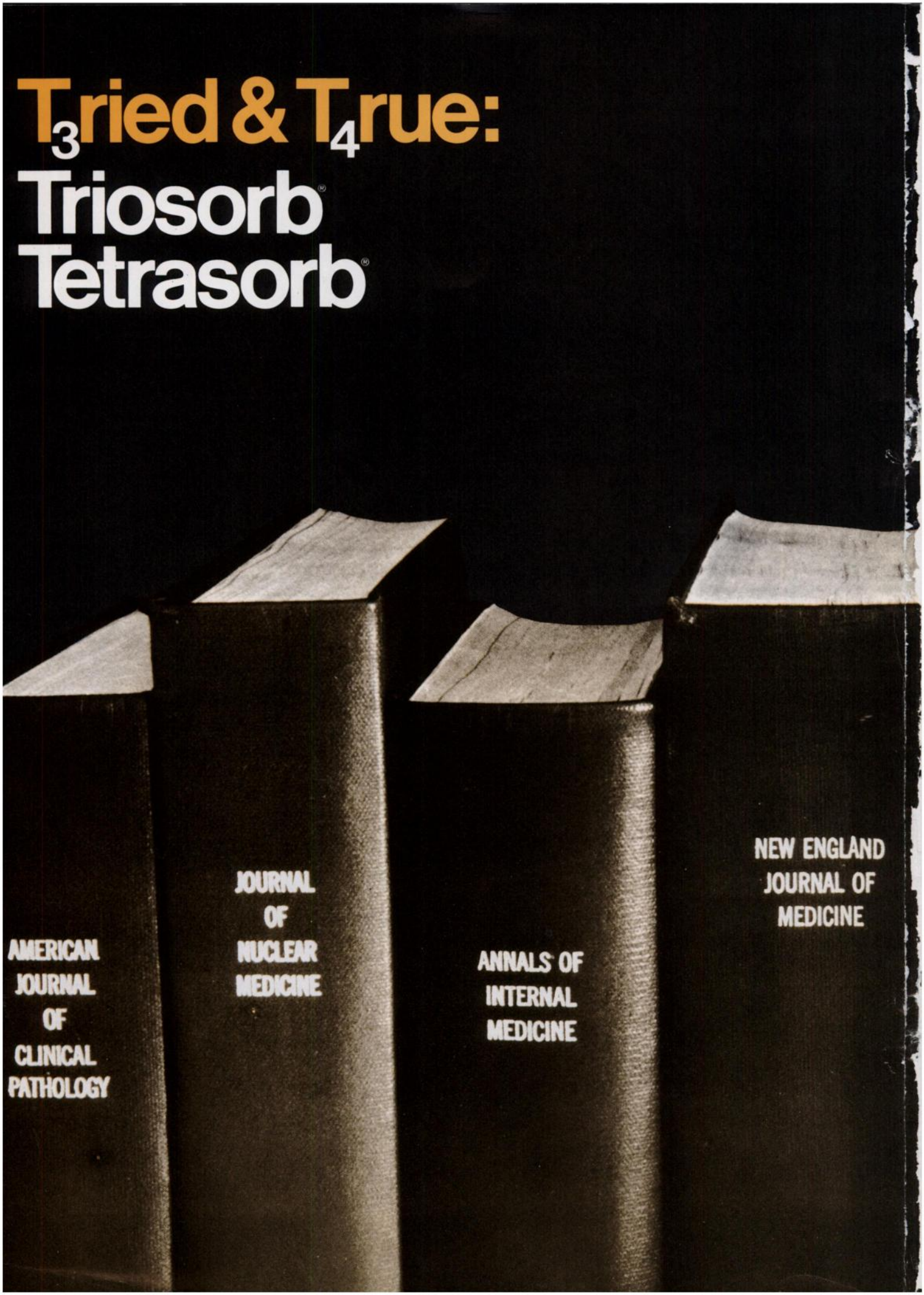
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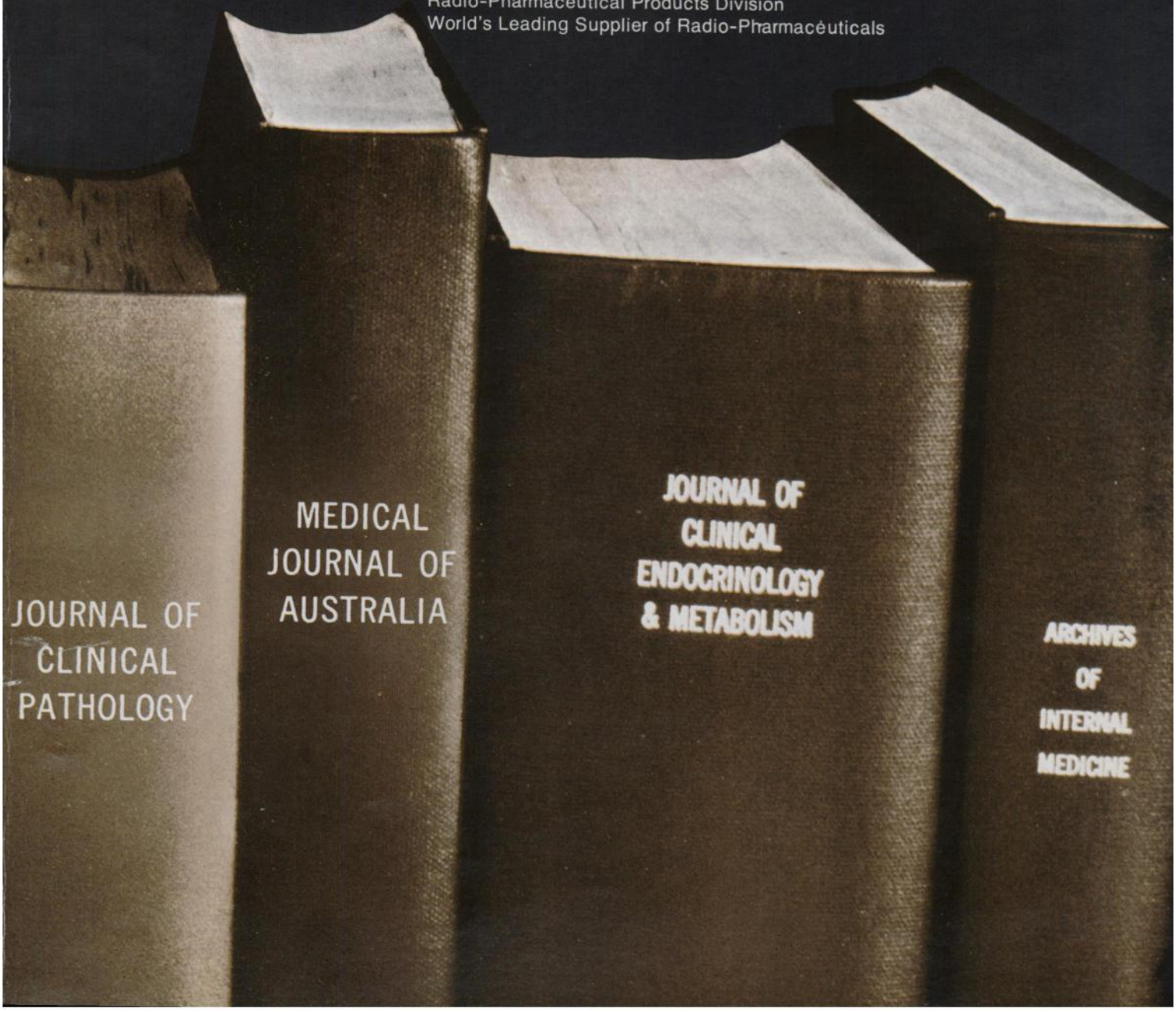

