

Volume I

# Focus

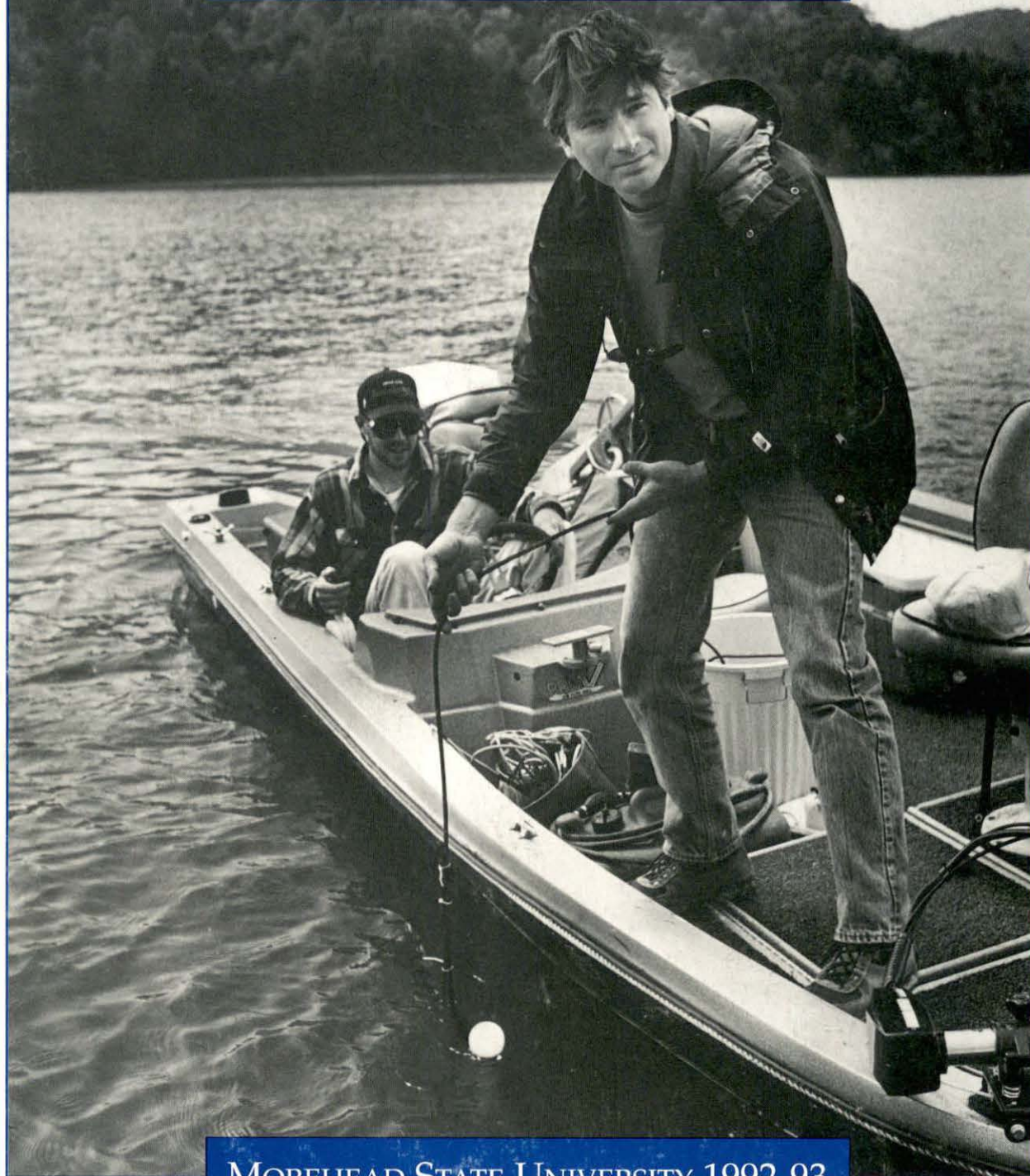
Number 2

ON RESEARCH & CREATIVE PROJECTS

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MOREHEAD STATE UNIVERSITY 1992-93



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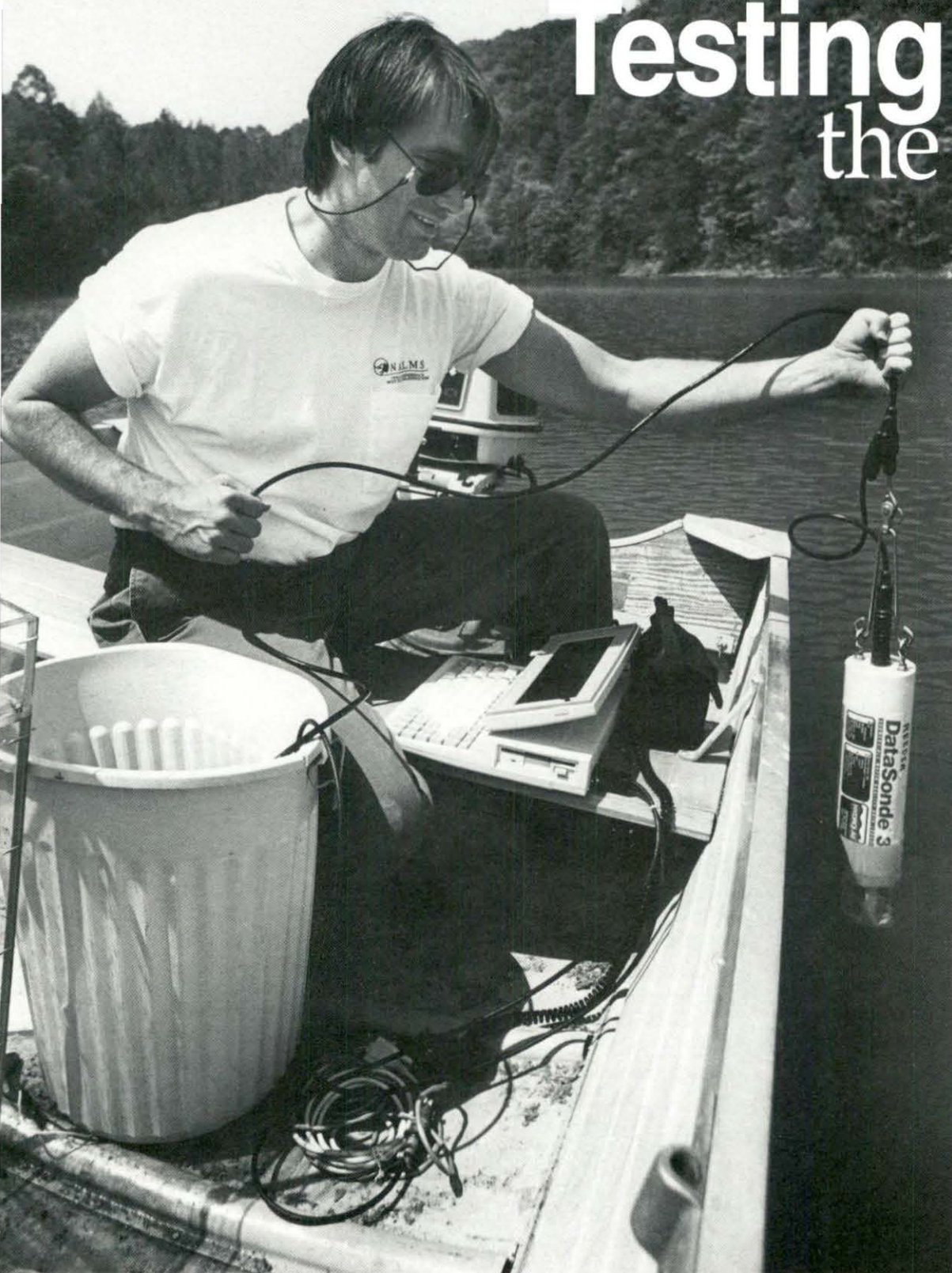
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Dr. Brian C. Reeder and graduate student Timothy Spier test  
water quality at Cave Run Lake, Morehead, Kentucky

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# Testing the



Dr. Brian C. Reeder on MSU's Eagle Lake preparing to submerge a hydrolat



# MSU Biologist Brian Reeder gathers information on the environmental health of Eastern Kentucky lakes

by Denise M. Lacy

Concern about the environment has been steadily increasing over the last several years. The American public has worried about the ozone layer, the rain forest, and safe water. MSU associate professor of biological and environmental sciences, Dr. Brian Reeder, is currently conducting research that may increase our understanding of the water quality in Eastern Kentucky. His studies have been funded by the Environmental Protection Agency through the Kentucky Environmental Resource Cabinet Division of Water and the Division of Fish and Wildlife.

Dr. Reeder's research attempts to determine the "ecological health" of lakes in Eastern Kentucky. "We're trying to get baseline data to see if there are any potential problems in Eastern Kentucky," says Dr. Reeder. Often, significant pollution problems can be detected in lakes, as they are the receiving points for all water in a geographical area. Biological and chemical information retrieved from lakes indicates the level of environmental quality for the entire watershed.

When testing the quality of the water, several factors are considered. Researchers measure nitrogen and phosphorus levels, which determine the amounts of algae and zooplankton present in the lake. When nitrogen and phosphorus levels are high, algae populations may increase until the mass of decaying corpses use all oxygen in the water. This bacterial activity supported by the

dead algae creates unhealthy "eutrophic" water. Eutrophic, or "productive" water is often characterized by algal scums and low fish diversity resulting in poorer water quality. Oligotrophic, or "low-production" water, is low in nitrogen and phosphorus and is therefore not crowded with bacteria and various aquatic species that consume the oxygen. If algal production is low, all aquatic life production is low because algae is the base of the aquatic food chain. These lakes often have a greater variety of game fish.

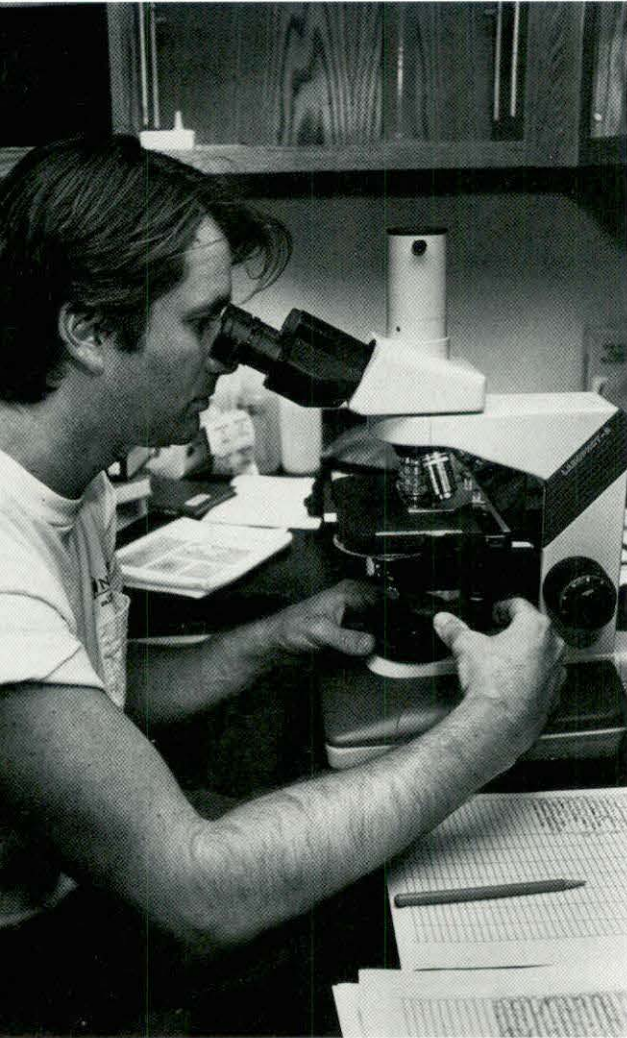
To date, Dr. Reeder has tested Grayson Lake, Eagle Lake, and Cave Run Lake, all of which he found to be oligotrophic. Dr. Reeder's research team plans to explore other areas of Eastern Kentucky to compare waters. If the study indicates eutrophic, or low water quality, Dr. Reeder will need additional funding to research sources of pollution.

One potential pollutant is caused by the overfertilization of farmland. Fertilizer and sewage are excellent sources of nitrogen and phosphorus, which promote unhealthy water. Additionally, strip mining is often responsible for pollution. Dr. Reeder hopes, if lakes are found to contain poor quality water, he "is given the opportunity to do more intensive study." His ultimate aim is to make suggestions concerning the watershed that would improve the quality of life in the area.

"One of the beauties of this whole project is that we got a lot of money to buy equipment and supplies, which I can use both



A microscope specially designed to identify algae, is one of the new pieces of equipment funded by the grant.



for my research and teaching." Dr. Reeder's laboratory now includes an explosion-proof perchloric digestion hood which helps gather information about phosphorus; a balance, for fine measuring of samples; and a microscope with a contrast system to help in the identification of algae and zooplankton.

