

Summer 1992

Focal Spot, Summer 1992

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SUMMER 2002

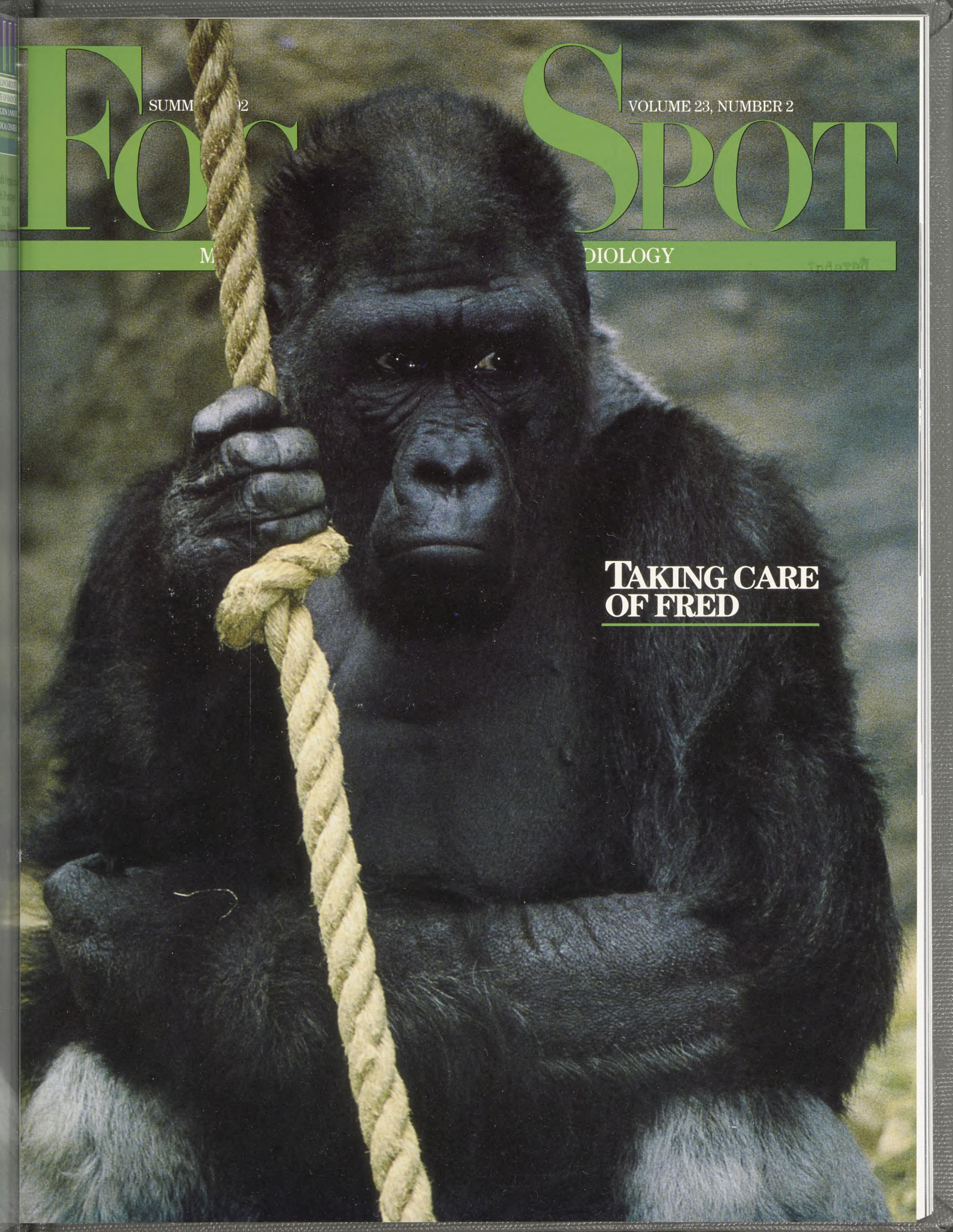
VOLUME 23, NUMBER 2

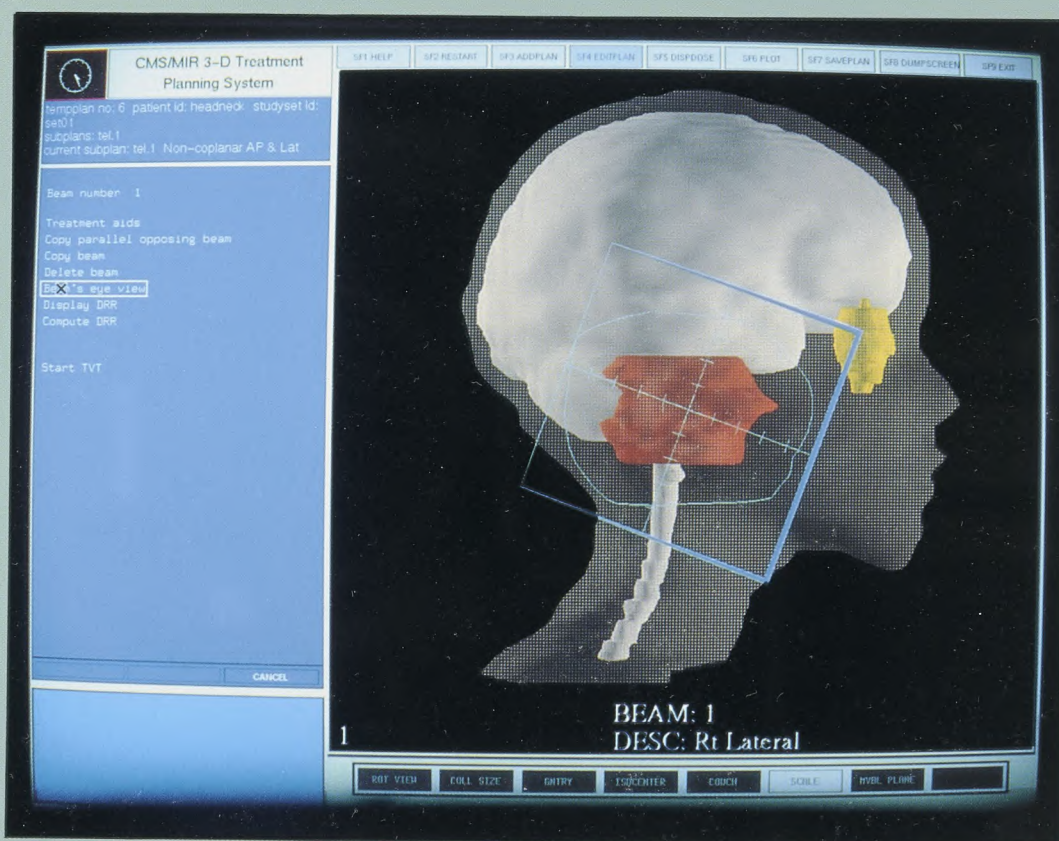
For SPOT

M

DIOLOGY

**TAKING CARE
OF FRED**





As shown in this computer-generated image, the three-dimensional treatment planning program at MIR's Radiation Oncology Center enables the radiation oncologist and physicist to specifically tailor radiation dosage for each individual type of tumor while sparing healthy, critical structures nearby. The system uses a computed tomography scanner equipped with a special laser marking system connected to a three-dimensional treatment planning computer.

FOCAL SPOT

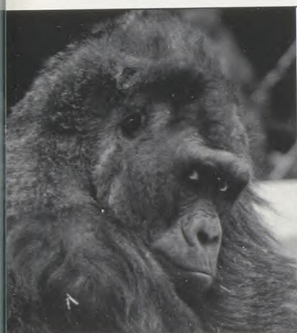
SUMMER, 1992 VOLUME 23, NUMBER 2

MALLINCKRODT INSTITUTE OF RADIOLOGY



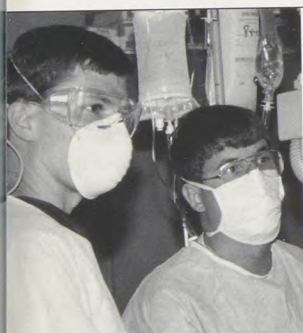
6 CELEBRATING LIFE

The odds for beating cancer are improving every day. Four out of 10 patients diagnosed with cancer this year will be alive and well in 1997. On May 16, more than 200 cancer survivors, their families and friends, and MIR staff gathered to celebrate their victories over cancer.



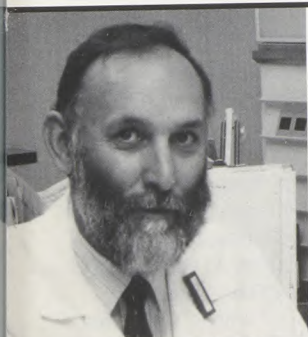
12 TAKING CARE OF FRED

Fred the gorilla is one character you can't help but love. When Fred wasn't feeling well, Mallinckrodt Institute physicians and staff, working with Saint Louis Zoo officials, lent their diagnostic expertise to help get Fred back on his feet.



20 HITTING THE JACKPOT

Shirley Endejan almost bled to death from ruptured veins in her esophagus. She feels she owes her life to Mallinckrodt Institute interventional radiologists who are perfecting a procedure for controlling bleeding resulting from complications associated with chronic liver disease.



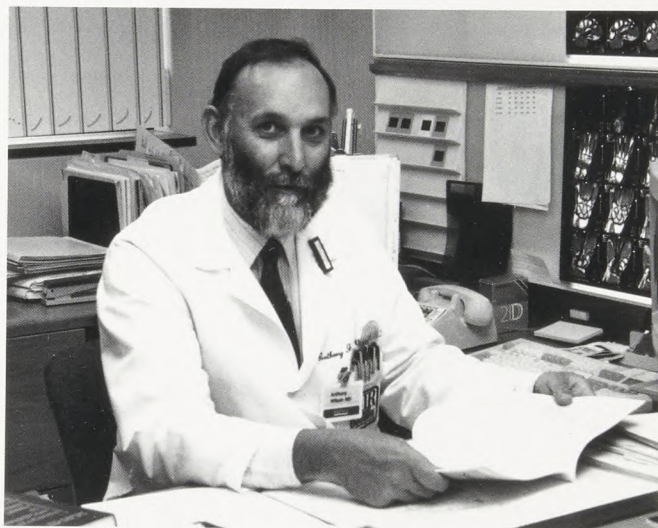
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ON THE COVER:

Fred, a western lowland gorilla, is a popular attraction at the Saint Louis Zoo. Because the numbers of gorillas in the wild are rapidly diminishing, zoos across the U.S. and abroad are participating in captive breeding programs for these endangered species. When Fred showed signs of medical distress, Mallinckrodt Institute radiologists were quickly brought in to help save this valuable animal.
Photograph by Erik Mahr, courtesy of the Belleville News-Democrat.

SPOT NEWS



Freshman Radiology Course Always a Hit

If "Anatomy through the Eyes of the Radiologist," MIR's freshman radiology course, were a Broadway play, the marquee would always read "SRO." According to Anthony J. Wilson, M.B., Ch.B., assistant professor of radiology and coursemaster of the freshman radiology course, "As an elective, this course is always sold out."

The second-semester, five-week course provides the students with an opportunity to relate information gained from their first-semester anatomy studies to radiographic images. The class is set at a maximum of 25 students who are divided into small subgroups that work with one or more radiology faculty members. Each week one subgroup is assigned a set of images. By answering an accompanying list of questions and by identifying marked anatomical structures, the students present their findings to the class.

As coursemaster of the 1992-1993 freshman radiology course, Anthony Wilson, M.B., Ch.B., uses a case-review format to offer students an early introduction to radiology.

"The course allows students to use radiology as an applied anatomic tool," says Wilson. "The emphasis is on normal anatomy, but some pathologic material is used to illustrate the values of certain studies."

Prompted by student interest and an initiative on the part of Dixie Anderson, M.D., associate professor of radiology, the freshman radiology elective was first offered in 1987. The course is set for 10 to 15 hours and includes a core group of radiologists who effectively teach the fundamentals of diagnostic radiology.

Paul Molina, M.D., assistant professor of radiology, was named coursemaster in 1989 when Anderson stepped down to assume directorship of the MIR residency program. In 1992, Molina was named coursemaster for the sophomore radiology course. He and Wilson codirected the program during the 1991-1992 academic year, with Wilson taking over the leadership for the 1992-1993 course, which will include sessions on the subspecialties of cardiac, chest, musculoskeletal, head and neck, and abdominal radiology.

"As a byproduct, this elective provides a link for first-year anatomists to the real world of medicine," says Wilson.

Radiation Oncologists Receive Awards From ACS

The American Cancer Society (ACS) encourages the best and brightest young physicians to dedicate their careers to clinical oncology by providing funding through the Clinical Oncology Career Development Award (CDA) and Clinical Oncology Fellowship. The awards support individuals affiliated with programs designed for the development of clinical expertise and independent clinical and laboratory research.