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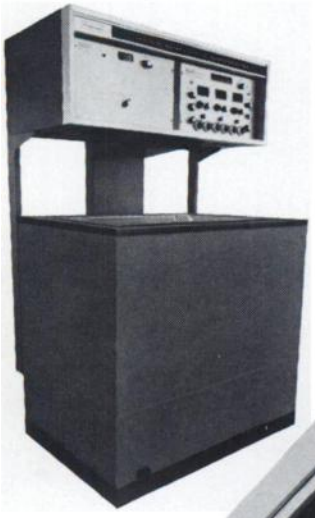

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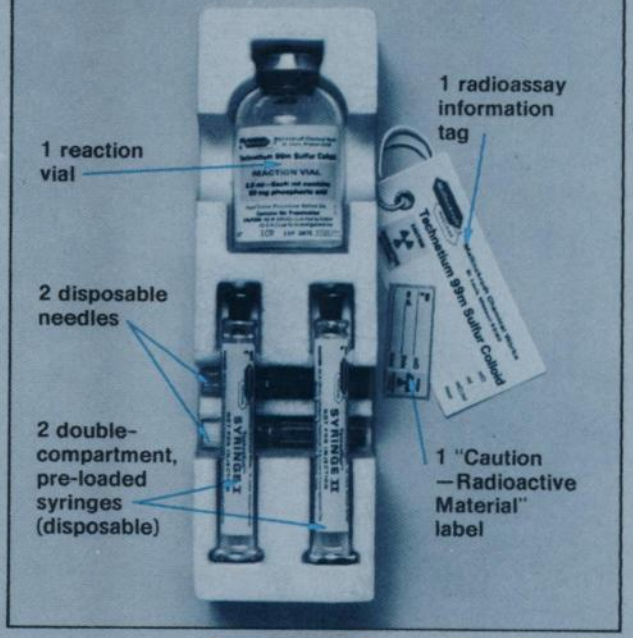

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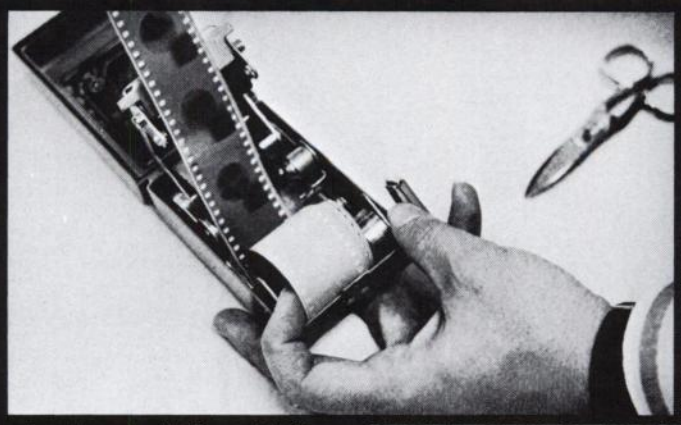

This film is Kodak RAR 2495. Other films that can be used in Poro-Pak: Kodak Panatomic X, Plus X, Tri-X, RAR 2490, 2491, 2495, 2496, Kodak High Contrast Copy, Linagraph Shellburst 2476, DuPont SR 114, GAF 125, and others.