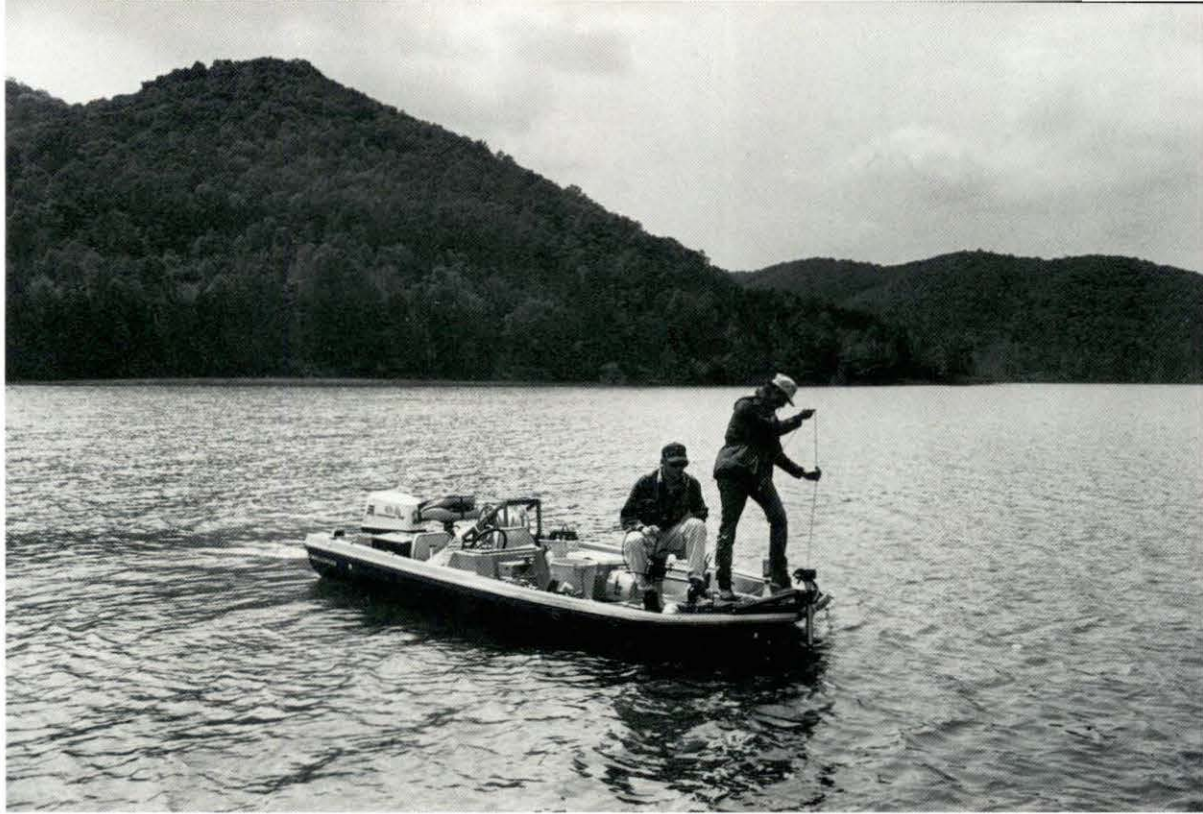
Several pieces of field equipment were acquired for use on the testing site. A fluorometer, which measures chlorophyll—the major pigment in all green plants including algae—was funded through the grant. The team can pump algae through the fluorometer and obtain measurements while on the boat.

A submersible computer, the hydrolab, has the capability of recording different measurements—such as fluctuations in oxygen levels—at various water depths. "I can tell exactly what is going on in the system," Dr. Reeder explained, "and I can correlate that to other lake processes. I can take oxygen data along with continuous data of sunlight and see how the sun is driving the ecosystem."

A field spectrophotometer allows analysis of water to take place at the testing site. Dr. Reeder says this is a "big advantage" because it eliminates the problem of samples deteriorating before analysis. "We use it for some of the nutrients in the field that have to be analyzed immediately. The quicker, the more accurate."

Dr. Reeder says he believes one of the best things about the new equipment is that it gives the students "cutting edge" experiences. "All of my research involves students" says Dr. Reeder. "My limnology class and ecology class have helped me record data for this project. They get training they would never have gotten in a conventional lab." He says





Dr. Reeder and graduate student Timothy Spier on Cave Run Lake, Morehead, Kentucky

the students are getting a rare experiences with sophisticated equipment. Graduate student Timothy Spier says Dr. Reeder does things the “best way possible.” Spier is confident that the methodologies he is using will be accepted as complete and accurate.

Steve Davis, also a graduate student, had worked with Dr. Reeder in South Carolina for two summers gaining respect for the researcher and professor. “He is the reason I came to MSU” said Davis. “I was very impressed with the research, and ecstatic when I found out that I got to be a part of it.”

Future work includes helping monitor fertilization pollution of Grayson Lake by balancing the amount of nutrients to enhance the production of game fish. Additionally, Dr. Reeder may begin analysis on wetlands being constructed as waste treatment facilities. Dr. Reeder describes his work as “ecological engineering”—a way of optimizing nature to solve human problems.



# Sounding the call



MTEP Coordinator Earnestine Winfield always has time for her students.



# for TEACHERS

## MSU's Minority Teacher Education Program strives to increase numbers of African-American teachers in Kentucky

by Jeffrey N. Eaglin

**B**lack teachers represented only 3.8 percent of Kentucky's public school teachers during 1991-92—down from 4.1 percent in 1987-88, and the lowest percentage of black teachers since 1953-54, according to a recent report by the Kentucky Commission on Human Rights.

In an effort to reverse this trend, the Kentucky Department of Education (KDE) and the Education Professional Standards Board (EPSB) submitted a second report containing recommendations to resolve the issue. State legislators responded with the passage of House Bill 468, "which provides for a Minority Teacher Recruitment and Training Program," and Senate Bill 346, "which directs three state boards to develop a coordinated strategic plan to increase the number of minority teachers in the Commonwealth."

Ernestine M. Winfield serves as coordinator of Morehead State University's Minority Teacher Education Program (MTEP). She says the program is designed "to identify, recruit, admit, and graduate minority students in teacher education programs with the ultimate goal that they would be employed to teach." Dr. Sylvester Kohut Jr., dean of the College of Education and Behavioral Sciences, and Dr. William Weikel, chair of the Department of Leadership and Secondary Education assisted Winfield in running the program.

Funded by MSU, the Council on Higher Education, and KDE, the program evolved from a partnership between MSU and Jefferson and Fayette County public school systems and was designed to provide academic opportunities to minority students interested in becoming teachers. The MTEP includes a network of in-school contacts with teachers, counselors and administrators who assist in recruitment efforts; specified faculty and staff take part in "Meet MSU Nights" and other recruiting activities. Additionally, the Office of Minority Student Affairs, headed by Jerry Gore, and the Office of Admissions work closely with the MTEP to identify potential students.

After graduating from the MTEP, students are encouraged to return to their respective school districts to begin their teaching careers. According to Winfield, this expands MSU's contacts to areas of Kentucky with large percentages of minorities and attracts potential students to the MTEP at MSU. Dr. Kohut believes it is important not to lose MSU graduates to out-of-state competition in order for Kentucky to improve its minority teacher-student ratio.

The program sponsors an annual summer event which is designed to recruit Afro-American students to the education program at MSU. Kentucky high school minority students with an interest in teaching are selected on a first-come, first-serve basis to spend a week at the University. During the



visit, participants are introduced to faculty, staff and administrators of the teacher education program. They also participate in classes, tour the University, and engage in social and recreational activities such as boating, swimming, cook-outs and basketball.

Winfield says current MTEP students are used as resident hall counselors during the summer program. Many counselors are from the same high schools and school districts as the recruits, enabling them to become accustomed to the University environment.

Anita Johnson, a secondary education sophomore from Louisville, participated in the summer program twice as a recruit, and once as a counselor. She plans to be a counselor in the 1994 summer program. Johnson says the summer program allowed her to get a feel for the teaching styles of MSU professors, and was a strong factor in her choice to attend the University.

Many high school students involved with the MTEP experience financial difficulties which prevent them from attending college. To address this problem, the Kentucky Scholarship in Teacher Education for Minorities (K-STEM), funded through the KDE and the Center for Recruitment and Retention of Minorities in Education, awards up to nine \$3,000 scholarships to minority students from Kentucky. These scholarships are awarded to students who have been accepted to teacher education programs at public Kentucky universities or colleges. Two MSU students have been awarded scholarships: Kimberly Simpson from Louisville, and Mireya Guerra-Whitaker from Mt. Sterling.

Additional funding comes from MSU's University Scholarship Program which provides a pool of \$30,000 to be used for \$1,000 renewable awards for students who meet MTEP requirements. Students interested in the program may also be eligible to receive further financial assistance in the form of housing grants or MSU-MTEP awards and scholarships. A student may retain the award



Engaging computer skills, students are trained to help in recruitment efforts.



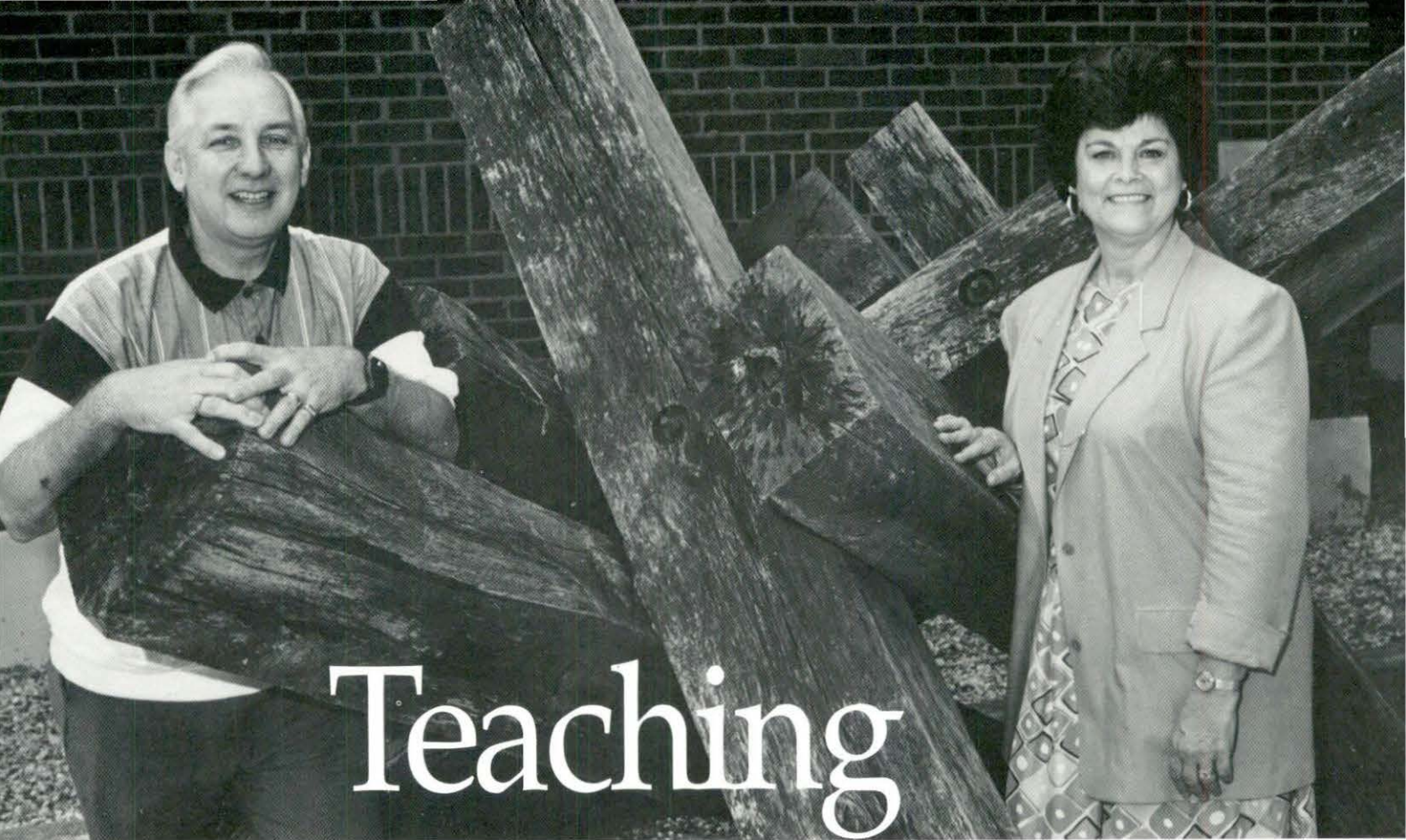
for a maximum of eight consecutive semesters of undergraduate study provided the student maintains a specified GPA and a course of study in education or education-related courses.

Four MTEP participants graduated from MSU in December of 1993: Dionne Coatie, Anthony Gaines, Bertha J. Johnson and Dwayne D. Roberts. A record number of MTEP students graduated in May of 1994: Cynthia Eddings, James R. Hodge, Rita Holt, Tiffany Kelly, Michael Jones, Kimberly Simpson and Natacha Woods received degrees from their specific field of study.



Dr. Sylvester Kohut, Jr., while serving as dean of the College of Education and Behavioral Sciences, advises Earnestine Winfield on recruitment.





# Teaching

## THE TEACHERS

MSU helps grade school  
teachers build math skills  
of at-risk students

by Denise M. Lacy

A sixth grade girl shifts uneasily in her seat. She stares at the paper on the desk in front of her, numbers clinging to the page in a foreign jumble. She wants badly to do well on this test, but lately she feels she is just not good at mathematics.



She has math anxiety, a confidence problem many students develop around the sixth grade. Perhaps she has a parent who downplays the importance of math, or she has been told that only boys are good at it. There are many reasons for math anxiety, and in combination with an unstable home environment, a child's education can be threatened.

Poverty and broken homes are among the most prevalent elements in Eastern Kentucky households affecting childrens' performance at school. Students trying to cope in such situations are considered at-risk. Teachers should be able to recognize at-risk students by observing such traits as poor attention span and behavior problems. But being able to recognize the tell-tale signs is not enough; teachers need to know the best methods for remediating the problem.

Dr. Ben V. Flora, professor of mathematics, and Joyce F. Saxon, assistant professor of mathematics, received one of two grants funded by the Appalachian Regional Commission (ARC) through the Kentucky Department of Education to train mathematics teachers of grades 6-12 how to effectively improve the performance of at-risk students. "Our responsibility was to design the training," said Dr. Flora. The first part of the training introduced these teachers to new ideas about how to recognize at-risk students and how to expand their own teaching methods to remediate the problems exhibited. The teachers then used this information in their own counties to identify at least two at-risk students. The teachers worked after school for two days a week for ten weeks, trying some of the methods they had learned. He and Saxon trained 40 middle grade and high school mathematics teachers in 11 Eastern Kentucky counties.

Two methods of mathematics remediation were found to be effective: mentoring, where a

peer or parent tutors the student in mathematics outside the classroom time. An additional form of tutoring is provided as the other method; sessions pre-introduce the topic of the next day's class. Saxon and Dr. Flora both expressed the belief that this pre-introduction of topics helps the student feel more confident in the classroom. That confidence enables students to participate more, and ultimately, to perform better.

The newly-trained teachers were instructed to prepare grant proposals and encouraged to apply for "mini-grants", which would operate through funding related to the ARC grant. At least seven of these mini-grants, involving about 50 percent of the teachers were submitted and funded. Many were used for summer and after-school tutorial programs.

