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# MISSOURI RADIOGRAPHER

MAY, 1978

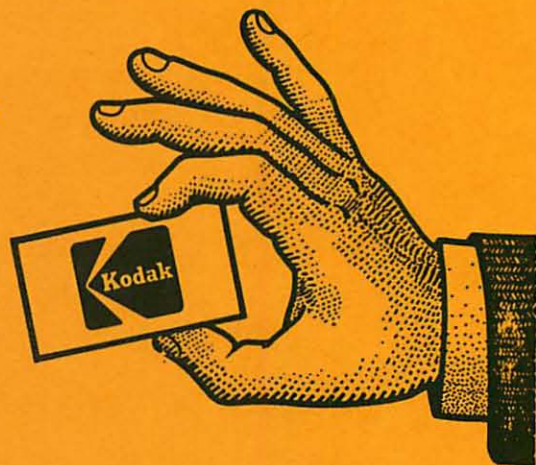
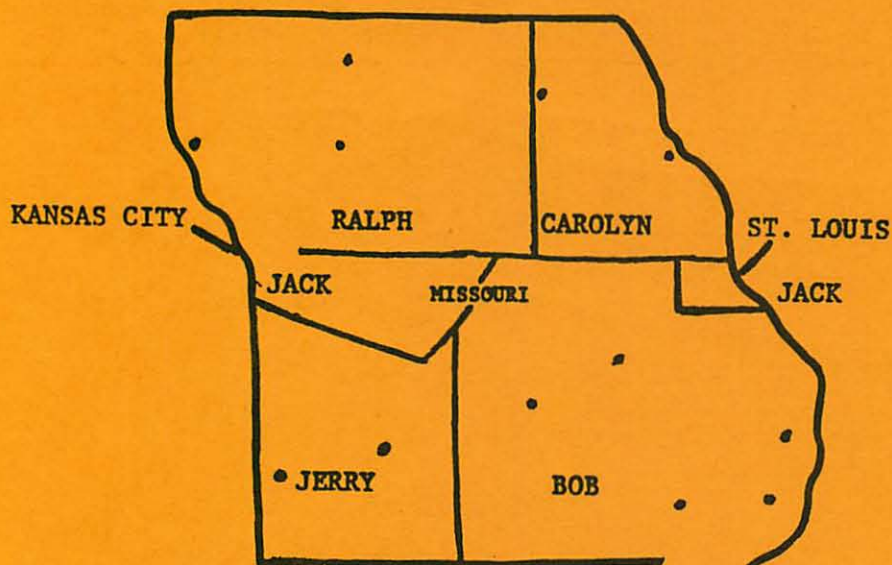


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The Co-Editors are accepting advertising space for future issues of the Missouri RADIOGRAPHER.

For information concerning advertising fees contact either of the Co-Editors: Darrell McKay, B.S., R.T. / Dwayne J. TerMaat, B.S., R.T. at: St. Louis Community College at Forest Park, 5600 Oakland, St. Louis, Missouri 63110. Phone: 314 - 644-9325.

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EDITORS NOTE

The RADIOGRAPHER is mailed quarterly to all members of the M.S.R.T. Since the RADIOGRAPHER is mailed third class, all members may not receive their journal at the same time. Please allow two or three weeks to receive your journal after the published publication date.

The Editors

PRESIDENTS MESSAGE

Greetings!

As I began this note to the membership, my thoughts began to wander. I can see from my window a tree with beautiful spring blossoms and my thoughts turn to the time of the year - "Spring".

Spring is a time of rebirth, a time of total renewal. I believe this can be a springtime for the Missouri Society also. We already have the beginning of this renewal. During the past months the society has been very busy. One area of activity has been licensure. As was reported in the last issue of the RADIOGRAPHER, our Licensure Bill (H.B. 1648) was placed in a committee and had been given a hearing. It has since been added to the House of Representatives calendar for consideration.

The Licensure Committee has had a mailing, asking the members of the M.S.R.T. to write their local Representatives in support of our bill. As President of the M.S.R.T., I have written each Representative, expressing our support for the bill. It was reported at the April meeting of the Board of Directors, that several members of the Board received letters from their Representative expressing a favorable opinion of the bill. From this information, it sounds as if we are being heard in Jefferson City.

I believe being heard is a very big step forward for us.

Another area of activity for our society has been in education. The Education Committee Chairman, Ron Ott, R.T. has done a great job. Three seminars have been arranged. One seminar was for students which was held in Columbia on March 18. The total registration for that seminar was seventy-five students. This type of response from students is very encouraging for they are the future of our profession as well as of our society. The second seminar is to be held in Columbia, April 21 and 22. It is still early to predict the outcome of this seminar, but as of this writing pre-registration is very promising. The third seminar is planned for St. Louis and is geared for educators. This seminar was originally planned for March 3rd and 4th but due to snow we were forced to cancel it. Due to the excellent response shown in the pre-registration figures, the seminar was rescheduled for June 16th and 17th. Sounds like the Education Committee has been busy!

Education and Licensure haven't been the only busy areas. I had the privilege to visit Joplin, Missouri this month. Joplin, for those who are not aware of it, is the site for the 1978 Annual Meeting. I was very happy with the progress which has been made by the different committees working on the convention. The Convention Chairman, Wiley Beals, R.T., reported on the general program during my visit and it sounds like the convention will be a very good educational opportunity for all of us. I should add that they have some very fun activities planned also.

