martin served as public health nurse advisors to the Vietnamese Ministry of Health during this period.

From 1962 to 1965 Miss Foerst helped to establish preventive health services in rural villages throughout South Vietnam and to develop surgical service teams for hospitals in the provinces.

For a time, she served as chief nurse advisor for both United States and Vietnamese nursing personnel long-term observation.

In 1963 and 1964 Miss Martin helped to formulate plans for training in public health for students from the School of Nursing in Cholon, and to incorporate public health concepts into the curriculum.

CC Blood Bank Reports On Donors' High Status

Five donors achieved a special status at the Clinical Center Blood Bank, Howard P. Drew, NLM, attaining the 8-gallon mark, Paul V. de Porte, DRS, reached the 4-gallon mark, and Ernest McDaniel, NIAMD, the 3-gallon mark.

Drs. Leonard I. Peurlin, NIMH, and Lee Van Lenten, NIAMD, reached the 2-gallon mark.

Six others joined the gallon donor club. They are: Dr. Sidney S. Chernick, NIAMD; George W. Goertz, NINDB; and Donald A. James, DRS.

Also, Dr. James F. Kavanagh, NICHD; James R. Horine, DRS; and Dr. Marian Webster, NIH.

Drug Film Shown July 16-17

A reminder—"Beyond LSD," the second of two documentary films sponsored by the Employee Health Service, will be shown to NIH personnel.

The film will be viewed in the CC auditorium on July 16 at 11:30 a.m. and 12:15 p.m., and at the Westwood Building, Conference Room A, on July 17 at 1:30 and 2:30 p.m.

The film deals with the causes leading to drug abuse, and the lack of communication between teenagers and the Establishment.

There has been a greater decline in the infant mortality rate in the past 4 years—now, 22 deaths for every 1,000 live births—than in the preceding ten.

The NIH RECORD
2 Nurses Receive Medal

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Dr. Gort L. Laqueur, chief, NIAMD Laboratory of Experimental Pathology, is shown here holding several cycad seeds from the Cycos Cinciralis. In his other hand is a picture of another strain of cycad plant, the Central and South African variety known as Encephalartos horridus.—Photo by Ralph Bredland.

CYCAD
(Continued from Page 1)

during early development and emphasizes the need for further studies to learn more about environmental chemical factors which might be responsible for tumor development in childhood or later life.

Impregnated rats were fed crude cycad meal containing 3 percent cycasin at various periods of gestation. Following delivery, 29 of the offspring and most mothers were sacrificed in order to determine the early effects of cycasin.

Some Serve as Controls

The remaining young were weaned at 28 days and placed in individual cages for long-term observation. Ten untreated mothers and their respective offspring served as controls.

Eighty-one rats exposed in utero survived 6 months or longer and, at autopsy, 15 of these, or 18.5 percent, had tumors at various sites, whereas none were formed among the controls.

The tumors were seen frequently in the brain and small intestine, organs rarely involved in cycad feeding experiments in older rats; however, the minimal time interval required for tumor production, 6 months, was essentially the same.

An unusually high death rate of 42 percent prior to weaning was traced to hypoplastic mammary glands and a decreased suckling stimulus normally necessary to maintain lactation.

Subsequent studies have shown that the carcinogenic agent contained in cycad meal was carried transplacentally to the embryos or fetuses from which it was isolated and, in this manner, induced tumors at various sites in the offspring.

It was concluded that the nglycone of cycasin can be added to the group of carcinogens known to cross the placenta.

There are accounts of ill effects in humans who have used cycads as food and medicine. Casualties have been reported most frequently during periods of extreme food shortage and are often traced to improper preparation.

Human Ailments Vary

Human ailments range from minor and vague complaints to severe and often fatal illnesses. Symptoms include headache, vomiting, vertigo, stupor, diarrhea, abdominal cramps, muscle paralysis, and death. People who use this plant have long recognized its toxicity and routinely take precautions in its preparation.

The cycad has also been held responsible for heavy losses of cattle who feed on this plant. In cattle, particularly, continued ingestion of cycads has been thought to produce an irreversible paralysis of the hind extremities.

Belong to Ancient Family

Cycads belong to an ancient family, Cycadaceae which were widely distributed during the greater part of the Mesozoic era. They are now restricted to tropical and subtropical regions of the world where they are well adapted to adverse conditions and survive when other plants are destroyed by natural elements.

For peoples living where cycads are native, these plants provide a staple and emergency food. Their nutritional value lies chiefly in the edible starch extracted from the roots, seeds, stems, and leaves.

As a medicinal plant, cycads are used for a variety of ailments. The cycad has also been used as laundry starch, as a source for alcoholic beverages, fertilizer, and pillow and mattress stuffing, and

in the manufacture of small boxes and plates.

Although cycad starch is no longer prepared commercially in the United States, it was a pioneer industry in southern Florida during the last century. The plant was known as Zamia, until the Miami River once processed 10 to 15 tons of Zamia root weekly. "Florida arrowroot," as it is also known, was used in preparing of infant food, biscuits, spaghetti, and chocolates.