Dr. Flora and Saxon intended the effects of this training to extend past the immediate project. Their ultimate intention was that teachers involved in training would share their techniques and ideas with colleagues, thereby reaching a larger group of students.





Dr. Byron Johnson and Dr. David Rudy discuss rehabilitation programs with inmates at Eastern Kentucky Correctional Complex in West Liberty.



# Prison Rehabilitation Released Clean

Getting inmates off drugs retrains criminals for life on the streets

by Denise M. Lacy

Over half of all state prisoners were regular drug users before their arrest. This is a trend across the country which is finally drawing attention from the federal government. The need to treat offenders is being recognized and that treatment may be the first step in discouraging repetition of drug-related crimes.

The Bureau of Justice Systems in Washington, D.C., has allocated money to institutions nationwide to implement and operate substance-abuse treatment programs. Kentucky's Department of Corrections is one such institution. Subsequently, the Department of Corrections is required, as part of this grant, to fund an evaluation of the program.

Research was conducted by MSU's Dr. Byron Johnson, associate professor of sociology and director of the Institute for Correctional Research and Training, and Dr. David Rudy, department chair of sociology, social work and corrections. Dr. Johnson has spent the last several years involved with criminology studies and research. Dr. Rudy has nearly two decades of experience in substance-abuse research, particularly alcohol-related problems. This combination of experience made these colleagues an exceptionally strong team, well-suited to this study.

The evaluation started after the program was already in existence, a condition both professors described as unfortunate. The research team was employed to evaluate how effectively the programs were operating. The two sites of investigation were the Roeder

Correctional Complex located in Lagrange, Kentucky, a classification center for men, and the Kentucky Correctional Institution for Women (KCIW)—the only women's prison in the state—in Pee wee Valley. These institutions house the substance-abuse treatment programs.

For the women, the process is as follows: if an inmate at KCIW is diagnosed with a substance-abuse problem, she can volunteer for treatment. The treatment facility is located on the prison grounds in a building apart from the women's housing. Though prisoners are not transferred to a separate facility for treatment, they are kept apart from the prison community.

For men, the process is more complicated: upon being sentenced, an offender is sent to Roeder, where he undergoes a battery of diagnostic tests, including evaluation of as personality type and vocational skills. In the past, a series of tests helped to determine whether or not the offender had a substance-abuse problem, but the tests were considered too costly and discontinued. Now there is a more reliable, informal system for diagnosis in which the nature of a prisoner's offense is taken into consideration. Inmates serving time for drug offenses typically have substance-abuse problems.

After the diagnosis process is complete, the men are sent to their permanent housing facility, for example Eastern Kentucky Correctional Complex (EKCC) in West Liberty. There they would have the opportunity to volunteer to return to Roeder to participate in



the substance-abuse treatment program, would remain through the duration of the program, and then be returned to EKCC.

Drs. Johnson and Rudy employ a number of methods in their evaluation. They observe group-therapy sessions offered as part of the rehabilitation and evaluate feedback from program staff and participants. The most important element of the evaluation is a questionnaire developed by the researchers that inmates complete at the conclusion of the program.

Response to the survey has been encouraging. Johnson says he believes that "most of the inmates were looking for a chance to give some feedback, because they thought the program really helped them." Prisoners have described the program at Roeder as exceptional, stating that if an inmate attends the program with sincere intentions, it will help him come to grips with his substance abuse. At the same time, inmates point out some weaknesses of the program, saying that it is not realistic to expect to eliminate the problem. One reason is that offenders do not face the same temptations when they are incarcerated that they do when they are back on the streets.

As a result of these responses, the research team has made suggestions for the program's improvement. At Roeder, at least one of the suggestions has already been implemented. The inmates indicated the program would be more beneficial if it were lengthened. Consequently, the program has been extended from 60 to 90 days. Similar suggestions have been made for KCIW, but the facility is understaffed, the drug-abuse treatment program is much smaller, and suggestions cannot be as readily incorporated.

Dr. Johnson and Dr. Rudy use students to help them track the progress of inmates in the study. They "would love nothing more than to have graduate students doing master's research on these kinds of projects." As instructors, they are especially interested in student participation because they see

Corrections as a promising area of potential employment. "One of the important things," says Dr. Johnson, "is that not only does the University benefit, but so do our students." Many former students are already employed by the Department of Corrections.

One former student is Jennifer Fultz. She said student access to this kind of hands-on research is a necessary complement to theory taught in classrooms. "From the schoolbooks to the cellblock is a big difference," she stressed.

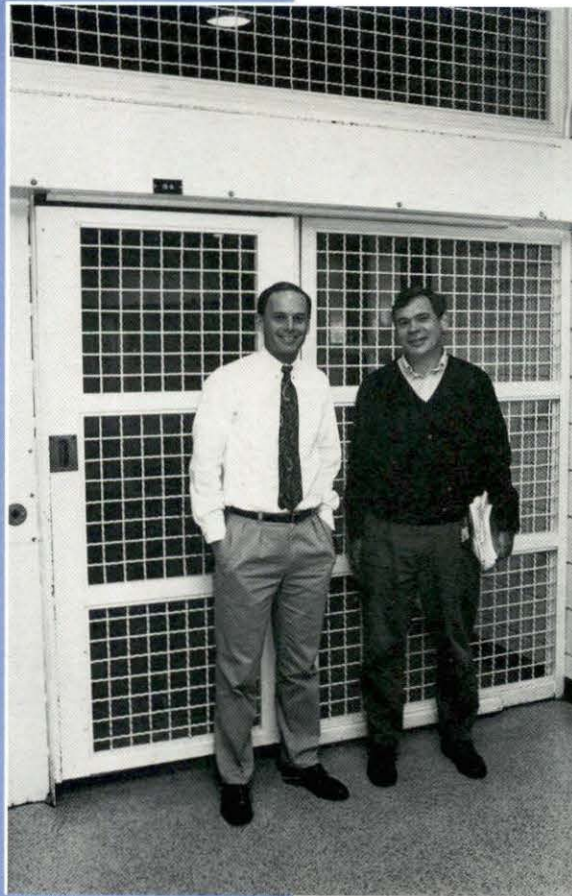
Ultimately, there are two major goals for the substance-abuse program. One is to help offenders overcome drug or alcohol problems. Rudy believes that many offenders volunteer for the program with a sincere desire to do something better with their lives. Another possible motivating force for inmates' volunteering is the hope that it may positively affect their parole chances, although, to date, there is no official arrangement of that kind. Johnson describes the typical participant as someone who is ready to admit he has a problem but has not had an opportunity for treatment in the past.

The second goal of the program is to reduce the rate of repeat offenders. A societal benefit should come as a result of the treatment prisoners receive while incarcerated.

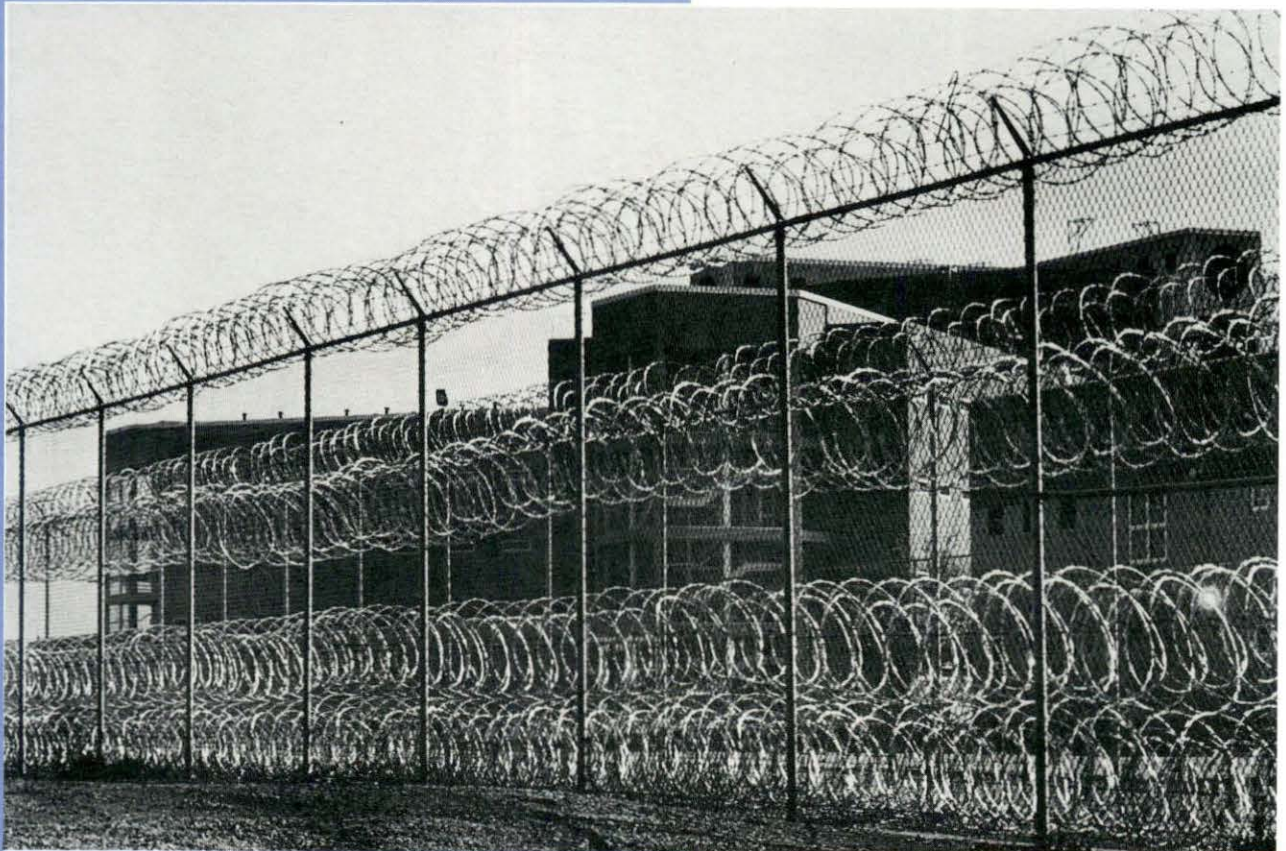
Drs. Johnson and Rudy, with Keith Kilty of Ohio State University, are in the process of proposing a broader study which would attempt to examine the program's successes and failures by evaluating the repeated drug use and crime rate of released offenders. Such a study could involve a number of states. If funded, the project would allow researchers to move beyond the scope inhibited by scant funds now allotted.

Despite the serious nature of the project, Dr. Rudy says that both he and Dr. Johnson have had a good time with this research. "It gave us an opportunity to escape campus once in a while and talk with people in the real world. Even if the real world happens to be a prison world."



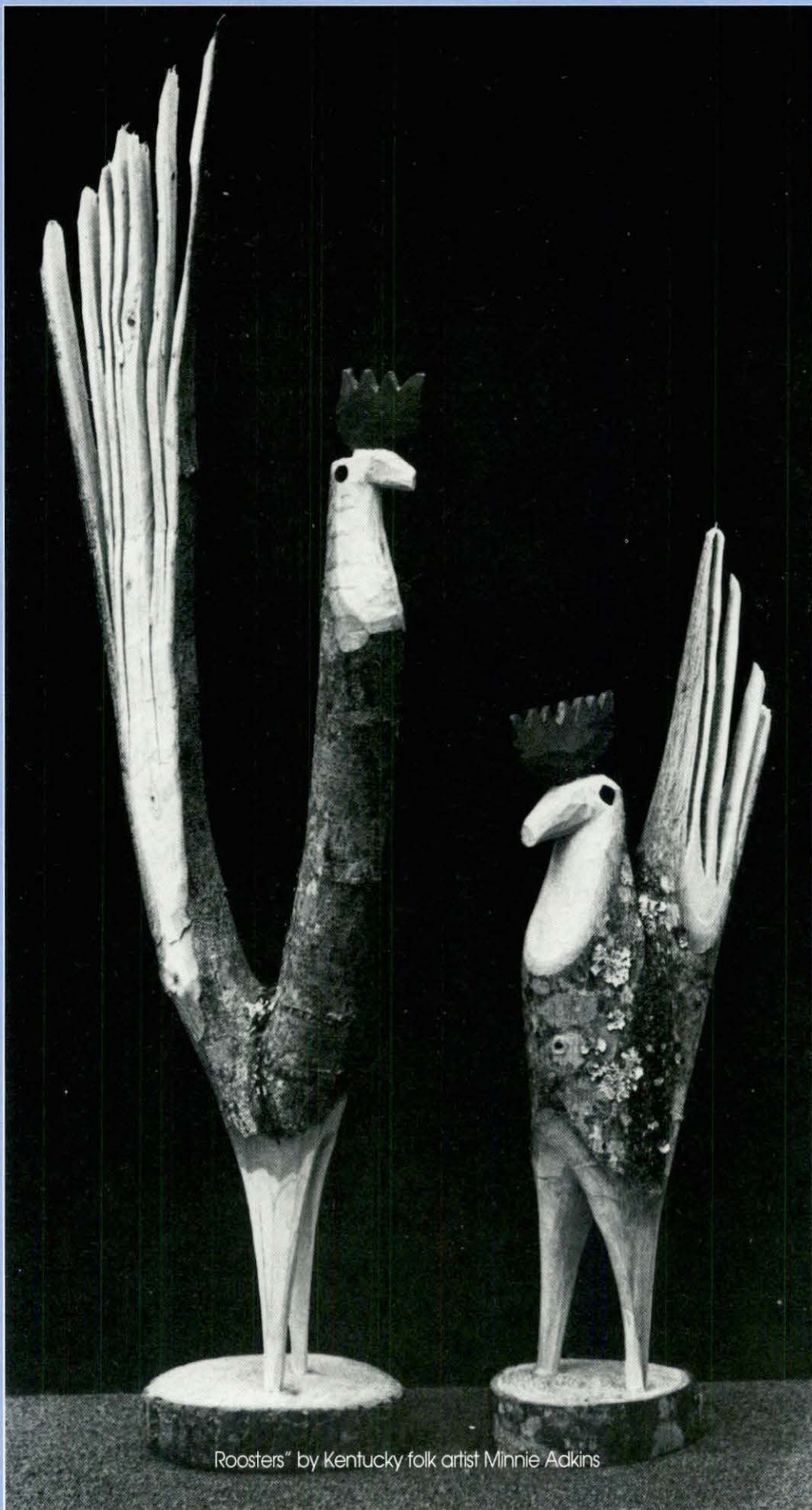


Dr. Johnson and Dr. Rudy  
inside the prison complex



Razor wire surrounds EKCC.





