

Spring 1983

## Focal Spot, Spring/Summer 1983

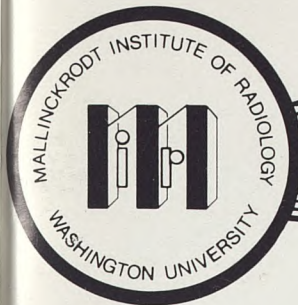
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# Focal Spot

A NEWSLETTER OF THE MALLINCKRODT INSTITUTE OF RADIOLOGY

VOLUME XIII SPRING/SUMMER 1983 NUMBER 35



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Placing 6-ton magnet for ...

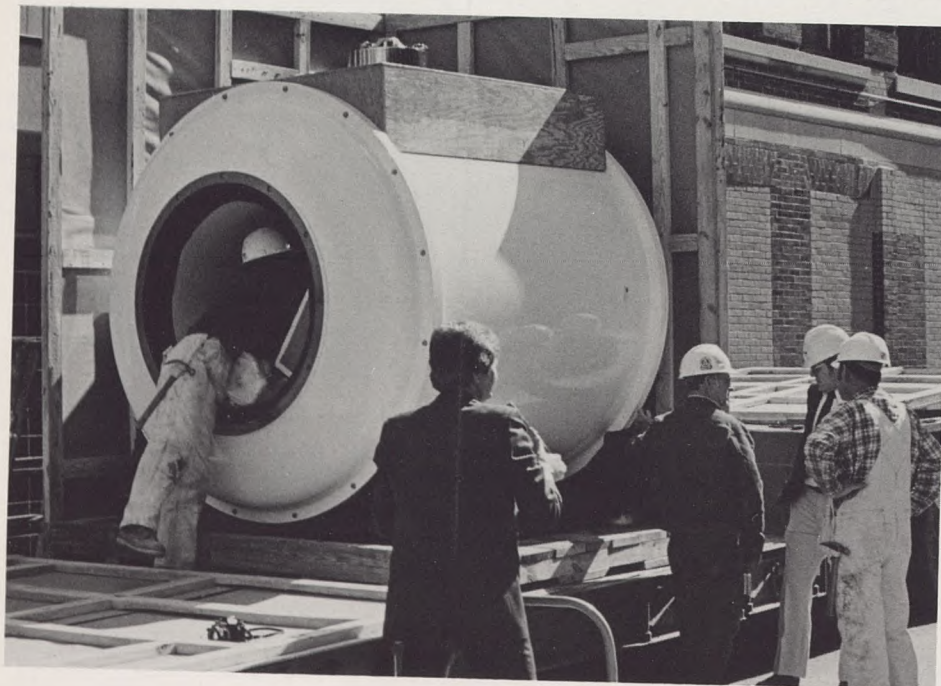
## Nuclear Magnetic Resonance Center

# Wave of the Future



*NMR arrives.*

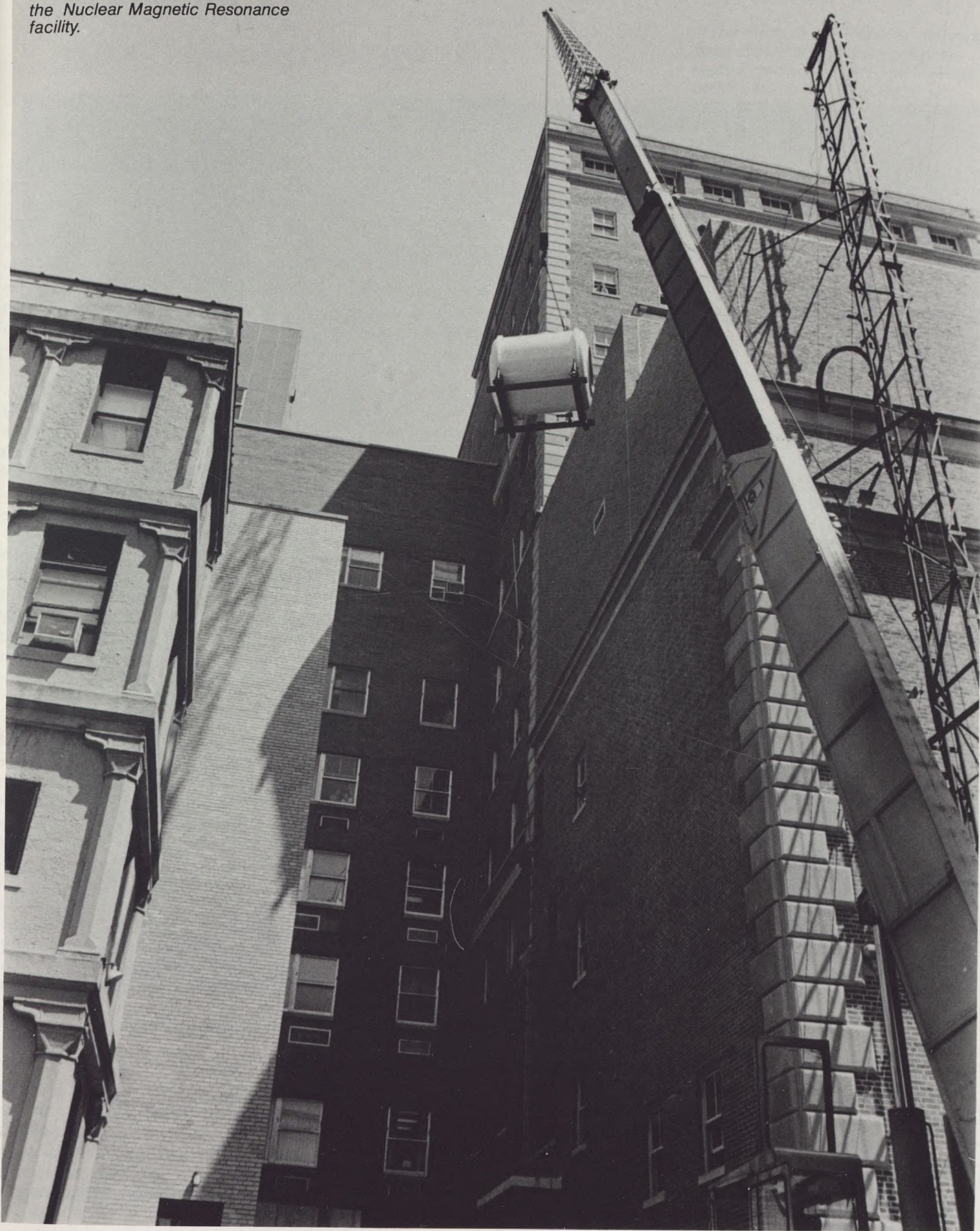
## NMR: Phase One Begins Operation



This July, Mallinckrodt will begin clinical applications of Nuclear Magnetic Resonance (NMR), a non-invasive diagnostic imaging system which uses no radiation and may detect disease more accurately and quickly than CT. Employing powerful magnets and radiowaves, NMR reveals detailed information about the body's anatomy as well as the chemical composition and structure of the tissue.

"Since last September, we have moved along on a fast track toward opening the first phase of an NMR center," said **Dr. Ronald G. Evens**, Director of the Institute. "Thanks to the help of Barnes Hospital, a new fifth floor addition to Mallinckrodt West was completed in May in time for the delivery of a super-conducting whole body magnet with magnetic

*The 12,000 pound magnet was hoisted five floors and lowered through a special opening in the ceiling of Mallinckrodt's new fifth floor addition built to house the Nuclear Magnetic Resonance facility.*



strength of five kilogauss. Manufactured by Siemens Corporation of West Germany, the new unit and its associated computer cost \$1.5 million with the 5,000 square foot housing facility costing an additional \$1 million. We have moved into phase one of our collaborative research and clinical program with Siemens and we anticipate high-quality proton scans of patients in July. Not only will we get an image of proton density in the body but how those protons are influenced by other chemicals around them."

Fewer than ten medical centers are currently operating NMR units in the five to ten kilogauss range. With its wide range of state-of-the-art imaging equipment and personnel highly skilled in interpreting CT and ultrasound studies, Mallinckrodt has already in place the correct design for readily explaining NMR imaging as well as determining how this information relates to that provided by other modalities.

But, progress means change and change requires long-term planning and decision making. In February 1983, Dr. Evens assumed responsibility for development of space, installation of the units, and the technical operation. Smith and Entzerth, Inc., architects met rigid design criteria demanded by the powerful magnet as well as the challenge of creating a relaxing non-institutional environment where patients are comfortable with the technology. A magnetic field 7,000 times greater than the earth's, extending 25 feet from the magnet's center, requires critical distance be maintained from extraneous sources such as high-frequency generators, high-voltage lines, television sets, computer systems, and pacemakers.

To avoid distortion of images, the NMR housing is constructed of non-ferrous materials with copper shielding to minimize radio-frequency interference and ceiling heights determined by necessary clearance for

recharging the super-conductive unit with cryogenic helium and nitrogen cooling elements.

The basic tool of NMR is an immense doughnut-shaped electromagnet, large enough to enclose a patient's entire body (and strong enough to erase a credit card number within ten feet). In the scanning process, the patient lies on a movable table that slides into a cylindrical device containing magnetic coils. While in the static magnetic field, the patient's atomic nuclei align themselves in one direction. When a burst of radio energy is applied, the nuclei realign the other way. After the signal is turned off, the nuclei return to their original direction, emitting radio waves that are characteristic of the tissue and its environment. (Each type of tissue in the body has a characteristic signal intensity and duration.) These signals are picked up and processed by a computer which creates — with one measurement — vivid cross-sectional images of the inside of the scanned body tissue.

"The five kilogauss magnet can readily detect the hydrogen proton," said Dr. Evens, "the most prevalent in the body and the easiest to trace. Chemists have used NMR for about thirty years to determine molecular structures of various substances while applications in the human body were undertaken only in the 1970's."