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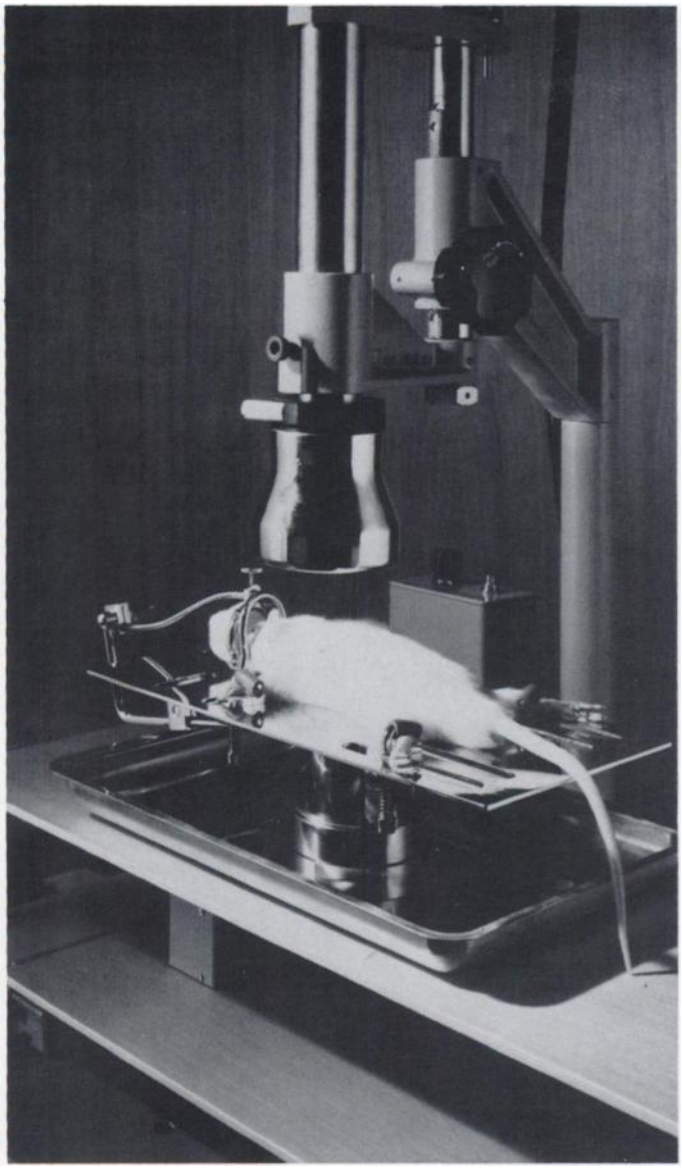
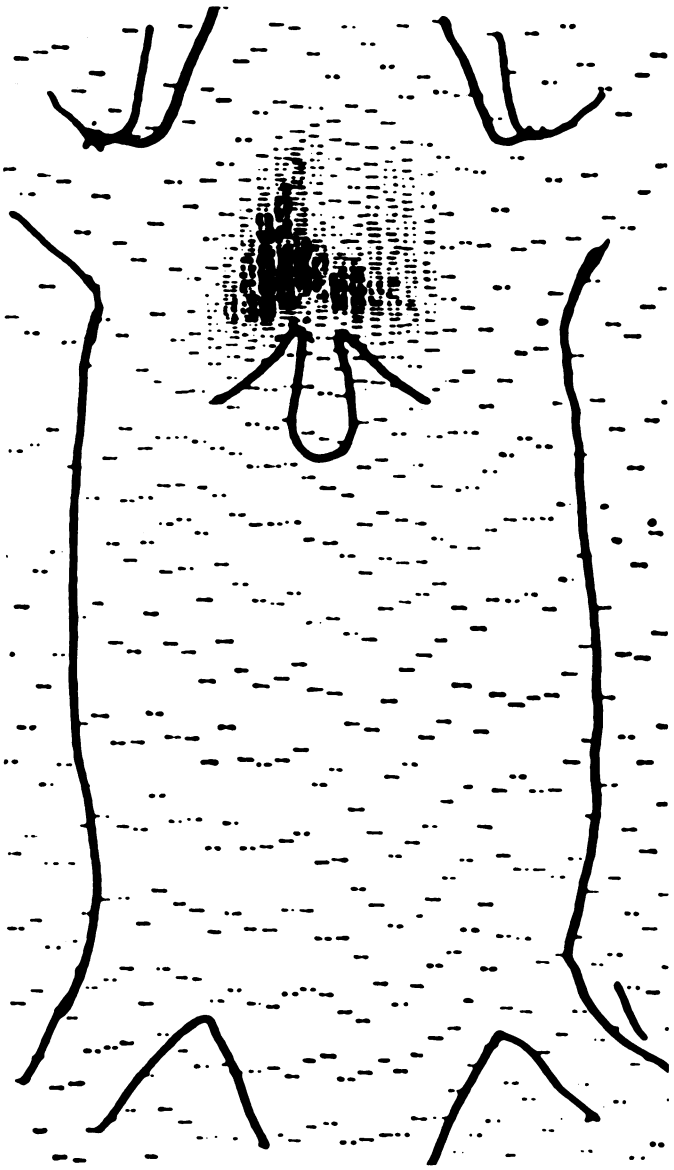




Introducing live animal scanning

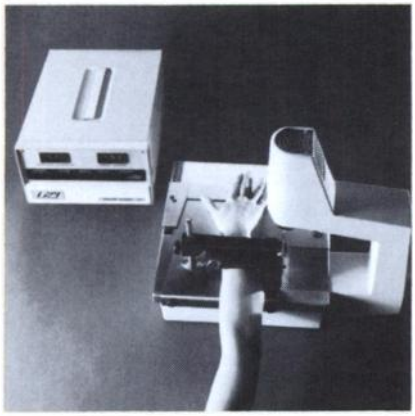
Before you sacrifice another laboratory animal, send for information on the new Varian Aerograph/Berthold Live Animal Scanner. This unique instrument locates γ-emitting isotopes in live laboratory animals rapidly and with high sensitivity. The animal is anesthetized during the scan.

Typical isotopes that can be used include ^{125}I, ^{131}I, ^{197}Hg, ^{203}Hg, ^{75}Se, and ^{241}Am.

The stretching table is of proven design for small animals. The table can be moved rectilinearly in the plane of the transport carriage, which enables you to easily make an outline drawing of the animal on the recording chart. In this way the recording of the activity distribution is directly correlated to the parts of the body of the test animal.

For complete information on this sensitive instrument, write to: Paul Batchelder, Product Manager, Varian Aerograph, 2700 Mitchell Drive, Walnut Creek, California 94598.

varian aerograph



Bone Mineral Analyzer:

Provides information for diagnosing bone diseases without biopsy or radiographs.