On June 5, MIR Radiation Oncology Center's physicians Anastasio Georgiou and Avraham Eisbruch received an ACS Clinical Oncology Fellowship Certificate of Completion, signifying the completion of a one-year, \$10,000 fellowship for advanced cancer studies. Peter Lai, M.D., received a certificate for the completion of his cancer research, which was funded by a three-year, \$90,000 CDA.

Mary Vogelsang Graham, M.D., has been awarded a \$90,000 CDA for July 1, 1992, through June 30, 1995, to expand her research in thoracic radiation therapy treatment.

All of these physicians received their specialty training in radiation oncology under Carlos A. Perez, M.D., director of the Radiation Oncology Center, who was recently listed in the *The Best Doctors in America* as an expert in the areas of lung, gynecological, breast, and prostate cancer.

SPOT NEWS

Welch Receives Nuclear Medicine Pioneer Award

Michael J. Welch, Ph.D., director of Radiation Sciences and professor of radiology and chemistry, received the prestigious Georg Charles de Hevesy Nuclear Medicine Pioneer Award at the Society of Nuclear Medicine's (SNM) 39th Annual Meeting in June.

Welch's highly regarded work on rapid synthesis of positron labelled organic chemicals was of vital importance in the development and application of positron emission tomography (PET) in diagnostic medicine. In the 1970s, at a time when other researchers were unfamiliar with cyclotron-produced short-lived radionuclides, Welch was one of the first researchers to apply modern organic chemistry to the preparation of radiopharmaceuticals used in medical imaging. His production of novel radiopharmaceutical imaging agents provided a basis for breakthrough clinical research studies on breast tumor localization and brain neuroreceptors.

The Georg Charles de Hevesy Nuclear Medicine Pioneer Award was established by the SNM in 1960 in honor of Georg Charles de Hevesy, a Hungarian chemist

who developed radiotracer techniques. The awardee is chosen annually by the president of the SNM, based on his or her overall accomplishments in and contributions to the field of nuclear medicine. Mallinckrodt Institute's Michel M. Ter-Pogossian, Ph.D., who developed PET in the early 1970s, was the 1985 award winner.

Among Welch's many honors are the SNM's prestigious Paul C. Abersold Award (1980), the Berson-Yalow Award (1988 and 1990), the American Chemical Society's St. Louis Award (1988), the Midwest Award (1991), and the National Award for Nuclear Chemistry (1990). Many of the heads or staff members of radioisotope production, imaging, and research centers in the United States trained under Welch as students or research collaborators.

Balfe and McClennan Named AJR Top Reviewers

Dennis M. Balfe, M.D., associate professor of radiology, and Bruce L. McClennan, M.D., professor of radiology and chief of the abdominal section, were recognized as top manuscript reviewers by the *American Journal of Radiology* (AJR), a leading scientific journal published by the American Roentgen Ray Society.

A total of 675 physicians reviewed more than 1,500 manuscripts during 1991. Based on criteria set forth by Robert Berk, M.D., editor-in-chief of the AJR, Balfe, who is recognized for his work in



In recognition of their 25-year service anniversaries with Washington University, six Mallinckrodt Institute employees were honored at a luncheon hosted by Chancellor William Danforth on June 4 at the University House. Shown (left to right) are Carolyn Jones, assistant technical supervisor, Diagnostic Radiology; Bettye James, chief technologist, Radiation Oncology; Barbara Gill, LPN, Radiation Oncology; Ronald Evens, M.D., director of the Institute; William Danforth, M.D., chancellor of Washington University; and Sue Day, secretary, Diagnostic Radiology. Not shown are Roberta Louis, film librarian, Diagnostic Radiology, and Harriet Fieweger, staff librarian, Diagnostic Radiology.

the radiologic staging of pancreatic and colorectal cancers, and McClennan, known for his expertise in the field of genitourinary radiological research and in the assessment of radioiodinated contrast agents, were recognized not only for the number of manuscripts reviewed but for the consistently high quality of those reviews.

SPOT NEWS

Malden Earns 24th Annual Wilson Award

Eric S. Malden, M.D., was presented the 1992 Hugh M. Wilson Award for Meritorious Work in Radiology at Washington University School of Medicine's commencement exercises on May 15. The Wilson Award was established in 1968 in honor of Hugh Wilson, M.D., the second director of the Institute, who established radiological subspecialties and placed a particular emphasis on education.

As a fourth-year student, Malden rotated through a six-week elective course in radiology and then chose to take on additional work in the areas of cardiac and interventional radiology. While working on these two services, Malden authored a half dozen papers that were published in journals such as *Chest*, the *Journal of Urology*, the *Journal of Vascular and Interventional Radiology*, the *Biochem Journal*, and *Angiology*.

According to Fernando Gutierrez, M.D., associate professor of radiology and head of the Wilson Award Nominating Committee, "Eric Malden is extremely productive, hardworking, and enthusiastic. His work ethics are outstanding."

Malden has been accepted into the Institute's 1992-1993 residency program.



June 19, 1992, marked the end of an era and a new beginning for the Mallinckrodt Institute of Radiology School of Radiation Therapy Technology. Seven students earned their radiation therapy technologist (R.T.T.) credentials in a ceremony that marked the 25th anniversary of the program, which was begun in 1966 under the leadership of Carlos A. Perez, M.D., director of the Radiation Oncology Center. That first class included Bettye James, R.T.T., B.S., who is now the school's program director. With the transfer of MIR's technical component to Barnes Hospital, the 1991-1992 radiation therapy technology graduates will be the last class of MIR students. Pictured are (back row, left to right) Tamara Jaqua, Autumn Adams, Stacey Ballard, Fredrick Oehmke; (front row, left to right) Catherine Adams, Marsha Head, and Susan Connor.

Evens Delivers Sydney Watson Smith Lecture

Ronald G. Evens, M.D., director of the Institute, delivered the Sydney Watson Smith Lecture to the Royal College of Physicians in Edinburgh, Scotland, on May 6.

This prestigious lecture was established in honor of Sydney Watson Smith, a renowned physician who was a past president of the British Medical Association.

Evens, a recognized authority in the socioeconomics of medicine, was the keynote speaker for the symposium on "New Imaging Techniques." His talk, "Introducing a New Technology: Magnetic Resonance Imaging as a Paradigm," addressed the most beneficial and cost-effective ways of using this newest imaging technology. Evens' widely known studies have evaluated both the economics and the benefits to patients and to society of MRI and other diagnostic imaging technologies. His findings are being used to improve the

effectiveness of health-care delivery throughout the U.S.

In 1983, MIR, under Evens' leadership, received one of the first MR scanners in the world. In the nine years hence, MIR's scientists and physicians have become recognized as leaders in research and clinical MR applications.

SPOT NEWS

McAlister At Helm of SPR

William H. McAlister, M.D., professor of radiology and radiologist-in-chief at St. Louis Children's Hospital, was appointed to a one-year term as chairman of the board of The Society for Pediatric Radiology. His appointment was effective May 17, 1992, which coincided with the end of his term as president of the Society. As chairman, one of McAlister's responsibilities is setting policies that "provide for the most efficient, cost-effective, and safe method of providing optimum health care for children" — as stated in the Society's bylaws.

Organized in 1958, the Society began with 15 members and now boasts an international membership of more than 800 licensed pediatric radiologists. The Society and its members are dedicated to the scientific, educational, and professional aspects of pediatric radiology and to the concept of comprehensive diagnostic imaging.

The Institute's pediatric radiology at St. Louis Children's Hospital is one of the most comprehensive facilities in the area, offering a wide variety of imaging procedures.

Destouet Honored

Judy M. Destouet, M.D., associate professor of radiology and head of mammography, received the American Cancer Society's 1992 John Krey III Memorial Award for Outstanding Clinical efforts in the field of cancer control.

Destouet, a widely respected musculoskeletal radiologist, is perhaps the St. Louis area's most visible and effective advocate of early detection of breast cancer. She has worked tirelessly to educate the medical, corporate, and public communities

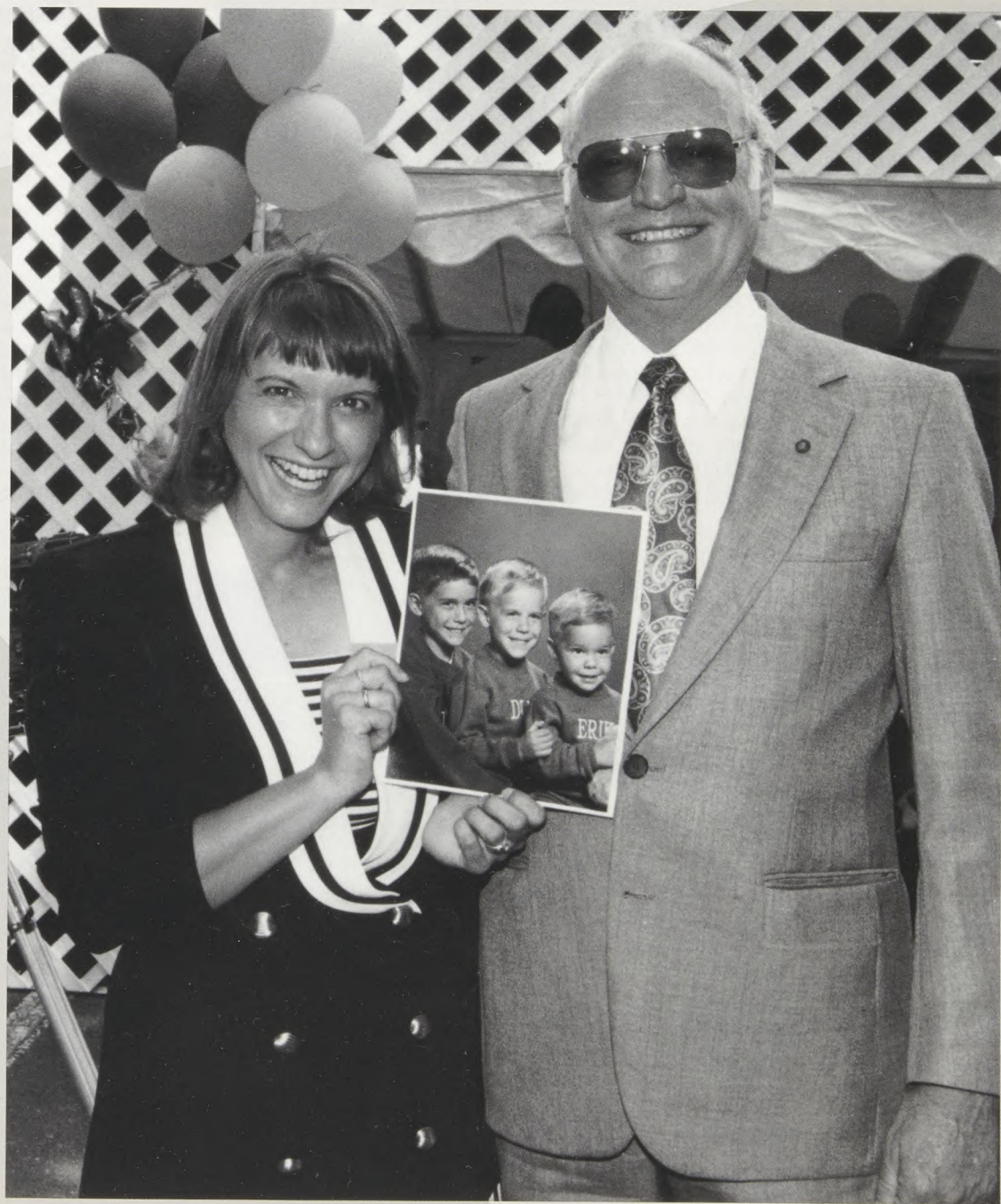
in St. Louis about the importance of mammography. She has developed one of the first and most effective screening mammography programs in the nation. Her work on American College of Radiology committees to raise the standard of mammography has helped significantly to ensure that women receive the highest quality diagnostic tests for breast cancer. She was instrumental in raising awareness among the medical and regulatory communities, especially within the Food and Drug Administration, about the importance of developing a breast implant material that does not

obscure mammography. Through her free seminars and public appearances, she has taken education about breast cancer to the public.

The John Krey III Memorial Award was established in 1989 in honor of John Krey, a community leader who was known for his achievements, care for his fellowman, and his commitment to excellence. Three medals of honor are presented annually to recipients who have significantly enhanced cancer control through scientific, clinical, and humanitarian efforts in the Missouri Metropolitan St. Louis Area.



On June 26, 1992, the 42nd graduating class of the Washington University School of Radiologic Technology at Mallinckrodt Institute of Radiology became part of the School's proud tradition of "striving toward excellence." Shown are (front row, left to right) Nicole Madison, Denise Mohart, Lisa Ivy, Cindy Rowden; (middle row, left to right) Justa Redmond, LaRane Robinson, Andy Sutton; (back row, left to right) Douglas Delassus, Lisa Voyles.



Christine Bowman, with her father, Joe Schulte, proudly displays a photograph of her three sons. Bowman is an enthusiastic supporter of the MIR Radiation Oncology Center.