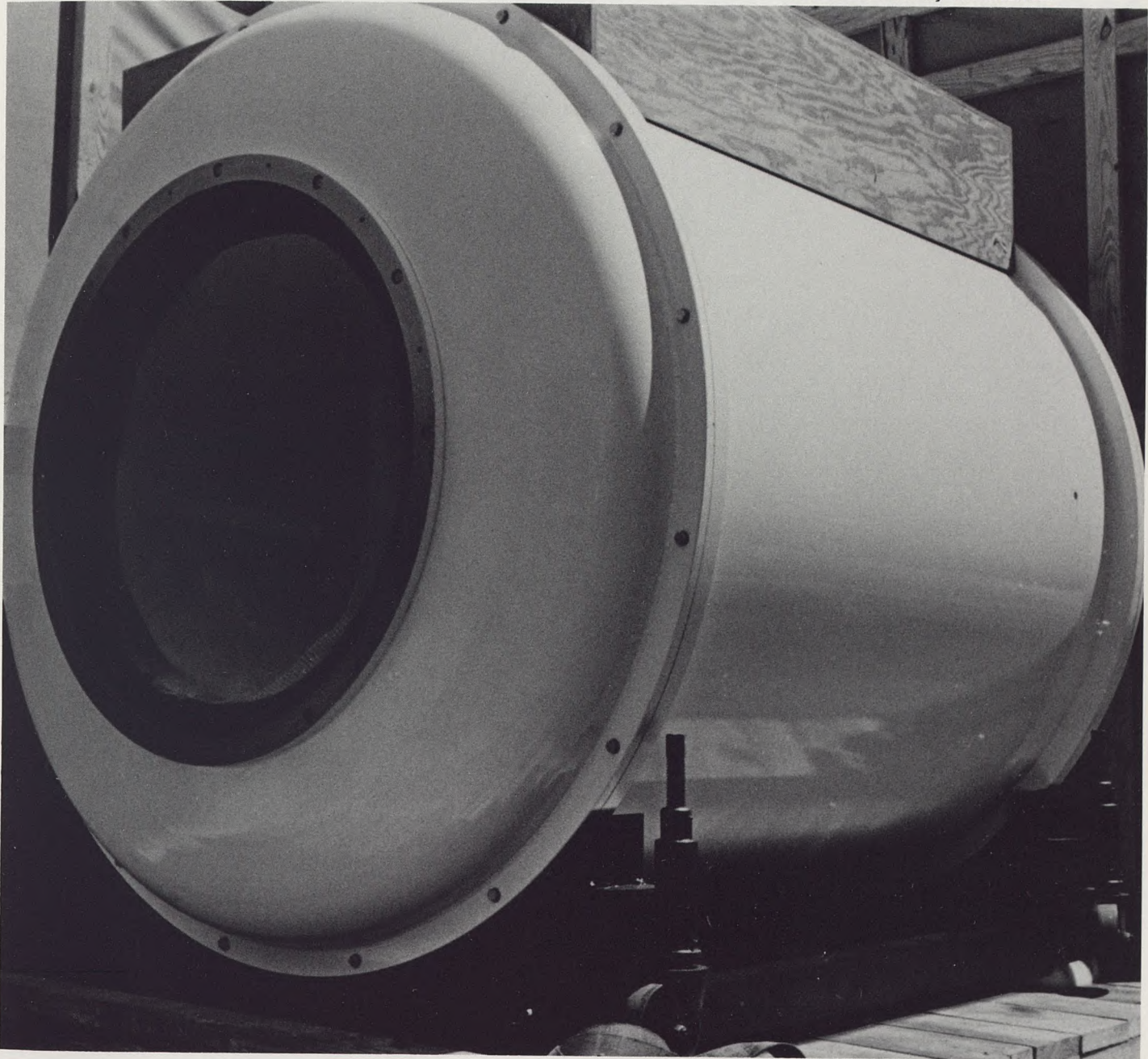
NMR represents a new way of looking at disease. Preceding structural change there must be functional change involving fairly complex chemical processes. NMR scans show both structure and function and distinguish normal from abnormal tissue even when the abnormality does not change the size or shape of the affected organ. Dr. Evens estimates that NMR may become the method of choice for identifying tumors of the brain and the central nervous system. It has already proven effective in diagnosing multiple sclerosis.

At Mallinckrodt, Dr. Evens has appointed Drs. William Murphy and Michel Ter-Pogossian to co-chair a committee to coordinate future NMR research and clinical projects. Serving on the committee are representatives from each section of the Institute: Drs. Daniel Biello, Bahman Emami, Mokhtar Gado, Fernando Guitierrez, Joseph Lee, Philip Ludbrook, Robert Levitt, Marilyn Siegel, William Totty, and Michael Vannier. Thomas Dixon, Ph.D., has recently joined the staff to provide physics support for the project as well as help determine how NMR can best be put to use for patients.

"NMR will be an important resource for many projects in diagnostic imaging, and the committee's job will be to coordinate the best projects," emphasized Dr. Evens. "It is part of our academic responsibility to help define its use in research and clinical medicine with the expectation that members of the scientific community will become active participants in future applications."

The intense interest in NMR at Washington University Medical Center was evident on April 11 as physicians crowded into Copton Auditorium to hear Dr. William Murphy present an update on Mallinckrodt's newly established NMR facility. Speaking to the Medical School Grand Rounds, Dr. Murphy gave a detailed account of the construction under way, the economics, function, and the basic physics and current state of NMR technology as well as its future relevance to the medical center. According to Dr. Murphy, NMR imaging enables physicians to evaluate progress of treatment and advance of the disease in order to monitor the effectiveness of cancer therapy, to view blood vessels without the use of hazardous contrast materials, and to observe more specific distinctions between different types of tissue.

*In the Siemens NMR imager, the superconductive magnet and coolant are sealed inside the cylindrical "thermos bottle." Photo by Ria Munoz.*



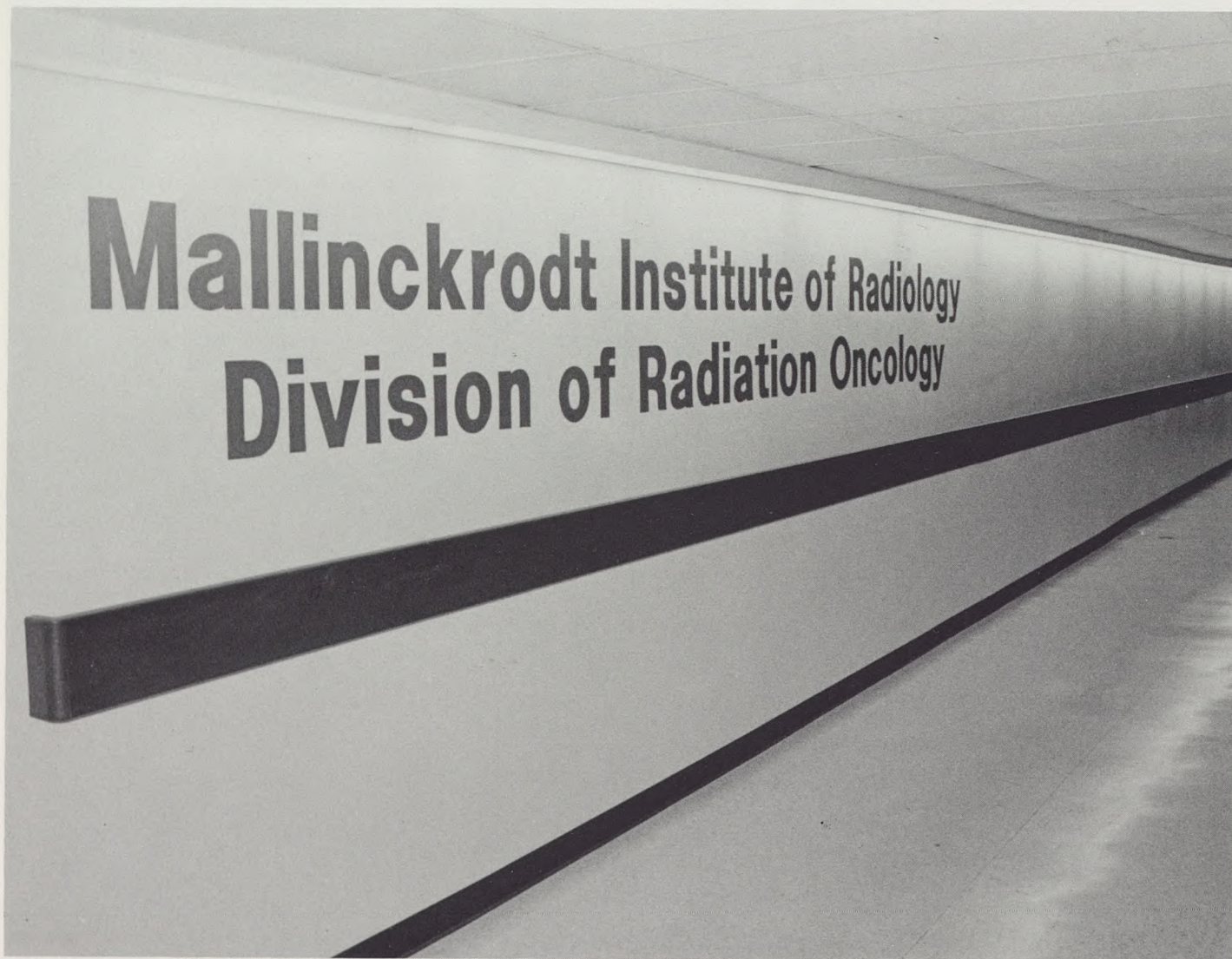
## **NMR: Phase Two**

In December 1983, a fifteen kilogauss magnet, also a Siemens unit, of higher cost, will be delivered to the Institute. This system will be located in a free-standing NMR building near the School of Dental Medicine and will be in operation by January next year.

"The larger magnets, though higher in cost," said Dr. Evens, "have the advantage of decreased scanning time and the ability to monitor fluctuations of phosphorus, nitrogen, fluorine, and oxygen, all biologically important elements in the study of cellular chemis-

try. This access into cellular chemistry can give us an important new level of diagnosis. We expect Washington University Medical Center to soon become a leader in several aspects of NMR research and treatment."

# Radiation Oncology Celebrates Completion of New Facilities



Nearly fifty percent of all radiation therapy treatment in the St. Louis metropolitan area is administered by the Division of Radiation Oncology at Mallinckrodt Institute of Radiology and affiliated hospitals. With its staff of over 150 employees (including 20 physicians, 10 physicists, 4 biologists, and 3 computer scientists), the Division offers patient treatment capabilities unsurpassed in any mid-western cancer center. This spring,

the division grew even more.

On April 21-23, the Division commemorated significant expansion of its patient care facilities with the installation of a new Clinac 6 linear accelerator and completion of the new Hyperthermia Treatment and Research Center. The Division's ground floor facility was completely renovated to house the Clinac 6 and provide an adjacent staff room, in-patient waiting area, two examining

rooms, and greater working space for more efficient patient flow in the treatment area.