Roosters" by Kentucky folk artist Minnie Adkins



# FOLK ART:

## Revitalizing Eastern Kentucky Culture

Kentucky Folk Art Center brings  
once-ignored art form to prominence

by Pride Graff

A wood carving of a solitary cat, its single facial feature, an all-knowing smile, is the center of attention in the art-filled room. Ornately carved and painted walking sticks hang haphazardly wherever wall space is available. Each stick has a personality of its own.

This is folk art—a medium that can trigger emotional, religious, and even patriotic thoughts. The art form reflects the unique culture of Eastern Kentucky, one virtually ignored by museums and art galleries until the mid-1980's. These creations have been forged from the minds and hands of artists who have received no formal art training.

MSU has been a pioneer in focusing attention on contemporary folk art since the inception of its collection in 1985. Since that time, the collection has evolved from a handful of pieces housed in one room of MSU's Claypool-Young Art Building, to an impressive array of over 500 works located in a small house on campus known as the Kentucky Folk Art Center.

Adrian Swain, artistic director and curator of the Center, had envisioned developing the center into a nationally accredited museum. The need for additional space became a critical issue. For the conservation and proper display of the collection, specialized space became essential.

Under the leadership of MSU President Ronald G. Eaglin, a cooperative effort began in 1992 to procure an appropriate facility.

Swain, Dr. Wanda Bigham, special assistant to the president, and Porter Dailey, vice president of administration and fiscal services, prepared a grant proposal to obtain funding for the project from the state Transportation Cabinet through the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. The ISTEA funds are federal dollars available for projects addressing certain issues, including historic preservation and economic development. The proposal met both criteria.

The building chosen to become the Kentucky Folk Art Center was built in the early 1900's and was originally known as the Union Grocery building. Its location adjacent to the railroad track on First Street was important to the early Morehead economy.

On September 23, 1993, Governor Brereton Jones announced that a grant of \$542,400 was being awarded to MSU to acquire and renovate the Union Grocery building. The grant represented 80 percent of the projected construction cost. The remaining 20 percent—\$135,600—must come from public and private support.

The restoration of the building is an integral part of a series of proposed



renovations for the First Street area. Swain said "Our project is the cornerstone of a combined community effort to revitalize the First Street area of Morehead. Our goal is to eventually have tour buses visiting the Center." He said the revitalization of this area will offer opportunities for the development of new businesses.

Governor Jones also announced the approval of \$80,000 slated for restoration of the old train depot, built in 1904 and also located on First Street. That project represents the joint efforts of The Morehead/Rowan County Economic Development Council, Rowan County Fiscal Court, the Morehead/Rowan County Chamber of Commerce, the Tourism Commission and the city of Morehead.

The two buildings, located near the recently completed U.S. 60 Morehead by-pass, are to be the beginning of a massive effort to preserve the culture of Eastern Kentucky. The by-pass will be key to this revitalization by eventually providing four-lane access to within one block of the Center.

"It is vital that Eastern Kentucky build upon its own rich heritage," Dr. Eaglin said, "and recognize the contributions to the arts both regionally and nationally, while reminding the people of Appalachia of their

value." He said the Kentucky Folk Art Center will provide a much needed boost to the area by bringing in culture-seeking tourists from I-64.

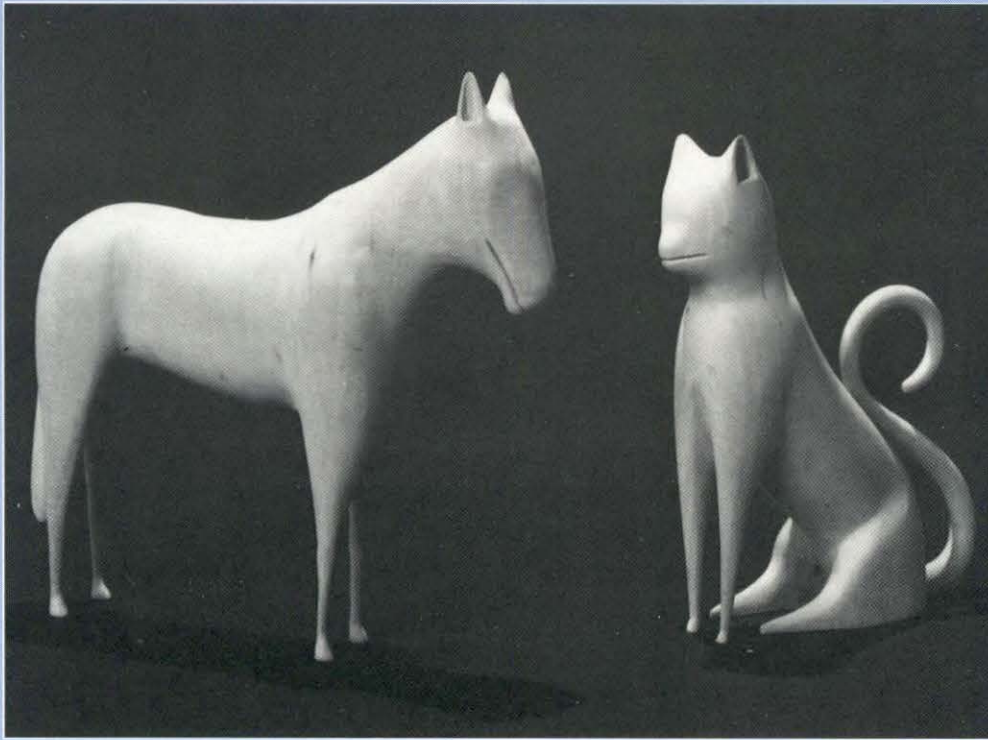
"This could be the building block for a network of such centers which emphasize the historical heritage of our people in Eastern Kentucky. I believe that with creativity and determination, we can develop tourist centers throughout Eastern Kentucky," Dr. Eaglin said.

Swain said the Center will fulfill the potential of what folk art can do for the Eastern Kentucky region. "We're able to benefit the artists themselves because we have been able to draw a broader audience on a national level for their work." A number of artists have been able to make a living because of their involvement with the Center.

Swain said a folk art marketing program began at MSU in 1987. "I can see all sorts of programs developing: educational outreach, cultural development and museum internships."

He said the underlying purpose of the Kentucky Folk Art Center is education. "If somebody comes to the Center and does not leave with greater understanding, probably about themselves, then there is no justification for it to exist. This art is important. That's the bottom line."





"Cat and Dog" by Kentucky folk artist Linvel Barker



Kentucky Folk Art Center Artistic Director/Curator Adrian Swain outside the Center's future home





Ted A. Marshall, Latonya Hesterburg and J. Michael Seelig in Rader Hall on the MSU campus



# PROTECTING OUR CHILDREN

## Easy access to training better prepares our social workers

by Denise M. Lacy

In the past decade, the social work division of the Department of Sociology, Social Work and Criminology has been expanding its scope of service. The faculty and staff want to provide a growing group of students with more community service opportunities. Federal money allotted to child welfare has recently been integrated into this effort.

The Kentucky Department of Social Services (DSS) received Title IV-E federal funds with which they established the Kentucky Department of Social Services Child Welfare Training Project. The project would ensure proper training of Kentucky's professional DSS workers in child protection. The DSS contracted with Eastern Kentucky University to set up a training center located on EKU's campus in Richmond. Travel to Richmond soon became an obstacle to accomplishing the goal of training the state's social service workers.

To address this problem, a system of subcontracts was agreed upon by the DSS and EKU to establish training centers in regional universities throughout the state. The collaborative effort was called Social Services Training Consortium. Under the administration of Michael Seelig, professor of social work, and Ted Marshall, professor of social work, MSU established its Training Resource Center as part of this consortium.

A unique feature of MSU's Center is its association with the Department of Social Work. Having such an academic orientation has

advantages, the primary one being that MSU students have access to information in the Training Center that they may not have had otherwise. Additionally, Latonya Hesterberg, director of the MSU Training Resource Center, is available to speak to classes and students may actually sit in on sessions.

Seelig and Marshall credit the academic alignment of the Center with making possible Hesterberg's hiring whose academic and professional background in social work allows her insight into the needs of other social workers in the community. She is responsible for coordinating all aspects of training sessions, and is often invited to conduct training sessions at other centers around the state.

Seelig, Marshall and Hesterberg all say that regionalization of the training sessions has been important. DSS workers more easily acquire training needed for working with Eastern Kentucky children. "Plus, we are able to develop training for the specific needs of this area," said Marshall. Child sexual abuse and chronic neglect are more prevalent in this region, while substance abuse is a greater concern in another part of the state.

Seelig said in the future they hope to be able to incorporate the Center more directly into the social work academic program, allowing the program at MSU to be a viable partner in the service region, as well as state-wide, in the challenging area of child abuse prevention and treatment.





Healthy catfish from the Frankfort Fish Hatchery



# Reversing Catfish Mortality

MSU Biologist studies channel catfish immune system

by Jeffrey N. Eaglin

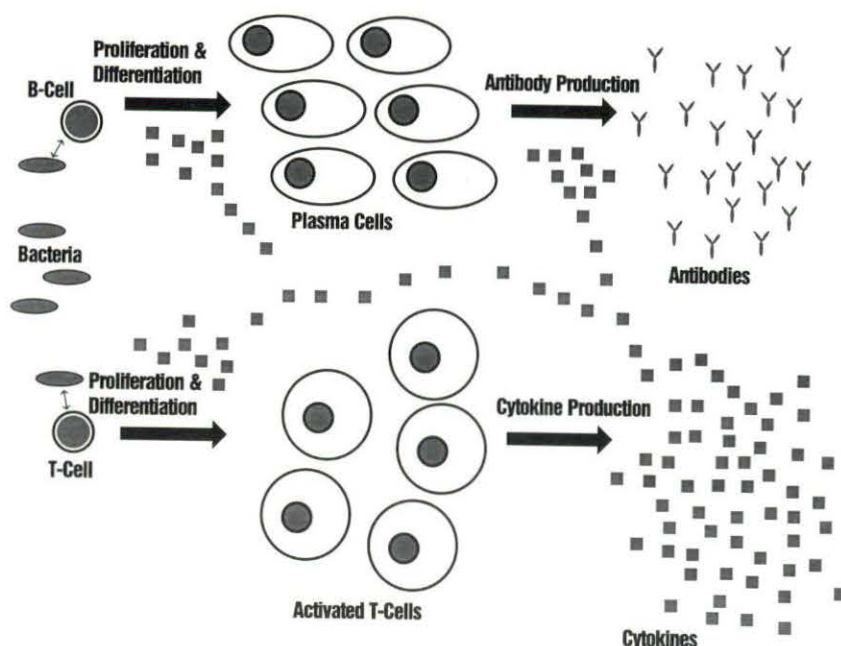
Every year the catfish farming industry loses millions of dollars in potential profits due to an increasing mortality rate among channel catfish. Despite technological advances in water cultivation and catfish immunology, the bacterial disease, enteric septicaemia of catfish (ESC), is the leading cause of death in farm-raised catfish.

Dr. Geoffrey W. Gearner, assistant professor of biology at Morehead State University, has developed a career-defining program in channel catfish immunology. With funding from the Kentucky Experimental Program to Stimulate Competitive Research (EPSCoR), Dr. Gearner is conducting a study to investigate how the channel catfish respond to *Edwardsiella ictaluri*. He said the study will provide a better understanding of the channel catfish immune system and will aid further investigations to develop an effective vaccine against ESC.

White blood cells are the principal component of the channel catfish immune system. According to Dr. Gearner, biologists already have an adequate understanding of the white blood cell sub-type, B-cells; however, there is little known about T-cells,

another type of white blood cell.

T-cells, like B-cells, respond to bacteria or other harmful pathogens by growing rapidly. Then specific parts of the cell are modified for the performance of particular functions, and the cell becomes activated as shown below.





An activated T-cell produces cytokines which play a major role in the immune system. Cytokines assist in activating other white blood cells as well as in producing antibodies.

Antibodies provide the protective immunity necessary for the channel catfish to filter out or kill bacteria. Unfortunately, severe



Dr. Gerner conducts experiment to understand the channel catfish immune system.

exposure to bacteria can overwhelm the immune system and cause ESC.

Natural defense mechanisms are also affected by a number of other factors. Sudden changes in water temperature are stressful to the catfish immune system, causing it to break down. Dr. Gerner said most outbreaks of ESC occur in the spring and fall when temperature changes are most common.

A number of ESC vaccines are currently being tested. Dr. Gerner said these vaccines should induce a protective antibody response; however more knowledge about the channel catfish immune system is needed to develop a vaccine that can induce a longer lasting immunity.

Dr. Gerner said there are also problems with the methods of vaccinating the catfish. Two methods of vaccination are currently used. Immersion involves dunking infected catfish into a concentrate of the vaccine and allowing the fish to absorb it. This method, according to Dr. Gerner, is faulty because biologists do not fully understand how catfish absorb and process the vaccine. The second method is inoculation—injecting each fish with the vaccine. This method is impractical, costly and time consuming.

Because of the urgent need to slow down the growth of ESC, immunologists have taken a shotgun approach in developing a vaccine. Development of an effective vaccine requires a fundamental understanding of the immune system and all of its components. "A 100 percent effective vaccine," Dr. Gerner continued, "will stimulate both antibody and cellular immunity; therefore, it is necessary to completely understand the role of T-cells in the immune system."

Dr. Gerner is conducting his study with the assistance of four MSU graduate students at the Frankfort Fish Hatchery. He plans to present his research at the American Society for Microbiology's General Meeting in Washington, D.C., in the spring of 1995.





Observers examine pools in which catfish are bred.



## CREATIVE PRODUCTION ABSTRACT

### From Thought to Theatre: The Making of "Me 'n Susie"

by Denise M. Lacy



Dr. Shirley Gish, using a stuffed rabbit from Dr. Louise Caudill's office, demonstrates how to properly hold a baby.

Dr. Shirley Gish, professor of speech, received an MSU Summer Creative Arts Grant that assisted her in the creation of a one-woman play. "Me n' Susie" documents the life of local Morehead physician, Claire Louise Caudill. "I wanted to use the life of Dr. Louise (as she is

affectionately known) as an example to women. There are some lives that come and go," said Dr. Gish, "and some lives help us to know that we can do more with our time on this earth."