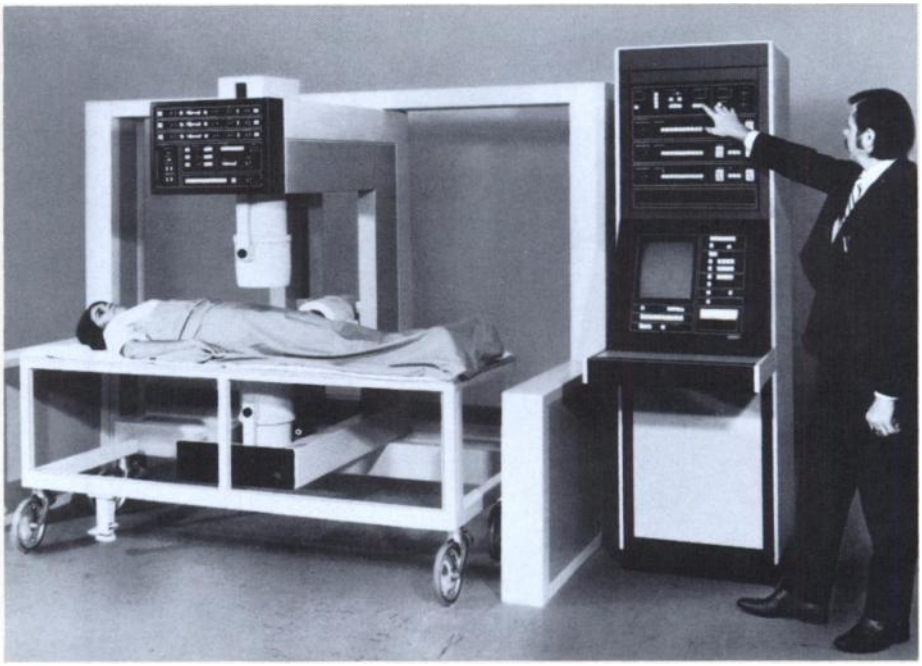
A non-invasive scanning system, for diagnosing present and potential victims of osteoporosis and a variety of other metabolic bone diseases, is being marketed by General Electric Medical Systems.

Called the Norland-Cameron Bone Mineral Analyzer, the system permits precise measurement of changes and/or losses in bone mineral content and bone width. This indicates an increasing susceptibility to painful fractures, a problem which affects millions of persons, particularly the middle aged and elderly.

Now, with this system, potential victims can be identified in minutes; and, identified problems can be quantitatively assessed at various stages of progress.

The Bone Mineral Analyzer includes a scanner, which automatically transports a closely collimated beam of monoenergetic gamma rays (^{125}I) across the limb in a programmed pattern. The generated data is transmitted to a computer which then calculates the mineral content and bone width and displays measurements in digital readouts.

The system is compact, readily portable and easy to operate. Following its natural decaying process, the isotope used can be purchased from General Electric.



Three-Probe Whole-Body Scanner:

Delivers maximum scan data in minimum time per procedure.

Three views — AP, PA and lateral of the whole body or any desired area — may now be completed simultaneously with General Electric's new three-probe, whole-body digital scanner.

Easy-yet-precise thumbwheel and push button settings, for a combination of exclusive scanner features, require less training for the operator. This means the unit reduces the chance of technic errors while it makes available the accurate scan data needed for diagnoses.

For whole-body procedures, the scanner can be preset to minify the image up to 5:1. Easily includes even an 80-inch tall patient (24 inches wide) on a 14 x 17 inch film area. And, it's the whole-body scanner capable of making vertical plane scans.

Counts picked up by the three probes can be entered in the display memory as digital information. This provides count information in a choice of: digital display, using burnout-proof, light-emitting diodes with a seven-segment digital readout and floating decimal point; photorecording on 14 x 17 inch film; optional storage scope that can display the scan as it progresses; GE's unique Videodisplay presentation, with full-count, fully functional color and push button image manipulation capability; plus photographic reproduction of the TV image.

The three-probe scanner also combines the many automatic features offered with GE's single-probe digital scanner. They include automatic selection of scanning speed, and automatic scalloping corrections. Also incorporated are a built-in scaler; push button probe position; eleven line spacing selections; plus rugged, built-to-last construction.

The unit can be obtained with all three probes at once; or, with one probe and the option to add the other two, individually as needed.

Videodisplay of Digital Scans:

Extends the diagnostic value of any scanner.

Accurate patient count information, recorded at every point of every scan, can now be displayed and viewed on a TV monitor in full-count, fully-functional color.

The General Electric Videodisplay and Processing Unit provides this new electronic visualization capability, aiding in the interpretation and diagnosis of scans.

It can be used on line with the GE single- or three-probe digital scanners; and, can interface with virtually any analogue or digital scanner in use today to extend its diagnostic information capability.

The Videodisplay records and stores, in its memory, all of the patient count data from each scan. With the push of a button, this data is instantly displayed on the monitor in eight vivid colors, each of which represents a specific number of counts at that point on the scan.

Any scan data in the unit's memory can be instantly manipulated, with push button and thumbwheel controls, to enhance desired details. Eliminate colors to display isocount areas. Change from color to shades of gray. Determine the count at any point, along any X or Y line, within rectangular areas. And more. Yet, all information remains in the unit's memory, fully and immediately recoverable.

Any scan can be photographed, directly from the monitor, for patient records. And, any scan in the memory can be recorded on cassette tape, in only 40 seconds, for future use. It can be fed back into the memory of any Videodisplay unit just as fast.

In addition, any Videodisplay image, whether taped or a direct scan, can be transmitted to any other Videodisplay unit over regular telephone lines. The same scan can be viewed simultaneously by doctors at both locations; and, can then be independently manipulated and/or recorded at each Videodisplay unit.

Single Probe Digital Scanner:

Makes more diagnostic information easier to get.

The automatic touch has been added to digital scanning procedures with the General Electric single probe scanner.

Simple thumbwheel and push button settings, for the combination of automatic features, facilitate operation of the unit while providing less opportunity for technic errors. Scanning speed, for example, is automatically selected by setting the desired line spacing and information density, then finding the hot spot. No calculations are needed. Other automatic advantages include film exposure slit length changes with line spacing, to prevent scan gaps or overlaps; scalloping corrections to align the photoscan display; and, photorecording density settings, between preset minimum/maximum values.