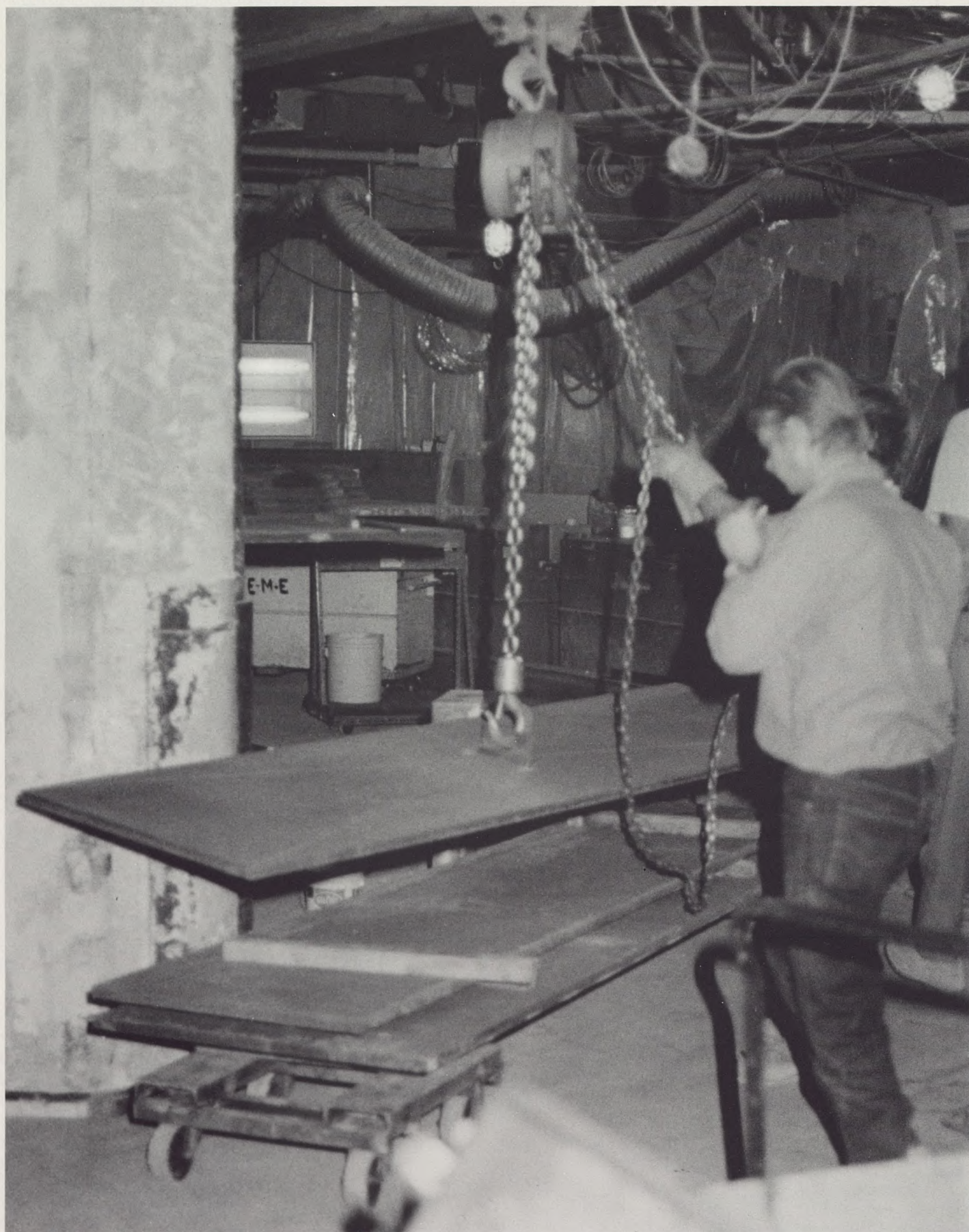
**Dr. Ronald G. Evens**, Director of Mallinckrodt, said, "The installation of a six million electron volt (MeV) linear accelerator at the Institute brings the total megavoltage radiation therapy units to five. This allows increased capabilities to provide high quality radiation therapy for our patients requiring cancer treatment.

*The six million electron volt (MeV) linear accelerator, the Clinac 6, produces sharply defined radiation beams which penetrate deep into the tumor, treating cancerous tissue without damaging healthy surrounding cells.*





*One-inch thick steel plates weighing up to 1500 pounds apiece were hauled in to form the ceilings and walls. The total amount of steel used reached 210 tons.*



The construction and installation was a complicated project requiring completion of a special shielding on the ground floor of the Mallinckrodt Institute, while continuing radiation therapy treatments in the four existing units. In addition, the construction occurred at the very hub of medical activities at Barnes Hospital. Volk Construction Company and subcontractors did an outstanding job of building this specialized facility while allowing medical care to continue."

The specialized facility called for special work methods and materials. The treatment room's location required hand-pushed carts just to move construction materials from one place to another. For the footings and foundation, over 273 cubic yards of earth needed to be excavated and 65 yards of concrete were laid. The shielding element in the ceiling was made up of one-inch thick steel plates, up to three and a half feet wide and ten feet long. One hundred fifty tons of these same steel plates made up the eight-inch thick steel wall outside the masonry wall.

The new Hyperthermia Treatment and Research Center, in Barnard Free Skin and Cancer Hospital, is the first of its kind in the midwest and one of the most advanced hyperthermia treatment centers in the country. The opening of the new facility will allow Mallinckrodt to treat approximately 100 patients each year, six times the number currently receiving treatment. Hyperthermia involves heating cancerous tissues to destroy, or seriously retard, the growth of tumor cells but still cause no appreciable damage to normal cells.

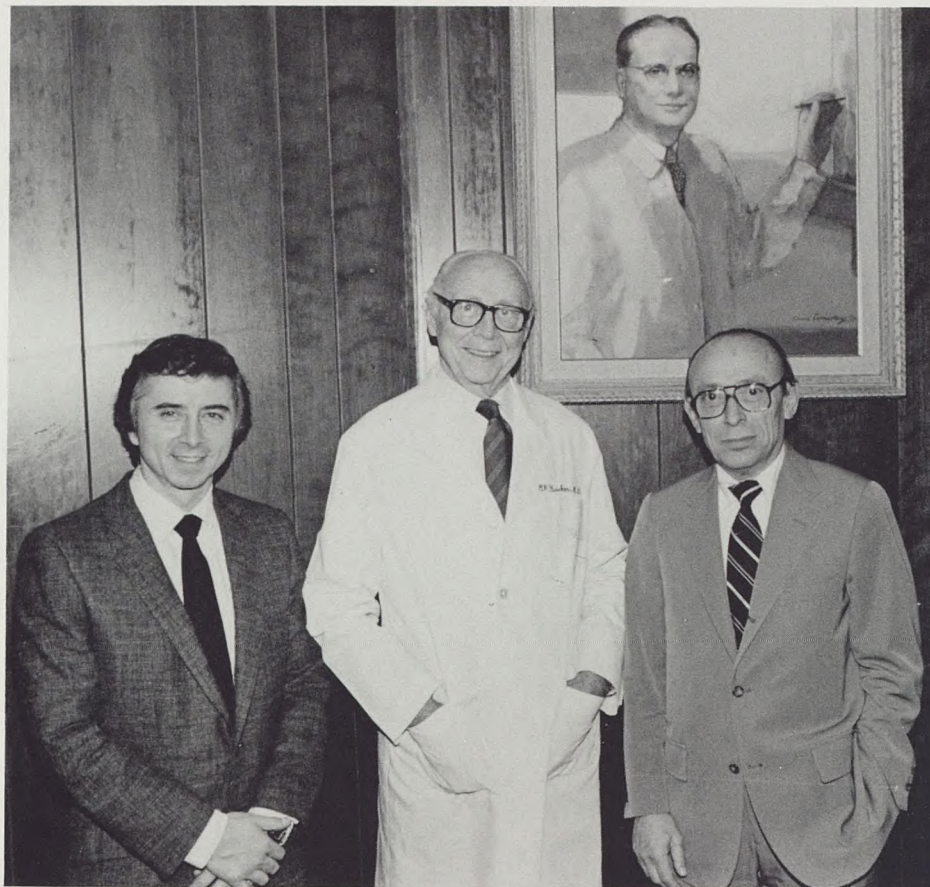
The commemoration of the new facilities, a three-day long scientific program, was coordinated by **Dr. Carlos A. Perez**, Professor of Radiology and Director of the Division of Radiation Oncology at Mallinckrodt. Events began Thursday evening, April 21, with a workshop on early breast cancer. Friday afternoon's lectures focused on the primary management of colorectal cancer and carcinoma of the uterine cervix and was coordinated with the Surgery-Oncology Grand Rounds at Jewish Hospital on the following Saturday.



Guest lecturers included Jean Papillon, M.D., professeur à la faculté at Radiologiste Des Hôpitaux in Lyon, France (sister city to St. Louis); Gilbert H. Fletcher, M.D., professor of radiology at the University of Texas System Cancer Center and the M.D. Anderson Hospital, Houston, Texas; Leonard L. Gunderson, M.D., consultant to the Department of Therapeutic Radiology at Mayo Clinic in Rochester, Minnesota; and Barth Hoogstraten, M.D., medical director of the Cancer Treatment Center at Bethesda Hospital in Cincinnati, Ohio.

Presenting an update on "Endocavitary Irradiation," Dr. Papillon described his research and clinical application of radiation therapy in colorectal carcinoma. A pioneer of conservation cancer treatment, Dr. Papillon developed intrarectal (endocavitary) x-ray treatment and the use of iridium (radioactive) implants to treat selected rectal cancers without

*Guest lecturers on colorectal cancer, Drs. Jean Papillon, left, Barth Hoogstraten, Leonard Gunderson, and Ira Kodner.*



*Washington University physicians, Drs. Andrew Galakatos, left, Eugene Bricker, and H. Marvin Camel in Scarpellino Auditorium.*



surgery. His technique employs an instrument (often called the "Papillon machine") similar to a large proctoscope introduced into the rectum after local anesthesia. Papillon's instrument allows a high, yet only superficially penetrating, dose of radiation to be administered to the tumor.

Fifteen years ago, the only colorectal carcinoma therapy performed — often involving colostomy — was surgical resection. Since then, largely as a result of Dr. Papillon's work in Lyon, methods of diagnosis, imaging, and conservation local treatment have become applicable for ten to fifteen percent of all rectal cancers, allowing many patients to avoid colostomies. Through teamwork with surgeons, the chances of cure with conservation treatment are continually increasing. The critical factor is selection. Patients must have a moderately advanced carcinoma, confined to the rectal wall, which is no larger than four centimeters and has no palpable metastatic nodes.

Today, Papillon's early work goes beyond France. His studies have given impetus to a very active research project directed by **Drs. Bruce J. Walz and Ira J. Kodner** and other staff members from both Mallinckrodt and the Division of Colorectal Surgery at Jewish Hospital. Through the joint work of these departments, Mallinckrodt patients can now receive conservation treatment.



*Dr. Sumner Holtz, left, chats with Drs. Gilbert Fletcher and Ronald Evens on ground floor.*

*Dr. Carlos Perez offers Mrs. Wendell G. Scott a guided tour of the new Hyperthermia Research and Treatment Center. Photo by Kay Porter.*



*Dr. Gilbert Fletcher offers a toast to his good friend, Dr. Blanca Perez, during the reception.*

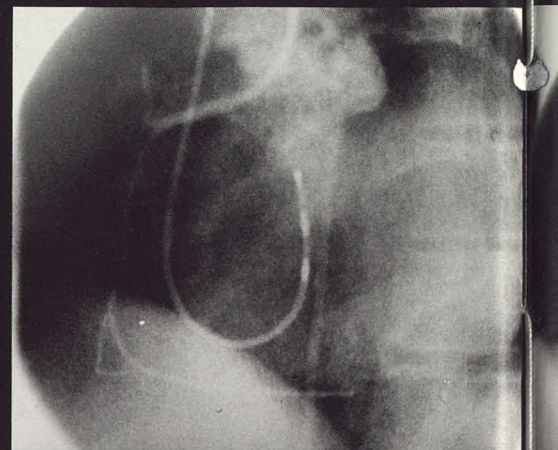
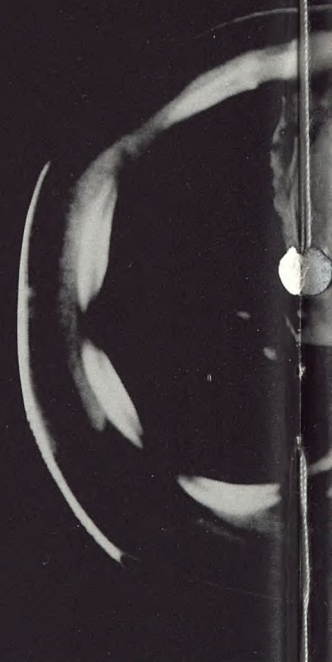
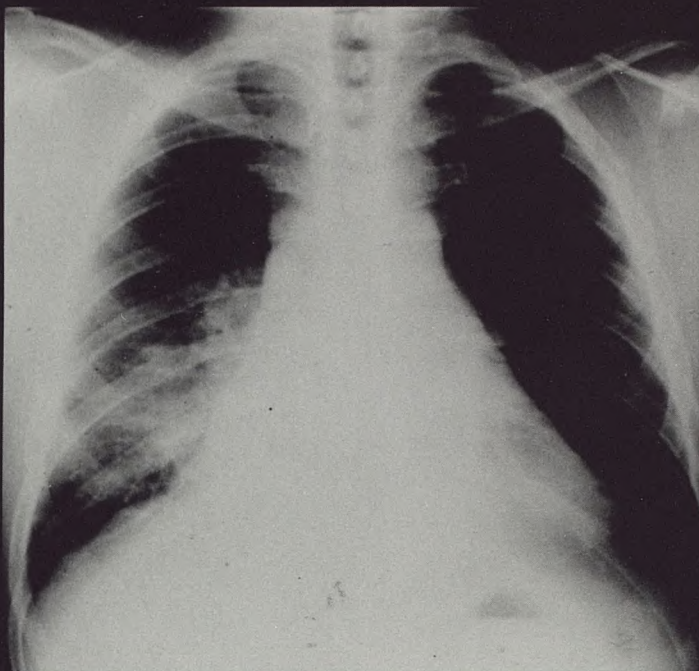
Principal speakers at the inauguration on Friday evening in Scarpellino Auditorium included Drs. Ronald G. Evens, Gilbert H. Fletcher, and Carlos A. Perez. The program's participants and guests were able to get a first-hand view of the ground floor during a reception and tour following the inauguration ceremony.