As you can see from these examples of activity, your state society is moving. This is only the beginning, we must have more support and participation from all of our members.

Get involved with the Spring of the M.S.R.T.

Aona DeClue, R.T.  
President, M.S.R.T.

### CHILD SKULL RADIOGRAPHY

by Michael Reveal

At 8:30 p.m. nine year old John B. was wheeled into the radiology department of a large metropolitan children's hospital. He was lying on a stretcher, face up, big sand bags holding his head tightly so he could not move it. He was accompanied by a young nurse and his mother, who was visibly upset and nervous. John's eyes moved about taking in all the new and strange sights of an X-ray department. His eyes were pale and lusterless. He talked in hushed tones to his mother who held and patted his hand. Shortly, John was taken into an X-ray room and the all too familiar "skull series" was obtained by the staff radiographer with the help of an anxious, but willing mother. John would be hospitalized for observation and released the next day -- negative skull series,

normal neurological responses.

Young John B. was lucky. Hit by a slow moving car and thrown to the ground hitting the back of his head, John managed to escape severe injury. The unlucky are some 200,000 infants and children a year who are hospitalized for severe head trauma. Over 2000 of these children are so severely injured they die, despite proper medical care. (6)

An awesome figure, yet tragically the greatest incidence of skull trauma occurs in children and young adults. Yet how much training and experience does the average X-ray technologist receive in pediatric radiography, particularly in specialized cases of acute skull trauma? Admittedly, the training is minimal. Experience appears to be the favored method of instruction, yet often at the expense of the patient. It is the purpose of this paper to fill somewhat that gap between formal training and sometimes bitter experience by presenting some of the medical/technical aspects of child skull radiography.

- - - - -

Radiography of the severely traumatized skull is no routine examination. Many factors complicate the situation faced by the technologist. For example, skull trauma which results in the anatomic disruption of the skull, i.e. fracture, may suggest the presence of brain damage. This is an extremely critical situation that the radiographer must recognize and he must insure that the patient's condition is not compromised because of the examination. Especially in view of the fact that statistical evidence indicates that fatal head injury is associated with fractures of the skull in 75% of the cases reported. (5) In addition, most head injured patients present with multiple injuries and hence extra care is required in handling these patients. Often these injuries involve the spine, therefore good immobilization, careful transport, and minimal manipulation of the head is a must to avoid further injury or even death. To further complicate the situation encountered by the technologist, the possibility of sudden cardiovascular collapse or respiratory arrest is ever present especially in the more severe cases. Optimally the rooms used for such emergency work should have oxygen, suction, and resuscitation equipment immediately available in the room.

Thus, radiography of the traumatized skull provides perhaps the supreme challenge to a radiographer, especially when the patient is a frightened two year old or a stubborn three year old. How then does the radiographer proceed?

Because a large percentage of head trauma is associated with injury to the cervical spine, most emergency centers require a lateral cervical spine projection to be taken first and read by either the radiologist or the attending physician to rule out any cervical spine damage. If this film is positive, the patient's neck is stabilized and skull films are obtained later. But if the cervical spine radiograph is negative, the technologist may proceed



carefully to complete the examination.

Normally, all projections are taken supine and include as a minimum the anterior-posterior (or AP reverse Caldwell), both laterals, and the occipital or Townes projection. Because minimal manipulation of the patient is always a prime factor, basilar views are always contraindicated on patients who present with severe acute symptoms. Lateral supine views employing an horizontal beam are taken to demonstrate fluid/air levels in the sphenoid and maxillary sinuses. These views provide evidence of internal compound fractures which otherwise are difficult to demonstrate in conventional views. In addition, tangential views of the skull are often necessary to adequately demonstrate depressed fractures. These additional projections should be taken by the radiographer when the history of the patient suggests such a study to provide the best diagnostic work up possible.

Aside from careful positioning, other factors contribute greatly to the quality production of diagnostic skull radiographs. These include a) close collimation, b) the use of the small focal spot, c) target-film distance between 32-46 inches, d) par speed intensifying screens (slow speed screens are used only when special views requiring increased definition are required), and e) a reciprocating grid of 8:1 or 10:1. Some authors recommend the use of a stationary grid for coned down views of the sella turcica.<sup>(5)</sup> High energy 3-phase generation is also recommended to provide extremely fast times to obviate the most critical factor in obtaining good radiographs of the skull trauma victim, and that is motion.

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Elimination of motion is the key to good diagnostic radiographs. Motion alone contributes to a greater loss of detail than any other factor. Mastery of motion, i.e. how to prevent it, is the mark of an accomplished radiographer. Motion is not such a critical problem with children over four or five years of age. They are unpredictable when injured, however, but they are usually able to hold their head quietly enough and follow instructions well enough that adequate films can be obtained. The true challenges are those children under four years of age who do not completely understand what is happening and actively rebel against being handled by total strangers despite the severity of their injury.

Proper and sufficient restraint is the only answer in such cases. It is far better to take the time to properly restrain the uncooperative child than to attempt to juggle and compromise on the selection of technical factors usually to the detriment of the diagnostic quality of the resultant radiographs. There exist several commercially available restraining devices designed to effectively restrain a child in various positions for different examinations. Each has its distinct advantages and disadvantages. Rarely, if ever, are they employed to their fullest potential;

the excuse being that they are too complicated or too bulky and take too much time to assemble. Most restraining aids lay disused in some remote corner of the department.