The GE scanner also provides a built-in scaler; push button probe positioning; easy-to-read light-emitting diodes; and four collimators as standard equipment.

Scan information is available by the standard mechanical dot or photorecording technics or by adding GE's unique electronic color Videodisplay unit. The latter allows you to view, on a TV monitor, the scan image in full-count, fully-functional color. Also, permits push button scan manipulation, without loss of data, to enhance desired details. The result is new capability for the interpretation and diagnosis of scan displays.

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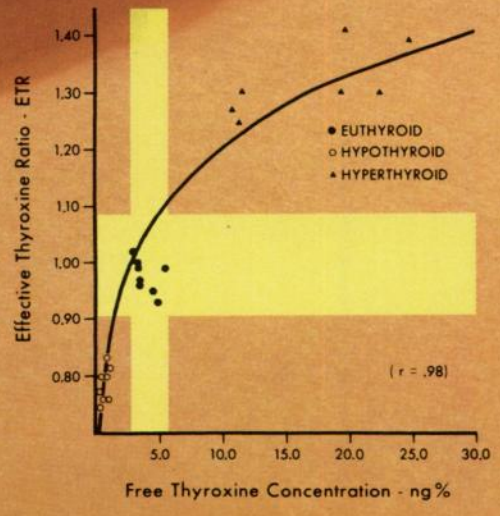

Graph showing (1) distinct separation between hypothyroid, euthyroid, and hyperthyroid states, and (2) correlation between effective thyroxine ratio and free thyroxine concentration. Shaded horizontal area shows euthyroid range for effective thyroxine ratio. Vertical shaded area shows euthyroid range for free thyroxine concentration. *S. C. Thorson, M. D., private communication.*

Mallinckrodt announces...

Res-O-Mat® ETR™ Test

indicates metabolically active thyroxine IN A SINGLE PROCEDURE*

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The new **Res-O-Mat ETR** test is a direct means of determining Effective Thyroxine Ratio, a reliable indication of thyroid function.[1] It effectively compensates for the effect of estrogen medication, pregnancy, and other factors affecting the level of thyroxine binding globulin.

The **Res-O-Mat ETR** test procedure is straightforward and reproducible. Pipettings are fewer. Time and temperature control are not critical. After simple processing and incubation on the rotator, the Effective Thyroxine Ratio is obtained by dividing the count rate of the standard (supplied in the kit) by the count rate of the patient serum. There is no curve to draw, no ice baths, no precount-postcount determination.

Effective Thyroxine Ratio is the first direct, single-test measurement having a clinically proven[2] correlation with the level of metabolically active ("free") thyroxine. Send in the coupon for detailed supporting information about the new test of choice for determination of thyroid function.

Availability

Res-O-Mat ETR Test Kits are available in 12- and 60-test sizes.

1 Mincey, E. K. and Brown, J. L., Thyroid Function Testing: a New Approach. *Submitted for publication.*

2 Mincey, E. K. and Thorson, S. C., et al.: A New Parameter of Thyroid Function—the Effective Thyroxine Ratio. *Submitted for publication.*

*Patent applied for.

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☐ Now doing radioactive thyroid tests.

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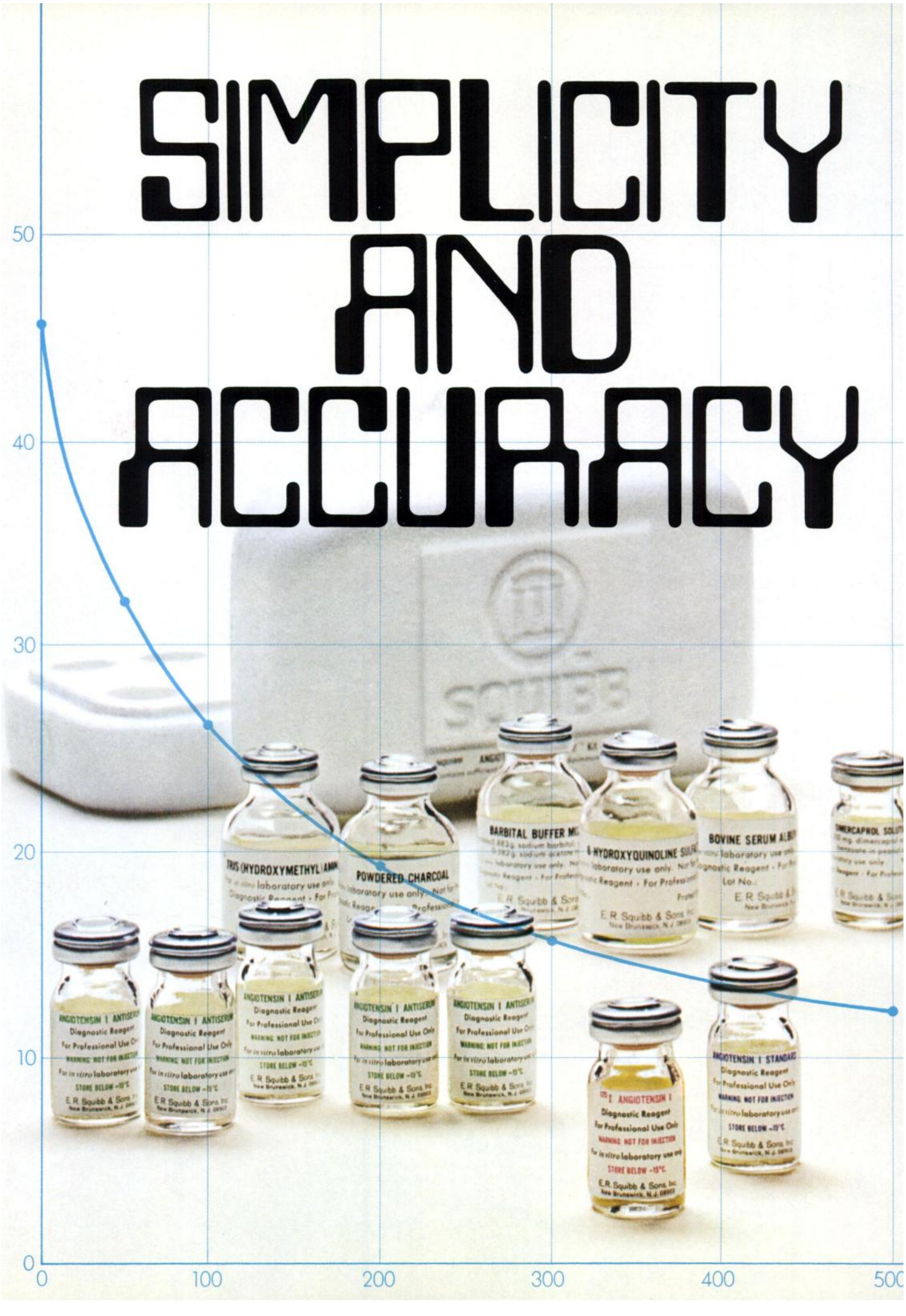
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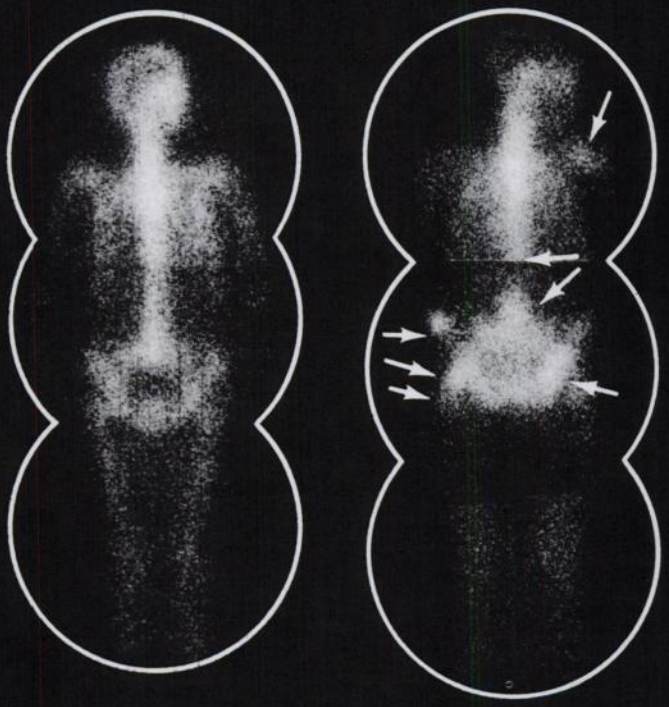
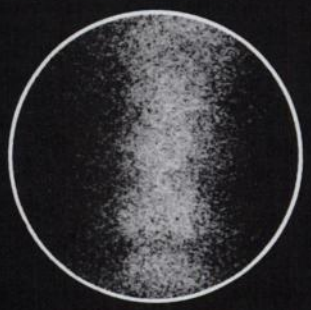