# Imaging in the Eighties — Viewing the

Current technology, not even in existence a decade ago, has vastly improved today's patient care. Pre-operative, non-invasive tests (for example, DVI) to pinpoint disorders are less painful and dangerous than conventional methods such as angiograms. Both CT and DVI techniques involve minimal exposure to X-rays; NMR and ultrasound involve none.

The breadth of excellence at Mallinckrodt puts the Institute in a unique position among radiology centers worldwide. Here, superior images from a wide range of modalities — from NMR to digital radiography — can be cross-compared to elucidate the real advantages of each technology as it evolves.



## Gated Blood-Pool Study (Nuclear Medicine)

Digitally filtered images from a nuclear medicine study shows the chambers and vessels of the heart. The left image

was obtained at end-diastole and the right image at end-systole. With the new filtering method, the cardiac structures are visualized much more clearly than previously without computer processing.

## Angiography

Fig. 1 Normal right coronary angiogram



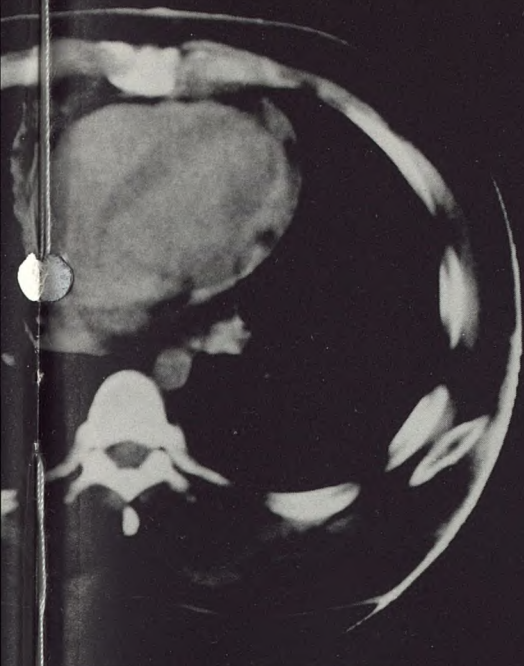
## Positron Emission Tomography (PET) Scan

PET reconstructions from a normal subject (left) and patients with myocardial infarctions involving the complete

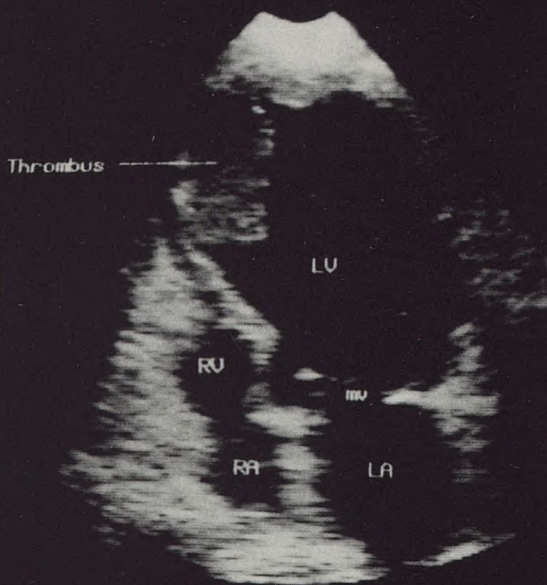
thickness of the anterior heart wall (center) or only part of the thickness of the anterior heart wall (right). Normally, the heart appears as a horseshoe shape

at this level b and a are inactive to vis P = posterior

# the Heart



Thrombus



Left to right

**Chest X-Ray: 40-year-old man with fatigue and dyspnea**

Chest radiograph shows enlargement of the cardiac silhouette. An echocardiogram was interpreted as showing a pericardial effusion.

**Computed Tomography (CT) Scan**

A CT scan shows that no pericardial effusion is present, but that a mixed density mass encompasses the heart, accounting for the constrictive symptoms. Diagnosis: Kaposi sarcoma of mediastinum.

**2-D Echocardiograph (Ultrasound)**

Apical four-chamber two dimensional echocardiographic view demonstrates a left ventricular thrombus. LV = left ventricle, RV = right ventricle, RA = right atrium, LA = left atrium, MV = mitral valve.

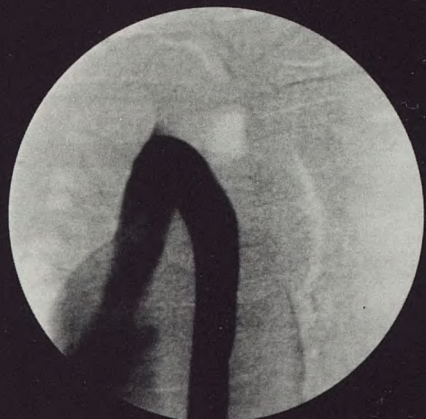
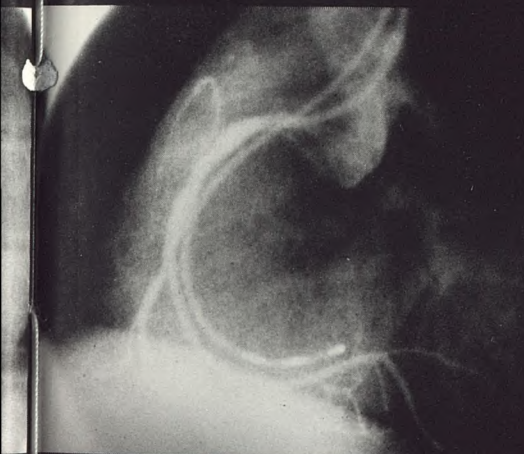
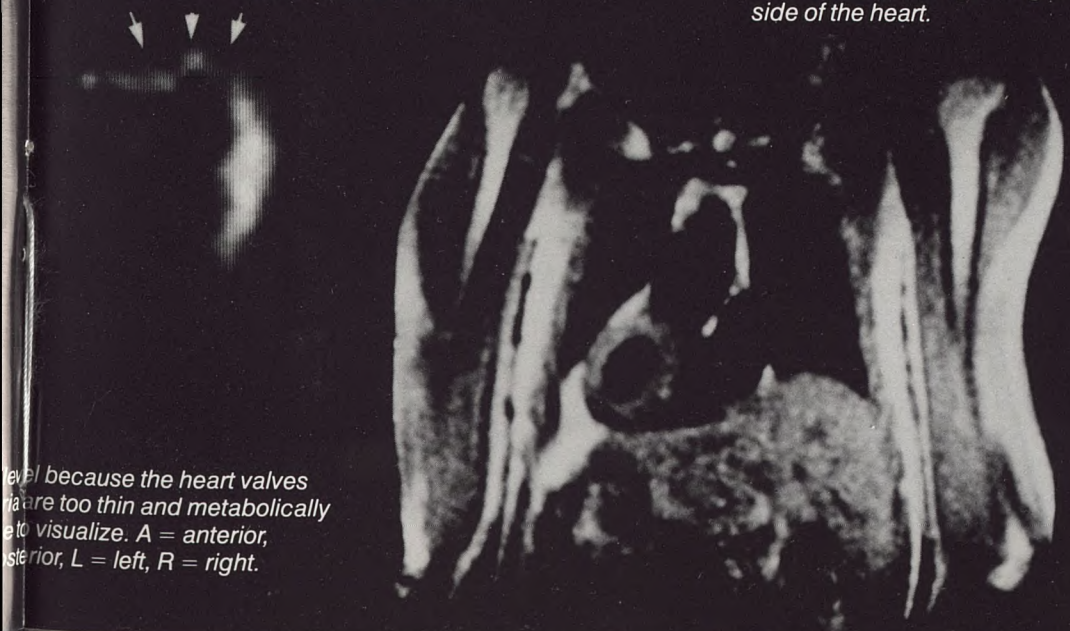


Fig. 2 After administration of ergonovine, severe spasm is demonstrated. This was accompanied by chest pain and electrocardiographic abnormalities (Prinzmetal's angina).

**Digital Vascular Imaging (DVI)**

Fig. 1 Early frame of DVI shows interruption of the inferior vena cava with azygous continuation and subsequent drainage to right side of the heart.

Fig. 2 Late frame of the same study demonstrates left ventricle and aorta.



**Nuclear Magnetic Resonance (NMR) Scan**  
Coronal view of cardiac function. Data acquisition at end systole using a peripheral pulse for acquisition gating. Property of Technicare Corporation©.

level because the heart valves are too thin and metabolically to visualize. A = anterior, posterior, L = left, R = right.

# Society of Nuclear Medicine 30th Annual Meeting



*Prior to the reception in Queeny Tower, the three new officers and Dr. Barry Siegel, second from left, comment on the Institute's leadership role in nuclear medicine to Art Kaufman, St. Louis Globe-Democrat Medical Writer left foreground.*

*Drs. B. Leonard Holman, left, Michael J. Welch, and Philip O. Alderson.*



## MIR Reunion

More than 200 physicians, scientists, and technologists who are alumni and former staff members of Mallinckrodt Institute of Radiology (MIR) were invited to return to the Institute June 7, 1983, for a homecoming reception. This reunion was planned in conjunction with the Society of Nuclear Medicine's 30th Annual Meeting, June 7-10, held in St. Louis for the first time in over a decade.

Dr. Barry A. Siegel, Director of the MIR Division of Nuclear Medicine, and Donald R. Bernier, CNMT, Technical Supervisor, arranged the event to provide an opportunity for alumni to see the changes over the past fifteen years at Mallinckrodt, one of the five largest radiological centers in the world. In the Nuclear Medicine Division's new 9,000-square-foot clinical facilities, nearly 12,000 clinical examinations are performed annually with seven nuclear imaging cameras and four computer systems.

Among MIR faculty or alumni attending the reception, three are newly elected officers of the Society of Nuclear Medicine: President-elect, Michael J. Welch, Ph.D., professor of radiology and chemistry at Mallinckrodt and Washington University; Vice President-elect, Philip O. Alderson, M.D., professor of radiology, College of Physicians and Surgeons, Columbia University; and Secretary, B. Leonard Holman, M.D., professor of radiology at Harvard University.