Thus, perhaps the simplest and easiest method of restraint is the time-honored sheet-wrapping technique.<sup>(2)</sup> A sheet or other suitable material is wrapped around the child pinning the arms and legs to the body, effectively eliminating their movement. A sand bag or compression band is placed over the knees and shoulders and the child's head is aligned to the center of the table. The skull is then effectively held in position during filming with radiolucent pads, sand bags, tape, or small compression bands. At last resort the patient's head is steadied in position by an aide or a parent properly protected with an apron and lead lined gloves.

The advisability of the sheet wrapping technique is dependent upon the severity and extent of other injuries, of course. The sheet placement can be modified depending upon the nature of the injuries to the extremities. Normally, if the child is severely injured, he will not be as difficult to manage and position as the less injured patient who is still capable of vigorous movement without too much pain.

A commercial product which essentially achieves the same end as the sheet wrapping technique is available. Consisting of a large bag filled with weighted pellets, it can be effectively molded around the patient to inhibit gross movement. It is designed for infants and young toddlers. It is not very effective for older children or even an active strong three year old and because it is used again and again the likelihood of cross contamination is ever present.

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Essentially, however, no amount of classroom training or practice with restraining devices will compensate for lack of experience actually dealing with fractious children and/or the severely traumatized child. Moreover, the child whose head injury is actually inflicted by an adult -- the now famous "battered-child syndrome" -- required a great deal of skill and patience on the part of the technologist in properly handling the child to produce the best diagnostic films with the least amount of psychological trauma or effects to the child because of the examination.

The approach of the radiographer toward the child actually depends upon the age, the mental and physical development of the child, and the child's past medical history, irregardless of the extent of injury.<sup>(9)</sup> (For example, most mentally retarded children will have to be restrained no matter what their age.) Various approaches to children can be demonstrated in a psychology seminar, yet they are internalized only through experience. Experience with children teaches that some children will not respond to friendly chatter at all, and that no amount of cuddling or playful chit-chat

will stop a small three year old from screaming from the beginning to the end of an exam; that infants are terribly disturbed by loud noises or talking and that children between six and twelve months will usually panic and cry when held by anyone other than the parent. Also with experience comes the realization that sometimes the quick distraction is the only way to obtain a motionless skull film. Working quickly and methodically, yet cheerfully, provides the best results usually without any additional physical or psychological trauma to the child.

It is impossible to judge the extent of any psychological trauma, however, which may or may not be experienced by the child in the X-ray department. Yet the dedicated radiographer should be aware that it can occur and act to minimize the possibility. Suffering any type of head trauma is quite enough for the child without the added complication of a frightening experience on the cold table of an X-ray room, restrained from any major movement and with his head held tightly by either a parent or radiology assistant. The radiographer should make every effort to develop a good patient (parent)-technologist rapport, explaining the exam, and proceeding quickly and cheerfully to reduce the chance of any psychological trauma. Experience has demonstrated that good patient-technologist rapport not only results in reduced psychological after-effects, but also is often the determining factor in achieving excellent diagnostic films.

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Knowledge of the types of fractures that occur in young patients is especially important. This knowledge will help the radiographer evaluate how to handle the trauma patient, and which type of extra films will be necessary to provide the best diagnostic service to the attending physician.

Most skull fractures in infants and toddlers are linear, usually non-depressed and heal relatively quickly. In older children depressed fractures are noted, yet they are still considered uncommon. In one study<sup>(6)</sup>, 33% of the fractures observed occurred in the frontal bone, 46% in the parietal, 10% in the temporal, and 11% in the occipital.

Linear fractures (see Figure 1 & 2) appear as lines of decreased density, usually straighter than meningeal grooves and normally longer than demonstrated on the radiograph. Comminuted fractures are frequently compound and involve depressed skull fragments. They are normally the result of severe head trauma, involving penetrating objects. The fracture lines often present a stellate configuration radiating out from the central point of impact. Often such a fracture, especially in the occipital region, is suggestive of the "battered child" and particular care should be taken with this child. (If abuse is suspected a report should be made to the radiology supervisor or the attending physician, if possible.)



Figure 1. This 8 year old male suffered a non-depressed linear fracture of the left frontal bone. This type of fracture is fairly common. The patient complained only of drowsiness, headache, and nausea. He was admitted and later discharged.

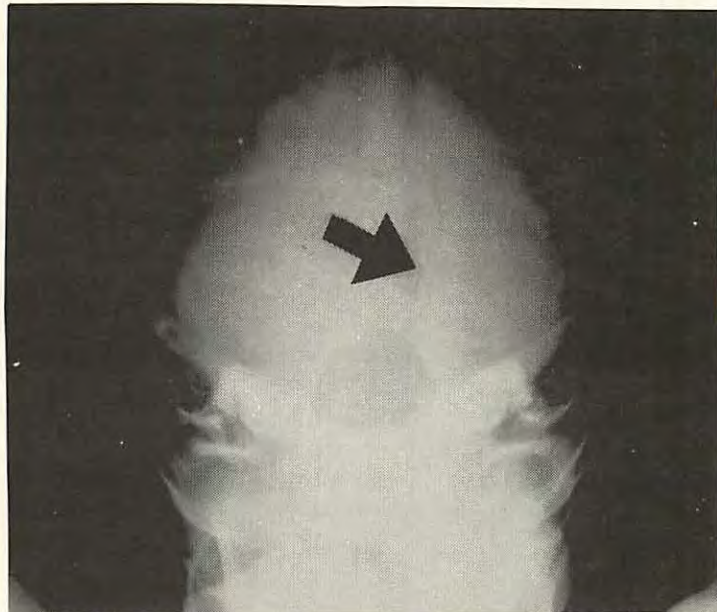


Figure 2. This radiograph is of a 27 month old male. The arrow indicates a long linear fracture of the occiput running from the superior portion into the foramen magnum. There is no evidence of depressed fracture.