Normal

Metastatic
Breast Ca.

Lesions are commonly found in the axial skeleton and a complete skeletal survey should include imaging of limbs as well as trunk.[5]

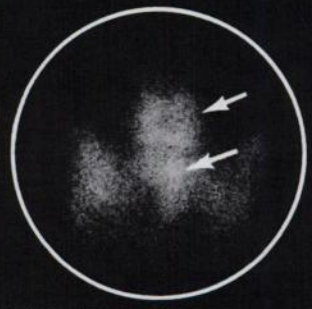
Close Up Images



Lumbar Spine (Posterior)
Normal

Lumbar Spine (Posterior)
Ca. Breast

Pelvis (Posterior)
Normal

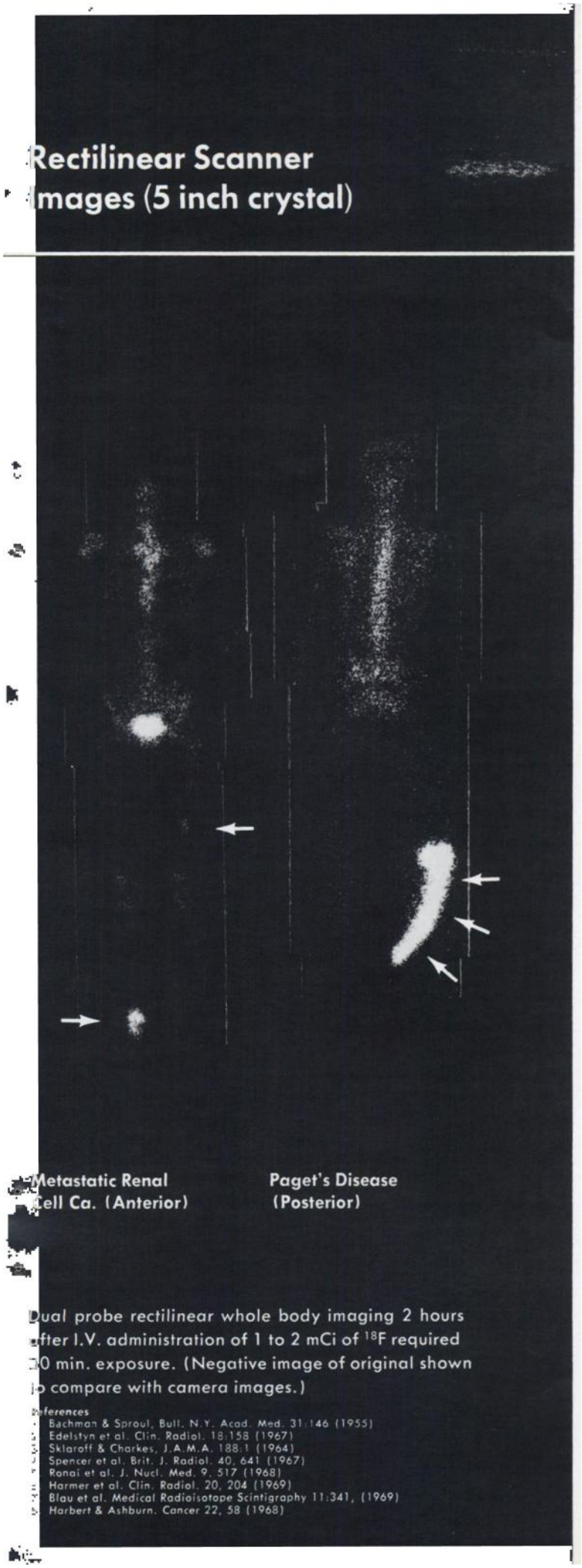


Pelvis (Posterior)
Ca. Breast

Pelvis (Anterior)
Normal

Pelvis (Anterior)
Ca. Prostate

Scintillation camera images 2 to 4 hours after I.V. administration of 2 to 4 mCi of ^{18}F required 3 to 10 min. exposures each.