In addition, Mallinckrodt staff members presently serving on the Society's Board of Trustees are: Dr. Welch, Dr. Siegel, and Mr. Bernier (the first technologist — in the history of the organization — ever elected to the board). Ronald G. Evens, M.D., Director of Mallinckrodt, served as a trustee from 1971 to 1975.

Over forty present or former MIR faculty members participated in the Society's scientific program with sessions on the latest developments in cancer, heart disease, and brain disorders as well as other topics of interest.

## Michael J. Welch, Ph.D., Named President-Elect of the Society of Nuclear Medicine

Michael J. Welch, Ph.D., professor of radiation chemistry in radiology at Mallinckrodt Institute of Radiology and Washington University, has been elected president-elect of the Society of Nuclear Medicine, an organization with an international membership of almost 10,000 physicians, scientists, and technologists concerned with the diagnostic and investigational use of radioactive substances for treatment of disease. He took office as president-elect at the 30th Annual Meeting of the Society held June 7-10 at the Cervantes Convention Center in St. Louis. Dr. Welch will be installed as president in 1984.

Dr. Welch is an internationally recognized scientist whose contributions to nuclear medicine include work in radiopharmaceutical chemistry, clinical research, and the training of many nuclear medicine scientists.

Born in Stoke-on-Trent, England, in 1939, Dr. Welch attended Cambridge on scholarship and received his Master's degree in 1964. He received a doctorate from the Univer-

sity of London in 1965 and that same year came to the United States and the Brookhaven National Laboratory for a two-year study of the chemistry of hot carbon atoms. Entering the field of nuclear medicine in 1967 when he joined the staff of Mallinckrodt Institute, Dr. Welch became the first hot-atom chemist to use a cyclotron to make short-lived radiopharmaceuticals for nuclear medicine.

Dr. Welch has received international recognition for development of radiopharmaceuticals to measure regional cerebral blood flow and metabolism and for origination of numerous radiopharmaceuticals for use in clinical nuclear medicine — for example, I-131 and I-123 fibrinogen used to localize deep vein thrombosis and monitor thrombolytic therapy. He has authored over 160 scientific publications.

In 1980, Dr. Welch was awarded the Paul C. Aebersold Award, the highest recognition for science bestowed by the Society of Nuclear Medicine.

## Don Bernier, CNMT, First Technologist Ever Elected SNM Trustee

For the first time in the twenty-nine year history of the Society of Nuclear Medicine (SNM), a technologist was elected in 1982-83 to serve on the Board of Trustees. Don Bernier, CNMT, Technical Supervisor of Nuclear Medicine at Mallinckrodt and Director of Technical Education for the division, was recognized by the membership on the basis of his numerous contributions over the years to the Society.

A past president of the SNM's Technology Section and former chairman of various committees, Mr.

Bernier is associate editor of the Journal of Nuclear Medicine Technology and a founding member of the Nuclear Medicine Certification Board. Mr. Bernier has called upon ten years of experience as a technical supervisor in nuclear medicine to help improve knowledge and techniques in the specialty; he has co-authored the textbook, "Nuclear Imaging Artifacts," and co-edited another work, "Nuclear Medicine Technology and Techniques," now in its second edition.



# SNM Scientific Program

The 30th Annual Meeting of the Society of Nuclear Medicine, which was held in St. Louis June 7-10, presented the opportunity for 5,000 participants to hear a nationally recognized faculty. Scientific papers, posters, exhibits, 16 state-of-the-art teaching sessions, three full-day seminars, a review course, a complete technologist program, 100,000 square feet of exposition space, and many user meetings sponsored by commercial companies provided the membership with the latest word in nuclear medicine procedures.

## BOARD OF TRUSTEES

Barry A. Siegel, M.D.  
Donald R. Bernier, CNMT  
Michael J. Welch, Ph.D.

## SUBCHAIRMAN 1983 SCIENTIFIC PROGRAM COMMITTEE

Barry A. Siegel, M.D.

## REVIEWERS

Barry A. Siegel, M.D.  
Michael J. Welch, M.D.

## SCIENTIFIC PAPERS

Moderator of session, Pulmonary I,  
**Barry A. Siegel, M.D.**

Co-moderator of session, Radiopharmaceutical Chemistry V: Short-lived Radiopharmaceuticals, **Michael R. Kilbourn, Ph.D.**

Co-moderator of session, Pulmonary II, **Daniel R. Biello, M.D.**

"Assessment of Restoration of Myocardial Perfusion and Metabolism with Positron Emission Tomography after Coronary Thrombolysis," **Steven R. Bergman, M.D., Keith A.A. Fox, Ph.D., Alice L. Rand, B.S., Michael J. Welch, Ph.D., Michel M. Ter-Pogossian, Ph.D., and Burton E. Sobel, M.D.**

"Evaluation of Renal Structure and Function by Radionuclide Imaging," **Barry A. Siegel, M.D., and Daniel R. Biello, M.D.**

"The Assessment of Regional Cerebral Blood Flow in the Newborn with Positron Emission Tomography," **Peter Herscovitch, M.D., Jeffrey M. Perlman, M.D., Joseph J. Volpe, M.D., and Marcus E. Raichle, M.D.**

"1-[F-18]-Fluoropentestrol: Synthesis and Preliminary Tissue Uptake Studies of a Positron-Emitting Estrogen in Rats," **Karen D. McElvany, Ph.D.,**

**Michael R. Kilbourn, Ph.D., Michael J. Welch, Ph.D., S.W. Landvatter, and J.A. Katzenellenbogen.**

"A New Synthesis of C-11-Aralkyl Amino Acids: [3-(C-11)] Phenylalanine," **Michael R. Kilbourn, Ph.D., Michael J. Welch, Ph.D., and D.D. Dischino.**

"The Detection of Acute Coronary Thrombosis in Patients with the Use of In-111-Labeled Platelets," **Keith A.A. Fox, M.D., Steven R. Bergmann, Ph.D., Carla J. Mathias, B.A., Keith T. Hopkins, R.T., Allan S. Jaffe, M.D., William J. Powers, M.D., Barry A. Siegel, M.D., Burton E. Sobel, M.D., and Michael J. Welch, Ph.D.**

"Use of Indium-Labeled Platelets to Monitor Platelet Deposition on Vascular Grafts," **Brent T. Allen, M.D., Carla J. Mathias, B.A., Richard E. Clark, M.D., Kevin T. Hopkins, R.T., and Michael J. Welch, Ph.D.**

"Scintigraphic Demonstration in Patients of the Effect of Aspirin on Platelet Deposition at Sites of Transluminal Angioplasty," **Deborah A. Cunningham, Ph.D., Bharath A.K. Kumar, M.D., Barry A. Siegel, M.D., Louis A. Gilula, M.D., William G. Totty, M.D., Kevin T. Hopkins, R.T., Carla J. Mathias, B.A., Jacqueline L. Wilson, B.A., and Michael J. Welch, Ph.D.**

"Dynamic Cardiac Studies with Super PETT," **Michel M. Ter-Pogossian, Ph.D., Edward M. Geltman, M.D., Burton E. Sobel, M.D., and David C. Ficke, B.S.**

"Myelin Imaging with PET," **Michael J. Welch, Ph.D., Michael R. Kilbourn, Ph.D., Peter Herscovitch, M.D., John L. Trotter, M.D., Marcus E. Raichle, M.D., and D.D. Dischino.**

"The Autoradiographic Measurement of Regional Cerebral Blood Flow (CBF) with Positron Emission Tomography: Validation Studies," **Peter Herscovitch, M.D., Marcus E. Raichle, M.D., and W.R.W. Martin.**

"Oxygen Utilization Measured by 0-15 Radiotracers and PET," **Mark A. Mintun, M.D., Marcus E. Raichle, M.D., Peter Herscovitch, M.D., and W.R.W. Martin.**

"Measurement of Cerebral Blood Flow with C-11 Butanol and Positron Emission Tomography," **Marcus E. Raichle, M.D., Peter Herscovitch,**

**M.D., Michael R. Kilbourn, Ph.D., Michael J. Welch, Ph.D., and W.R.W. Martin.**

"Rapid Digital Filtering," **Thomas R. Miller, M.D., Kondapuram S. Sampathkumaran, M.S., and M.A. King.**

"Quantitative Measurement of Intravascular Thrombus Size with In-111 Platelet Scintigraphy," **William J. Powers, M.D., Kevin T. Hopkins, R.T., Michael J. Welch, Ph.D.**

"Monoclonal Antibody Radioimmuno-detection of Transplant Rejection," **Richard L. Wahl, M.D., and Charles W. Parker, M.D.**

## POSTER SESSIONS

"The Necessity of Correcting for Cerebral Atrophy in Global Positron Emission Tomography Measurements," **Peter Herscovitch, M.D., Mark A. Mintun, M.D., Mokhtar H. Gado, M.D., and Marcus E. Raichle, M.D.**

"Hemodynamic Results of Cerebral Bypass Surgery Measured by Positron Emission Tomography," **William J. Powers, M.D., Peter Herscovitch, M.D., Marcus E. Raichle, M.D., and Robert L. Grubb, M.D.**

"Evaluation of Methods for the Preparation of Radiolabeled Monoclonal Antibodies," **Karen D. McElvany, Ph.D., Michael J. Welch, Ph.D., Julian B. Fleischman, Ph.D., F.I. Otsuka, and R.A. Nicolotti.**

A Simple Low-Volume Water Target for N-13 and F-18 Production, **Michael R. Kilbourn, Ph.D., and Michael J. Welch, Ph.D.**

## STATE-OF-THE-ART TEACHING SESSIONS

Radiopharmaceuticals for Brain Studies, **Marcus E. Raichle, M.D., and Michael J. Welch, Ph.D.**

Clinical Applications of Labeled Leukocytes and Platelets, **William J. Powers, M.D., and R. Edward Coleman, M.D.**

Ventilation-Perfusion Lung Imaging, **Daniel R. Biello, M.D.**

## TECHNOLOGIST SECTION

"Imaging with In-111 Platelets: Technical and Clinical Applications," **Kevin T. Hopkins, R.T.**

"Scintigraphic Intraoperative Assessment of Intraarterial Chemotherapy," **Mary T. Clarke, R.T., and Bharath A.K. Kumar, M.D.**

*Dr. Dixie Aronberg assists medical students with a computer-based Radiology Quiz where students receive immediate feedback upon recording each answer.*



## Teaching Award to Dr. Aronberg

**Dixie J. Aronberg, M.D.**, assistant professor of radiology at Mallinckrodt Institute, was named "Teacher of the Year" by the Washington University Medical School Class of 1983. Dr. Aronberg received the very special award at the medical school's graduation luncheon on May 20. The award includes a \$10,000 gift to Dr. Aronberg's department, radiology, to be used for teaching purposes. Since this teaching award was established fifteen years ago, it has been awarded to one other radiologist, Dr. Hyman R. Senturia, in 1972-73.

Since accepting responsibility in 1981 for medical student training in radiology, Dr. Aronberg's role has been characterized by dynamic, innovative teaching and conscientious effort. "This is a richly deserved award," said Dr. Stuart Sagel, Chief of Chest Radiology. "Dr. Aronberg has worked long hours to totally redesign the senior six-week elective. Further,

she is always available to consult with students, to talk about their goals and problems not only in radiology but all of medicine."