Dr. Gish spent Saturday mornings for more than a year taping interviews with Dr. Louise, her nurse Susie Halbleib, and her friends and family members. Dr. Gish planned to spend the summer of 1993 at the Wurlitzer Foundation transcribing tapes and beginning to piece together a script.

However, in late May 1993, MSU President Ronald G. Eaglin and Bonnie Eaglin became interested in the project. They hoped to promote the play's premiere as a fundraising event if completed by November. It was an opportunity that both excited and frightened Dr. Gish—here was a date by which she had to perform, yet the play was not written.

The Helene Wurlitzer Foundation had previously awarded Dr. Gish a fellowship to

spend the summer writing in Taos, New Mexico. It was there that she created the original script of "Me n' Susie" with encouragement and assistance from the University. Dr. Gish completed the script under tremendous time restraints. Even so, she says she did not feel there were any real obstacles. "I really feel this project was blessed from the start," she said.

The resulting script of became the story of two extraordinary women who dedicated their lives to keeping people of the Appalachian region healthy and to the founding of the St. Claire Medical Center. "Me n' Susie", as performed also by Dr. Gish, became a medium which celebrated the women of Eastern Kentucky.

Response to the play was very positive. Editorials in regional newspapers praised the play and its message. Encouraging responses were received from the local community, as well as the medical and Catholic communities. It was invited to Lexington, Kentucky for a performance in the Opera House.

Much of the success of the play, Dr. Gish says, must be credited to the people around her. Dr. Travis Lockhart, the play's director, and Dr. Bill Layne, the scenic stage designer, generously donated their time and creativity to the project. Dr. Gish describes both of them as people she respects immensely. "Production was a real team effort" she said. She is also indebted to her subjects "Dr. Louise" and Susie who, she says, were incredibly generous with their time and support. "It was just an amazingly cooperative project. By myself, this production never could have happened."



## RESEARCH ABSTRACT

### Opening Lines of Communication

by Denise M. Lacy



Dr. Charles W. Patrick

Dr. Charles Patrick, associate professor of industrial technology, utilized his Summer Research Fellowship to investigate the process of expediting communication for thousands of employees in longwall coal

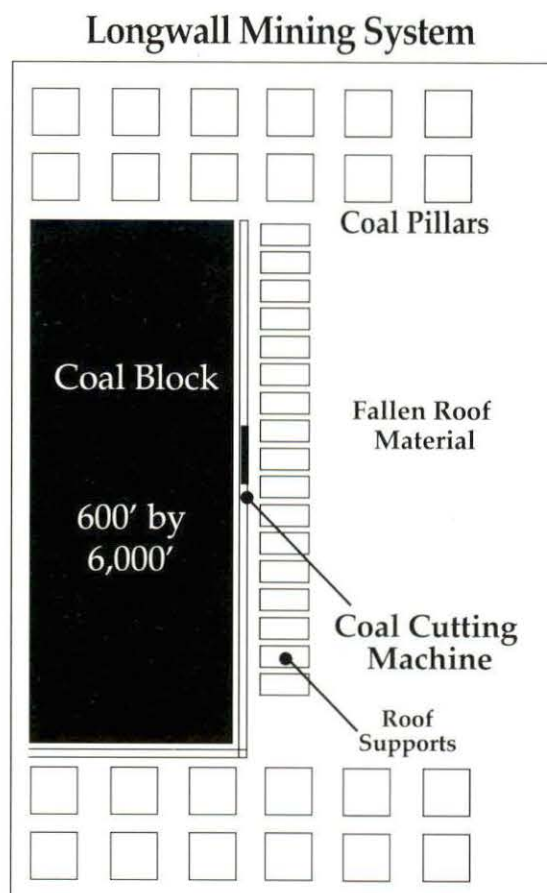
mining companies. "This industry is very hungry for information," said Dr. Patrick. He stressed the need for quick access to practical information.

Longwall mining is an efficient but expensive method of coal removal. There are approximately 90 of these systems in the country, many of them east of the Mississippi River. Nearly half are in Kentucky and surrounding states. Coal mining remains a major industry in Kentucky, accounting for thousands of jobs in the MSU service region. Nearly 100 percent of Kentucky electricity is generated from coal.

The goal of the project is to eventually set up a computerized bulletin board system that would act as a "clearing house of information." The system would "allow operators to access information on such things as equipment specifications and geological hazards common to longwall mining." It would open up much more efficient lines of communication within the United States' longwall industry. This grant was the initial step toward that goal.

Dr. Patrick has developed a survey that he plans to send to numerous longwall mining companies, in order to determine the types of information that would be most beneficial to them. The Fellowship provided the means to develop the survey and to evaluate types of computer hardware and software needed for the implementation of the bulletin board.

In order to see the project to fruition, outside funding will be necessary. "One of the reasons that I get involved with the Summer Research program at MSU," Dr. Patrick states, "is because it allows the faculty just enough up-front money to develop ideas to the point where we can start looking for external funding. I think that is one of the main purposes of Summer Research Fellowships."





# Teaching Abstract

## Teachers Tap Students' Sensory Experiences

by Jeffrey N. Eaglin



Dr. John Secor and Mary Jo Netherton in her office at MSU

Dr. John R. Secor, associate professor of Romance Languages, and Mary Jo Netherton, associate professor of French, have written a paper entitled "Experiential Strategies in the Teaching of French Literature,

or Coffee, Tea, and Me," aided by an internal grant. The project draws upon the idea of equalizing the three points of the student, teacher and text triangle. It cites examples from the teaching experiences of Dr. Secor and Netherton.

According to Dr. Secor, the project is designed to "encourage students to become personally involved in reading experiences." He believes being able to personally relate to the literature increases students' comprehension level and appreciation for the literary piece.

The two teachers appeal to students' sensory experiences through guided imagery, playing music, displaying art and discussing personal experiences that have a similar theme to the literary work being taught. The experiential strategies are intended to tap into students' creativity. Students express emotional responses to the French literature through drawing, painting, sculpting, writing and role playing.

Netherton has discovered this process effectively prepares the emotions of students

prior to reading the literary work. In the paper, she describes the interaction among teacher, student and text as the key to developing "new ways of thinking, being and knowing." Netherton says that classroom exercises stimulate rich experiences and provide the student with the essence of French literary tradition.

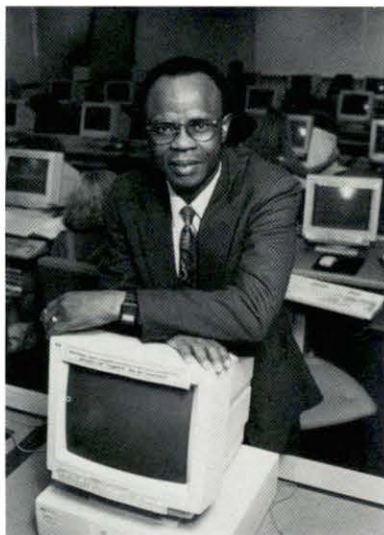
Dr. Secor and Netherton's model has been developed in the course of their team teaching experiences in literature seminars over the last four years. Both say they believe it is necessary to develop new strategies for teaching French literature, because traditional approaches have been ineffective. A workshop funded by the Kentucky Humanities Council and Morehead State University provided the impulse for writing the collaborative piece which includes integration of theories of prominent foreign language educators. The paper was presented at the 14th Annual Cincinnati Conference on Romance Languages and Literature in May of 1994.



## Research/Teaching Abstract

### Improving Business Education Instruction via Technology

by Jeffrey N. Eaglin



Dr. Hilary Iwu in one of the Combs building computer labs on MSU's campus

"The microcomputer has brought the United States to the threshold of what many people call an information society," says Dr. Hilary Iwu, Morehead State University assistant professor of business education. Employers expect business

educators to train future workers to have work-related computer skills, he says, and these skills should be taught throughout a student's education, especially in a four-year business program.

Dr. Iwu was awarded an internal grant to conduct the study, "Microcomputer Competencies Needed in Business Programs at Selected Four-Year Colleges and Universities in the United States." The goal of the study he says, "was to improve the overall quality of instruction in business education courses by helping students gain useful computer skills for employment following college graduation."

Step one of the study involved conducting a survey of 1,175 heads of business programs in four-year colleges and universities to determine the computer skills considered essential to business students prior to graduation. Data collected from the survey confirmed Dr. Iwu's assumption that word-processing was the most important software skill for business majors to accomplish. The

ability to type, save and print documents were regarded as essential.

Dr. Iwu says this research has great significance. "The findings could form content objectives for computer competency curricula for business programs." He also says the findings will help improve instruction in current business and education courses being offered.

Communication skills such as the ability to use electronic mail (e-mail) were also found to be important. MSU has recently connected its computer system to the University of Kentucky's system, thereby providing MSU access to e-mail. Now e-mail skills can be taught to introductory computer classes.

Dr. Iwu's study will be published in the spring 1994 edition of the *Kentucky Business Education Association Journal*.





Dr. Judy Rogers

# REASONING, Writing & Arithmetic

MSU addresses deficiency in basic general education skills

by Pride Graff

The U.S. Department of Education has awarded Morehead State University more than \$350,000 over a three-year period to implement a Title III grant focused on improving essential general education skills—critical thinking, writing and mathematics. The project, “Improvement of Academic Programs and Faculty Development,” aims to improve instruction across the curriculum in these skills.

Dr. Judy R. Rogers, associate vice president for academic affairs, described the need for a stronger emphasis on these basic skills at MSU; the need would be addressed through faculty development and academic support services.

“We wanted to develop a writing-across-the-curriculum program and a reasoning-emphasis program, and to improve tutoring and academic support in mathematics,” Dr. Rogers said. “You cannot do this without an increased writing component. You cannot ask teachers in other disciplines to incorporate more writing in their classes without some sort of academic support.”



Twenty faculty members from various disciplines were invited to participate in either reasoning-emphasis workshops or writing-across-the-curriculum workshops during the first year of the project. They were trained to incorporate the new material into their syllabi and teaching styles. In addition, MSU established a writing center and a supplemental instruction program in mathematics.

Nancy L. Peterson, writing center coordinator, spoke of the difficulty in getting faculty involved in the writing-across-the-curriculum program because it adds to already heavy work loads. "That's where the writing center comes in. It's there to support the faculty who do increase the writing component in their classrooms."

The writing center is equipped with 21 computers; tutors are available for students who need extra help with their writing. Peterson said, "the teacher can send the whole class to the writing center to get a reading of their work and to have the opportunity to revise their writing before the assignment due date."

Dr. Rogers said students begin to understand that the thought processes used in writing are the same used to solve certain problems. "They start to realize that by using the vocabulary of thinking in their writing, they improve both skills."

At the same time, students who excelled in general education mathematics classes were selected for the supplemental instruction program in mathematics. These students were trained as peer tutors and allowed to participate in actual mathematics class activities providing instruction to their fellow students and at the same time gaining teaching experience.

The second year of the project involved cross training of the faculty to expose them to both the reasoning-emphasis and the writing-across-the-curriculum programs in an attempt to integrate the two skills. The teachers were then asked to train their colleagues.

Dr. Rogers said between 30 and 40 faculty members took part in the project during the second year. In addition to receiving additional training, faculty members were asked to design lesson modules in which they implemented the writing and thinking skills in their individual disciplines. Video cameras were set up to tape classroom presentations, were used for self-critiques, and shared with colleagues.

The third year of the project will focus almost exclusively on mathematics instruction. Math instructors will be trained to emphasize both writing and reasoning in their classes. Dr. Rogers said the idea is to have teachers in different disciplines use the same vocabulary and definitions so students will experience consistency in the various general education classes. "We want to consciously challenge the students to think about their thinking. If the faculty uses a term such as 'analysis', and it is used similarly across the disciplines, then it facilitates students' learning because there is a common understanding."

Another need targeted in the third year will be the establishment of a mathematics computer lab. Dr. Rogers said a lab for developmental math students had already been established but no facility was available for students in higher levels.

Additionally, a production presentation station will be purchased to give math faculty the ability to design custom presentations of problems for their classes. The portable station, which will include a computer, VCR, and software, will be shared among the math faculty, allowing them to create instructive videos, simulations and computerized lecture notes. Students will be able to practice concepts presented to them. Peer tutors will be available to assist students; state-of-the-art software including Derive, Algebra 4.0, and Discreet Math will be in place for their use.

Dr. Rogers said that, despite the third year's math focus, the writing and reasoning emphasis across curricula will continue. "When we applied for these grants it was with the understanding that even after the grants expired the University would still be committed to these ideas."



# THE AIR WE BREATHE . . .



Dr. Ted Pass, II, testing soil for *histoplasma capsulatum*



# Widespread effects of a little-known disease

by Denise M. Lacy

The young couple waited anxiously as the hospital staff tried to save their baby. They wondered what had gone wrong. How could a common cold cause their child's health to deteriorate so drastically? Within 24 hours the baby would be dead.

An autopsy indicated the baby had died of histoplasmosis, a disease often overlooked but common to the Ohio Valley area. The hospital staff decided further investigation was warranted to determine how the child had become infected. "That's when they called me," recalls Dr. Ted Pass, II, professor of biology.

Dr. Pass visited the home of the deceased baby's parents to investigate environmental conditions. The family had to cut a small opening into the attic, which had been boarded up due to bird infestation. After climbing through the opening, Dr. Pass discovered bird droppings and nesting areas which had not been removed before the attic had been sealed. By interviewing the parents, Dr. Pass learned that a ceiling tile had fallen, allowing debris and bird droppings from the attic to contaminate the family's kitchen quarters while the mother and two-month-old baby were present. Therefore, the baby was exposed to prime conditions for histoplasmosis. Dr. Pass remembers this experience as "the toughest thing I've ever had to do."

Histoplasmosis is caused by the fungus *histoplasma capsulatum*. A skin test can determine whether or not a person has histoplasmosis. In most cases, individuals who have a positive skin test, have a benign, or inactive, form of the disease. Clinical histoplasmosis, the active disease, is normally quite mild and often resolves itself without treatment. The progressive

form of the disease, which is rare, may mimic lung cancer or tuberculosis and may prove fatal. Young children, the elderly and the immunosuppressed are most likely to develop the progressive form of the disease. Dr. Pass says one complication from the disease is the development of retinal lesions, called retinitis, leading to a decrease in visual acuity and blindness.