Figure 3. The arrow points to a long linear line of increased bone density in the right superior parietal area of a 7 month old male. The density is indented 1 cm. and is felt to represent a depressed fracture of a fragment 4 to 5 cm. long.

Depressed fractures (see Figure 3) statistically are nearly always associated with comminuted fractures, except in rare instances involving infants. They often appear on the radiograph as a line or shadow of increased density caused by overlapping of bony margins or fragments. A relatively common fracture in children is the traumatic separation of the sutures, known as diastatic fracture (see Figure 4). Except in cases of fracture of the superior sagittal suture, the child's head will normally appear asymmetrical on the radiograph. To evaluate this fracture it is extremely important to be familiar with the position, configuration, and variations of the suture lines in small children remembering that they normally will look somewhat open because of the patient's age.

It is extremely important to note that even though at first glance no fracture is apparent, no plain film study directly can exclude or establish the presence of epi-or, subdural hematoma, subarachnoid hemorrhage, or brain damage.<sup>(3)</sup> Thus, if the child has acute symptoms be aware of the problems of maintaining homeostasis and expedite the exam to return the patient to the emergency room for further treatment.



Figure 4. This is an example of diastatic fractures in the infant skull. Note that both the lambdoidal and coronal sutures are separated beyond their normal limits. Increased intercranial pressure was suspected.

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In one clinical study conducted by Bell and Loop (1), of the 1500 cases of head trauma reported only 93 fractures of all types were discovered. Statistically, even though skull series were obtained for all 1500 patients, very few actually had suffered severe enough trauma to fracture the skull. Most authors agree that radiography of the traumatized skull is necessary for 1) the demonstration of the relationship of possible fracture lines to vascular grooves as a means of evaluating intracranial bleeding, and 2) the detection of foreign bodies and depressed skull fragments (8). These medical reasons are fairly obvious. Yet it should be noted that even though severe head trauma admittedly causes some injury to all the cranial structures, including the brain, blood vessels, bone and scalp, the mere presence or absence of a fracture rarely has any bearing on the patient's treatment or eventual hospitalization. Clinical experience in pediatric radiology suggests that radiographs of the skull are requested more out of habit and for medico-legal reasons than the above mentioned medical considerations (8).

Long and others contest that the unnecessary request for radiographs of the skull is an extreme waste of time and money. They calculated that a more conservative approach to skull radiography would realize a net savings of over 15 million dollars. Obviously, it is difficult to rationalize the savings of millions of dollars with the chance finding of the 1 in 500 depressed skull fracture. (It would hardly be chance, however, because

history would suggest the possibility of a depressed fracture.) Yet the ordering of skull films indiscriminately, as some would maintain, whenever there is any evidence of skin damage or scalp wound, seems to be excessive. As in all things, moderation is perhaps the best answer.

A reappraisal of medico-legal responsibility is extremely important. As one author<sup>(8)</sup> pointed out medico-legal is a dual term, each one dependent upon the other. Assessment of head trauma is a medical area. If there exists no criteria for medical recourse, i.e. skull radiography, then it is sine qua non that no legal recourse exists. Logically the argument is sound. It is hoped in the future that the courts will validate this logic and effectively curtail the ever present specter of medico-legal repercussions in the assessment of skull trauma and the necessity to rule out fractures.

In light of all this discussion, where does the technologist stand? The technologist stands as a highly skilled member of the diagnostic team of specialists required by a strong code of ethics to provide the best diagnostic service possible to the public. But to provide the very best in diagnostic service and patient care, the radiographer must bear in mind that, as Matson states, quoted in Roberts<sup>(8)</sup>, radiographs of the skull

"seldom contribute any essential information in the acute (emphasis added) phase of injury and are contraindicated in a frightened, overactive, unmanageable child, or in the presence of shock or a poor airway."

In other words, it might even be to the detriment of the child to even attempt to obtain skull radiographs on an uncooperative child. Thus, irregardless of why the skull series was ordered, be it for medico-legal or other reasons, the radiographer must use his considered judgment based upon knowledge and experience when to suggest an examination might best be postponed. Once the child's condition has been stabilized, and the child is more cooperative, then films can be obtained when the actual examination will not compromise the condition of the child.

However, eventual selective or postponed radiography is a matter for consultation between the attending physician and the radiology department supervisor or radiologist. The skilled radiographer must be able to meet the challenge of any circumstance and perform well. The radiographer will be able to do this if he is equipped with a knowledge of the criteria for various fractures and a knowledge of how to demonstrate adequately the fracture suggested by the patient's medical history.