In addition to Dr. Aronberg's attention to the senior radiology elective, she has also made an impact on the sophomore level radiology course. Traditionally consisting of a series of didactic lectures, Dr. Aronberg enlarged the course in 1981-82 to include small group lab sessions. Drawing upon the excellent computer capability at Mallinckrodt, she further broadened the course by incorporating a computer-based radiology exam. Under the direction of Dr. R. Gilbert Jost, Steve Rodewald, computer programmer, worked with Dr. Aronberg to develop a Radiology Quiz on computer that would allow students taking the exam to have immediate feedback upon recording each answer. Computer feedback consisted of a variety of audio-visual

components including flashing the right answer, a beeped response to right answers, and a running total score continually posted in one corner of the screen, video game style. In addition, the student had the option of asking for further information or explanations of why certain choices were right and why others were wrong.

"I feel that teaching is 90 percent enthusiasm," noted Dr. Aronberg, "along with a genuine interest in the program and a continual search for ideas to improve the elective. With the expertise and cooperation of our MIR faculty, it is easy to design a good elective."

Dr. Aronberg was appointed to the MIR Chest Radiology faculty in 1977 after completing her residency at Jewish Hospital. Since that time, she has also served as a consulting radiologist at Barnes, Children's, and Veterans' Administration Hospital.

## Director's Office Reports

### New Appointments

**Klaus Sartor, M.D.**, associate professor of radiology, has joined the MIR neuroradiology staff effective June 1, 1983. A native of Zeppenfeld, Germany, Dr. Sartor came to Mallinckrodt from the University of Hamburg, West Germany, where he was chief of neuroradiology. A member of the German Society of Neuroradiology and the German Roentgen Ray Society, he has taken postgraduate training in cranial CT and authored 60 publications, including one 360-page textbook, on neuroradiologic topics.

**W. Thomas Dixon, Ph.D.**, has joined the Mallinckrodt Institute staff as assistant professor of Radiation Sciences in Radiology effective June 1. Dr. Dixon brings an excellent background in engineering and medicine to his position on the NMR imaging team.

A native of Minnesota, Dr. Dixon received a Bachelor's degree in Mechanical Engineering at the University of Minnesota in 1967, attended medical school at Stanford University, later obtaining industrial experience at Control Data Corp. in Arden Hills, Minnesota, and gained a Ph.D. in physics at the University of California at San Diego.

A postdoctoral research associate in the Chemistry Department of Washington University since 1980, Dr. Dixon has carried out research pertaining to the employment of new, complex pulse sequences to vary contrast and enhance dynamic features in NMR imaging.

### Chief Resident; Co-Chief Resident

**Robert W. Laakman, M.D.**, has been named Chief Resident and **Steven J. Adler, M.D.**, Co-Chief Resident for 1983-84. Drs. Laakman and Adler will be working closely with Dr. Ronald Evens and Dr. Gary Shackelford in the operation of the MIR residency program.

### Guest Lecturer/ Visiting Faculty

**Louis A. Gilula, M.D.**, was guest lecturer at the University of California in San Francisco, Jan. 17-21. For the Interventional Course, Dr. Gilula presented "Bone Biopsy" and "CT of the Musculoskeletal System."

**Richard L. Wahl, M.D.**, was guest lecturer for the Department of Internal Medicine and the Division of Nuclear Medicine at the University of Michigan in Ann Arbor on Jan. 28. The title of his lecture was "Improved Radioimaging and Tumor Localization with Monoclonal F(ab<sup>1</sup>)<sub>2</sub>. Dr. Wahl also presented "Monoclonal Antibody Imaging" as guest lecturer in the Department of Radiology at the University of Colorado in Denver on Feb. 22.

**Carlos A. Perez, M.D.**, presented "Investigational Radiation Therapy" as guest lecturer for the St. Louis University School of Nursing on March 3.

**Bruce L. McClennan, M.D.**, was visiting professor at Loma Linda University on Feb. 1 and 2, and was a member of the faculty for the Inter-mountain Imaging Course in Steamboat Springs, Colorado, Feb. 19-26, where he spoke on DVI, CT of the kidney, and interventional uro-radiology. Dr. McClennan was also a faculty member for the 15th Annual Diagnostic Course held in Davos, Switzerland, in March. His topic was urography.

**Joseph K.T. Lee, M.D.**, was guest faculty member for a Diagnostic Imaging Symposium sponsored by the Joint Board of Post-graduate Medical Education in Kuwait, Arabia, Feb. 21-24.

**Donald R. Bernier, CNMT**, presented "Quality Assurance in Nuclear Medicine," on March 29, as guest lecturer in the Division of Nuclear Medicine at Johns Hopkins University Hospital in Baltimore.

# NEWS

**James A. Purdy, M.D.**, attended the 21st General Assembly of the Japan Medical Congress in Osaka, Japan, where he presented "Computer Applications to Radiation Therapy Treatment at the Mallinckrodt Institute of Radiology" for the 10th Annual PC User Group Meeting on April 4. Dr. Purdy also visited Taipei, Taiwan, and presented guest lectures on Radiation Therapy Treatment Planning at the Veterans General Hospital and Mackay Memorial Hospital on April 8.

**G. Leland Melson, M.D.**, presented two lectures, "Real-time Examination of the Abdomen" and "Sonography of the Gallbladder and Biliary System," as guest faculty for the Society of Diagnostic Sonographers Regional Seminar in St. Louis, April 15-16.

**Murray A. Solomon, M.D.**, presented "CT Scanning in the Podiatry Patient," as guest lecturer for the St. Louis Podiatry Association on March 23 and at Atlanta Hospital on April 20.

**Ralph L. Smathers, M.D.**, presented "CT of Abdominal Vasculature: Anatomy, Anomaly, and Pathology," as visiting lecturer at Stanford University, Stanford, California, on May 6.

### A<sup>3</sup>CR<sup>2</sup> Meeting

**James W. Owen, M.D.**, **Jerrold A. VanDyke, M.D.**, **Steven J. Adler, M.D.**, and **Robert W. Laakman, M.D.**, attended the annual meeting of the American Association of Academic Chief Residents of Radiology (A<sup>3</sup>CR<sup>2</sup>) in Mobile, Alabama, March 20-23. Drs. Owen and VanDyke served on the steering committee for the meeting and Drs. Adler and Laakman were elected to serve on the steering committee for the 1984 meeting.

# UPDATE

## CBT Society

**Joseph K.T. Lee, M.D.**, presented "CT of the Retroperitoneum with Emphasis on Lymph Node Disease," as guest faculty member for the Sixth Annual Course in Computed Body Tomography, sponsored by the Society of Computed Body Tomography, and held in San Diego, Feb. 28-Mar. 3. Dr. Lee also participated in two workshops for the course.

**Stuart S. Sagel, M.D.**, and **Joseph K.T. Lee, M.D.**, have organized a two-day summer course for the Society of Computed Body Tomography to be held August 5-7 at the Colorado mountain resort of Keystone. Small group seminar-workshops will stress practical problem solving and interpretation and proper examination conduct. Registration at the meeting will be restricted to 60 participants.

## American Board of Radiology

**Bruce L. McClennan, M.D.**, **Barry A. Siegel, M.D.**, **Fred J. Hodges, M.D.**, **James E. Marks, M.D.**, **John M. Bedwinek, M.D.**, and **Ronald G. Evens, M.D.**, served as oral board examiners for the American Board of Radiology, May 29-June 3.

## Digital Vascular Imaging Update 1983

**Bruce L. McClennan, M.D.**, and **Michael W. Vannier, M.D.**, participated in a symposium sponsored by Mallinckrodt Chemical Inc., entitled Digital Vascular Imaging-Update 1983, in Los Angeles, Feb. 3. Dr. McClennan served as moderator and Dr. Vannier was a member of the faculty.

## Elected Offices

**Bruce M. Walz, M.D.**, has been elected president of the Greater St. Louis Radiology Society Section of Radiation Oncology for 1983-84; **MacDonald Logie, M.D.**, has been elected program chairman and **D. Venkata Rao, M.D.**, secretary.

**Bruce L. McClennan, M.D.**, has been elected secretary-treasurer of the Society of Uroradiology and will take office in September 1983.

**Stuart S. Sagel, M.D.**, has been elected secretary of the Society of Thoracic Radiology, a new society composed of 250 academic chest radiologists from the United States and Canada. **Drs. Dixie Aronberg, Gilbert Jost, and Robert Levitt** are also members of the society.

## Awards and Honors

**D. Venkata Rao, M.D.**, has been awarded an American Cancer Society Faculty Fellowship for 1983-84.

**Ronald E. Worthington, Ph.D.**, has been named a Fellow of the American Heart Association, Missouri Affiliate.

**Sheri D. Henderson, Ph.D.**, has received a Travel Award to attend the Sixth International Congress of Radiation Research in Amsterdam, The Netherlands, July 3-8.

## Radiation Oncology Chief Resident; Assistant Chief Resident

The Division of Radiation Oncology announces that **Gregory W. Cotter, M.D.**, has been named Chief Resident for the 1983-84 academic year and that **David J. Monyak, M.D.**, has been named Assistant Chief Resident.

## ARRS

### Dr. Ronald G. Evens Elected Treasurer

**Ronald G. Evens, M.D.**, was elected treasurer of the Roentgen Ray Society at its annual meeting held in Atlanta on April 17-22. Dr. Evens has served on the executive council of the society since 1980.

The following Mallinckrodt staff members participated in the scientific program, the instructional courses, and exhibits:

#### Scientific Program

"CT Scanning of the Foot and Ankle: Normal and Pathologic Anatomy," **Murray A. Solomon, M.D.**, and **Louis A. Gilula, M.D.**

"CT of Benign Masses of Extremities," **Jay P. Heiken, M.D.**, **Ralph L. Smathers, M.D.**, and **Joseph K.T. Lee, M.D.**

"CT of Vocal Cord Problems," **Harvey S. Glazer, M.D.**, **Dixie J. Aronberg, M.D.**, **Joseph K.T. Lee, M.D.**, and **Stuart S. Sagel, M.D.**

"Utility of CT in the Follow-up of Postpneumonectomy Patients," **Harvey S. Glazer, M.D.**, **Dixie J. Aronberg, M.D.**, and **Stuart S. Sagel, M.D.**

"Reduction of Febrile Complications Associated with Long Term Biliary Drainage," **Floyd E. Scales, M.D.**, **Jay P. Heiken, M.D.**, and **Philip J. Weyman, M.D.**

"Craniofacial Surgical Planning and Evaluation," **Michael W. Vannier, M.D.**, **Jeffrey L. Marsh, M.D.**, and **James O. Warren.**

#### INSTRUCTIONAL COURSES

Categorical Course on Musculoskeletal Trauma — **Louis A. Gilula, M.D.**, Co-Director.

"The Hand and Wrist," **Louis A. Gilula, M.D.**

"Temporomandibular Joint Trauma," **William A. Murphy, M.D.**

#### EXHIBITS

"The Azygous Arch: Normal and Pathological CT Appearance," **Ralph L. Smathers, M.D.**

# NEWS

## Conferences/Symposiums/Meetings/Seminars/Courses

**Carlos A. Perez, M.D.**, attended symposiums and made presentations as follows:

"Regional (Deep) Heating, Clinical Studies in Progress" and "Clinical Experience with Local Hyperthermia for Superficial Lesions" for the 18th Annual San Francisco Cancer Symposium, March 5-6;

"Ewing's Sarcoma" and "Hyperthermia" and participation in panel discussions on "Treatment of Radioresistant Tumors" and "Carcinoma of the Lung" for CRILA (Circulo de Radioterapeutas Ibero Latino Americanos) in Buenos Aires, Argentina, April 4-8;

"Preliminary Report on a Randomized Trial of Radiotherapy to the Thorax in Limited Small Cell Carcinoma of the Lung Treated with Multiagent Chemotherapy," at a meeting of the American Society of Clinical Oncologists, in San Diego, May 22-24.