The fungus exists as spores in the soil. At normal pH levels, the fungus cannot compete with other soil organisms and does not exist in the soil in large enough quantities to be a health hazard. However, in areas populated with chickens, blackbirds, or bats, the threat increases due to the accumulation of guano. Droppings from these species increases the pH level of the soil to the point where the *histoplasma capsulatum* proliferates. For this reason, hen houses, bat caves, and bird roosts should be considered potential sources of infection, especially if the area has been inhabited for three years or more.

A person or animal, such as a dog, may become infected when the soil conditions are appropriate. When soil is disturbed (for example, by being bulldozed for development), the *histoplasma capsulatum* spores are released into the air. These spores can then be inhaled by people or animals and infect them.

Chances are you have had histoplasmosis. According to the *Kentucky Epidemiological Notes and Reports* in October 1992, "This fungus is so common in the Ohio Valley that it is said that one can identify a lifelong resident of the region by the old histoplasmosis lesions on chest x-rays." A survey conducted by Dr. Pass and his associates indicated there is a 40 percent chance of individuals in the Morehead area contracting



this disease by age 18. In central and western Kentucky, there is a 75-95 percent chance of infection by that age.

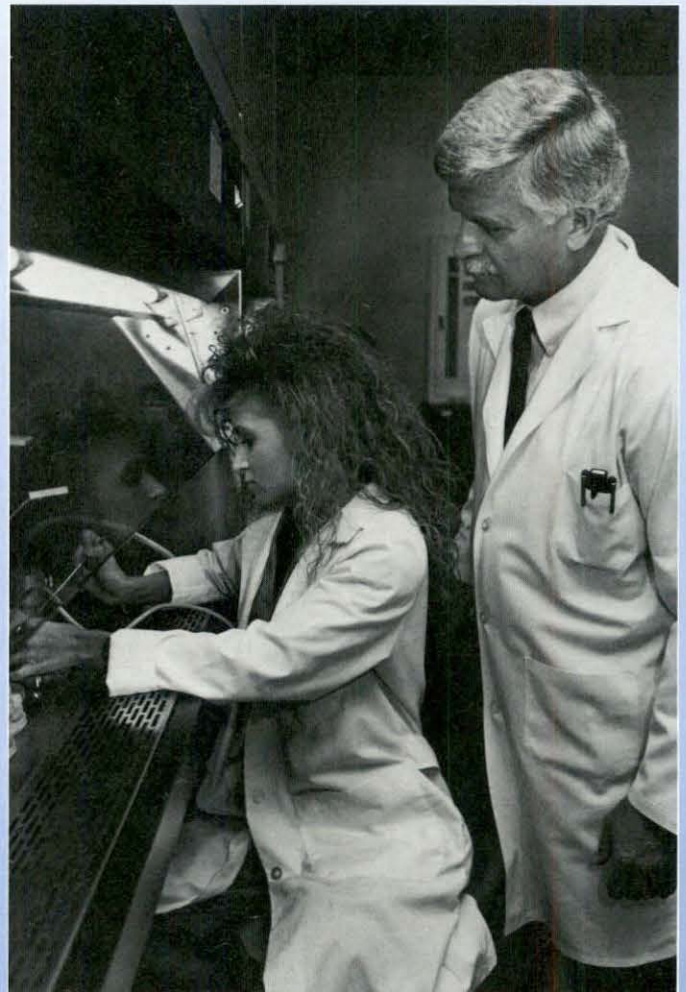
Dr. Pass began to identify areas of potential hazard in 1977 as part of a National Science Foundation Grant. Since then, he has assayed birdroosts in more than 80 Kentucky counties and contracted with the USDA, the Kentucky Department of Transportation, Health Departments, as well as the states of Tennessee, Indiana and Arkansas, to perform the diagnostic procedure.

If, for example, a field where a blackbird roost is located has been designated for development, a contractor or local health authorities have Dr. Pass, Rita Wright, research assistant, and undergraduate students collect soil samples from the area. Within a designated quadrant, Dr. Pass' team samples the areas most likely to yield the fungus. They then take samples to the laboratory and air dry them. The samples are mixed with a solution of sterile water, anti-biotics and an anti-fungal agent. This mixture is injected into the bloodstream of a mouse. The liver and spleen are then removed, homogenized and introduced on to a special medium called SAB. The original soil sample tests positive for the fungal agent if the medium subsequently grows the fungus. This process is necessary because, unlike other fungi, *histoplasma capsulatum* cannot be identified without having been passed through the system of an animal. If the test is positive, the results are further confirmed microscopically and serologically. The results are then sent back to the appropriate

agency. A positive site is usually quarantined until it can be decontaminated. Although Dr. Pass is not involved directly in the decontamination process, he often serves as a consultant.

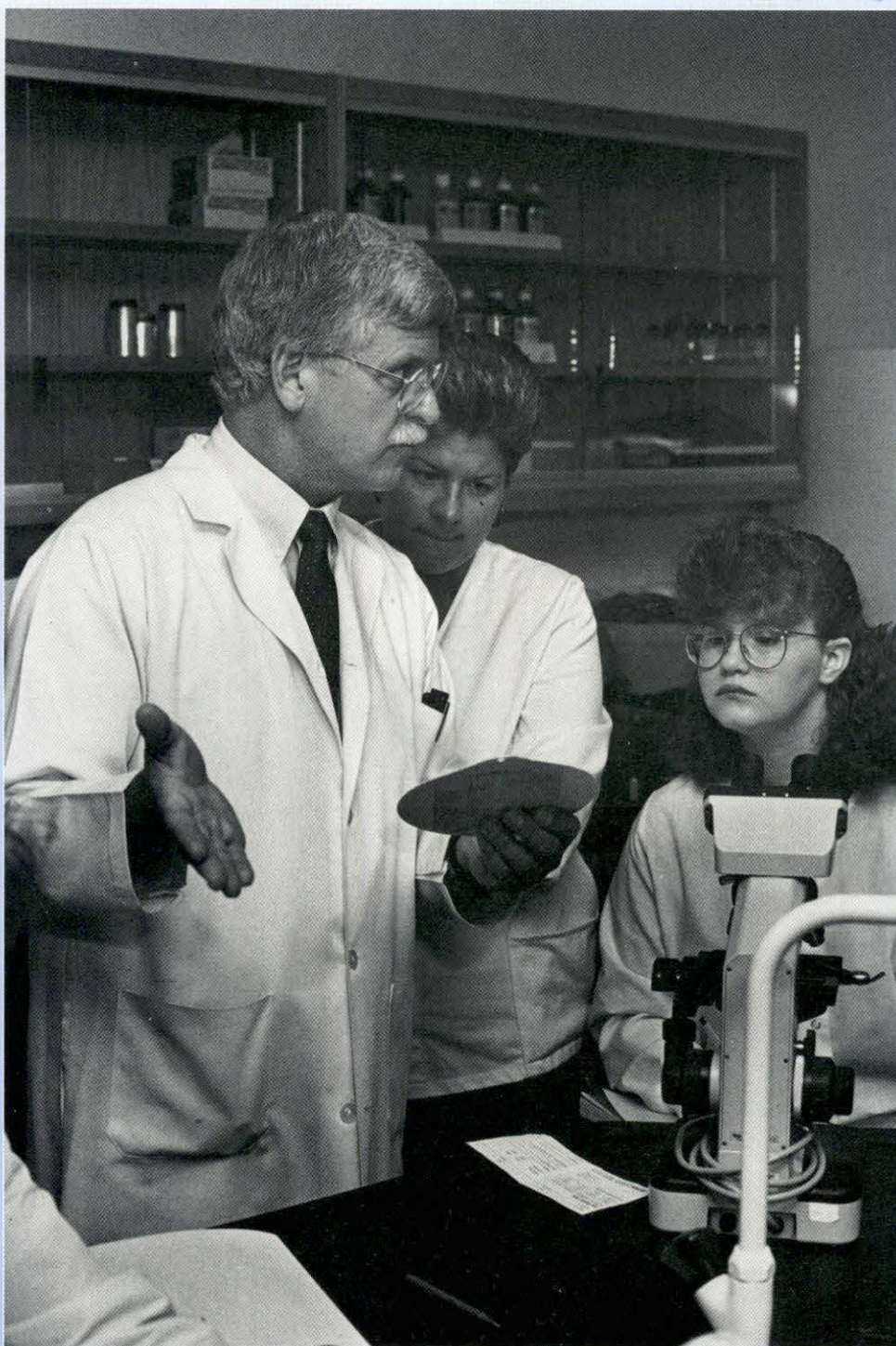
Dr. Pass says the best way avoid the disease is to take preventive measures. Wearing a mask that covers the nose and mouth, and wearing gloves and disposable boot covers can reduce the risk of infection if you must work in an area inhabited by chickens, blackbirds or bats.

If people working in an area that may potentially contain *histoplasma capsulatum* become symptomatic within 10 to 14 days of exposure, they should contact their physician for an examination and serological tests to determine whether or not they have histoplasmosis. "We're trying to save people's lives," Dr. Pass stated, "and improve the quality of their lives."



One of Dr. Pass's students examines a soil sample for possible contamination.





While not involved in the decontamination of a particular site, Dr. Pass, with his students and assistant, identify potential disease-causing areas.



### Learning Through Play

"Kids will be more interested in science if we teach them the principles through the use of toys and everyday objects," said Dr. Zexia Barnes, associate professor of chemistry. Through the use of such things as rubber balls, glue, and borax soap, children are able to learn the principles of physics and chemistry.

Miami University of Ohio has awarded a \$5,000 grant to Dr. Barnes to enable her to establish a university affiliate program of "Teaching Science with TOYS." The TOYS program, developed at Miami University in 1976, was designed to make science more accessible and stimulating to K-12 students.

The TOYS program revolves around strengthening teachers' knowledge of chemistry and physics and encouraging the use of activity-based methods in the classroom. By using the TOYS approach, both students and teachers benefit from a classroom atmosphere which is attuned toward discovery rather than the mere recitation of facts.

To accomplish this goal, Dr. Barnes set up several workshops at MSU for K-12 teachers in the MSU service region. "We talked about various activities and the principles behind those activities to make sure the teachers understood the science," she said. "Then the teachers would go back to their classrooms and do the things we had talked about."

The teachers do not have to depend on lectures describing scientific concepts as the only method to communicate. If a teacher is discussing kinetic or potential energy, he or she can actually demonstrate those properties

by dropping two rubber balls from the same height. Students can quickly comprehend the concept through visual means.

Dr. Barnes said most of the grant money was used to purchase toys and other materials for the teachers participating in the workshops. "The hope is that as teachers return to their respective schools, they in turn will influence other teachers to adopt the TOYS approach to teaching science."

### Transfer to MSU Made Easier

Thanks to the John S. and James L. Knight Foundation—an agency which provides national grants in journalism, education and the field of arts and culture—students at two-year colleges in Eastern Kentucky will be able to transfer to Morehead State University with greater ease and pursue a baccalaureate degree.

A \$20,000 grant from the Knight Foundation enabled the University to expand its computerized degree audit program to six junior colleges in Eastern Kentucky. Collaborating with MSU in the program are Ashland, Hazard, Maysville, Prestonsburg and Southeast community colleges along with Lees College, a private two-year institution. Each of these institutions is providing financial assistance in the amount of \$500 to assist with equipment and installation costs.

MSU has been using the "Computer Assisted Advising-Degree Audit System" since 1991. The electronic program was developed in-house by the Offices of the Registrar and Information Technology. It enables transfer students to evaluate how their



academic work at the junior college level corresponds to any MSU baccalaureate program course requirements. The audit system also yields a clearer picture of the remaining courses needed to complete each student's degree work at MSU.

During the 1993 fall semester, approximately 40 percent of MSU's undergraduate students were transfer students. The ever-changing curricula at both transfer institutions and the University and the lack of up-to-date information on course transferability for specific programs has made past transitions difficult for many students.

According to Dr Marc D. Glasser, MSU's dean of graduate and extended campus programs, having the system on line at the community colleges in MSU's service region will ease the transfer process for students moving from these institutions. He says this has always been one of the University's top priorities and the effort to connect other institutions to the system speaks directly to a key element of MSU's mission statement.

MSU plans to install computers, modems, and printers on the campuses of the cooperating institutions in order to facilitate the transfer process. The next phase of the project will include training sessions with advisors and students of the two-year institutions concerning how to use the degree audit program. The project will also include conferences with administrators of participating colleges and MSU.

Dr. Glasser and MSU Registrar Gene Ranvier have traveled to each of the two-year colleges to demonstrate the program to representatives from the respective institutions. Both administrators say they believe the program will substantially increase

the number of students who move from associate to baccalaureate degree programs and reduce the level of frustration experienced by the administration and transferring students.

A data base of transfer equivalencies of all courses offered at the four-year and two-year public institutions in Kentucky and nearby out-of-state institutions is currently being developed.

### Interactive Learning for Students of Nursing

Freda Kilburn, associate professor of nursing, and Alta Blair, associate professor of nursing, received a grant from the Fuld Institution for Technology and Nursing Education. This money was used to improve the quality of technical training available to nursing students seeking a Bachelor's Degree in Nursing (BSN) by purchasing computer software and interactive videos. Examples of the types of interactive videos include "Therapeutic Communications and Labor and Delivery."

Kilburn and Blair knew that the nursing program was not adequately preparing their students for the technical realities of the nursing profession. Kilburn stated "Nursing is becoming so technologically oriented, computers are at the patient's bedside. All nursing care plans now are being placed on computers. The entire pharmacological history of patients is computerized. We did not have any of that equipment in our program."

The University had previously allocated some money to the program to update their equipment. With that money they bought



computers and interactive video equipment, but after the hardware was purchased there were no funds left for the software.

With the grant from the Fuld Institution, interactive video programs have become part of the nursing curriculum. Students are exposed to realistic medical scenarios and respond to questions asked throughout the program simply by touching the screen. The student's response decides what happens to the patient in the next scene. In the case of a trauma victim, if a student responds incorrectly, the on-screen patient may die. "That's the beauty," says Blair, "they can go back to see where they made their mistake and correct it on an interactive video rather than a person."