Radioisotopic Imaging of Bone in Clinical Medicine

Review

Various radioisotopes are known to preferentially accumulate in both malignant and benign lesions of bone. When such radioisotope accumulation is detected and imaged, using suitable instrumentation, clinically useful information is frequently obtained which cannot be readily acquired using other methods. Examples of this are the detection of primary and metastatic tumors in bone. Tumors metastatic to bone most commonly spread to spongy (trabecular) bone. Such lesions can be visualized by X-ray examination only when they are greater than 1.5 cm in diameter and 50% to 75% of the local calcium is lost.[1,2] Localization of radioisotopes in the region of metastases has been shown to be an earlier and more sensitive indicator of the presence of bony metastases than that provided by conventional radiographic techniques.[3] While Strontium-85 was the radioisotope most commonly used in initial studies, subsequent evaluations have shown fluorine-18 to be a superior radioisotope since its use results in both improved image quality and markedly lower radiation dose to the patient.[4,5,6,7]

Indications

The suspicion of malignant neoplastic involvement of bone, either primary or metastatic, is the principal indication for performance of a radioisotopic study of bone. Such a possibility should be considered in the primary evaluation of patients with a diagnosis of malignant tumors of the breast, lung, stomach, prostate gland, thyroid gland, and other carcinomas which commonly spread to bone, and in evaluating the extent of involvement of primary bone tumors, multiple myeloma, etc. Such studies should be particularly useful in patients in whom extensive surgery is proposed for the possibility of total extirpation of neoplastic tissue, since demonstration of a previously unrecognized metastasis may influence the proposed therapy. Lymphomas, such as Hodgkin's disease, frequently involve bone, and it has been recommended that patients with these disorders have radioisotopic skeletal surveys as a part of their initial staging.[8] Subsequent to initial evaluation of patients with various carcinomas and sarcomas, periodic radioisotopic skeletal surveys may be useful in demonstrating presence and extent of bone lesions. A large number of nonmalignant conditions can result in abnormal deposition of radioisotopes in bone (arthritis, fractures, osteomyelitis, Paget's disease, etc.). Whether sufficient beneficial information can be obtained from the performance of a radioisotopic bone study in patients with these non-neoplastic diseases to warrant the performance of such a study remains to be established.

Hazards

There are no reported cases of adverse reaction to the administration of carrier-free fluorine-18 in isotonic saline solution. The radiation dose received by the patient in association with a typical fluorine-18 bone study is considered comparable to that which he would receive from similar X-ray studies.

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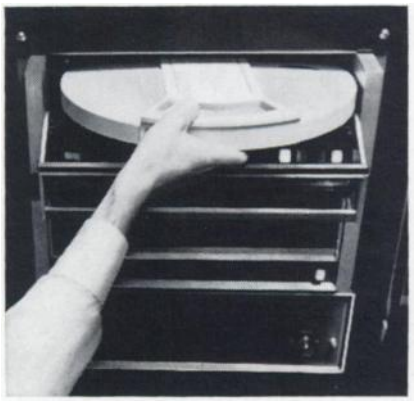

The disk retrieves stored information in milliseconds. To get any result from the disk quickly, simply tap two letters on the teletype keyboard.

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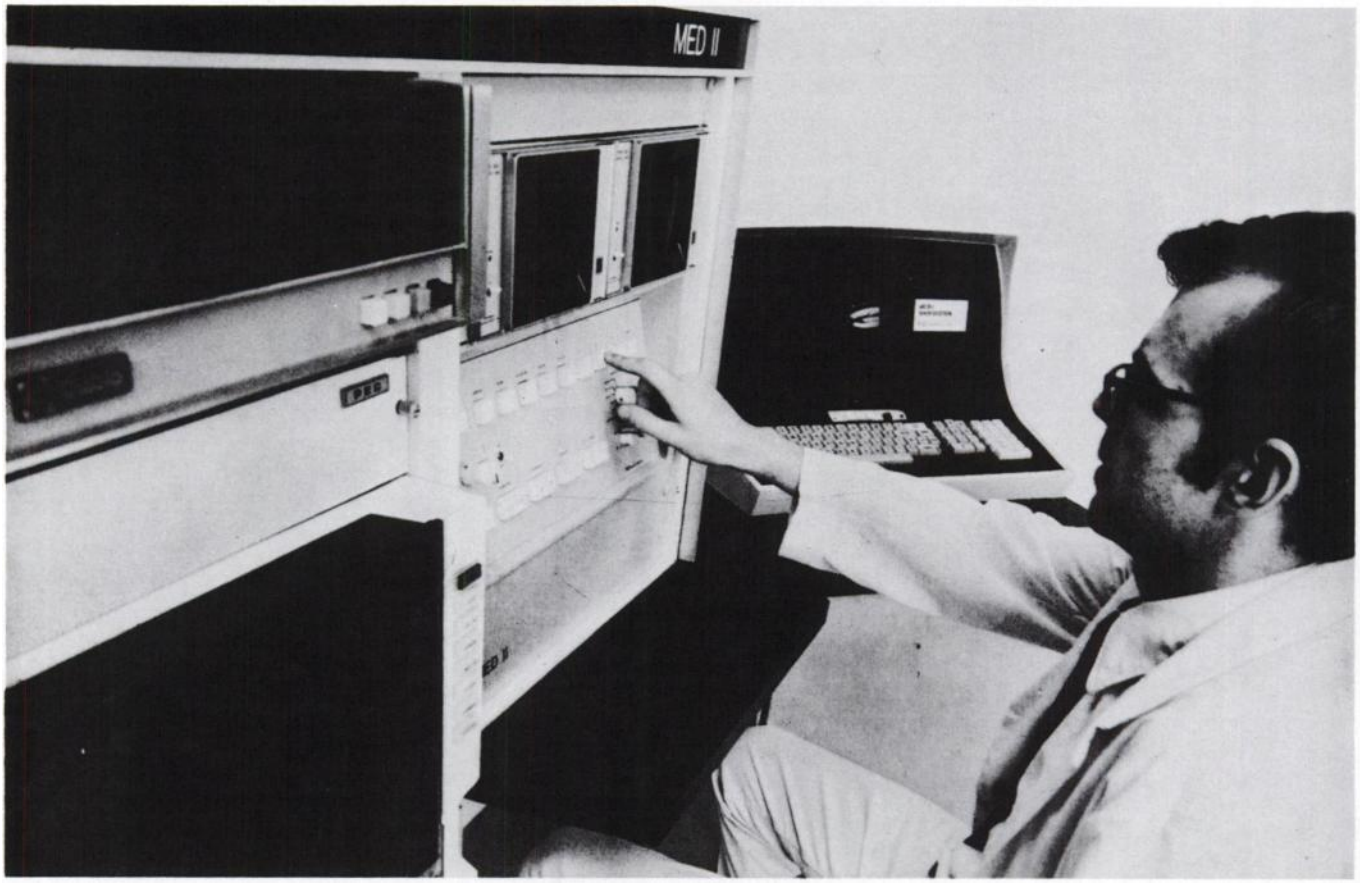