"Lung Cancer Today" for the American Association of Medical Dosimetrists in Seattle, June 7;

"Blue Book" and "Quality Assurance in Clinical Trials" (co-chairman of workshop) for the First International Symposium on Quality Assurance in Radiation Therapy in Washington, D.C., June 8-10.

**Mokhtar H. Gado, M.D.**, made the following presentations at meetings and symposiums:

"Principles of Axial and Reformatted CT Scanning" for a meeting on Clinical Applications of CT Technology for Management of Craniofacial Disorders at Washington University School of Medicine, March 19;

"Spinal Stenosis: Osseous and Ligamentous Components: Post-operative Evaluation on CT," "Lumbar Disc Disease," "Correlation of Brain Anatomy and Function on CT," and "Measurement of CSF Spaces and Evaluation of Brain Size: Clinical

Implications" for the Post-graduate Course on Neuroradiology and Head and Neck Radiology, X-ray, CT, and NMR at Columbia University College of Physicians and Surgeons in New York, April 5-9;

"Computerized Tomography of the Face and Spine" for Radiology Update, a Continuing Education Course for Southern Illinois University School of Medicine held at Alton Memorial Hospital in Alton, Ill., April 13;

"Differential Diagnosis of Sellar and Suprasellar Lesions," "Radiology of Stroke," and "Radiology of Hydrocephalus" for the Neuroradiology Review Course at Loyola University in Chicago, April 30-May 1;

"Spinal Stenosis" and "Diagnosis and Differential Diagnosis of Herniated Lumbar Disc — Pre-operative and Postoperative Evaluation" for the International Symposium and Course on Computed Tomography and Other Computer Assisted Imaging Techniques held in San Francisco, May 2-5;

"Basic Anatomy of the Spine and Spinal Cord," "Myelography of the Lumbar, Thoracic, and Cervical Spine," and "CT of the Lumbar Spine and Cervical Spine" for a meeting, Review of Spine and Myelography, at Monongahela Valley Hospital, Pennsylvania, May 14-15.

**Glenn P. Glasgow, Ph.D.**, attended the Health Physics Society 16th Mid-year Topical Symposium on Epidemiology Applied to Health Physics in Albuquerque, N.M., Jan. 9-13 and presented "Methods of Dose Calculations for SECSG Protocol Case Review" at the semi-annual meeting of the Southeastern Cancer Study Group in Charlestown, S.C., Jan. 18. Dr. Glasgow also presented "A Review of the Proposed Nuclear Regulatory Commission's Changes in 10 CFR Part 20" for the joint meeting of the Mid-American Chapter of the Health Physics Society and the Mis-

souri River Valley Chapter of the American Association of Medical Physicists at the Lake of the Ozarks, April 29-30.

**Donald R. Bernier, CNMT**, presented a paper entitled "Quality Assurance — Need or Burden," for the 10th Annual Meeting of the Technologist Section of the Society of Nuclear Medicine in San Francisco, Feb. 2.

**William A. Murphy, M.D.**, presented "Forensic Radiology," "Musculoskeletal Computed Tomography," "The Radiologic Pathophysiology of Rheumatoid Arthritis," and "Temporomandibular Joint Dysfunction" at the Big Sky Radiology Conference in Big Sky, Montana, in February. Dr. Murphy also presented "Radiography and Arthrography of the Temporomandibular Joint" for the 118th Annual Session of the Missouri Dental Association on April 15, and "Micro-Focus Temporomandibular Joint Radiology" for the 11th Annual Seminar on Diseases of the Temporomandibular Apparatus in Pasadena on April 25.

**Murray A. Solomon, M.D.**, presented "Pulmonary Angiitis and Granulomatosis," "Pulmonary Aspergillosis," and "The Foot in Systemic Disease" for a meeting of the Association of University Radiologists in Mobile, Alabama, March 22-25.

**Bruce M. Walz, M.D.**, presented "How Therapeutic Radiation Can Change the Natural History of Rectal Cancer" to the Radiation Oncology section of the Greater St. Louis Radiology Society in April.

**Patrick Thomas, M.D.**, presented "Postoperative Irradiation for Adenocarcinoma of the Rectum: Effects of Inclusion of the Perineum" at a meeting of the American Radium Society in Savannah, Georgia, on April 9, and "Relapse Patterns in Irradiated Second National Wilms' Tumor Study (NWTS-2) Patients" for the American Society of Clinical Oncologists in San Diego, May 24.

**Ronald E. Worthington, Ph.D.**, presented "Cyclic GMP Specifically Enhances Thromboxane Synthesis

# UPDATE

by Cultured Bovine Aortic Endothelial Cells" during a meeting of the Federation of the American Society for Experimental Biologists in Chicago, April 12.

**Daniel R. Biello, M.D.**, participated in a panel discussion on pulmonary embolism entitled "The Emperor Has Some Clothes," for the American College of Physicians Annual Meeting in San Francisco, April 13.

**Ralph L. Smathers, M.D.**, presented "Abdominal CT: Normal Variations" for the Second Annual Keats Radiological Society meeting at the University of Virginia in Charlottesville, April 29.

**G. Leland Melson, M.D.**, attended the Eighth International Symposium on Ultrasonic Imaging and Tissue Characterization in Washington, D.C., June 5-8. Dr. Melson presented a paper authored by **Michael W. Vannier, M.D.**, and **Jean Barbier**, entitled "Efficient 3-Dimensional Surface Reconstruction from Real-time B-Mode Sonography."

## Grand Rounds

**William A. Murphy, M.D.**, presented Nuclear Magnetic Resonance in two sessions for Washington University School of Medicine Grand Rounds, on April 7 and June 1.

## Calendar of Events

### July 24-28, 1983

American Society of Radiologic Technologists  
Baltimore, Maryland

### July 31-August 4, 1983

American Association of Physicists in Medicine  
New York, New York

### September 26-29, 1983

American College of Radiology  
Denver, Colorado

### September 28-October 2, 1983

1983 Annual Meeting, AAMT  
American Association for Medical Transcriptionists  
St. Louis, Missouri

## Presentations

**William A. Murphy, M.D.**, presented "Radiographic Features" for a Washington University School of Medicine Continuing Education Course, Practical Management of Common Rheumatologic Disorders, March 24.

## Fifth Annual Current Concepts in Musculoskeletal Radiology and Orthopedics

**Louis A. Gilula, M.D.**, and **William A. Murphy, M.D.**, were course directors for the Fifth Annual Current Concepts in Musculoskeletal Radiology and Orthopedics, which was held this year in Acapulco and Mexico City, May 6-13. The Musculoskeletal Section of Mallinckrodt Institute of Radiology, under the co-direction of Drs. Gilula and Murphy, has presented this symposium annually, in conjunction with the Office of Continuing Medical Education of Washington University School of Medicine, to review current diagnostic and treatment concepts of various musculoskeletal problems. It is designed to help bridge the knowledge of orthopedic surgeons, radiologists, and rheumatologists.

Dr. Gilula was moderator of the section on Skeletal Trauma and presented "Industrial Hand Injuries"; Dr. Murphy presented "Mandibular Fractures." As moderator of the section on Musculoskeletal Procedures, Dr. Murphy presented "Percutaneous Musculoskeletal Biopsy" and "Bone Scans — Beyond the Image"; **Dr. William G. Totty** presented "Percutaneous Transluminal Angioplasty" and "Digital Vascular Imaging"; and Dr. Gilula presented "Regional Clot Lysis." For the section on Musculoskeletal Neoplasia, Dr. Totty presented "Soft Tissue Sarcoma"; Dr. Gilula presented "Facet Syndrome — Diagnosis and Treatment" as his selected topic for the final section.

## Hugh M. Wilson Award

Mallinckrodt Institute of Radiology presented this year's Hugh M. Wilson Award in Radiology to **David Epstein**, a medical student in the 1983 graduating class of Washington University. In addition to his normal course schedule, Mr. Epstein elected to work six months on a research project in Mallinckrodt's Division of Nuclear Medicine during his senior year.

**Dr. Tom Miller**, assistant professor of radiology in nuclear medicine, says, "Mr. Epstein was selected for the Wilson Award because his work was not only innovative but has made a significant clinical impact. Over several months, Mr. Epstein developed a computer program which made the digital filters of gated cardiac blood pool images run automatically and rapidly. Originally, it took one hour to process a patient receiving one of these studies. Now, with Mr. Epstein's work, it takes three minutes. That's a major improvement."

Mr. Epstein is currently pursuing his internship in pediatric medicine at Children's Hospital in New York.

## TV Interview

**Dr. William H. McAlister**, Chief of Pediatric Radiology, was interviewed (in a taped segment filmed at Mallinckrodt) during the "Children's Miracle Network Telethon '83" on Memorial Day weekend, May 28-29. Broadcast locally on KTVI, Channel 2, the telethon raised funds for St. Louis Children's Hospital and Cardinal Glennon Memorial Hospital for Children.

Dr. McAlister discussed the important role of the radiologist in pediatric care. While monitoring a follow-up CT scan on a young oncology patient, he explained that a radiologist determines the appropriate imaging modality for diagnosing disease as well as for monitoring the effectiveness of radiation therapy in the treatment of cancer. The MIR Pediatric Radiology Section makes use of all imaging modalities in the health care of patients at Children's Hospital.



## Gridiron Proceeds for Hyperthermia

A \$22,000 contribution has been awarded Mallinckrodt's recently opened Hyperthermia Research and Treatment Center at Barnard Free Skin and Cancer Hospital by the Advertising Federation of St. Louis (AFSL). The donation, representing this year's proceeds from the 49th Annual Gridiron dinner and show held

April 15, is the largest contribution made by the AFSL since the Gridiron funds were first earmarked in 1945 for cancer research and treatment at Barnard and Mallinckrodt Institute. The AFSL Gridiron has generated more than \$1 million for this purpose. Virginia Trent was general chairman of the 1983 Gridiron.