Software has been purchased for nearly every course taught in the BSN program. Medication administration videos were purchased because math skills were identified as a weakness among nursing students. Kilburn emphasizes that this was part of an effort to show teach students "the practice of nursing rather than just theoretical information."

The next step for the nursing instructors is to get approval to apply for the second phase of the grant. This would fund a laboratory to help students more directly. They also hope to eventually publish research comparing the performance and test scores of the students of the past five years with those students who have gone through the program since the acquisition of the new equipment.

## Lexmark, Inc., and MSU Combine Efforts

In an effort to update, develop and revise product documentation, Lexmark International, Inc., a computer company based in Lexington, Kentucky, has teamed up with Morehead State University. Lexmark provides MSU up to \$44,309 every year to pay for personnel, travel, supply and security expenses for the jointly-defined effort.

The project, headed by Dr. Jennings R. Mace, MSU associate professor of English, employs five to six students each year. Tasks performed by students include changing Bookmaster files to FrameMaker files, incorporating updated information into existing books, and developing customer documentation from technical information.

Two students work as summer interns every year. Dr. Mace says the summer internship was designed to allow students to gain on-site experience in the operations of a computer manufacturing company. He says the project also offers MSU students a valuable opportunity to gain experience in technical writing.

Dr. Mace says students who participate in the project have an excellent advantage if they decide to pursue a career in technical writing. Two former participants have taken advantage of the skills they learned and are currently employed by computer manufacturing companies. The Lexmark-MSU Jointly Defined Effort entered its third year at the University in the 1994 fall semester.



# GRANTS SUMMARY 1992-93

## EXTERNAL GRANTS

Division of Academic Affairs

Wanda Bigham, Porter Dailey, "Morehead State University Folk Art Center." Kentucky Transportation Cabinet  
William DeBord, "Eastern Kentucky Health Science Information Network 1993-94." Meadowview Regional Hospital  
William DeBord, "Eastern Kentucky Health Science Information Network 1993-94." Highlands Regional Medical Center  
William DeBord, "Eastern Kentucky Health Science Information Network 1993-94." Three Rivers Medical Center  
William DeBord, "Eastern Kentucky Health Science Information Network 1992-93." Northeast Kentucky Area Health Education Center (AHEC)  
William DeBord, "Eastern Kentucky Health Science Information Network 1993-94." Northeast Kentucky Area Health Education Center (AHEC)  
William DeBord, "Eastern Kentucky Health Science Information Network 1993-94." St. Claire Medical Center  
William DeBord, "Eastern Kentucky Health Science Information Network 1992-93." Meadowview Regional Hospital  
William DeBord, "Eastern Kentucky Health Science Information Network 1993-94." Our Lady of Bellefonte Hospital  
William DeBord, "Eastern Kentucky Health Science Information Network 1993-94." Our Lady of the Way Hospital  
William DeBord, "Eastern Kentucky Health Science Information Network 1993-94." Pikeville United Methodist Hospital of Kentucky  
William DeBord, "Eastern Kentucky Health Science Information Network 1992-93." Highlands Regional Medical Center  
William DeBord, "Eastern Kentucky Health Science Information Network 1992-93." Our Lady of Bellefonte Hospital  
William DeBord, "Eastern Kentucky Health Science Information Network 1992-93." St. Claire Medical Center  
William DeBord, "Eastern Kentucky Health Science Information Network 1992-93." Humana Hospital-Louisa  
William DeBord, "Eastern Kentucky Health Science Information Network 1992-93." Our Lady of the Way Hospital  
William DeBord, "Eastern Kentucky Health Science Information Network 1992-93." Pikeville Methodist Hospital  
John Philley, Victor Ramey, "Sciences and Math Alliance Project—Year 8." Council on Higher Education

John Philley, Eric Thomas, "Activity-Centered Elementary Science: Astronomy and Space Science Development Workshop." Kentucky Space Grant Consortium  
John Philley, "Governor's Scholar Program." Governor's Scholar Program

### College of Applied Sciences and Technology

Joe Bendixen, "Enrichment Activities for Agricultural Education." Cabinet for Workforce Development  
Jane Ellington, "Enrichment Activities for Vocational Home Economics Education." Cabinet for Workforce Development  
Freda Kilburn, Alta Blair, "Expansion of Computer and Instructional Technologies in Nursing." Helene Fuld Health Trust  
Ed Nass, "Vocational Education Title II-C (continuation)." Cabinet for Workforce Development  
John Philley, "Administration and Coordination of Vocational Education Programs." Cabinet for Workforce Development  
John Philley, John VanHoose, "Enrichment—Field Base Education." Cabinet for Workforce Development  
John Philley, "Title II-C PS Vocational Education Program (1992 Carry Forward)." Cabinet for Workforce Development  
John Philley, "Vocational Education Title II-C (continuation)." Cabinet for Workforce Development  
Linda Salyer, "Vocational Education Title II-C (continuation)." Cabinet for Workforce Development  
Marilyn Sampley, "Vocational Education Title II-C (continuation)." Cabinet for Workforce Development  
Marilyn Sampley, Sue Luckey, "Tech Prep Consortium Serving Eastern Kentucky." Cabinet for Workforce Development  
James Smallwood, Robert Hayes, "Excellence in Metrology." Brown and Sharpe Manufacturing Company  
Judy Willard, "Higher Education Equine Trust Program." Council on Higher Education  
Judy Willard, "Higher Education Equine Trust Program—Summer." Council on Higher Education  
Judy Willard, "Vocational Education Title II-C (continuation)." Cabinet for Workforce Development

### College of Arts and Sciences

Zexia Barnes, "Teaching Science with Toys." Miami University  
Ben Flora, "Continuing the Kentucky K-4 Mathematics Specialist Program." University of Kentucky Research Foundation/Kentucky Department of Education  
Ben Flora, Joyce Saxon, "Accelerated Mathematics Remediation Programs." Kentucky Department of Education  
Ben Flora, Joyce Saxon, "Expanding the Kentucky K-4 Mathematics Specialist Program." University of Kentucky Research Foundation/Kentucky Department of Education  
Geoffrey Gearner, "T-lymphocyte Responses of the Channel Catfish, *Ictalurus punctatus*, to Outer Membrane Proteins of *Edwardsiella ictaluri*." National Science Foundation/Kentucky Science and Technology Council, Inc.



William Green, "Pharmaceutical Alternatives to Incarceration: Depo-Provera and the Case of People vs. Gauntlett." Southern Regional Education Board

Charles Holt, "Fulbright-Hays Seminar Abroad." U.S. Department of Education

Serjit Kasior, "Journalism Teacher Fellowship Program." The Dow Jones Newspaper Fund, Inc.

Jennings Mace, "Lexmark Technical Writing Services." Lexmark International, Inc.

Benjamin Malphrus, "Kentucky Primary Science Resource Specialists." Council on Higher Education

Benjamin Malphrus, "Partnership for Reform Initiatives in Science and Math (PRISM)." Kentucky Department of Education

Ted Pass, "Blair Waste Disposal Project, 1992-93." Office of Don Blair, M.D.

Ted Pass, "Jackson Waste Disposal Project, 1992-93." Office of James E. Jackson, M.D.

Ted Pass, "Cave Run Clinic Waste Disposal Project, 1992-93." Proudfoot & Associates, Inc., DBA Cave Run Clinic

Ted Pass, "Porter Waste Disposal Project, 1992-93." Office of Arvis Porter, M.D.

Ted Pass, "Morehead Clinic Waste Disposal Project, 1992-93." Morehead Clinic

Ted Pass, "Gateway District Health Department Waste Disposal Project, 1992-93." Gateway District Health Department

Ted Pass, "Shay Dental Practice Waste Disposal Project, 1992-93." Shay Dental Practice

Ted Pass, "Microbiology Testing for NREPC." Kentucky Natural Resources and Environmental Protection Cabinet

Ted Pass, "Isolation and Identification of *Histoplasma Capsulatum* Project." JLH Corporation

Brian Reeder, "Water Quality Assessment and Trophic Status of Eastern Kentucky Reservoirs." Kentucky Natural Resources and Environmental Protection Cabinet

## College of Business

Marvin Albin, "Vocational Education Title II-C (continuation)." Cabinet for Workforce Development

Wilson Grier, "Small Business Development Center Supplemental." Kentucky Mountain Study Group

Wilson Grier, "1993-94 East Kentucky District Small Business Development Center (Morehead/Pikeville/Ashland)." U.S. Small Business Administration/University of Kentucky Research Foundation

Wilson Grier, "1992-93 Pikeville National Bank and Trust Company Project." Pikeville National Bank and Trust Company

Wilson Grier, "1993-94 Ashland Small Business Development Center." Economic Development Corporation of Boyd and Greenup Counties

Wilson Grier, "1993-94 East Kentucky District Small Business Development Center." Kentucky Cabinet for Economic Development/University of Kentucky Research Foundation.

Wilson Grier, "1992-93 Big Sandy Area Development District Project." Big Sandy Area Development District

Wilson Grier, "1992-93 Citizens National Bank of Paintsville Project." Citizens National Bank of Paintsville

Wilson Grier, "1992-93 First National Bank of Pikeville Project." First National Bank of Pikeville

Wilson Grier, "1992-93 Citizens Bank of Pikeville Project." Citizens Bank of Pikeville

Sue Luckey, "Enrichment Activities for Business Teacher Education." Cabinet for Workforce Development

Beverly McCormick, "Real Estate Education Grant Program 1993-94." Kentucky Real Estate Commission

Robert Meadows, "Small Business Institute." U.S. Small Business Administration

## College of Education and Behavioral Sciences

Shirley Blair, "Kentucky Teacher Internship Program." Kentucky Department of Education

Robert Grueninger, "1993 Summer Food Service Program for National Youth Sports Program." Kentucky Department of Education

Robert Grueninger, "1993 Summer National Youth Sports Program." National Collegiate Athletic Association

Byron Johnson, David Rudy, "Evaluation of Substance Abuse Programs at Selected Kentucky Correctional Institutions." Kentucky Justice Cabinet

Sylvester Kohut, Jr., "1993-94 Head Start Program." Gateway Community Services Organization, Inc.

Sylvester Kohut, Jr., "Minority Teacher Education Program 1993-94." Council on Higher Education

Bruce Mattingly, "Dopamine Autoreceptor Involvement in the Regulation of Dopamine Synthesis and Behavior Following Repeated Apomorphine Treatments." National Science Foundation/Kentucky Science and Technology Council, Inc.

Debra Mattingly, "Child Development Associate Training Program 1992-93." Bell-Whitley Head Start

Debra Mattingly, "Child Development Associate Training Program 1992-93." Big Sandy Head Start

Debra Mattingly, "Child Development Associate Training Program 1992-93." Gateway Head Start

Debra Mattingly, "Child Development Associate Training Program 1992-93." Bourbon County Head Start

Debra Mattingly, "Child Development Associate Training Program 1992-93." Licking Valley Head Start

Debra Mattingly, "Child Development Associate Training Program 1992-93." Williamstown Head Start

Debra Mattingly, "Child Development Associate Training Program 1992-93." Northeast Head Start

Debra Mattingly, "Child Development Associate Training Program 1992-1993—Supplement III." Kentucky River Head Start

Debra Mattingly, "Child Development Associate Training Program 1992-93." Bluegrass Head Start

Debra Mattingly, "Child Development Associate Training Program 1992-93." Laurel County Head Start



- Debra Mattingly, "Child Development Associate Training Program 1992-1993—Supplement III." Big Sandy Head Start
- Debra Mattingly, "Child Development Associate Training Program I: Supplement I." Kentucky River Head Start
- Debra Mattingly, "Child Development Associate Training Program 1992-1993—Supplement III." Middle Kentucky River Head Start
- Debra Mattingly, "Child Development Associate Training Program 1992-93." Community Action Council for Lexington-Fayette, Bourbon, Harrison, and Nicholas Counties, Kentucky
- Debra Mattingly, "Child Development Associate Training Program I: Supplement I." Bourbon County Home Visitor Program
- Debra Mattingly, "Child Development Associate Training Program 1992-1993—Supplement III." Bourbon County Head Start
- Debra Mattingly, "Child Development Associate Training Program 1992-93." Knox County Head Start
- Debra Mattingly, "Child Development Associate Training Program 1992-93." Kentucky River Head Start
- Debra Mattingly, "Child Development Associate Training Program 1992-1993—Supplement III." Bell-Whitley Head Start
- Debra Mattingly, "Child Development Associate Training Program 1992-93." Middle Kentucky River Head Start
- Debra Mattingly, "Child Development Associate Training Program 1992-93." Big Sandy Head Start
- Debra Mattingly, "Child Development Associate Training Program 1992-93." Department of Vocational Rehabilitation
- Debra Mattingly, "Child Development Associate Training Program I: Supplement I." Various Eastern Kentucky Head Start Agencies
- Debra Mattingly, "Child Development Associate Training Program 1992-1993—Supplement II." Licking Valley Head Start
- Debra Mattingly, "Child Development Associate Training Program 1992-1993—Supplement II." Big Sandy Head Start
- Debra Mattingly, "Child Development Associate Training Program 1992-1993—Supplement II." Bell-Whitley Head Start
- Connie McGhee, "Head Start Supplemental Staff." Gateway Community Services Organization, Inc.
- William Mosley, "Morehead State University Regional Technical Assistance Team—1993-94." Cabinet for Human Resources
- William Mosley, "Morehead State University Regional Technical Assistance Team." Kentucky Cabinet for Human Resources
- Barbara Niemeyer, "Preschool Certification Needs in Morehead State University's Service Region: Phase I Planning Grant." Kentucky Department of Education
- Harold Rose, "GTE Adult Learning Center Literacy Program—1992." General Telephone Corporation
- Harold Rose, "MSU/Rowan County Volunteer Literacy Project." Kentucky Literacy Commission
- Harold Rose, "Morehead State University Adult Learning Center 1993-94 JOBS Literacy." Cabinet for Workforce Development
- Harold Rose, "Morehead State University Adult Learning Center 1993-94 KLC Literacy." Cabinet for Workforce Development
- Harold Rose, "Morehead State University Adult Learning Center 1993-94 ABE/GED JOBS." Cabinet for Workforce Development
- Harold Rose, "Morehead State University Adult Learning Center 1993-94 ABE/GED." Cabinet for Workforce Development
- J. Michael Seelig, Ted Marshall, "MSU Training Resource Center 1993-94." Eastern Kentucky University
- George Tapp, "1993-94 Institute for Psychological Service—Rehabilitation Partnership Grant." Carl D. Perkins Comprehensive Rehabilitation Care Center
- George Tapp, "Psychological Services for the Eastern Kentucky Correctional Complex." Eastern Kentucky Correctional Complex
- George Tapp, "1992-93 Institute for Psychological Service—Rehabilitation Center Partnership Grant Addendum." Carl D. Perkins Comprehensive Rehabilitation Care Center
- George Tapp, "Psychological Services for the Eastern Kentucky Correctional Complex." Eastern Kentucky Correctional Complex
- Marvin Welch, "Kentucky Teacher Internship Program." Kentucky Department of Education
- Patsy Whitson, "Dialysis Health Care Service Program 1992." Dialysis Service Group, Inc.
- Wayne Willis, Joy Gooding, "Teaching of Writing in the Public Schools—1993 Summer Institute."