Child skull radiography, thus, is a challenging area, requiring an expertise and a knowledge that at present only comes with experience and dedicated study. Unfortunately, the number of head trauma cases increases yearly, and the chances are increasing that some day the staff radiographer will be faced with a situation that will demand his best effort. Hopefully, he will

have prepared in advance for that day so that the challenge of a traumatized child will be efficiently and expertly met and his role in the diagnostic team will be accomplished to his and the profession's credit.

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Note: "Radiographs and diagnostic information courtesy Department of Radiology, Deaconess Hospital, St. Louis, Missouri".

### DATES TO REMEMBER

- |                    |   |
|--------------------|---|
| June 16 & 17, 1978 | Educators Seminar<br>St. Louis Community College at<br>Forest Park<br>St. Louis, Missouri |
| June 17, 1978      | Radiation Therapy Technologist<br>Meeting<br>St. Louis, Missouri                          |
| July 14-21, 1978   | A.S.R.T. Annual Meeting<br>Anaheim, California  |



(dates to remember cont.)

October 19-21, 1978

M.S.R.T. Annual Meeting  
Joplin, Missouri

BOARD NEWS

The April meeting of the Board of Directors was held at the Holiday Inn West, St. Louis, Mo. on April 15 from 10:00 a.m. until 6:15 p.m. All officers, executive board and three district representatives were in attendance.

It was with a feeling of regret that the Board accepted the resignation of Robert Rein as Convention Coordinator. We are extremely grateful for the help and guidance Robert has given. If there is any member who would be interested in applying for the position please contact the Chairman of the Board for further information.

The people from the fifth district are working very hard to make the 1978 annual meeting in Joplin one of the best. There will be topics of interest for everyone.

Our new seventh district (radiation therapy technologists) met in Kansas City March 11 where they approved their bylaws and elected officers.

The student seminar held March 18 was quite successful with a total registration of seventy-five. Unfortunately, the seminar for educators which was scheduled for March 3 and 4 had to be cancelled due to bad weather; however, since the response was so good, it has been rescheduled for June 16 and 17 in St. Louis.

Because of a lack of direction and a feeling of duplicated effort, the Board voted to discontinue the Professional Affairs Committee for the time being.

The next meeting of the Board of Directors will be held in Joplin on July 8. If there is any information you wish the Board to have, please convey it to your District Representative or contact another member of the Board.

Mary Sebacher, Chairman  
Board of Directors, M.S.R.T.

NEWS UPDATE FROM YOUR A.S.R.T. REGIONAL DIRECTOR

First of all, I want to thank all of you who took the time to respond to the AMA regarding the Radiography Essentials. The response was overwhelming. The ASRT received copies of over 2100 letters that were written, in addition to copies of petitions with over 1500 signatures on them.

The hearing went extremely well -- the way the technologists

conducted themselves made me very proud to be a technologist. I just received a letter from Neta McKnight, R.T. (ARRT) who is a trustee of the ARRT and was at the meeting. I'd like to quote from that letter. She said, "Although I have been a member over 20 years, I have never felt quite as much pride and respect for my professional organization as I did in Tampa, Florida. The strategy organized by the ASRT was incredible."

"There was a feeling of unity and support in that room that I personally have never witnessed in the profession. This may be the beginning of a new era." I certainly share her feelings.

Your next question probably is, "Where do we go from here?" The AMA Council on Continuing Education did not approve the Essentials as they were amended by CAHEA. We were heard!!! There has since been a meeting of the interested parties and the Essentials have been rewritten to include the points that we had protested being omitted. The Essentials will now go to the American College of Radiology in April for their approval and then to the ASRT in July for ours. Hopefully they will be in effect yet this year.

Last month I attended the meeting of the Council on Continuing Education which is supported by the ASRT. It was very gratifying to see this Council making great strides toward providing continuing education opportunities for all technologists. They are reviewing a huge amount of material in an attempt to provide technologists with quality continuing education. The Counselors in Missouri, Dennis Hronek and Mark Russell, have a list of the current material that is available as does Sister LaVerne Ramaeker who is the Zone Chairman for the states which include Missouri. I will list the addresses of your Counselors and Zone Chairman at the bottom of this letter so that you will have them for a handy reference. If you are looking for self-study material as well as material that you can use for District or Inservice meetings, let them know.

I do hope that a large number of you are planning to attend the Annual Meeting of the ASRT in Anaheim, California this summer. I think that you will find that this meeting is a good investment in your professional life.

Please let me know if you have any questions that I may be able to answer.

Marilyn Holland, R.T. (ARRT) Regional Director  
1630 Quincent Drive  
Iowa City, Iowa 52240

#### M.S.R.T. MEMBERSHIP

Can your department staff achieve 100% membership in the M.S.R.T.? If you can, your institution will join this prestigious list:

- |  |
|--|
| <ol style="list-style-type: none"> <li>1. TRUMAN MEDICAL CENTER<br/>Kansas City, Missouri<br/>24 members</li> <li>2. FARMINGTON COMMUNITY HOSPITAL<br/>Farmington, Missouri<br/>5 members</li> </ol> |
|--|

Join The Missouri Society of Radiologic Technologists . . .