Celebration of LIFE



Three years ago, Todd Wasserman, M.D., professor of radiation oncology at Mallinckrodt Institute of Radiology, decided he wanted to bring together people who had survived cancer. He wanted everyone to share the memories of their struggles and victories as they battled a dreadful disease. The gathering would be a "Celebration of Life" for cancer survivors who were treated at the Institute and were disease-free at least five years after treatment. These survivors would celebrate with the treating staffs who had laughed and cried with them. Through those survivors Wasserman hoped to show that with early detection and with advanced, carefully tailored treatments, available at facilities like the Institute's Radiation Oncology Center, cancer patients can enjoy long, productive lives.

BY VICKI KUNKLER

Celebration of LIFE

"The Radiation Oncology Center is proud of its continuing efforts to improve the outlook for patients who have cancer. This event will celebrate individuals who are the beneficiaries of those continued improvements in care," said Wasserman during a planning session for that first Celebration, held on October 28, 1989.

In the last six decades, the outlook for cancer patients has improved greatly. In the 1930s, fewer than one in five patients with cancer was alive at least five years after treatment. In the 1960s, it was one in three. Today, about 452,000 Americans, or four out of 10 patients, who are diagnosed with cancer this year will be alive five years after that diagnosis. The gain from one in three to four in 10 represents about 79,000 surviving patients this year.

When normal life expectancy is taken into consideration, a "relative" five-year-survival rate of 51 percent is seen for all cancers. The five-year survival rate for young men with testicular cancer is 91 percent, up from 63 percent 20 years ago. For localized breast cancer, the five-year survival rate has risen from 78 percent in the 1940s to 92 percent today. And the survival rates for all stages of prostate cancer have steadily improved from 50 percent 30 years ago to 74 percent today.

The success of that first gathering was repeated recently on May 16, 1992, when more than 200 cancer survivors, their families and friends, and the MIR staff gathered under a festive tent filled with colorful balloons for a, now biennial, "Celebration of Life."



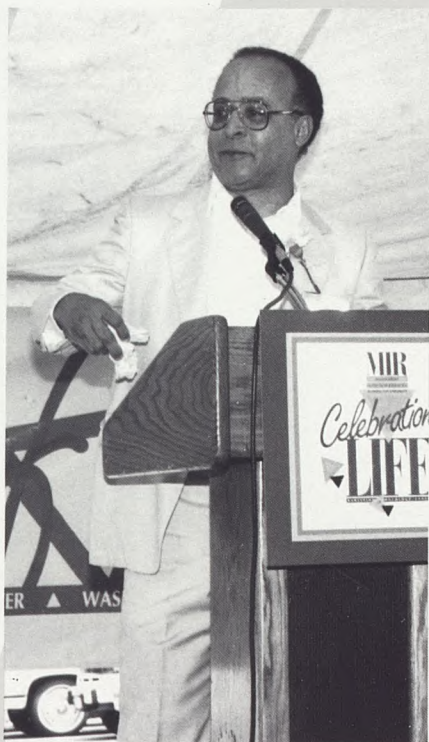
Above: Nine years after treatment for prostate cancer, Vernon Nicholson, a medical center employee, is doing well.



Above right: At "Celebration of Life," former patients, like Dorothy Underwood, had a chance to reminisce with MIR staff and other patients.



Right: William Bailey, a newscaster for WIN radio in Highland, Illinois, interviews Todd Wasserman, M.D., who treated Bailey for lymphoma in 1973.



Above: There wasn't a dry eye in the crowd as Leslie McCall related his memories of his diagnosis of abdominal cancer and his treatments in 1980 at MIR's Radiation Oncology Center.



Above: Carlos A. Perez, M.D., director of the Radiation Oncology Center since 1976, chats with cancer survivors Harold Graham (left) and Herman Bockstruck.



Above: Phyllis Hallmark, a 20-year cancer survivor, was treated at MIR's Radiation Oncology Center for Hodgkin's disease. She and husband Jack live in Florissant, Missouri.

“**C**elebration of Life is the largest known gathering of long-term cancer survivors treated by a single institution,” says Wasserman, chairman of the event. “More than one thousand patients treated with radiation at the Institute are known to be doing well five or more years after treatment.”

The celebration is just one part of a comprehensive program for treating cancer at Mallinckrodt Institute. In July, the Institute’s Radiation Oncology Center opened the St. Louis region’s first three-dimensional treatment planning facility for cancer therapy, enabling physicians to specifically tailor dosage for each individual tumor type and volume and to deliver higher and more accurate doses to the tumor while sparing healthy tissue nearby. The new, sophisticated monitoring techniques translate improved treatment planning into more effective radiation treatment in patients.

“We’ve made great strides in cancer treatment in the last decade,” Wasserman says. “The goal of cancer therapy research here at Mallinckrodt Institute is to make the odds for survival even greater.” □



Above: Melissa Strader of Alton, Illinois, shares with Todd Wasserman, M.D., the news of her upcoming marriage. Strader was treated for Hodgkin’s disease over 10 years ago.



Left: According to Todd Wasserman, M.D., “All cancer survivors are winners.” Christine Bowman, Rosa Perry and Irvin Breidenbach received a special award for their individual accomplishments.

DREAMS DO COME TRUE

In 1978, cancer threatened the dreams of 15-year-old Christine Schulte, then a student at Hazelwood Central High School in Florissant, Missouri. Diagnosed with Hodgkin's disease, a type of cancer that affects the lymphatic system, the teenager was devastated.

Fourteen years later, Christine Schulte Bowman, who at one point during her fight against cancer was told that she might never be able to have children, is a healthy, thriving mother of three young sons — Adam, 6; Dan, 4; and Erik, 2. "They didn't know if I could have children," Bowman told the Celebration audience. "Now it turns out that I'm a rabbit." She has been disease free for those 14 years and readily attributes her success story to the support of her family and to the expert care she received at Mallinckrodt Institute's Radiation Oncology Center.

Bowman was among the first generation of patients in the U.S. to receive radiation treatment using a linear accelerator, a technology that creates high-energy X rays to destroy cancer cells. A prototype linear accelerator, the

Clinac 35, was developed by Varian Associates, following specifications determined by Institute clinicians and scientists. Introduced in the early 1970s at the Institute, these accelerators set the standard for modern, high-energy, megavoltage radiation therapy machines. This technology has contributed to dramatic improvements in cancer treatment. Hodgkin's disease, for example, now boasts a cure rate of 90 percent as compared to a cure rate of 30 percent 20 years ago.

"Cancer is not necessarily a fatal disease. I always get on my soapbox when I hear people speak as if it is. There are thousands of survivors out there, and we're living proof of the process," says Bowman, who travelled from her home in El Paso, Texas, to speak at "Celebration of Life '92." □



Todd Wasserman, M.D., was Christine Bowman's radiation oncologist during her treatment for cancer.



After scanning Fred's hips and arm, Louis A. Gilula, M.D., diagnosed degenerative arthritis.



Taking CARE of Fred

MIR and the Saint Louis Zoo team up to insure the
continuity of an endangered species.

by Vicki Kunkler

Taking CARE of Fred

W

hen you're not feeling well, you go to the doctor and explain where it hurts. But a 300-pound gorilla who's in pain cannot verbalize or even point to where it hurts. That's the dilemma the Saint Louis Zoo officials faced back in February when Fred, a 33-year-old gorilla, was obviously not feeling well. The gorilla was holding his arm in a protective position and limping when he walked. Zoo veterinarian Eric Miller believed these symptoms indicated some neurological problem.

Fred's signs of chronic back pain plus weight loss, coupled with his age, which is considered advanced for a gorilla, prompted Miller to call for diagnostic assistance from Louis Gilula, M.D., codirector of Mallinckrodt Institute of Radiology's musculoskeletal section and the Institute's liaison with the Zoo. Luckily, for Fred and for the hundreds of other patients with similar symptoms, Mallinckrodt Institute physicians are well-known for their diagnostic expertise.



Fred is the dominant male, called a silverback because of the silvering of hair along the back and hips as the animal matures, of a troop of five Western lowland gorillas who are part of the Saint Louis Zoo's Jungle of the Apes exhibit. Because of Fred's gentle nature and the loving way he interacts with the other members of his troop, this patriarch has captured the hearts of his caretakers and of the daily visitors to the gorilla compound. Fred and his original troop of three gorillas are well-travelled, having come from their habitat in the rain forests of central and west Africa to the Lincoln Park Zoo in Chicago. The troop then came on loan in 1986 to St. Louis as part of the Zoo's Species Survival Plan, a cooperative breeding program for endangered species. Fred is a valuable member of this captive breeding program. He has fathered two offspring since his arrival in St. Louis and is a gentle role model for the young gorillas in his troop.



Mokhtar Gado, M.D., is a leading researcher of neurological diseases.

According to Gilula, his role as liaison with the Zoo began many years ago when he was called to consult on a case concerning a Speke's gazelle later diagnosed with osteomyelitis, an inflammation of the bone. "The Institute is able to provide the Zoo with a noninvasive procedure for diagnosing specific problems in valuable animals," says Gilula. "The Zoo does its own conventional X rays. Mallinckrodt Institute's expertise is called for only in a specialized situation like Fred's. It's important to maintain the continuity of certain animal species for future generations."

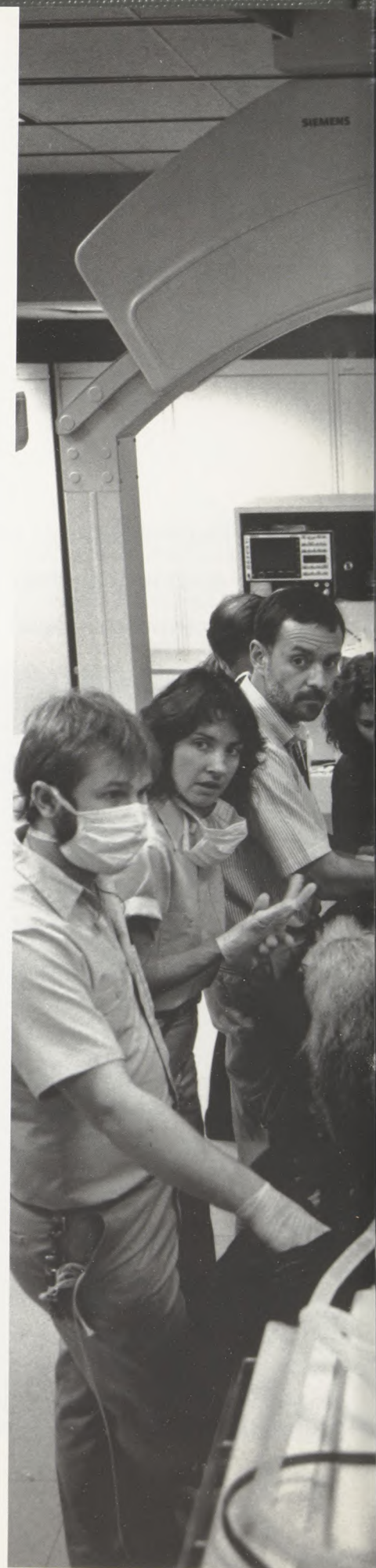
Taking CARE of Fred

While Fred was dozing, the team measured and weighed him to see if he would fit into the Institute's people-sized imaging scanners.

In the early morning hours of Sunday, March 1, a medical team from the Institute and the Zoo's medical team rendezvoused at the Jungle of the Apes to prepare Fred for his trip to the Institute. Special precautions were taken to insure that Fred's journey was safe, not only for him but also for those personnel accompanying him to the Institute. First, the gorilla was sedated. While Fred was dozing, he was measured and weighed to determine if he would fit into the Institute's people-sized imaging scanners. During the sedation procedure, it was determined that Fred had lost 60 pounds — an indication of the severity of his illness. An electrocardiogram showed that Fred's heart was healthy. His blood was drawn, and then the team took advantage of Fred's sedated state to take care of a few personal hygiene tasks — checking his teeth and clipping his nails. Then came the hard part — transporting this massive animal to the Institute.

Using a nylon net and a lot of muscle, five caretakers transferred the sleeping Fred into a Zoo van, part of a five-vehicle caravan that made its way to Mallinckrodt Institute at the Washington University Medical Center. Fred's tests had been scheduled specifically for "off hours" when no other patients were being scanned.

The Zoo's medical team lovingly watched over the sleeping gorilla as MIR physicians and staff prepared Fred for scans of his hips and arm.





Waiting for Fred in the fifth-floor magnetic resonance imaging (MRI) suite was renowned neuroradiologist Mokhtar Gado, M.D., professor of radiology, who, like all the other Institute physicians and staff, donated his time to examine the gorilla. Gado has done extensive research into MR imaging of the brain and spine and was the logical choice for this portion of the diagnosis. Fred's arm posturing and odd walk signalled the possibility of nerve pressure in his neck. The medical team placed the gorilla into the cylindrical chamber of the scanner and the procedure began, scanning Fred's spinal cord and brain.