### Kentucky Department of Education

- Wayne Willis, "Extension Writing Project for Kentucky Public School Teachers." Kentucky Department of Education
- Ernestine Winfield, William Weikel, "Minority Scholarship Program." Kentucky Department of Education
- Ernestine Winfield, William Weikel, "Minority Scholarship Program 1993-94." Kentucky Department of Education Office of Graduate and Extended Campus Programs
- Marc Glasser, Keith Kappes, "Eastern Kentucky Public and Private Institution Partnership for the Enhancement of Higher Education Attainment." John S. and James L. Knight Foundation
- Shirley Hamilton, "Two-Year Associate Degree Program." TENCO Private Industry Council
- Sharon Jackson, "KET GED-ON-TV." Kentucky Educational Television, Inc.
- Jonell Tobin, "Certified Nursing Assistant Training (Night Training)." Eastern Kentucky Concentrated Employment Program, Inc.
- Jonell Tobin, "Certified Nursing Assistant Training (Day Training)." Eastern Kentucky Concentrated Employment Program, Inc.



Jonell Tobin, "Kentucky Literacy Commission Resource Center 1992-93." Kentucky Literacy Commission  
 Jonell Tobin, "MSU-Licking Valley Center ABE/GED." Cabinet for Workforce Development  
 Jonell Tobin, "MSU-Licking Valley Center ABE/GED JOBS." Cabinet for Workforce Development  
 Jonell Tobin, "MSU-Licking Valley Center JOBS Literacy." Cabinet for Workforce Development  
 Jonell Tobin, "MSU-Licking Valley Center KLC Literacy." Cabinet for Workforce Development

## Office of Undergraduate Programs

Jennifer Cady, "1993 Summer Food Service Program for Upward Bound Program." Kentucky Department of Education  
 Jennifer Cady, "1993-94 Upward Bound Program." U.S. Department of Education  
 Sue Christian, "Morehead State University Mentoring Program in Rowan County." Rowan County Fiscal Court  
 Sue Christian, "Mentoring for School-Age Youth." Christian Appalachian Project  
 Dan Connell, Ron Weaver, "1992-93 Destination Graduation Addendum #5." Council on Higher Education  
 Dan Connell, Ron Weaver, "CampusServe Demonstration Site Grant." Council on Higher Education  
 Dan Connell, "1993 MOAR Program (Morehead Occupational and Academic Retreat)." TENCO Private Industry Council  
 Dan Connell, "1993 MOAR Summer Food Service Program." Kentucky Department of Education  
 Dan Connell, Catherine Riley, "Retired Senior Volunteer Program (RSVP) 1993-94." ACTION  
 Dan Connell, Rodney Mitchell, "Destination Graduation—Year VI, 1993-94." Council on Higher Education  
 Dan Connell, Rodney Mitchell, "1993-94 MSUServe." Council on Higher Education  
 Dan Connell, Ron Weaver, "1992-93 MSUServe." Council on Higher Education  
 Dan Connell, Ron Weaver, "1992-93 Destination Graduation Addendum." Council on Higher Education  
 Dan Connell, Rodney Mitchell, "1993-94 CampusServe Demonstration Site Grant." Council on Higher Education  
 Carolyn Horn, "1993-94 Educational Talent Search Program." U.S. Department of Education  
 Dail Howard, "Educational Opportunity Center 1993-94." U.S. Department of Education  
 Catherine Riley, "Retired Senior Volunteer Program for Montgomery County." United Way of the Bluegrass  
 Judy Rogers, "1993-94 Title III—Improvement of Academic Programs and Faculty Development." U.S. Department of Education  
 Elaine Tyree, "Student Support Services 1993-94." U.S. Department of Education

## Division of Administration and Fiscal Services

Larry Netherton, "1992-93 Radio Community Service Grant." Corporation for Public Broadcasting

Larry Netherton, "1992-93 National Program Production and Acquisition Grant." Corporation for Public Broadcasting

## Division of Student Life

Timothy Rhodes, "1993-94 Student Financial Aid." U.S. Department of Education

## Office of Conference Services

Jan Burge, "Girls Basketball Individual Camp—1993." Each Camp Participant  
 Jan Burge, "Mountain Dulcimer Camp—1993." Each Camp Participant  
 Jan Burge, "Elderhostel II—1993." Each Participant  
 Jan Burge, "Girls Basketball Team Camp—1993." Each Camp Participant  
 Jan Burge, "MSU Horsemanship Camp I—1993." Each Camp Participant  
 Jan Burge, "Dick Fick Basketball Day Camp II—1993." Each Camp Participant  
 Jan Burge, "Dick Fick Basketball Day Camp I—1993." Each Camp Participant  
 Jan Burge, "Dick Fick Basketball Team Camp—1993." Each Camp Participant  
 Jan Burge, "Whitney M. Young Scholars Program I—1993." Morehead State University  
 Jan Burge, "MSU Women's Volleyball Camp II—1993." Each Camp Participant  
 Jan Burge, "MSU Women's Volleyball Camp III—1993." Each Camp Participant  
 Jan Burge, "MSU Golf Camp—1993." Each Camp Participant  
 Jan Burge, "Baseball Camp III—1993." Each Camp Participant  
 Jan Burge, "MSU Horsemanship Camp II—1993." Each Camp Participant  
 Jan Burge, "MSU Horsemanship Camp III—1993." Each Camp Participant  
 Jan Burge, "Kentucky Boys State—1993." American Legion of Kentucky  
 Jan Burge, "Summer Band Camp—1993." Campbellsville High School  
 Jan Burge, "Summer Band Camp—1993." Peebles High School  
 Jan Burge, "Summer Band Camp—1993." Male Traditional High School  
 Jan Burge, "Summer Band Camp—1993." Moore High School  
 Jan Burge, "Summer Band Camp—1993." Pikeville Independent High School  
 Jan Burge, "UCA Cheerleading Camp III—1993." Universal Cheerleaders Association  
 Jan Burge, "Summer Band Camp—1993." Highlands High School  
 Jan Burge, "Summer Band Camp—1993." South Laurel High School  
 Jan Burge, "UCA Cheerleading Camp IV—1993." Universal Cheerleaders Association



Jan Burge, "Summer Band Camp—1993." Paintsville High School  
 Jan Burge, "UCA Cheerleading Camp II—1993." Universal Cheerleaders Association  
 Jan Burge, "Kentucky Dance Institute—1993." Kentucky Dance Institute  
 Jan Burge, "Elderhostel I—1993." Each Participant  
 Jan Burge, "UCA Cheerleading Camp I—1993." Universal Cheerleaders Association  
 Jan Burge, "Whitney M. Young Scholars Program II—1993." Morehead State University  
 Jan Burge, "AmeriCheer Cheerleading Camp—1993." AmeriCheer  
 Jan Burge, "Summer Keyboard Experience—1993." Each Camp Participant  
 Jan Burge, "NCA Cheerleading Camp—1993." National Cheerleaders Association

## INTERNAL GRANTS

### Department of Biological and Environmental Sciences

Brian Reeder, "Effect of Non-Point Pollution on Primary Producer Structure and Function in Old Woman Creek Estuary."  
 Howard Setser, Les Meade, "The Vascular Flora of Rowan County, Kentucky, with Additional Records for Adjacent Counties in Northeastern Kentucky."

### Department of Communications

Shirley Gish, "Research on the life and community of Dr. C. Louise Caudill to be used in a play entitled 'Me 'n Suzie'."

### Department of Elementary, Reading, and Special Education

Karen Hammons, Phyllis Oakes, "Kentucky Primary Program Teachers' Perceived Staff Development Needs for Implementing the Primary Program Critical Attributes and Kentucky Administrators' Perceived Expertise in Providing Leadership for Staff Development to Support Implementation of the Critical Attributes of the Primary Program."

### Department of English, Foreign Languages, and Philosophy

Michelle Boisseau, "Poetry Writing."  
 C. Glen Colburn, "The English Malady' Reconsidered."  
 Frances Helphinstine, "A Production History of Shakespeare's 'Henry V'."  
 Joyce LeMaster, "The Role and Status of Women in Ptolemaic Egypt."  
 Mary Jo Netherton, John Secor, "Autour de L'Etudiant: Experiential Strategies for the Teaching of French Literature."

### Department of Geography, Government, and History

William Green, "Organized Labor and the Reorganization of Work: Union Strategies for a Post-Fordist World."  
 Ric Northrup, "Momentary Subjects, Fragmented Horizons: The Decline of Artisan Culture in Philadelphia, 1785-1825."

### Department of Industrial Education and Technology

Dennis Karwatka, "British Technical History and Technical Instruction in Great Britain."  
 Charles Patrick, "Investigation of Information Base for Longwall Mining Systems."  
 Veeramuthu Rajaravivarma, "Genetic Algorithms and Computer-Assisted Music Composition."

### Department of Information Sciences

Hilary Iwu, "Microcomputer Competencies Taught in Business Programs at Four-Year Institutions that are not Members of the National Association for Business Teacher Education (NABTE)."

### Department of Leadership and Secondary Education

Daniel Fasko, Jr., "Critical Thinking: History and Future Directions."

### Department of Music

Larry Blocher, "A Multi-Cultural Curricular Model for School Bands."

### Department of Psychology

Lynn Haller Augsbach, "Adults' Perceptions of Children's Metaphoric and Literal Statements About Dental Health."  
 Bruce Mattingly, "Interactive Effects of Dopamine D<sub>1</sub> and D<sub>2</sub> Receptor Stimulation on Brain Biochemistry and Behavior."  
 David Olson, "Interpersonal Problems of Dysphoric College Students."  
 David Olson, "Dysphoria and Attachment Style."

### Department of Sociology, Social Work, and Corrections

Byron Johnson, "The Policing and Judicial Response to Domestic Violence in Kentucky."  
 Edward Reeves, "Durkheim and Beyond: A Transaction Cost Approach to Ritual."  
 Neil Websdale, Byron Johnson, "Domestic Violence and Criminal Justice in Kentucky."



# RESEARCH HIGHLIGHTS

## Scientists Study Drugs and Behavior

Dr. Bruce A. Mattingly, professor of psychology at MSU, has received his fourth \$15,000 grant from the National Science Foundation/Kentucky Experimental Program to Stimulate Competitive Research Committee to continue research on behavioral and neurochemical effects of stimulant drug abuse. Nearly all abused drugs act on nerve cells—known as neurons—in the central nervous system. Neurons communicate through chemicals called neurotransmitters. Dopamine, a neurotransmitter chemical involved in motor coordination and the experience of pleasure, is crucial to normal brain functioning. According to Dr. Mattingly, stimulant drugs such as cocaine and amphetamines act on dopamine neurons.

Studies have proven that chronic use of cocaine and amphetamines results in an abnormal increase in stimulation of dopamine receptors which leads to several severe, and relatively permanent, behavioral side-effects including anxiety, panic attacks and paranoid psychosis.

Over the past few years, Dr. Mattingly and his students have studied behavioral changes which occur in laboratory rats with repeated administration of stimulant drugs such as apomorphine and cocaine. In collaboration with Dr. Michael Bardo, professor of psychology at the University of Kentucky, Dr. Mattingly has identified a number of neurochemical changes which may be responsible for long-term behavioral effects.

Dr. Mattingly and his colleagues plan to conduct a series of experiments to determine the exact neurochemical mechanisms which produce the increase in stimulation of dopamine receptors. The focus of his project is on a type of receptor which is one of the links in the regulation of dopamine synthesis and release. He believes his experiments will indicate that dopamine autoreceptors become subsensitive to dopamine with repeated apomorphine treatments and consequently, in the absence of the drug, too much dopamine will be produced. Overproduction of dopamine may be responsible for some side-effects

observed in chronic drug abusers. "A great deal of evidence suggests that positive symptoms of schizophrenia may be mediated by an overactive dopamine system." Understanding this process should ultimately lead to better treatment and prevention programs for drug abuse.

## Criminal Uses of Depo-Provera

Over the past decade, Dr. William C. Green, professor of government at MSU, has been studying the political and legal controversy over Depo-Provera, a drug manufactured by Upjohn and approved by the U.S. Food and Drug Administration as a female contraceptive in 1992. His research, supported by an MSU Research Grant and Summer Fellowship as well as a Southern Regional Education Board Grant Award, has focused, in part, on the drug's use as a probation condition for male sex offenders, particularly rapists.

Popularly known as "chemical castration," the drug was first given to male sexual deviants by John Hopkins University researchers in 1966. Subsequent studies disclosed that Depo-Provera lowered testosterone levels and inhibited sex drive, but have not demonstrated that the drug is an effective treatment for rapists. Researchers also discovered that the drug's side effects include fatigue, weight gain, hot flashes, cold sweats, hypertension, and insomnia, but its carcinogenic risk has not been investigated.

Depo-Provera's use as a probation condition gained national attention when Roger Gauntlett, an Upjohn heir, was convicted of rape and sentenced to five years probation on the condition that he use the drug. The condition was overturned on appeal, but other defendants have accepted Depo-Provera as a probation condition. For Dr. Green, the drug's continued criminal justice use raises major ethical issues. Since the research has not been FDA-authorized and Depo-Provera has not been FDA-approved for use by men, its risks are unknown, and a defendant's acceptance of the drug is inherently coercive.



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