FEES:

ACTIVE MEMBER . . . . . Annual Dues . . . . . \$10.00

Paid-up active members of the American Society of Radiologic Technologists

ASSOCIATE MEMBER . . . . . Annual Dues . . . . . \$10.00

Non-member of ASRT, actively practicing Radiologic Technology

IN-ACTIVE MEMBER . . . . . Annual Dues . . . . . \$ 5.00

Former active members, no longer practicing Radiologic Technology

STUDENT MEMBER . . . . . Annual Dues . . . . . \$ 5.00

Student in approved School of Radiologic Technology

SUPPORTING MEMBER . . . . . Annual Dues . . . . . \$10.00

Persons interested in Radiologic Technology, not having qualifications for other categories

Make Remittances Payable to: The Missouri Society of Radiologic Technologists

Mail to: Henry Cashion, R.T., Treasurer, Missouri Society of Radiologic Technologists, P.O. Box 67, Farmington, Mo. 63640

NAME: \_\_\_\_\_  
Last (comma) First Initial

ADDRESS: \_\_\_\_\_  
City: \_\_\_\_\_  
State: \_\_\_\_\_ Zip: \_\_\_\_\_

RECOMMENDED BY: \_\_\_\_\_  
(Member of the Missouri Society of Radiologic Technologists)

MEMBERSHIP CATEGORY: \_\_\_\_\_

ESSAY COMPETITION RULES AND REGULATIONS OF  
THE MISSOURI SOCIETY OF RADIOLOGIC TECHNOLOGISTS

I. AWARDS

First, second and third place awards will be offered in both the Graduate and Student Technologists categories. Awards will be made at the discretion of the judges.

II. ELIGIBILITY

- A. Graduate Technologist Category: Only Technologists who are active members of the Missouri Society of Radiologic Technologists are eligible to compete. However, student technologists may be designated as co-authors if they have made a significant but secondary contribution to the work.
- B. Student Technologist Category: Student Technologists must be the sole author of the manuscript submitted and shall not have had a secondary contribution by a graduate technologist.
- C. The following are not eligible: Essay judges, Essay Chairman, Essay Committee members and the President of the Missouri Society of Radiologic Technologists.

III. JUDGING

- A. Handling and judging of the essays shall be the responsibility of the essay committee. At least three judges will be appointed with the approval of the President of the M.S.R.T.
- B. Judging will be done on unidentified manuscripts on the basis of the following evaluation scale.
  - 1. Originality.
    - a. Development of, or major improvement in new techniques, positioning device, etc., or significant contribution to such work carried on jointly by others. (Points 0-15)
    - b. Evidence of original effort or ingenuity, individual investigation research. Negative results of such work should not detract from point value. (Points 0-15)
  - 2. Educational or Technical Value. Contribution to higher radiologic technology standards. Treatment of known technology so as to be better understood or applied. Value to technologists with little experience, or to those with limited facilities. (Points 0-40)
  - 3. Organization of Material.
    - a. Development: Is material orderly and presented in logical sequence?
    - b. Visual material: Are drawings or illustrations used to support or promote understanding of the text? A paper will not be penalized for lack of

- illustrations if the text is self-explanatory.  
 c. References: If applicable, is the material adequately referenced? (Points 0-20)

4. Mechanics.

Grammar, spelling, punctuation, neatness, etc.  
 (Points 0-10)

- C. Identified copies of manuscripts shall be retained by the essay chairman until the judging has been completed.

IV. MANUSCRIPTS

- A. Manuscripts must be original with the author (or authors) submitting them and cannot have been previously published or accepted for publication prior to the annual meeting for which they are submitted in competition. Direct quotes and references must be so indicated.
- B. Manuscripts should be at least 1,500 words. Reading time should be 15 to 20 minutes.
- C. Manuscripts must be typed, double spaced in standard manuscript style on one side only of a good grade of white paper 8½ by 11 inches in size with wide margins and numbered pages fastened securely on the left side.
- D. Three copies must be submitted: Two unidentified and one identified.
- E. Manuscript and copies must be sent by certified mail.

V. ILLUSTRATIONS

- A. A complete set of illustrations must accompany each copy of the manuscript. Slides can be included. Illustrations such as charts, graphs or anatomical drawings can be submitted with one original and two xerox copies.
- B. Illustrations must be numbered to correspond with information in the text, labeled with a suitable legend, mounted and incorporated into the text in proper sequence or fastened to the paper in a group at the end of the manuscript.
- C. Illustrations must be submitted on 4 x 5 to 8 x 10 size paper. They should carry no identification of author, place or persona. (Note: This means faces of individuals appearing as patients, technologists or doctors which could lead to the identification of the author particularly on the unidentified copies used for judging, should be blocked out.)
- D. The author is responsible for preparing slides of all pertinent illustrations if the paper is selected for the annual meeting program. Slides additional to the illustrations contained in the text may be used in the presentation as long as the 20 minute time limit is not exceeded.

VI. DEADLINE

Manuscripts must be postmarked 45 days prior to the annual meeting. The Essay application must accompany the manuscripts. First place winners, graduate and student, will present their winning selections at the annual meeting. If the first place winners are unable to present their essay it is their responsibility to provide a substitute.

EXHIBIT COMPETITION RULES AND REGULATIONS OF  
THE MISSOURI SOCIETY OF RADIOLOGIC TECHNOLOGISTS

I. AWARDS

First, second and third place awards will be offered in both Graduate and Student Technologists categories. Awards will be made at the discretion of the judges.

II. ELIGIBILITY

A. Graduate Technologist Category: Only Technologists who are active members of the Missouri Society of Radiologic Technologists are eligible to compete. However, student technologists may be designated as co-exhibitors if they made a significant but secondary contribution to the work.