MRI has several distinct advantages over conventional X rays and computed tomography (CT), which is similar to MRI. Conventional X rays can visualize air, soft tissue, and bone while CT differentiates a few soft tissues such as tendon, muscle, and fluid. MRI, however, distinguishes types of soft tissue even further: muscle, tendon, ligament, articular and

fibroid cartilage, fluid, fat, blood, and flowing blood, in addition to bone. MRI scans provide not only the conventional axial cross-sections but "slices" at any desired orientation, producing a complex image for diagnosing neurological and musculoskeletal disorders.

After reading the scans, Gado reported his diagnosis: "A disc appears to be bulging. It's smack in the middle of his neck."

Additional scans were taken to corroborate the diagnosis. All the while Fred was dozing peacefully, under the watchful eyes of the anesthesiologist, the Zoo medical team, a rheumatologist, radiologists, and radiologic technologists. The gentle giant was totally unaware of the care and concern he elicited from the group.

The next stop was the Institute's third-floor interventional neuroradiology section where Fred was taken to the newly completed angiographic suite. Considered one of the most comprehensive facilities in the region, the suite has one of the best imaging machines around — the first of a new generation of high resolution image intensifiers. The room was specifically designed to accommodate an entire medical team, and Fred's entourage fit perfectly, with some room to spare.

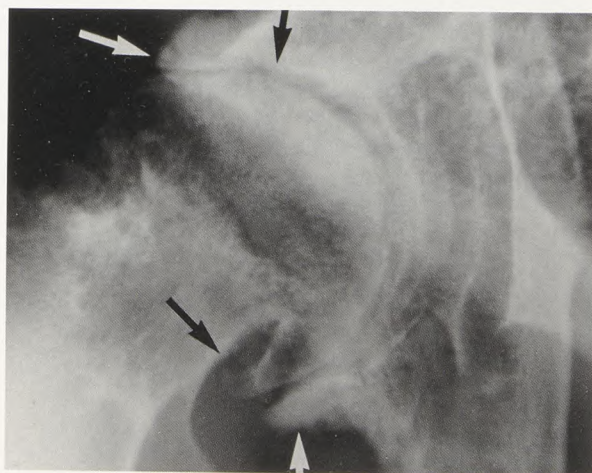
Taking CARE of Fred

*"A disc appears
to be bulging.
It's smack
in the middle of
his neck."*

Mokhtar Gado, M.D.

Gilula directed the skeletal digitized films, training the remote-controlled X-ray tubes on Fred's hips and arm. Gilula, an internationally acclaimed musculoskeletal radiologist, determined that Fred was suffering from osteoarthritis, a noninflammatory degenerative joint disease that is common in middle-aged males. Since a lowland gorilla's life expectancy is around 45 years of age, Fred's 33 years make him an "older man" in gorilla terms. The disease is accompanied by pain and stiffness — symptoms that Fred was noticeably displaying.

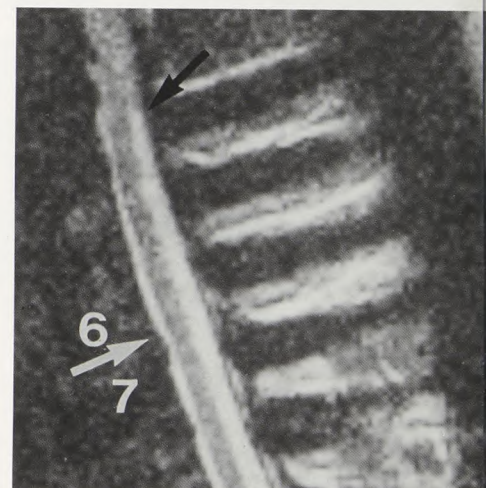
Fred's tests were completed, and by 3:00 p.m. he was back in a special observation cage at the Zoo. The consensus of Fred's medical team is that his overall outlook is good. The bulging disc was not considered critical since it was not pressing on the spinal cord. The hip arthritis can be repaired with surgery if that method is decided to be best for Fred. Painkillers were prescribed to relieve some of Fred's discomfort from his arthritis.



The scans of Fred's hips show a narrowing sclerosis of the hip joint (shown by the black arrows) and osteophytes or spurs on the margins of the joints (shown by white arrows). These findings indicate advanced osteoarthritis.

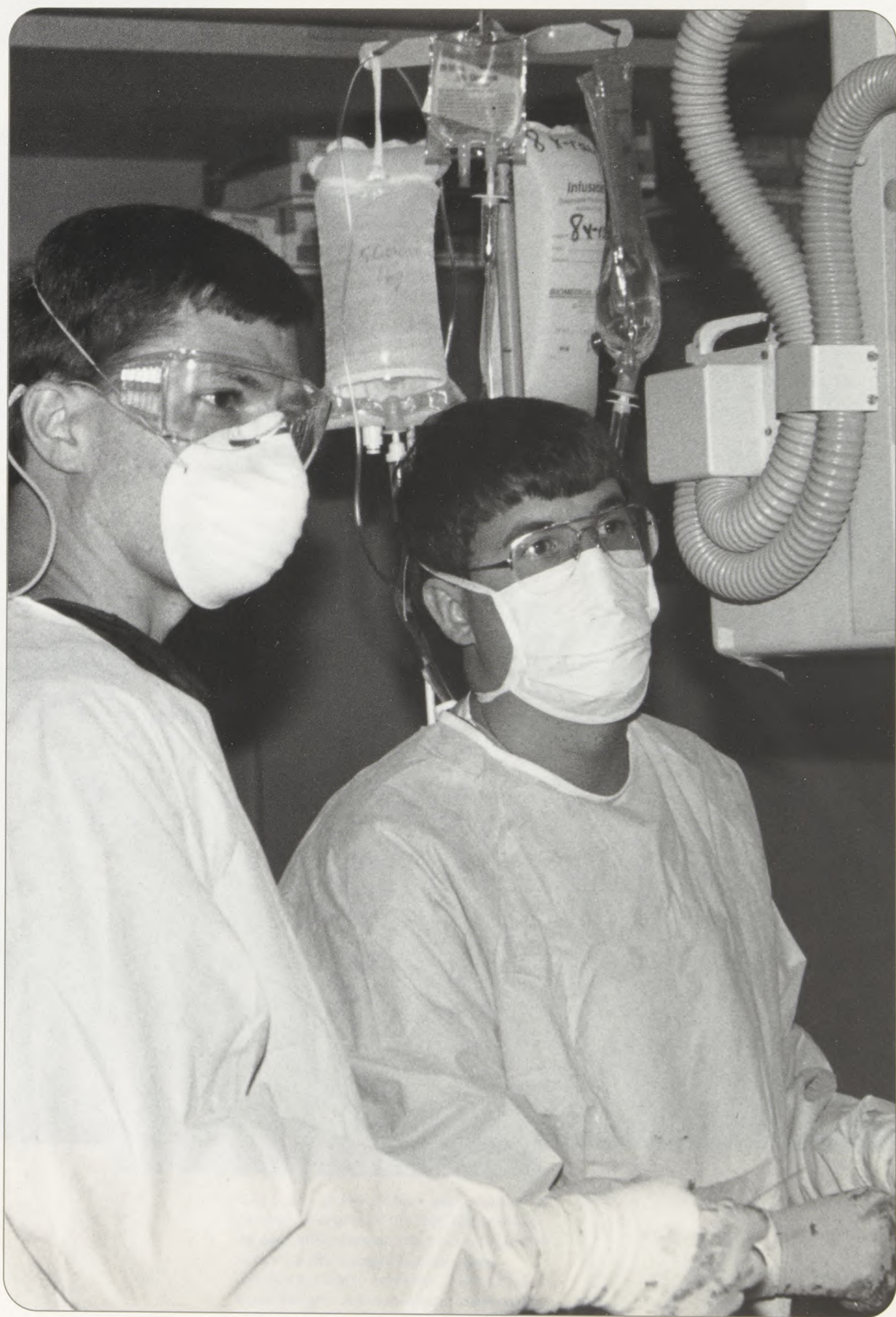
At last notice, Zoo officials reported that Fred, like all of us, has his good days and his bad days. "Surgery is still a possibility," says Miller. But, Fred's appetite has improved and he appears to be gaining some weight. And there's a new Mrs. Fred in the picture. Kay, a 28-year-old female gorilla from the Los Angeles Zoo, is being introduced to the troop.

With luck, there may be a new member of the troop to follow in Fred's gentle footsteps. □



Fred's MR scan reveals a slight bulging of the disc (shown by white arrow) between the vertebrae of thoracic segments 6 and 7. This slight bulge is pushing on the front portion of the spinal canal but is not pressing on the spinal column, the long, gray structure surrounded by spinal fluid (white areas shown by black arrow).





Hitting the Jackpot

by Vicki Kunkler

MIR interventional radiologists are perfecting a lifesaving procedure for critically ill patients.

Approximately 200 TIPS procedures have been reported worldwide; 27 have been performed at Mallinckrodt Institute. Here, Michael Darcy, M.D., assisted by Kevin Burton, M.D., (right), carefully monitors the progression of a guidewire through the hepatic and portal veins.

In early July of 1991, Shirley and Richard Endejan of Arnold, Missouri, were enjoying a vacation in Las Vegas where Shirley's luck at the slot machines netted her a \$10,000 jackpot. Just one week later, the Endejans were wondering if their luck had run out. Shirley was rushed to a nearby hospital emergency room, hemorrhaging from ruptured veins in her

esophagus, the result of complications from liver disease. In the following three months, she would go through three bouts of hemorrhaging, the last of which was so severe that her body was nearly depleted of fluids. But this time more than luck was on Shirley's side. The physicians at Mallinckrodt Institute of Radiology had been developing an expertise in a noninvasive, interventional radiology procedure called transjugular intrahepatic portosystemic shunting (TIPS) that would eliminate the bleeding and give Shirley another chance at winning.

Hitting the Jackpot

Primarily biliary cirrhosis (PBC) is a chronic, progressive liver disease that affects the blood flow between the portal vein, which brings blood from the bowel and spleen to the liver, and an hepatic vein, which receives blood from the liver. When this blood flow is hampered by a diseased liver, pressure builds up, causing the blood to seek other paths to the heart. This pressure build-up, called portal hypertension, can cause bleeding from the esophageal or gastric varices. Although esophageal bleeding is more common than gastric bleeding, study results show that at some point in the course of the disease, approximately 25 to 50 percent of patients will have variceal hemorrhaging. If the bleeding is not controlled, the patient can die from loss of blood and the associated complications.

The bleeding can be treated by three methods: endoscopic sclerotherapy, surgical portosystemic shunts, or TIPS. Endoscopic sclerotherapy, the injection into the esophageal varices of sclerosing solutions that cause clotting, is generally the treatment of choice. It is a nonsurgical procedure, but there is a high incidence of recurrent bleeding and up to a 20 percent complication rate.

For patients in whom sclerotherapy is not effective, a surgical shunt will stop the hemorrhaging but may be a risky operation with a high mortality rate. Blood flow is diverted from the portal vein by surgically creating a new connection outside the liver between two veins. If the patient is a liver transplant candidate, the shunt takedown will require additional surgery that may be made more complicated due to the internal scarring caused by the shunt.



*Shirley Endejan:
"I feel extremely
lucky to be alive
today. I take one
day at a time and
enjoy my life and
family each one of
those days."*

In a TIPS procedure, the interventional radiologist places a sheath through the patient's jugular vein. From here, a 16-gauge needle is used to make a tract through the liver. A guidewire is fed through the tract, and a balloon is used to dilate the opening. An expandable, metallic stent is inserted to permanently hold the tract open, allowing blood to pass from the portal vein into the hepatic vein via the shunt. Consequently, the pressure is removed from the portal vein. TIPS is more easily tolerated by a critically ill

patient because there is no surgery involved and only local anesthesia is required. TIPS causes no complications during liver transplant since the shunt is located completely within the liver and, therefore, is removed with the liver at the time of transplantation. The patient requires only a one- or two-day recuperation period rather than the customary one to two weeks after surgery. Also, the cost is significantly lower than for surgery.

Shirley, who is now 56 years of age, says she was first diagnosed with PBC 15 years ago during preliminary blood work for a lumpectomy for breast cancer. The results showed elevated enzymes in her blood — an indication of liver damage. Further diagnostic tests confirmed that Shirley did suffer from PBC. As the disease progressed, Shirley became fatigued and her skin was jaundiced, both common symptoms of PBC. Little is known about what causes the disease or about the factors affecting its progression. Studies do show that the disease predominantly affects middle-aged women and may result from the body's inability to metabolize copper. Although heredity has not been proven, several cases of familial PBC have been documented.

In 1978, Shirley travelled to the Mayo Clinic to participate in a PBC study. She was placed on a low-copper diet that excluded foods such as nuts, chocolate, organ meats, and tomatoes. Normally, copper is excreted through the biliary tract. In patients with PBC, the balance of absorption versus

*This pressure
build-up, called
portal hypertension,
can cause bleeding
in the esophageal or
gastric varices.*

excretion is out of kilter, and abnormal amounts of copper accumulate in the body, particularly in the liver. In addition to the low-copper diet, Shirley was part of a therapeutic-drug clinical trial to control liver damage by lessening the retention of copper.