None of these factors is indicative that cycads cause cancer in man. Nor are data adequate to show a high rate of cancer among those who have substituted improperly prepared cycad products.

Nonetheless, cycad compounds have produced cancerous tumors in a variety of laboratory animals and it is possible that they could become carcinogenic agents after ingestion in humans.

A study is underway on a Japanese island of natives who subsisted largely on cycads during a time of famine. The chief investigator is Dr. I. Hirono of Gifu University, Japan.

Dr. Hirono worked closely at NIH with Drs. Laqueur and Spatz, and his current research on the carcinogenicity of cycasin is supported by the National Cancer Institute.
Researchers Link Hurler's Syndrome to Faulty Mucopolysaccharide Degradation

Scientists of the National Institute of Arthritis and Metabolic Diseases have shown that the abnormal, excessive accumulation of mucopolysaccharide in the tissues of patients with Hurler's syndrome results from faulty intracellular degradation, rather than from excessive synthesis or defective secretion. These findings were reported by Dr. J. C. Fratantoni, Dr. C. W. Hall, and Dr. E. F. Neufeld of the Institute's Laboratory of Biochemistry and Metabolism.

Hurler's syndrome is an uncommon hereditary disorder of mucopolysaccharide metabolism characterized by skeletal deformities, mental retardation, and early death.

The basic abnormality involves excessive intracellular accumulation of chondroitin sulfate B and heparitin monosulfate.

Abnormality Clarified

It has not been known, however, whether this is due to excessive synthesis, defective secretion, or insufficient degradation of these mucopolysaccharides.

Studies of sulfated mucopolysaccharide turnover in fibroblasts derived from the skin of patients with either Hurler's or Hunter's syndrome, a related disorder, now have provided evidence that these cells accumulate mucopolysaccharide because of increased intracellular degradation. This finding narrows the search for the precise enzymatic defect in these disorders.

Cells Assayed

Fibroblasts were grown from skin biopsies or infant foreskin obtained from patients with Hurler's or Hunter's syndrome and from infant and adult control subjects.

Patterns of label accumulation differed markedly in normal and diseased cells over extended periods, although the early rates of accumulation were identical. Se-cretion of mucopolysaccharide into the medium was found in the medium as di-analyzable small fragments, indicating the loss takes place after intracellular degradation.

Thus, in diseased cells, the intracellular pool seems to increase due to impaired degradation, the cytoplasm becomes engorged with mucopolysaccharide, and this accumulation results in the clinically observed abnormalities.
Joseph Brown Receives Career Education Award For Study at Indiana U.

By Hedy W. Shpritz

When NIDR's Joseph Millard Brown is called a ten o'clock scholar, you can be sure the phrase is not describing a Johnny-come-lately dragging his books behind him, but an energetic, keen young man taking graduate studies at night and, by day, assisting Dr. Robert J. Nelsen, chief of NIDR's Collaborative Research Office, in administering a growing research contracts program.

But in September all this changes, for Joe Brown's job assignment will be that of a full-time student for a year at the University of Indiana.

NIH Supports Award

This switch is made possible by a Career Education Award from the National Institute of Public Affairs. Support for the award comes primarily from the NIH.

Combining education with employment is a way of life for Joe. He has been a family man since he was an undergraduate at the University of Maryland where he received his B.A. in 1961.

He and his wife Naomi now have three children: Kevin, age 10; Pam, 6, and Marc, 2. Since he came to the NIH in 1965, he has continued graduate work at the American University.

Last year he was elected to Pi Sigma Alpha, the national political science honor society. He received an M.A. in Public Administration just this past February. More recently, he began work toward a Ph.D. in Government.

To balance this busy work-study schedule, Joe enjoys evenings with his family and squeezes in time for some hobbies. A favorite activity is growing roses. bicycling keeps him fit, while fishing provides a relaxing change of pace.

The year ahead at Indiana will not only advance his graduate program but, as he views it, will "provide an opportunity to step back from day-to-day detail to take a broad view of public needs and consider ways that Government policy can best meet them."

After a year engrossed in study, Joe will be ready to get back to the action on which he thrives.

Joseph Brown will once again tread a college campus, as a graduate student concentrating on Government courses.

NIH Designers and Artists Win Awards

Following the Society of Federal Artists and Designers awards ceremony, NIH employees visit with CSC Chairman John W. Macy, Jr. (third from right). Pictured (from left) are: William E. Bowman; Linda J. Brown; Gerald D. Pavey; Charles C. Shinn, chief, MAPB; Mr. Macy; Elaine S. Hamilton, and Ronald B. Winterrowd, chief, General Illustration Section, MAPB. - Photo by Ed Hubbard.

Designers and artists of NIH's Medical Arts and Photography Branch, Division of Research Services, received 10 awards at the Society of Federal Artists and Designers' recent annual competition.