B. Student Technologist Category: Only Student Technologists who are members of the Missouri Society of Radiologic Technologists are eligible to compete.

C. The following are not eligible to compete in the exhibit competition: the president of M.S.R.T., chairman and members of the exhibit committee and exhibit judges.

III. JUDGING

Three judges shall be selected by the exhibit committee chairman with the approval of the president. The following scale shall be used to judge all exhibits:

Exhibit Judging Evaluation Scale -

	CLASSIFICATION	POINTS
Practical value to science of Radiologic Technology	Outstanding	30
	Above average	20
	Average	10
	Little or none	0
Originality of thought or preparation	Outstanding	20
	Average	10
	Little	5
	None	0
Educational value	Outstanding	20
	Average	10
	Little	5
	None	0

Technical Quality	Excellent	20
	Above Average	15
	Average	10
	Below average	5
	None	0
Presentation (include descriptive material, photographs, graphs, charts, etc.)	Excellent	10
	Average	5
	Below average	0

#### IV. RULES FOR PRESENTATION OF EXHIBIT

##### A. Subject matter

1. Exhibit subject matter will be chosen by the exhibitor.
2. The subject should be pertinent to radiologic technique, and may be supplemented by such charts, descriptive material, technical factors, photographs, etc., as are deemed necessary and that can be contained within the allotted space.
3. The exhibit should demonstrate originality of subject matter, general interest and value to other technologists from practical and educational viewpoints, and technical excellence.
4. Exhibits should show no image or markings that could identify the technologist, department, hospital or patients.
5. After judging has been completed, a separate place card may be used to give the name of the exhibitor, department and hospital.

##### B. MECHANICS

1. The M.S.R.T. will provide a maximum of four (4) 14" x 17" viewing spaces, or the technologist(s) may furnish their own light sources and one (1) 6' x 30" table for each exhibit.
2. Exhibits will not be considered for an award if they have been displayed at any radiological meetings (ACR, RSNA, AMA, etc.). However, they may be displayed on a non-competitive basis.
3. Exhibits must be the original work of the exhibitor(s).
4. All exhibits and displays must be up by 12:00 p.m., Thursday, October 19, 1978, and taken down no later than 6:00 p.m., Saturday, October 21, 1978.
5. Exhibits that do not conform to these regulations will not be considered for competition.

#### V. DEADLINE

All applications shall be sent by certified mail, and shall be postmarked no later than September 18, 1978 (thirty days prior to the Annual Meeting.)

RADIATION THERAPY NEWS

The Seventh District of the M.S.R.T. met Saturday, March 11, 1978 at 1:00 p.m., Dining Room A at St. Mary's Hospital, Kansas City, Mo. We had an excellent educational session which included "Psychological Support of the Cancer Patient" by Nadine C. Foster, R.N.O.P.; "Field Compensators" by Dr. Gene Feaster and "Recent Technical Advances in Pediatric Oncology" by Dr. Larry Doss. The educational session included three E C E points to be awarded to participating members present. This was followed by our business session, during which the By-Laws for the 7th District were discussed, amended and voted upon. You will receive copies of the amended By-Laws very soon. Officers were elected from those members present taking nominations from the floor.

PRESIDENT: Mark Russell, R.T.T., St. Louis, Mo.  
 PRES.-ELECT: Larry Oliver, R.T.T., Kansas City, Kansas  
 SEC./TREAS.: Marshia Sontag, R.T.T., Columbia, Mo.

PLANS ARE BEING MADE FOR OUR NEXT MEETING - - -

"JUNE 17, 1978 - - ST. LOUIS, MO."

Committees are now being formed. If you would like to help on or chair a committee - contact your officers immediately!

WE WANT YOU!!!

We represent YOU the technologist or student in Radiation Oncology. Please help us to carry out your request - Speak Out -. "Dynamite comes in small packages" so if we band together, even though we may be a small group, we can without a doubt produce dynamic results.

Mark has accepted to presidency so let's give him our support. Be at the June 17th meeting. It's good for you - but most of all it's good for our profession.

I'm sure all of you want to join the 7th District, so we have provided an application blank at the bottom of this letter. Don't say you're going to wait and see what the district does before you join! We've already had three (3) excellent educational Symposiums starting June 1977, - plus the formation of the District. If you haven't done anything for your profession except 8 hours a day lately, here's YOUR chance : : :



I hereby apply for Membership to the 7th district of the M.S.R.T. - -

- \$5.00 Active Member: Active members in good standing with ASRT, MSRT and registered by ARRT in Radiation Therapy.
- \$5.00 Associate Member: Persons actively practicing the art and science of Radiation Therapy Technology, but do not meet the qualifications for active membership. They shall have all the rights and privileges of an active member within the society, except the right to hold the offices of President Elect and District Representative.
- \$5.00 InActive Member: Former members no longer actively engaged in the field of Radiation Therapy Technology.
- \$2.50 Student: Members enrolled in the ARRT accredited training program.

NAME: \_\_\_\_\_

HOME ADDRESS: \_\_\_\_\_

WORK ADDRESS: \_\_\_\_\_

HOME PHONE: \_\_\_\_\_

WORK PHONE: \_\_\_\_\_

I AM APPLYING FOR MEMBERSHIP AS: \_\_\_\_\_

EMPLOYMENT CORNER

X-RAY TECHNOLOGIST - \$789/month - Manual Type  
Developing. Apply: St. Louis State School/Hospital  
867-3600.