During the following 13 years, Shirley spent a relatively normal life, enjoying her family of six children and 14 grandchildren. In fact, the first incident of hemorrhaging occurred July 9, 1991, while she was at the hospital, visiting a daughter who had recently had a baby.

"I was in the restroom when I started spitting up blood," says Shirley. "There was a lot of blood, but all I wanted to do was go home."

The bleeding increased, however, after Shirley arrived home. She called her physician who advised her to go to the hospital. Thereafter, Shirley would go through sclerotherapy three times, once every six weeks — all to no avail. With the last episode, Shirley hemorrhaged twice within six days and had bloody stools and a drop in her blood pressure. And, compounding all these problems, Shirley has a hard-to-match blood type.

"My gastroenterologist knew about this shunt procedure that doctors were doing at Mallinckrodt Institute, and he thought I would be a good candidate," says Shirley. "He referred my case to Doctor Darcy."

"To date, we have done twenty-seven TIPS procedures at Mallinckrodt Institute," says Michael D. Darcy, M.D., assistant professor of radiology. "The procedure is not new. It's been around since the sixties, but was not commonly used until recently because there were no effective stents. Without a stent, the shunt channels quickly closed down."

"The interventional radiologists at MIR have developed an expertise in the procedure. Two other facilities in the area have done only one or two TIPS," he adds. "We have modified the method of finding the portal vein by using a new needle system and by modifying the angiographic techniques. We believe this may allow the procedure to be completed with less risk to the patient."

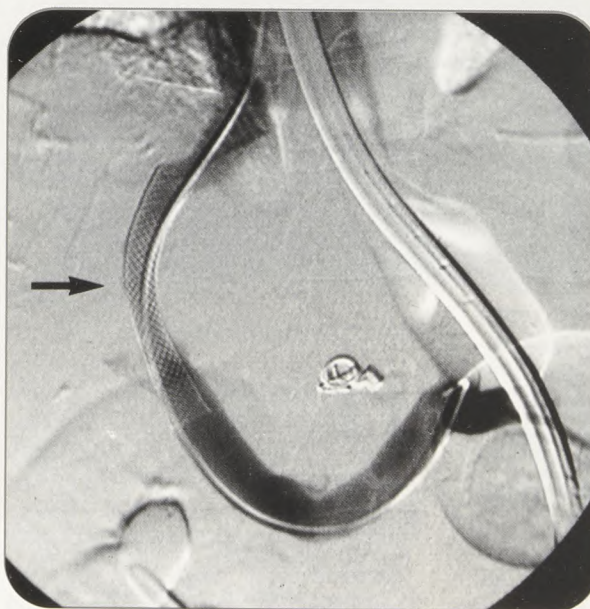
Hitting the Jackpot

Final approval has now been received from the Federal Drug Administration for a study to evaluate the efficacy of TIPS with a new device called the Wallstent, which is self-expanding and more flexible than the Palmaz balloon-expandable stent that is commonly used now. Darcy will be the principal investigator for the portion of the study conducted by the Mallinckrodt Institute team. He will be collaborating with researchers from University of California at San Francisco, University of Washington, University of Minnesota, and University of Pennsylvania.

"Two other facilities in the area have done only one or two TIPS."

Shirley Endejan is a candidate for a liver transplant, having been admitted to the transplant program before her TIPS procedure. "I'm feeling great though," she says. "It took me a while to regain my strength, but I'm doing really well. I do have to take calcium and iron pills to build up what I lost during the hemorrhaging, and I'll need to have an ultrasound every six months to check the flow of blood through the shunt. But I feel like I'm back to normal. I may even go fishing with Richard." □

Right: Before TIPS: During the venous phase of an arteriogram, contrast media that was injected into the splenic artery filled the portal vein, clearly defining large varices (darkened areas shown by top arrow). The large balloon tube (bottom arrow) was inserted to compress the varices in the stomach to control bleeding.



Left: After TIPS: After creating a shunt and inserting the stent (arrow), there is no filling of the varices, indicating flow from the portal vein to the hepatic vein.

FYI

THE DIRECTOR'S OFFICE REPORT

NEW STAFF

Gulab Bhatia, M.S., research associate in radiology, Division of Radiology Research.

Walter R. Bosch, D.Sc., research associate in radiology, Division of Radiation Oncology.

Frederick G. Kuhns, M.S., research assistant, Division of Radiation Sciences.

Paul Luk, M.S., research instructor in radiology, Division of Nuclear Medicine.

Robert Malyapa, M.D., Ph.D., research associate in radiology, Division of Radiation Oncology.

Vivek Mishra, Ph.D., research associate in radiology, Division of Radiation Oncology.

Ming Xu, M.S., research associate in radiology, Division of Nuclear Medicine.

OFF STAFF

David E. Beecher, M.S., research associate in radiology, Division of Radiation Sciences.

Curtis S. Hammerman, M.D., chief resident, Nuclear Medicine, 1990-1991, completed one and one-half years of residency in Nuclear Medicine and has entered private practice in St. Louis.

John W. Wong, Ph.D., associate professor of radiology, Division of Radiation Oncology, has accepted the position of director of clinical physics, Department of Radiation Oncology, at William Beaumont Hospital in Royal Oak, Michigan.

NUCLEAR MEDICINE RESIDENTS

Rosalie J. Hagge, M.D., received her Bachelor of Science and Master of Science degrees in computer science from Washington University and her medical degree from Washington University School of Medicine. She completed her internship at St. John's Mercy Medical Center, St. Louis.

PROMOTIONS

Michael A. Mackey, Ph.D., was promoted to assistant professor in radiology, Division of Radiation Oncology.

CHANGE OF STATUS

Janice R. Semenkovich, M.D., has joined the MIR staff as an instructor in radiology, Division of Diagnostic Radiology.

Steven L. Solomon, M.D., has joined the MIR staff as an assistant professor of clinical radiology, Division of Diagnostic Radiology.

VISITING PROFESSORS & INVITED LECTURERS

Jeffrey J. Brown, M.D., assistant professor of radiology and director of magnetic resonance imaging, lectured on "CT and MRI of the Female Pelvis" and "CT and MRI of the Male Pelvis" at Colegio Universitario del Este Fifth Annual Spring Ultrasound and Imaging Seminar, San Juan, Puerto Rico, May 3. He was chairman of the magnetic resonance imaging session workshop "The Future of Biomedical Imaging Modalities," sponsored by Argonne National Laboratory at the Medical Imaging Research Center, Argonne, Illinois, June 28-29. Brown presented "MRI of the Cardiovascular System" at the Cuban Medical Convention, Miami, June 30.

Judy M. Destouet, M.D., associate professor of radiology and head of mammography, lectured on "Benign Lesions Which Mimic Carcinoma" and "Biopsy Technique, FNAB, Core Biopsy," and conducted a workshop on "Problem Case Studies" at the Advanced Mammographic Techniques and Interpretation Course, Southampton, Bermuda, April 5-9. Destouet and **Barbara S. Monsees, M.D.**, associate professor of radiology, conducted a workshop on "Marketing the Mammography Center: A Survival Guide." Destouet, Monsees, and **Tracy L. Roberts, M.D.**, fellow in mammography,

coordinated the "Case of the Day" presentations at the 25th National Conference on Breast Cancer, Boston, April 27-May 1. On April 29, at the National Conference on Breast Cancer, Destouet was the radiologic panel member for the public session, Women's Forum, that discussed women's concerns about breast cancer.

Delia M. Garcia, M.D., assistant professor of radiology, as guest faculty teacher, conducted teaching courses in "High Dose Rate Brachytherapy in Adenocarcinoma of the Endometrium," "High Dose Rate Brachytherapy in Carcinoma of the Cervix," "High Dose Rate Brachytherapy in the Management of Endobronchial Carcinoma," "Interstitial High Dose Rate Brachytherapy and Long Duration Interstitial Hyperthermia in the Treatment of Newly Diagnosed Malignant Gliomas," "Iridium-192 Brachytherapy in Carcinoma of Prostate," "Remote Afterloading Systems/High Dose Rate Brachytherapy Treatment Planning," and "High Dose Rate Brachytherapy: Historical Perspective" at the European Society of Therapeutic Radiology and Oncology Conference, Prague, Czechoslovakia, March 26-April 3. As invited speaker, Garcia lectured on "Potential Applications of Stereotactic High Dose Rate Brachytherapy for Brain Tumors" at the International Conference on Advances in Brachytherapy, Booth Memorial Medical Center, New York, June 11-12.

VISITING PROFESSORS & INVITED LECTURERS

Continued from page 25

Louis A. Gilula, professor of radiology and cochief of the musculoskeletal section, spoke on "Tailored Approach to Wrist CT" and "Advanced MRI of Wrist Ligaments," and participated in a round table on "Wrist Imaging" at the Fifth International Congress of Hand Surgeons, Paris, May 27. He presented "Ankle Tenography," "Variations in Scapholunate Ligament," and "Update on Wrist Arthrography" at the Hospital Lariboisiere, Paris, May 28. As visiting professor, he lectured on "Analytic Approach to Carpal Injuries and Examples," "Ligamentous Instabilities of the Wrist," "CT - Musculoskeletal System," "CT of the Foot and Ankle," "Review of Wrist Trauma - Unusual Cases," and "MRI of the Wrist" at the University of Edmonton, Alberta, Canada, June 8-9. Gilula presented "Overview of Musculoskeletal Radiology and CT," "CT and Radiology in General Trauma," "Radiography for Hand and Wrist Trauma," "Radiology of Bone Tumors," "Arthrography for Wrist Pain," and "Bone Biopsy for Radiologists" at the Musculoskeletal Imaging Seminar, Orthopaedic and Radiologic Societies of Hong Kong, July 5. He spoke on "Roentgenographic Approach to Wrist Pain" to the Beijing Radiologic Society, Beijing Hospital, July 11.

Charles F. Hildebolt, D.D.S., Ph.D., assistant professor of radiology, presented "DER-BWX Bone-Loss Interrelationships" at the Annual Meeting of the American Association of Physical Anthropologists, Las Vegas, April 3.

Eric E. Klein, M.S., instructor in radiology, spoke on "New Government Regulations Affecting Radiation Oncology" at the American Association of Medical Dosimetrists, St. Louis, June 3.

Gary Luker, M.D., a Diagnostic Radiology resident, presented "30-second High Resolution Low Dose CT of the Temporal Bones," coauthored with **Kavita K. Erickson, M.D.**, fellow in neuroradiology, and **Benjamin C. P. Lee, M.D.**, at the American Society of Neuroradiology Annual Meeting, St. Louis, June 1.

Bruce L. McClennan, M.D., professor of radiology and head of abdominal imaging, spoke on "Renal and Biliary Lithotripsy Update- 1992" at the Society of Cardiovascular and Interventional Radiology, Washington, D.C., April 6-7. He lectured on "Acute Renal Infection," "Imaging the Retroperitoneum," "Contrast Media-Cost and Controversy," and "Infertility-Imaging and Intervention" at the New Orleans Radiology Society, April 30-May 3. As invited speaker, he lectured on "History of Contrast Media Development" and "Renal CT" in Tokyo, June 15; in Kyoto, June 20; and in Yokohama, June 25. As chairman of the Intersociety Commission of the American College of Radiology, McClennan organized and presided over Summit - Radiology 1992, Jackson Hole, Wyoming, July 24-26.

G. Leland Melson, M.D., professor of radiology and chief of diagnostic ultrasound, lectured on "Color Doppler Sonography of the Scrotum," "Color Doppler Ultrasonography: Image Optimization and Interpretation," and "Prostate Cancer: New Perspectives" at the Michigan Sonography Society Spring Symposium, Southfield, Michigan, April 24-25.

Jeff M. Michalski, M.D., clinical instructor in radiology, spoke on "Clinical Applications of Real Time Portal Imaging" at the American Association of Medical Dosimetrists Meeting, St. Louis, June 4.

Scott Mirowitz, M.D., served as moderator for the scientific sessions on MR imaging of the chest and pelvis and presented "Relative Conspicuity of Bone Marrow Lesions on MR: Comparison of Conventional and Fat Suppressed Spin Echo and Inversion Recovery Pulse Sequences," "Use of Nutritional Supplement Formula as Gastrointestinal Contrast Agent for MR Imaging," "Contrast Enhancement of the Gastrointestinal Tract on MR Images Using Intravenous Gadolinium-DTPA," "Seminal Vesicle Hemorrhage Simulating Tumor Invasion on Endorectal MR Imaging," "Prostate Cancer Staging Using Endorectal MR Imaging: Evaluation of Fat Saturation Technique," and "MR Evaluation of Ulnar Collateral Ligament Injury in Baseball Pitchers" at the annual meeting of the Society of Magnetic Resonance Imaging, New York City, April 25-29.