Awards for excellence were made in the following categories:

- Poster Design - Linda J. Brown for the Clinical Center poster entitled "Twentieth Century Epidemiology."
- Publication Design, Cover - William E. Bowman for "3rd National Cancer Survey," NCI.
- Publication Design, Total Unit - Gerald D. Pavey for "A Career in Administration at the National Institutes of Health," OD.
- Awards of merit were presented in the following categories:
  - Exhibit Design - Elaine S. Hamilton for "A Spectrum of Careers in Dental Research," NIDR.
  - Poster Design - three awards to Ronald R. Winterrowd and Gerald D. Pavey, Combined Federal Campaign posters, NIAID.
  - Letterheads - Gerald D. Pavey for the DRM "Regional Medical Program."
  - Poster Design - William E. Bowman for a poster entitled "National Institute of General Medical Sciences."

J. Solon Mordell Retires From Neurology Institute

J. Solon Mordell retired recently from the National Institute of Neurological Diseases and Blindness.

He came there in 1962, and served as executive secretary of the Communicative Disorders Research Training Committee, Training Grants and Awards Branch, Extramural Programs.
DR. FALKNER
(Continued from Page 1)

fessor of Pediatrics at the University. He has also been chief of staff at the Louisville Children's Hospital since 1964.

Dr. Falkner attended Malvern College; Corpus Christi College, Cambridge University, and the London Hospital Medical College in England, receiving his medical degree in 1945.

Has Broad Experience

He was Chief Resident at the London Hospital. He also obtained special training at the Children's Hospital in London, and Guy's Hospital in London.

After conducting research in pediatrics at the University of Liverpool, Dr. Falkner was, for the next 6 years, on the staff of the Institute of Child Health, The University of London, and the Hospital for Sick Children also in London. He was an assistant to Sir Alan Moncrieff.

While on a year's leave of absence, Dr. Falkner was associated with Professor Robert Debre at the Hospital des Enfants Malades in Paris where he set up the organization for the present eight international coordinated Centre International de l'Enfance Growth Studies.

Was Markle Scholar

From 1957 to 1962 he was a Markle Scholar in Medical Science and the following year was admitted as a Member of the Royal College of Physicians.

Dr. Falkner became a United States citizen in 1964.

He is a Fellow of the American Academy of Pediatrics; a Diplomate of the American Board of Clinical Nutrition, and a member of many societies, including the American Pediatric Society and the Society for Pediatric Research.

--Photo by Tom Joy.

DBS Holds Workshop on Lab Techniques

Technicians representing 11 licensed manufacturers of viral vaccine participated recently in a 3-day DBS workshop on fluorescent antibody techniques for detecting latent viruses conducted by Dr. Kendall O. Smith of the Laboratory of Biophysics and Biochemistry. At left, technicians prepare to stain cells with fluorescent antibody which are then examined by fluorescent microscopy.

MR. SHARKEY
(Continued from Page 1)

Dr. Normand R. Goulet, assistant chief of the General Research Support Branch, Division of Research Facilities and Resources, was recently given the Alumni Award for Personal Achievement from his undergraduate alma mater, Providence College.

The citation accompanying the award described Dr. Goulet as, "A rare combination of productive scientist and skilled administrator..." Dr. Goulet received his Ph.D. at the University of Michigan. While there he was chosen research assistant for the Salt Poliomyelitis Vaccine Evaluation Group.

He also served as research associate and virologist with several drug companies. In 1964 Dr. Goulet became a virology instructor at Rutgers—the State University. He also continued his work in industrial virology.

Dr. Goulet's career as a science administrator with NIH began in 1965, when he joined the General Research Support Branch. He was named assistant chief of the Branch in 1967.

Conference on Techniques Reveals New Tools Lead To Improvement in Drugs

Powerful new analytical tools for clinical research are creating a revolution in the study of drug metabolism and leading to the development of safer, more effective drugs.

This was the major theme at a recent 3-day Conference on Applications of Newer Physical Techniques to the Study of Drug Metabolism sponsored by the National Institute of General Medical Sciences, the National Academy of Sciences, and the Pharmaceutical Manufacturers Association Foundation.

Four hundred basic and clinical pharmaceutical scientists attended the sessions at the National Bureau of Standards, Gaithersburg, Md.

Chemical and physical scientists described revolutionary new tools that track, separate, and detect drugs, drug metabolites, and other foreign substances in blood, urine, and body tissues.

Also, participants at the conference discussed the latest biological uses of gas-liquid chromatography, fluorescence and phosphorescence spectrometry, mass spectrometry, x-ray diffractometry, nuclear magnetic resonance, radionuagrapy, oscillographic polography, radioactive tracers, and various separation techniques.

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Congress on Physiology Requires Advance Registrations by July 15

The deadline for advance registration for the XXIV International Congress of Physiological Sciences is July 16.

The Congress will be held at the Sheraton-Park and Shoreham Hotels in Washington, D.C. August 25-31.

Further information and registration blanks may be obtained from the Congress Secretariat, 9650 Rockville Pike, Bethesda, Md. 20014.

--Photo by Roland Schnick.