STAFF RADIOLOGIC TECHNOLOGIST- Columbia Regional Hospital  
is a 184-bed acute care facility located in mid-Missouri.  
We offer excellent benefits and competitive salary.  
Contact: Personnel Office, Columbia Regional Hospital  
404 Keene, Columbia, Missouri 65201 Phone 314-449-7226  
ext. 521

(Employment Corner is a free service to members of the  
members of the M.S.R.T. who want to place an ad. A \$.50  
per word fee will be charged to non-members.)

Persons actively practicing the art and science of Radiation Therapy Technology, but do not meet the qualifications for active membership. They shall have all the rights and privileges of an active member within the society, except the right to hold the offices of President Elect and District Representative.

Former Members: Former members no longer actively engaged in the field of Radiation Therapy Technology.

Members enrolled in the ARRT accredited training program.

"OZARK HILLS"

M. S. R. T.

NAME  
HOME ADDRESS  
WORK ADDRESS

ANNUAL STATE MEETING

Hayride

October 19 - 21, 1978

HOME PHONE:

WORK PHONE:

Multiple Sessions

I AM APPLYING FOR MEMBERSHIP AS:

In

DIAGNOSTIC RADIOLOGY

RADIATION THERAPY

X-RAY TECHNOLOGIST - 2789/month - Manual Type  
 Developing. Apply: Columbia School/Hospital  
 867-3600.

NUCLEAR MEDICINE

ULTRA SOUND

STAFF RADIOLOGIC TECHNOLOGIST - Columbia Regional Hospital  
 is a 184-bed acute care facility located in mid-Missouri.  
 We offer excellent benefits and competitive salary.  
 Contact: Personnel Office, Columbia Regional Hospital  
 404 Keene, Columbia, Missouri 65201 Phone 314-449-7299

all for something

(Employment Corner is a free service to members of the members of the M.S.R.T. who want to place an ad. A \$2.50 per word fee will be charged to non-members.)

# Whatever Your Imaging Requirement, The Widest Choice of Film/Screen Combinations is Yours Only From Du Pont.

Regardless of your particular diagnostic procedure or your individual preference for speed or detail...  
Du Pont has the film/screen combination you need.

Here are 19 of Du Pont's film/screen combinations, including our new high-speed options.

		CRONEX® BLUE-EMITTING INTENSIFYING SCREENS			
Cronex® Medical X-ray Films		NEW Quanta III	Quanta II	Hi-Plus	Par
Cronex® 4	<b>Speed 8 Cronex® 4/ Quanta III</b> Ultra speed, image similar to Cronex® 4/Quanta II with minimal increase in noise.	<b>Speed 4 Cronex® 4/ Quanta II</b> High speed, image similar to Cronex® 4/Hi-Plus.	<b>Speed 2 Cronex® 4/ Hi-Plus</b> Industry standard at medium speed, high contrast.	<b>Speed 1 Cronex® 4/Par</b> Industry standard at Par speed, high contrast, best sharpness.	
	<b>Speed 8 Cronex® 2 DC/ Quanta III</b> Ultra speed, high contrast, image clarity of Cronex® 2DC.	<b>Speed 4 Cronex® 2DC/ Quanta II</b> High speed, high contrast, image clarity of Cronex® 2DC.	<b>Speed 2 Cronex® 2DC/ Hi-Plus</b> Medium speed, high contrast. Industry standard for 3½ minute processing.	<b>Speed 1 Cronex® 2DC/Par</b> Industry standard at Par speed and 3½ minute processing, best sharpness.	
Cronex® 6 Plus	<b>Speed 8 Cronex® 6 Plus/ Quanta III</b> Ultra speed, excellent low density contrast plus tissue visibility.	<b>Speed 4 Cronex® 6 Plus/ Quanta II</b> High speed, excellent low density contrast plus tissue visibility.	<b>Speed 2 Cronex® 6 Plus/ Hi-Plus</b> Medium speed, excellent low density contrast plus tissue visibility.	<b>Speed 1 Cronex® 6 Plus/ Par</b> Par speed, excellent low density contrast plus tissue visibility, best sharpness.	
	<b>Speed 8 Cronex® 6/ Quanta III</b> Ultra speed, wide latitude, medium contrast.	<b>Speed 4 Cronex® 6/ Quanta II</b> High speed, wide latitude, medium contrast.	<b>Speed 2 Cronex® 6/ Hi-Plus</b> Medium speed, wide latitude, medium contrast.	<b>Speed 1 Cronex® 6/Par</b> Par speed, wide latitude, medium contrast, best sharpness.	
Cronex® 7	<b>Speed 4 Cronex® 7/ Quanta III</b> High speed, less noise than Cronex® 4/Quanta II, image clarity like Cronex® 2DC.	<b>Speed 2 Cronex® 7/ Quanta II</b> Medium speed, high contrast, image clarity like Cronex® 2DC.	<b>Speed 1 Cronex® 7/ Hi-Plus</b> Par speed, high contrast, lowest noise, image clarity like Cronex® 2DC.		

St. Louis  
Bob Birkholz  
Tom Blount  
Pat Little  
314-645-2291

Kansas City  
Warren Lockeby  
Paul Nicholson  
Dave Rives  
913-381-6767

Springfield  
Peg Hoffer  
417-883-5787

**IMAGING PRODUCTS**



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