*Left to right: Dr. Ronald G. Evens, Director, Mallinckrodt Institute of Radiology; Edwin B. Meissner, Jr., President, Barnard Hospital Board of Directors, Sr. M. Yvonne Meyer, SSM, President, Advertising Federation of St. Louis; Dr. Carlos A. Perez, Director, MIR Division of Radiation Oncology. Photo by Ria Munoz.*



In August, the Division of Radiation Oncology will begin weekly informational meetings for cancer patients and their families. **Rebecca Banks, ACSW**, social worker for the Division and coordinator of the project, says, "We have several goals in mind — to reduce patient anxiety and misconception; provide patients and families increased access to the radiation therapy clinical staff; and help the pa-

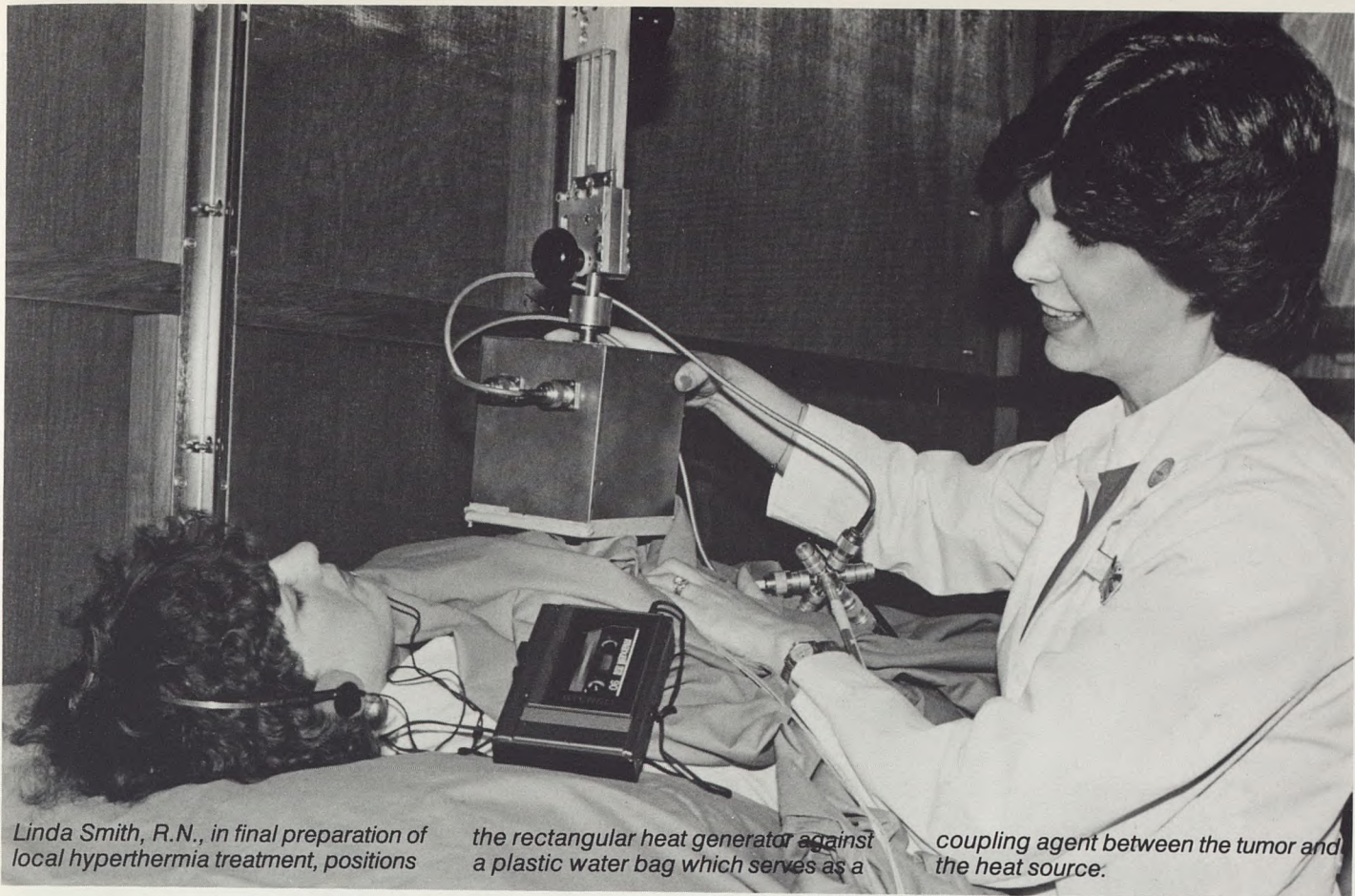
## Classes for Radiation Therapy Patients

tients get over the difficulty of beginning to discuss their feelings."

Staff members will discuss the technical, nursing care, nutrition, and psychosocial aspects of radiation therapy. Leslie Clubbs has designed flyers and posters for publicizing the program and two volunteers will offer added support by helping recruit patients to the classes.

## Elected President

**Virginia Trent**, Director of Public Relations at Mallinckrodt, was recently elected president of the Advertising Federation of St. Louis, a professional organization of persons affiliated with advertising and other communications areas. Three annual events sponsored by the AFSL include the prestigious Flair awards to honor excellence in advertising and communications; the Gridiron, a satirical commentary on local, national, and international happenings written and performed by federation members with proceeds going to cancer research; and two scholarship awards. Mrs. Trent represented the local chapter of the American Advertising Federation (AFSL) at its annual meeting in Washington, D.C., June 11-15.



*Linda Smith, R.N., in final preparation of local hyperthermia treatment, positions*

*the rectangular heat generator against a plastic water bag which serves as a*

*coupling agent between the tumor and the heat source.*

## Special Care for Patients

"I'm surrounded by trees. The air is sweet and cool, smelling of a recent rain mixed with wet moss and pine. Now and then, the wind picks up, skipping over leaves of high reaching branches, then winding its way down through the forest. There's a peace in this quiet."

Conjuring up a scene like this sounds a bit out of pace with hectic everyday life. But, for patients in either a dentist's chair or labor room, rambling thoughts such as these — once induced with therapy — have proven successful in alleviating tension and pain. At Mallinckrodt Institute of Radiology's Hyperthermia Treatment and Research Center, this form of therapy, activity therapy, is now helping patients achieve relaxation while receiving hyperthermia treatment.

In hyperthermia treatment, heat is concentrated on selected parts of the body in order to kill cancerous cells while leaving healthy cells intact. While the treatment is not painful, patients do experience anxiety associated with receiving a relatively un-

known treatment as well as discomfort from trying to stay immobile on an examination table for an hour. This regimen can be tiring since eight to ten separate sessions over four to five weeks are required for the entire treatment.

**Linda Smith**, a registered nurse in the Cancer Investigative Unit of the Division of Radiation Oncology, was concerned for the comfort and well-being of her hyperthermia patients. She discussed the problem with Cheryl Brady, an activity therapist in Barnes Hospital, who suggested a relaxation tape that focused on the specific needs of patients undergoing hyperthermia.

By working together, Linda and Cheryl were able to develop a specialized therapy tape. Cheryl wrote and recorded a script designed to lead patients to "a more peaceful state of mind" by instructing them to breathe slowly and deeply, imagining a heaviness that allows the bed to support their body weight and permits them to relax.

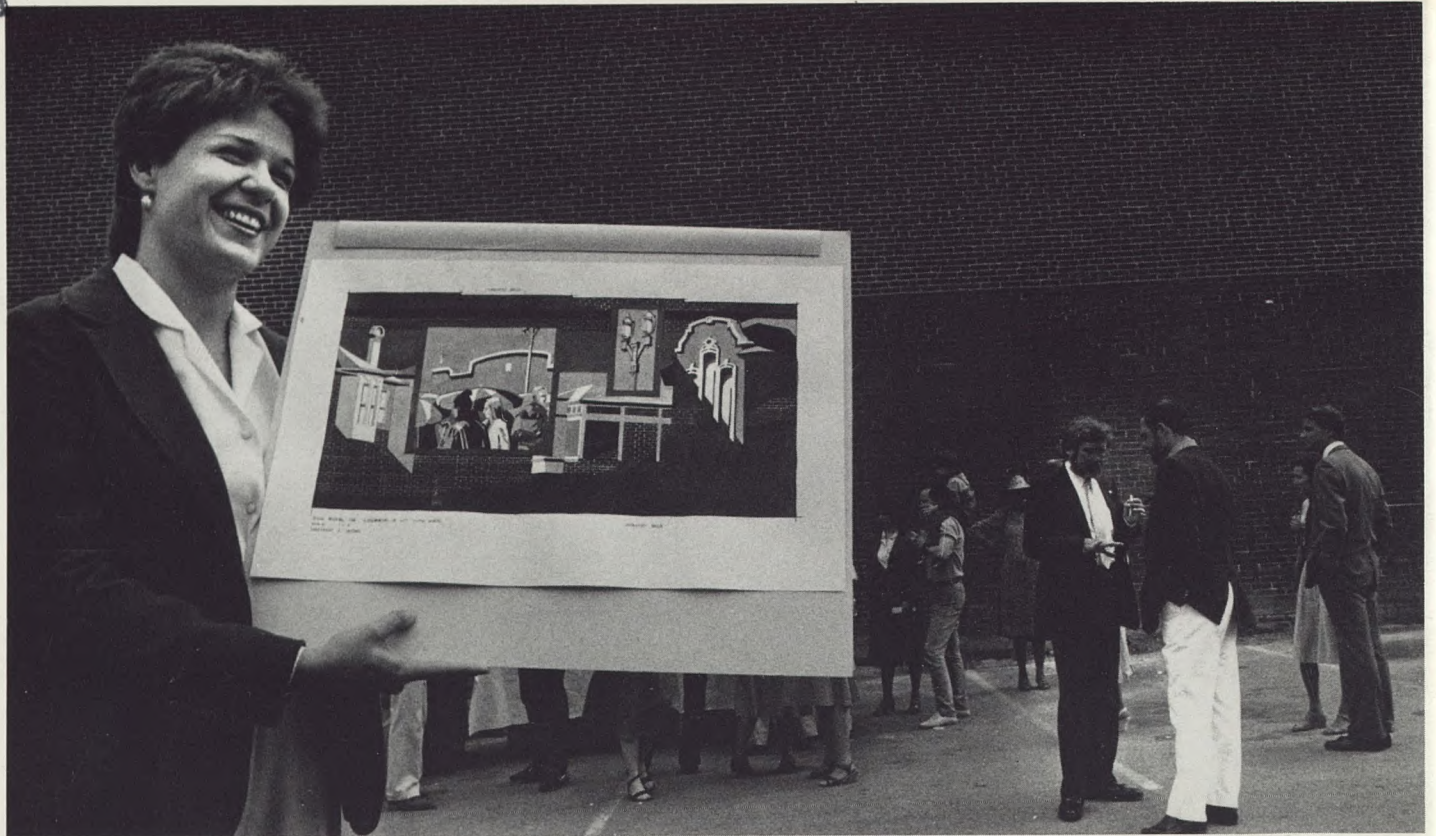
Now, during hyperthermia treat-

ment sessions, patients wear earphones and listen to a soothing voice gently encouraging them to relax each part of their body. Relaxation is gradually associated with freshness and coolness, an important aspect as the treatment involves temperatures of heat ranging from 104° to 110° Fahrenheit. Patients are then told to imagine a calm and serene place so their tranquil state will continue. During the remainder of the hour-long treatment session, patients may select any musical tape available in the tape library; whatever provides them with pleasant associations — whether it be classical, musical sound track, or country western.

"I'm pleased with how well the therapy program is working," said Linda Smith, "and am grateful for cooperation received from Cheryl Brady and her efforts to produce this special tape for our Hyperthermia Center." Currently, Linda is trying to build a tape library and welcomes donations.



Indexed



**Guest Artist**

During the month of July, Ms. Margaret Lazzari, above, will display her art work at MIR. She will receive a \$2,000 commission to transfer her winning design, a concept of city living, to a 60 x 30-foot mural site at 429 N. Euclid Avenue. Ms. Lazzari is the daughter of Vince Lazzari, supervisor of MIR electronic maintenance.

ST. LOUIS GLOBE-DEMOCRAT  
Photo by Jack Fahland



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**Virginia Trent**  
Director and Editor

**Kay Porter**  
Assistant Editor,  
Graphics

**Ria Munoz**  
Editorial Assistant

**Norman Hente**  
**Tom Murry**  
Photographers

**Return Address**  
Public Relations Department  
Mallinckrodt Institute of Radiology  
510 South Kingshighway  
St. Louis, Missouri 63110

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