Stephen M. Moerlein, Ph.D., associate professor of radiology, presented seminars on "Evaluation of Fluorine-18 Labeled Ligands for PET Study of Neuroreceptor Binding" at the Nuclear Research Center, Julich, Germany, April 1; the Max Planck Institute for Neurological Research, Cologne, April 2; the University of Essen, Essen, Germany, April 3; and Hammersmith Hospital, London, April 13.

Barbara S. Monsees, M.D., associate professor of radiology, was a member of the "Breast Imaging Case Panel" at the 25th National Conference on Breast Cancer, Boston, April 27-May 1. Monsees also was guest host for "Radiology Update - Breast Imaging: Screening and Diagnostic Issues," Lifetime Medical Television, May 17 and 24.

William A. Murphy, Jr., M.D., professor of radiology and cochief of the musculoskeletal section, lectured on "Bone Marrow MR Imaging," "Imaging Approach to Musculoskeletal Tumors - 1992," and "Forensic Radiology" at the 6th International Symposium on Diagnostic Imaging, Barcelona, May 18-22.

Gilbert J. Nussbaum, Ph.D., associate professor of radiology, spoke on "Simultaneous Long-Duration Interstitial Brachytherapy and Interstitial Hyperthermia" at the 15th International Clinical Hyperthermia Society Meeting, Lyon, France, May 21.

Joseph L. Roti Roti, Ph.D., professor of radiology, associate director of the Radiation Oncology Center, and chief of the cancer biology

FYI

section, organized and cochaired a major symposia, "Thermal Radiosensitization: Basic Principles and Factors Relevant to Therapy," at the Sixth International Congress on Hyperthermic Oncology, Tucson, April 26-May 1. He lectured on "Radiation-Induced Alterations in the Amount of Synthesis in Topoisomerase II," Sloan-Kettering Institute, New York, May 5. Roti Roti presented a paper on "Altered Synthesis of Specific Proteins Following Cell Cycle Perturbation" and was an invited participant in a workshop on "Molecular Biology of Cell Proliferation in Normal and Neoplastic Cells" at the 18th Meeting of the European Study Group for Cell Proliferation, Budapest, May 6-9.

Henry D. Royal, M.D., associate professor of radiology and associate director of the Division of Nuclear Medicine, presented "Learning From Experience: Scientific, Political and Social Implications of Chernobyl" at Environmental Risk Assessment, Communication and Application, a professional and public workshop sponsored by the Idaho National Engineering Laboratory and held at Boise State University, May 27-28.

Barry A. Siegel, M.D., professor of radiology and medicine, and director of the Division of Nuclear Medicine, spoke on "Gastrointestinal Bleeding Scintigraphy," "Ventilation-perfusion Scintigraphy for the Diagnosis of Pulmonary Embolism," and "Clinical Applications of PET" at the Radiology in Scotland Course, Edinburgh, April 26-

May 3. As visiting professor, he presented "Scintigraphic Diagnosis of Pulmonary Embolism" at the University of Maryland Medical School and the Maryland Radiological Society, Baltimore, May 19.

Marilyn J. Siegel, M.D., professor of radiology, as visiting professor and grand rounds speaker, presented "CT/MR of the Pediatric Thyroid" and "Ultrasonography of Acute Abdominal Pain" at Columbia Presbyterian Medical Center, New York City, April 1-2. She lectured on "CT of Renal Masses in Infants and Children," "Pediatric Mediastinal CT and MRI," "MRI of Bone Marrow," and "Cranial Ultrasonography: Hemorrhage and Leukomalacia" at the Radiology in Scotland Course, Edinburgh, April 26-May 3.

Michael W. Vannier, M.D., professor of radiology, director of the Division of Radiology Research, and head of the image processing lab, lectured on "Three-Dimensional Medical Imaging" at the Ludwig Boltzmann Institute for Digital Radiography and Interventional Radiology, Vienna, May 22.

Anthony J. Wilson, M.B., Ch.B., assistant professor of radiology, as invited lecturer, presented "Introduction to Musculoskeletal MRI," "MRI of the Knee and Shoulder," "MRI of Osteomyelitis," "Bone Tumor and Marrow MRI," and "Shoulder Arthrography" at the Musculoskeletal Imaging Seminar, sponsored by the Orthopaedic and Radiologic Societies of Hong Kong, July 5. He spoke on "MRI of the Shoulder and CT of Arthrography" at the Shoulder Imaging Conference, Beijing, July 11.

SYMPOSIA

RADIOLOGICAL SOCIETY OF NORTH AMERICA

The following Mallinckrodt Institute staff members participated in the 77th Annual Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, December 1-6.

William A. Murphy, Jr., M.D., program chairman, 1991-1993.

Judy M. Destouet, M.D., panel member for the session on "Current Controversies in the Management of Ductal Carcinoma In Situ of the Breast;" panel member of "Imaging Symposium: Screening Mammography - Beyond the Images" where she spoke on "Quality Assurance: Who Needs It?"

Barbara S. Monsees, M.D., moderator of "Imaging Symposium: Screening Mammography - Beyond the Images."

Michael W. Vannier, M.D., panel member of "Computer Data Management: Choosing the Right Program for Your Practice."

REFRESHER COURSES

Dennis M. Balfe, M.D., "The Incidental Liver Lesion."

Harvey S. Glazer, M.D.; J. David Godwin II, M.D.*; Robert D. Traver, M.D.**, "CT of the Lung, Mediastinum, and Diaphragm." *University of Washington, Seattle; **University of Indiana, Indianapolis.

Jay P. Heiken, M.D.; N. Reed Dunnick, M.D.*, "CT of the Adrenal Gland and Kidney with MR Correlation." *University of Michigan, Ann Arbor.

William A. Murphy, Jr., M.D., "Forensic Radiology: Techniques for Death Investigation."

SCIENTIFIC SESSIONS

Benjamin J. Bartnicke, M.D.; Marilyn J. Siegel, M.D., "US of Pediatric Hepatocellular Disease."

James A. Brink, M.D.; William D. Middleton, M.D., "Color Doppler US of the Thickened Gallbladder Wall."

James A. Brink, M.D.; Jay P. Heiken, M.D.; Dennis M. Balfe, M.D.; Peter F. Hahn, M.D.*; Michael W. Vannier, M.D.; Stuart S. Sagel, M.D., "Spiral CT of the Abdomen: Effect of Broadened Section Sensitivity Profile on Spatial Resolution." *Massachusetts General Hospital, Boston.

Michael D. Darcy, M.D.; Michael A. Kleinhoffer, R.T.(R); Thomas M. Vesely, M.D.; Lawrence D. Dalan, M.D.*; Kenneth T. Bing, M.D.; Daniel Picus, M.D.; et al**, "Evaluation of Routine Coagulation Test as Predictors of Angiographic Bleeding Complications." *Department of Radiology, St. John's Mercy Medical Center, St. Louis; **private practice, Denver, Colorado.

Howard P. Forman, M.D.; Marilyn J. Siegel, M.D.; Gary D. Shackelford, M.D., "Efficacy of US in Detection of Vesicoureteral Reflux."

SYMPOSIA

Continued from page 27

Howard P. Forman, M.D.;
Jay P. Heiken, M.D.;
James A. Brink, M.D.;
Bruce L. McClennan,
M.D.; **Stuart S. Sagel,**
M.D.; **Joseph J. DiCroce,**
B.S., R.T., "Dynamic Contrast-Enhanced CT of the Liver: Comparison of Uniphasic and Biphasic Bolus-Injection Protocols."

Howard P. Forman, M.D.;
Jay P. Heiken, M.D.;
James A. Brink, M.D.;
Bruce L. McClennan,
M.D.; **William J. Catalona,**
M.D.*, "CT of the Abdomen and Pelvis In the Preoperative Assessment of a Prostate Specific Antigen-Screened Population: Utility and Implications for Screening and Staging of Prostate Carcinoma." *Department of Urologic Surgery, Washington University, St. Louis.

Howard P. Forman, M.D.;
James A. Brink, M.D.;
Bruce L. McClennan,
M.D.; **Jay P. Heiken, M.D.;**
R. Stephen Surratt, M.D., "Low-Dose Low-Osmolar Intravenous Urography: Cost Efficacy and Diagnostic Utility."

Mokhtar H. Gado, M.D.;
William H. Perman, Ph.D.;
Kenneth B. Larson,
Ph.D.*; **Joel S. Perlmutter,**
M.D., "Measurement of Cerebral Blood Flow and Cerebral Blood Volume with MR Imaging." *Biomedical Computer Lab, Washington University School of Medicine, St. Louis.

Harvey S. Glazer, M.D.;
Dixie J. Anderson, M.D.;
Joel D. Cooper, M.D.*;
Paul L. Molina, M.D.; **Stuart S. Sagel, M.D.,** "Omental Flap in Lung Transplants: Correlation of CT Scans and Plain Chest Radiographs." *Department of Surgery, Washington University School of Medicine, St. Louis.

Johnson T. Liou, M.D.*;
Anthony J. Wilson, M.B.,
Ch.B.; **William G. Totty,**
M.D.; **Jeffrey J. Brown,**
M.D., "MR Imaging of the Asymptomatic Shoulder: Is High Signal Intensity Within the Supraspinatus Tendon or Glenoid Labrum a Normal Variant?" *Department of Radiology, Crawford Long Hospital, Atlanta.

Frederick A. Mann, M.D.;
Anthony J. Wilson, M.B.,
Ch.B.; **Patricia L. Danz,**
M.B.A.*, "Meta-Analysis of the English-Language Literature: Is Wrist Arthrography a Study of Pathology or Technique?" *Stern Brothers and Company, St. Louis.

William D. Middleton,
M.D., "Color Doppler US Criteria for the Diagnosis of Varicoceles."

Scott A. Mirowitz, M.D.;
Fernando R. Gutierrez,
M.D., "Fibromuscular Elements of the Right Atrium: Pseudomass on MR Images."

Scott A. Mirowitz, M.D.;
Albert M. Hammerman,
M.D.; **William R. Reinus,**
M.D., "Use of Fat-Saturation Method for Improving T2-weighted MR Images of the Spine."

Christopher J. Moran,
M.D.; **Michael W. Vannier,**
M.D.; **Kavita K. Erickson,**
M.D.; **Daniel F. Broderick,**
M.D.; **Daniel K. Kido,**
M.D.; **Roberta L. Yoffie,**
R.T.; et al, "Diagnosing Extracranial Atherosclerotic Disease with Spiral CT."

Jonathan A. Morris, B.S.*;
Robert R. Kuske, M.D.;**
Delia M. Garcia, M.D.;
Carlos A. Perez, M.D.;
Joseph R. Simpson, M.D.;
Barbara B. Fineberg,
B.A.,** "Surgical Factors in Breast Conservation Therapy." *Stanford Medical School, Stanford; **Department of Radiation Oncology, Ochsner Clinic, New Orleans.

Robert J. Myerson, M.D.;
Susan J. Shapiro, M.D.;
Ira J. Kodner, M.D.*; **MJ. Lopez, M.D.*,** "Carcinoma of the Anal Canal: Factors Influencing Outcome." *Department of Surgery, Jewish Hospital, St. Louis.

William M. Perman, Ph.D.;
Mokhtar H. Gado, M.D.;
Joel S. Perlmutter, M.D.;
Kenneth B. Larson,
Ph.D.*; **John C. Sandstrom, Ph.D.,** "Simultaneous Acquisition of Arterial and Brain Dynamic Contrast-Pass Curves with Standard MR Imaging Hardware." *Biomedical Computer Lab, Washington University School of Medicine, St. Louis.

Liane E. Philpotts, M.D.*;
Mark A. Westcott, M.D.;**
Jay P. Heiken, M.D.;
Richard M. Gore, M.D.,** "Colitis: Use of CT Findings in Differential Diagnosis." *McGill University, Montreal, Quebec; **Northwestern University, Evanston.

Daniel Picus, M.D.; **Marshall E. Hicks, M.D.;**
Michael D. Darcy, M.D.;
Thomas M. Vesely, M.D.;
Steven A. Edmundowicz,
M.D.*, "Percutaneous Cholecystolithotomy: Analysis of Results and Complications in 54 Consecutive Patients." *Division of Gastroenterology, Washington University School of Medicine, St. Louis.

Jamie T. Surratt, M.D.;
Marilyn J. Siegel, M.D., "Duplex Doppler Sonography of the Pediatric Ovary."

SCIENTIFIC EXHIBITS

Neal R. Stewart, M.B.,
Ch.B.; **Louis A. Gilula,**
M.D., "Tailored Approach to the Wrist."

SIXTH INTERNATIONAL CONGRESS ON HYPERTHERMIC ONCOLOGY

The following Mallinckrodt Institute staff members participated in the Sixth International Congress on Hyperthermic Oncology, Tucson, April 26-May 1.

WORKSHOPS

Bahman Emami, M.D., chaired "Clinical Interstitial Thermoradiotherapy."

Bahman Emami; Robert J. Myerson, M.D.; et al, "RTOG Quality Assurance Guidelines for Interstitial Hyperthermia."

Delia M. Garcia, M.D., "Site Specific Trials: Brain."

Andrei Laszlo, Ph.D., cochaired "Heat Shock Proteins: Regulation, Function and Expression in Different Species."

FYI

Andrei Laszlo, Ph.D., as invited speaker for "Heat Effects on Cell Structural Elements," presented "Mechanisms of Thermotolerance."

Michael A. Mackey, Ph.D., "Biological Basis for Long-Duration, Moderate Hyperthermia."

Eduardo G. Moros, Ph.D., cochaired "Superficial Heat Systems."

Gilbert H. Nussbaum, Ph.D., cochaired "Long-Duration Hyperthermia: Biology, Technology, and Clinical Applications."

Joseph L. Roti Roti, Ph.D., cochaired "Thermal Radiosensitization: Basic Principles and Factors Relevant to Therapy."

Joseph L. Roti Roti, Ph.D.; **Michael A. Mackey, Ph.D.**; **Nazan Turkel, R.Ph., M.S.**, "Nuclear Alternative Following Hyperthermia and Radiosensitization."

POSTER

PRESENTATIONS

Ming-Shun Chen, Ph.D.; **Andrei Laszlo, Ph.D.**, "Characterization of the Family of Genes Encoding the 70 Kilodalton Heat Shock Protein From CHO Cells by Molecular Cloning."

Bahman Emami, M.D.; **Perry W. Grigsby, M.D.**; **Higinia Cardenes, M.D.**; **William Straube, M.S.**; **Robert J. Myerson, M.D.**; **Carlos A. Perez, M.D.**, "Interstitial Thermoradiotherapy in Malignant Tumors: Long Term Results."

Delia J. Garcia, M.D.; **Gilbert H. Nussbaum, Ph.D.**; **Anthony E. Fathman, M.D.***; **Robert E. Drzymala, Ph.D.**; **Mark Bleyer, B.S.E.****; **John A. DeFord, Ph.D.****; **Debbie M. Welsh, R.N.*****, "Simultaneous Chronic LDR Interstitial Radiotherapy and Conductive Interstitial Hyperthermia in Treatment of Recurrent Prostatic Tumors." *Urological Surgery Department, St. Luke's Hospital, St. Louis; **MED Institute, Inc., West Lafayette, Indiana; ***Neurological Surgery Department, St. Luke's Hospital, St. Louis.

Henry K. Lee, M.D.; **Andrew Antell, B.S.**; **Carlos A. Perez, M.D.**; **William L. Straube, M.S.**; **Ganesh Ramachandram, B.A.**; **Robert J. Myerson, M.D.**; **Bahman Emami, M.D.**; **Mary Ann Lockett, M.B.A.**, "Results with Superficial Hyperthermia and Irradiation for Recurrent Breast Carcinoma of the Chest Wall."

Michael A. Mackey, Ph.D.; **Andrei Laszlo, Ph.D.**; **Joseph L. Roti Roti, Ph.D.**, "p34-CDC2 Kinase is Activated Prior to Spontaneous Premature Chromosome Condensation Induction in HeLa Cells Heated at 41.5°C."

J. Alexander Marchosky, M.D.*; **Delia M. Garcia, M.D.**; **Christopher J. Moran, M.D.**; **Gilbert H. Nussbaum, Ph.D.**; **John A. DeFord, Ph.D.****; **Debbie M. Welsh, R.N.*****, "High-Dose-Rate Brachytherapy Combined with Long-Duration Hyperthermia for Treatment of Malignant Gliomas." *Neurosurgical Associates, St. Louis; **MED Institute, Inc., West Lafayette, Indiana; ***Neurological Surgery Department, St. Luke's Hospital, St. Louis.

Eduardo G. Moros, Ph.D.; **Robert J. Myerson, M.D.**; **William L. Straube, M.S.**, "The Effects of Pre-Heating Normal Tissue Surrounding Superficial Tumors."

Robert J. Myerson, M.D.; **William L. Straube, M.S.**; **Eduardo G. Moros, Ph.D.**; **Bahman Emami, M.D.**, "Multiple Point Thermometry Study."

William L. Straube, M.S.; **R. Martin Arthur, Ph.D.***, "The Use of Ultrasound Tissue Attenuation for the Non-invasive Measurement of Temperature." *Electrical Engineering Department, Washington University, St. Louis.

Nazan Turkel, R.Ph., M.S.; **Michael A. Mackey, Ph.D.**; **Joseph L. Roti Roti, Ph.D.**, "The Extent of Thermal Radiosensitization and Its Dependence Upon Heat-induced Cell Killing in HeLa S₃ Cells."

THE AMERICAN ROENTGEN RAY SOCIETY

The following Mallinckrodt Institute staff members participated in the 92nd Annual Meeting of the American Roentgen Ray Society, Orlando, May 10-15, 1992.

CATEGORICAL COURSES

Mokhtar H. Gado, M.D., "Interpretation of Signal Intensity Changes in MRI of the Brain."

INSTRUCTIONAL COURSES

Dennis M. Balfe, M.D.; **James A. Brink, M.D.**, "CT of Peritoneal Spaces and Ligaments."

Mokhtar H. Gado, M.D., "Intracranial Lesions."

Harvey S. Glazer, M.D.; **Paul L. Molina, M.D.**, "Pitfalls in Plain Film and CT Analysis of the Mediastinum."

Jay P. Heiken, M.D.; **Jeffrey J. Brown, M.D.**, "CT and MRI of the Retroperitoneum."

Paul L. Molina, M.D., "Preparation and Delivery of An Oral Presentation."

Barbara Monsees, M.D.; **Judy M. Destouet, M.D.**, "Evaluation of the Altered Breast."

Marilyn J. Siegel, M.D., "CT and MRI of the Pediatric Chest" and "Imaging of Lower Abdominal Pain."

James W. Walsh, M.D., "CT of Gynecologic Disease."

SCIENTIFIC SESSIONS

Kavita K. Erickson, M.D.; **Benjamin C. P. Lee, M.D.**, "Comparison and Optimization of MR Venography Techniques."

Scott M. Baker, M.D.; **William D. Middleton, M.D.**, "In Vivo Analysis and Clinical Importance of Factors Affecting Color Doppler Detectability of Ureteral Jets."

James A. Borrello, M.D.; **Jeffrey J. Brown, M.D.**; **Marilyn J. Siegel, M.D.**; **Joseph K. T. Lee, M.D.***, "The Role of Oblique Sections in MR Angiography of the Portal Vein." *Department of Radiology, University of North Carolina, Chapel Hill.

SYMPOSIA

Continued from page 29

Paul L. Molina M.D.; Jeffrey W. Hanna, M.D.; Harvey S. Glazer, M.D.; Dixie J. Anderson, M.D.; Steven L. Solomon, M.D.; Stuart S. Sagel, M.D., "Postbiopsy Precautions Following Needle Aspiration Biopsy of the Lung."

William H. McAlister, M.D., moderated symposia on "Stat and Urgent Imaging in Pediatrics."

Paul L. Molina, M.D.; **James A. Brink, M.D.**; **Jay P. Heiken, M.D.**; **Stuart A. Sagel, M.D.**; **Joseph J. DiCroce, B.S., R.T.**, "Contrast-Enhanced Spiral CT of the Chest: Initial Clinical Experience in 80 Patients."

Shawn P. Quillin, M.D.; **Marilyn J. Siegel, M.D.**, "Hepatobiliary Abnormalities on Sonography in Children with Cystic Fibrosis."

Tracy L. Roberts, M.D.; **Barbara S. Monsees, M.D.**; **Todd H. Wasserman, M.D.**; **Elizabeth Miller, B.A.**, **Judy M. Destouet, M.D.**, "Breast Cancer After Hodgkin's Disease - A Need for Earlier Radiographic Screening."

R. Stephen Surratt, M.D.; **William D. Middleton, M.D.**; **Michael D. Darcy, M.D.**; **G. Leland Melson, M.D.**; **James A. Brink, M.D.**, "Morphologic and Hemodynamic Findings Following Transjugular Intrahepatic Porto-Systemic Shunting."

Mark S. Zobel, M.D.; **Neal R. Stewart, M.B., Ch.B.**; **Marilyn J. Siegel, M.D.**; **James A. Borrello, M.D.**, "MRI of the Pediatric Knee."

SCIENTIFIC EXHIBIT

Kevin E. Burton, M.D.; **Daniel Picus, M.D.**; **Marshall E. Hicks, M.D.**; **Michael D. Darcy, M.D.**; **Thomas M. Vesely, M.D.**; **Michael A. Kleinhoffer, R.T.(R)**, "Fragmentation of Biliary Calculi by Intracorporeal Electrohydraulic Lithotripsy Prior to Percutaneous or Endoscopic Stone Removal."

THE SOCIETY OF NUCLEAR MEDICINE

The following Mallinckrodt Institute staff members participated in the 39th Annual Meeting of The Society of Nuclear Medicine, Los Angeles, June 9-12, 1992.

ORAL PRESENTATIONS

Steven R. Bergmann, M.D., Ph.D.; **Pilar Herrero, M.S.***; **Carolyn J. Anderson, Ph.D.**; **Michael J. Welch, Ph.D.**; **Mark A. Green, Ph.D.****, "Measurement of Regional Myocardial Perfusion in Human Subjects Using Copper-62PTSM." *Department of Internal Medicine, Washington University School of Medicine, St. Louis. **School of Pharmacy, Purdue University, West Lafayette, Indiana.

Carmen S. Dence, M.S.; **Richard S. Hotchkiss, M.D.***; **Sheng K. Song, Ph.D.***; **Michael J. Karl, M.D.****; **Michael J. Welch, Ph.D.**, "Evaluation of Cellular Hypoxia in Sepsis by the Hypoxic Marker F-18 Fluoromisonidazole." *Department of Anesthesiology,

Washington University School of Medicine, St. Louis. **Department of Internal Medicine, Washington University School of Medicine, St. Louis.

Robert J. Gropler, M.D.; **Edward M. Geltman, M.D.***; **Kondapuram S. Sampathkumaran, M.S.**; **Julio E. Perez, M.D.***; **Andrea Conversano, M.D.**; **Burton E. Sobel, M.D.***; **Steven R. Bergmann, M.D.***; **Barry A. Siegel, M.D.**, "The Superiority of Cardiac PET with C-11 Acetate Compared with F-18 Fluorodeoxyglucose for Prediction of Functional Recovery After Revascularization." *Department of Internal Medicine, Washington University School of Medicine, St. Louis.

B. J. Hughey, Ph.D.*; **Ruth E. Shefer, Ph.D.***; **Robert E. Klinkowstein, Ph.D.***; **Michael J. Welch, Ph.D.**; **Carmen S. Dence, M.S.**; **Eli Livini, Ph.D.****, "A Novel Cryogenic Oxygen-18 Water Target for the Production of Fluorine-18." *Science Research Laboratory, Inc., Somerville, Massachusetts. **Massachusetts General Hospital, Boston.

L. Santiago Medina, M.D.; **Henry D. Royal, M.D.**; **Elbert P. Trulock, M.D.***; **Washington University Lung Transplant Team**, "Quantitative Exercise-Rest Ventilation-Perfusion Imaging (Ex-Rest V-P) in Patients with Single-Lung Transplants." *Department of Internal Medicine, Washington University School of Medicine, St. Louis.

Gary E. Meyerrose, M.D.; **Henry D. Royal, M.D.**, "Ventilation-Perfusion Scintigraphy (VPS): Outcomes in Patient with Intermediate Likelihood-Ratio (LR) Results."

Stephen M. Moerlein, Ph.D., "Labelling of Proteins and Peptides with Positron-emitting Radionuclides."

Stephen M. Moerlein, Ph.D.; **Joel S. Perlmutter, M.D.**; **David Parkinson, Ph.D.***, "Evaluation of Two Benperidol Analogues as D-2 Receptor-Specific PET Tracers." *Department of Cell Biology and Physiology, Washington University School of Medicine, St. Louis.

Stephen M. Moerlein, Ph.D.; **Joel S. Perlmutter, M.D.**; **David Parkinson, Ph.D.***, "Fluorine-18 Labeled Ligands for Benzodiazepine Receptor Studies with PET." *Department of Cell Biology and Physiology, Washington University School of Medicine, St. Louis.

REVIEW COURSES

Henry D. Royal, M.D., as course organizer of "Low-Level Radioactive Waste Disposal: Scientific, Political and Social Views," presented "Goals of the Seminar" and "Understanding Outrage." At the Nuclear Medicine Review Course, he lectured on "Nuclear Accident Management."

POSTER PRESENTATIONS

Tom R. Miller, M.D., Ph.D.; **Jerold W. Wallis, M.D.**; **Christopher S. Butler, B.S.**; **Michael I. Miller, Ph.D.***; **Donald L. Snyder, Ph.D.***, "Improved Brain SPECT by Maximum-Likelihood Reconstruction." *Department of Electrical Engineering, Washington University, St. Louis.

FYI

THE NINTH INTERNATIONAL SYMPOSIUM ON RADIOPHARMACEUTICAL CHEMISTRY

The following Mallinckrodt Institute staff members participated in the The Ninth International Symposium on Radiopharmaceutical Chemistry, Paris, April 6-10.

Stephen M. Moerlein, Ph.D.; **Gregory G. Gaehle, B.S.;** **Keith R. Lechner, B.S.;** **Ranajit K. Bera, Ph.D.;** **Michael J. Welch, Ph.D.,** "A Microprocessor-Controlled System for the Production of Multiple Batches of Oxygen-15 Labeled Butanol."

Henry F. VanBrocklin, M.S.*; **Phil R. Kym, B.S.*;** **James P. O'Neil, Ph.D.*;** **Thomas A. Bonasera, M.S.;** **Michael J. Welch, Ph.D.;** **John A. Katzenellenbogen, Ph.D.*,** "A Novel, Metabolically Stable Site for Fluorine-18 Labeling of Progestins, Useful in the Development of Imaging Agents for Progesterone Receptor-Positive Breast Tumors." *Department of Chemistry, University of Illinois, Urbana.

Jialing L. Gong, Ph.D.; **Carmen S. Dence, M.S.;** **Michael J. Welch, Ph.D.,** "Synthesis of [^{18}F]-Fluorobepidil, A Positron Labeled Calcium Antagonist."

Carmen S. Dence, M.S.; **Keith R. Lechner, B.S.;** **Michael J. Welch, Ph.D.,** "Remote System for the Routine Production of [^{11}C]-Methyl Albumin Application to Pulmonary Studies."

Pamela A. Rocque, B.A.; **Judith M. Connett, Ph.D.*;** **Li-Wu Guo, research fellow*;** **Gordon W. Philpott, M.D.*;** **Kurt R. Zinn, D.V.M., M.S.**;** **Claude F. Meares, Ph.D.***;** **Michael J. Welch, Ph.D.,** "Copper-Labeled Antibodies for PET Imaging." *Department of Surgery, Jewish Hospital, St. Louis; **Research Reactor, University of Missouri, Columbia; ***Department of Chemistry, University of California, Davis.

Stephen M. Moerlein, Ph.D.; **Chuck S. Yahng, B.A.;** **Michael J. Welch, Ph.D.,** "Radiosynthesis of Technetium-99m Labeled Human Very-Low Density Lipoprotein for Scintigraphic Study of Lipoprotein Receptor Activity *In Vivo*."

Sally W. Schwarz, M.S.; **Pamela A. Rocque, B.A.;** **Carolyn J. Anderson, Ph.D.;** **Michael J. Welch, Ph.D.;** **Judith M. Connett, Ph.D.*;** **Gordon W. Philpott, M.D.*,** "Evaluation of a Direct Method for Technetium Labeling Intact and F(ab')₂1A3 an Anticolorectal Monoclonal Antibody." *Department of Surgery, Jewish Hospital, St. Louis.

Arthur E. Martell, Ph.D.*; **Yizhen Sun, Ph.D.*;** **Ramunas J. Motekaitis, Ph.D.*;** **Michael J. Welch, Ph.D.,** "New Ligands for the Formation of Highly Stable Complexes of Trivalent Metal Ions." *Department of Chemistry, Texas A&M University, College Station.

Stephen M. Moerlein, Ph.D.; **Michael J. Welch, Ph.D.;** **Richard S. Hotchkiss, M.D.*;** **Chuck S. Yahng, B.A.;** **Ailan J. Fischman, M.D.**;** **H. William Strauss, M.D.**;** **Robert H. Rubin, M.D.**,** "A Gallium-

68 Labeled Chemotactic Peptide Analogue for Imaging Focal Sites of Bacterial Infection by PET." *Department of Anesthesiology, Washington University School of Medicine, St. Louis; **Department of Radiology, Massachusetts General Hospital, Boston.

Carolyn J. Anderson, Ph.D.; **Michael J. Welch, Ph.D.;** **Carla J. Weinheimer, B.S.;** **Steven R. Bergmann, M.D., Ph.D.,** "Preparation and *In Vivo* Comparison of ^{62}Cu -Labeled Blood-Pool Agents."

W. Barry Edwards, M.S.; **Carmen S. Dence, M.S.;** **Michael J. Welch, Ph.D.,** "A New Method for the Synthesis and Fluorine-18 Labelling of 2-Deoxy-2-Fluoro-D-Galactose."

Carmen S. Dence, M.S.; **Michael J. Welch, Ph.D.,** "An Improved Synthesis of 1- [^{11}C]-D-Glucose."

Stephen M. Moerlein, Ph.D.; **Joel S. Perlmutter, M.D.;** **David Parkinson, Ph.D.*,** "Synthesis and Evaluation of Fluorine-18 Labeled Benzodiazepine Antagonists as PET Tracers." *Department of Cell Biology and Physiology, Washington University School of Medicine, St. Louis.

Stephen M. Moerlein, Ph.D.; **Joel S. Perlmutter, M.D.;** **David Parkinson, Ph.D.*,** "Radiofluorinated Analogues of Benperidol for PET Study of Dopaminergic D-2 Receptor Binding *In Vivo*." *Department of Cell Biology and Physiology, Washington University School of Medicine, St. Louis.

HONORS/ AWARDS

The following presentations received the *cum laude* award at the 15th Annual Meeting of the Society of Computed Body Tomography and Magnetic Resonance: "Dynamic Contrast-Enhanced CT of the Liver: Comparison of Uniphasic and Biphasic Bolus-Injection Protocols," coauthored by **Jay P. Heiken, M.D.;** **Howard P. Forman, M.D.;** **James A. Brink, M.D.;** **Bruce L. McClennan, M.D.;** **Stuart S. Sagel, M.D.;** **Joseph J. DiCroce, B.S., R.T.;** and "Spiral CT of the Abdomen: Effect of Broadened Slice Sensitivity Profile on Spatial Resolution," coauthored by **James A. Brink, M.D.;** **Jay P. Heiken, M.D.;** **Dennis M. Balfe, M.D.;** **Stuart S. Sagel, M.D.;** **Joseph J. DiCroce, B.S., R.T.;** and **Michael W. Vannier, M.D.**

Jay P. Heiken, M.D., associate professor of radiology and codirector of computed body tomography, received the 1991 Editor's Recognition Award with Special Distinction from *Radiology*.

Editor's Note:

After more than six years at MIR, I have accepted a position as director of public relations for the Health Sciences Center at SUNY, Stony Brook. It has been an honor and a pleasure to work at this great institution with all of you.

Michaele Gold
Michaele Gold

TECHNOLOGIST NEWS

Mickey T. Clark, CNMT, was elected treasurer, 1992-1994, technologist section, Society of Nuclear Medicine.

Terry Compton, R.T.(R), technical supervisor, presented "CT Overview" at the Texas Society of Radiology Technologist Educational Seminar, LaGrange, May 2.

Michael A. Kleinhoffer, R.T.(R), interventional radiology research technologist, was appointed to the computed tomography committee of the American Society of Radiologic Technologists. Kleinhoffer presented "Percutaneous Transfemoral Placement of Inferior Vena Cava Filters" at the Missouri Society of Radiologic Technologists (MSRT) 60th Annual Conference, Overland Park, Kansas, April 8.

Michael D. Ward, R.T., M.Ed., FASRT, was elected senior affiliate delegate, representing Missouri, to the American Society of Radiologic Technologists' House of Delegates.

Officers for the 1992-1993 term for Fourth District, MSRT are **Michael A. Kleinhoffer, R.T.(R)**, president; **Cynthia K. Daniels, B.S., R.T.(R)**, president-elect; **Dean Ann Brake, R.T., A.A.**, vice president; **Mary P. Ainley, R.T., A.A.**, secretary; **James Henson, radiology student**, member-at-large.

Out of 14 scientific exhibits presented at the MSRT Annual Meeting in Overland Park, Kansas, April 8-11, MIR radiographic technology students **LaRane Robinson, Justa Redmond, Nicole Madison**, and **Lisa Ivy** received third place for their scientific exhibit "Varicocele Embolization." **Cindy Rowden, Denise Mohart**, and **Lisa Voyles** also received a third-place award for their scientific exhibit "Bird's Nest Filters."

IN MEMORIAM

Wayne A. Simril, M.D., died January 2, 1992, at the age of 70.

A leading authority on orthopedic and pediatric radiology, Simril was an assistant professor emeritus at Mallinckrodt Institute of Radiology and a fellow of the American College of Radiology. Simril received his medical degree from Washington University School of Medicine and completed his residency at Mallinckrodt Institute of Radiology.

APPOINTMENTS/ ELECTIONS

Linda M. Davidson, C.P.A., assistant business manager, was elected vice president of the Greater St. Louis Chapter of the Healthcare Financial Management Association.

Barbara B. Hasse, R.N., B.S.N., M.A. Ed., supervisor of nursing, Radiation Oncology, was appointed president-elect of the Oncology Nursing Society, St. Louis Chapter.

Jay P. Heiken, M.D., associate professor of radiology and codirector of computed body tomography, was appointed to the editorial board of *Radiology* as associate editor for body computed tomography.

Eric E. Klein, M.S., was appointed to the radiation safety committee of Washington University School of Medicine. He was elected president-elect of the Missouri Valley Chapter of the American Association of Physicists in Medicine.

Andrei Laszlo, Ph.D., assistant professor of radiology, was appointed to the history committee of the North American Hyperthermia Society.

Bruce L. McClennan, M.D., professor of radiology, was appointed chairman of the genitourinary subcommittee of the Radiologic Society of North American Program Committee.

Ali S. Meigooni, Ph.D., assistant professor of radiology, was elected a member of the American Endocurietherapy Society.

Stephen M. Moerlein, Ph.D., associate professor of radiology, was elected to the board of directors for the Radiopharmaceutical Science Council of the Society of Nuclear Medicine.

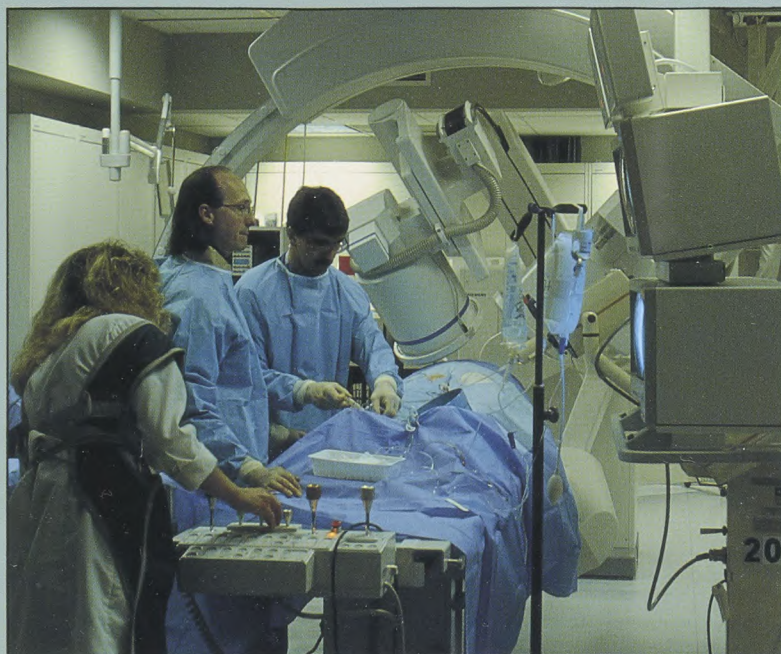
Joesph L. Roti Roti, Ph.D., professor of radiology, associate director of the Radiation Oncology Center, and chief of the cancer biology section, was appointed to the education committee of the Radiation Research Society.

Barry A. Siegel, M.D., professor of radiology and medicine, and director of the Division of Nuclear Medicine, was elected member-at-large of the executive council of the Washington University Faculty Senate.

Marilyn J. Siegel, M.D., professor of radiology, was appointed chairperson of the teaching module group of the media committee for the Radiology Centennial.

Michel M. Ter-Pogossian, Ph.D., professor of radiology, was appointed a member of the Site Visit Committee, University of Montreal.

Anthony J. Wilson, M.B., Ch.B., assistant professor of radiology, was elected a member of the American Society of Emergency Radiology and was appointed to the Society's ad hoc committee on teleradiology.



The recently renovated third-floor neuroradiology section at MIR is one of the most comprehensive facilities in the U.S., combining state-of-the-art equipment and the expertise of the only full-fledged team of neurointerventional radiologists in the region. The MIR team works hand in hand with neurosurgeons to reduce clinical risks to patients.

The angiographic suite is large enough to accommodate a full medical team, allowing for integrated consultations, and is equipped with the first of a new generation of high resolution image intensifiers that reduce by 50 percent the imaging time required for conventional cut film. Images are displayed instantaneously, allowing the radiologist to read films immediately.

The radiology team above is performing a diagnostic angiogram to define stenosis in a 70-year-old woman with atherosclerosis of the carotid arteries.

Focal Spot

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