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MED II: what it is
MED II is a data acquisition, storage and playback system. But it is also much more. MED II is a diagnostic image enhancer, a clinical data processor, plus a curve analyzer and a fully programmable 16k computer.

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With the MED II, you can record dynamic and static gamma camera images. You can enhance these images in accordance with several clinically tested protocols. You can generate time/activity histograms, and derive data, which cannot otherwise be visualized, from the resultant curves. In addition, you can correct for camera response non-uniformities, add and subtract either sequential or non-sequential images from each other; and perform several additional image manipulation routines which yield improved visualization and higher confidence levels.

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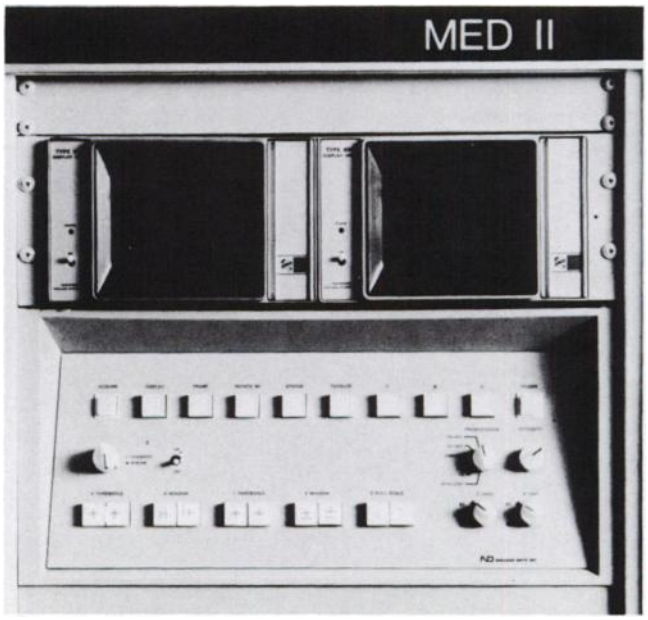

Third, the image data are now recorded on a high-speed disc. After a given frame or frame sequence is specified, it can be displayed within milliseconds. And magnetic tape continues to be available for bulk storage.

Fourth, the comprehensive image data analysis capability available in Nuclear Data's earlier systems has been extended still further with the MED II. Extraction of exponentials, normalization, curve smoothing and the many additional data analysis routines available with MED II are more refined than ever. And they are easier to execute.

MED II as a storage retrieval system
As a storage device, the MED II records complete studies on a rapid access disc. While acquiring data, frame rates of up to 8 frames-per-second may be specified. If desired, the frame rate may be more rapid during some intervals of the study than others. For example, in a renal function study, it may be desirable to have a rapid frame rate during the first few minutes, and a slower rate during the more gradually changing excretory phase. Another important feature: with the MED II, a recorded frame or frame sequence can be accessed for replay in a matter of milliseconds.

MED II as a static image processor
MED II can be considered a "perception extender." Image enhancement, for instance, allows one to elaborate subtle differences in displayed activity to the point where they can be discerned. Improved delineation of organ contours, lesion boundaries, and other abnormalities are prominant advantages to be gained with the MED II.

Initial analog scintigraph

Same data processed by MED II

MED II as a dynamic image data processor
As a dynamic processor, the MED II brings a wide range of data quantification and enhancement into the clinician's repertoire.

Renograms, cerebral blood transit, cardiac and pulmonary function studies are all included among the major dynamic study applications of the MED II. For example, separate areas-of-interest within a recorded renal execretion study may be specified by the clinician. These areas-of-interest may be assigned to correspond only to the right and left renal contours, or to regions within the kidneys. Then, after appropriate brief instructions, complete right and left renograms appear on the MED II oscilloscope. Since the renograms represent activity only within the defined areas-of-interest, distorting background data, as well as activity within the ureters and bladder, do not mask renal activity. And in pulmonary function analyses, the ability of the MED II to generate dynamic function curves for up to twelve areas-of-interest means that right versus left lung activity comparisons can be made for six different regions simultaneously. Dynamic activity curves for comparing comparable regions within the cerebral hemispheres and right versus left carotid blood transit can also be available for your evaluation within seconds.

MED II as a fully programmable 16k computer
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And more!
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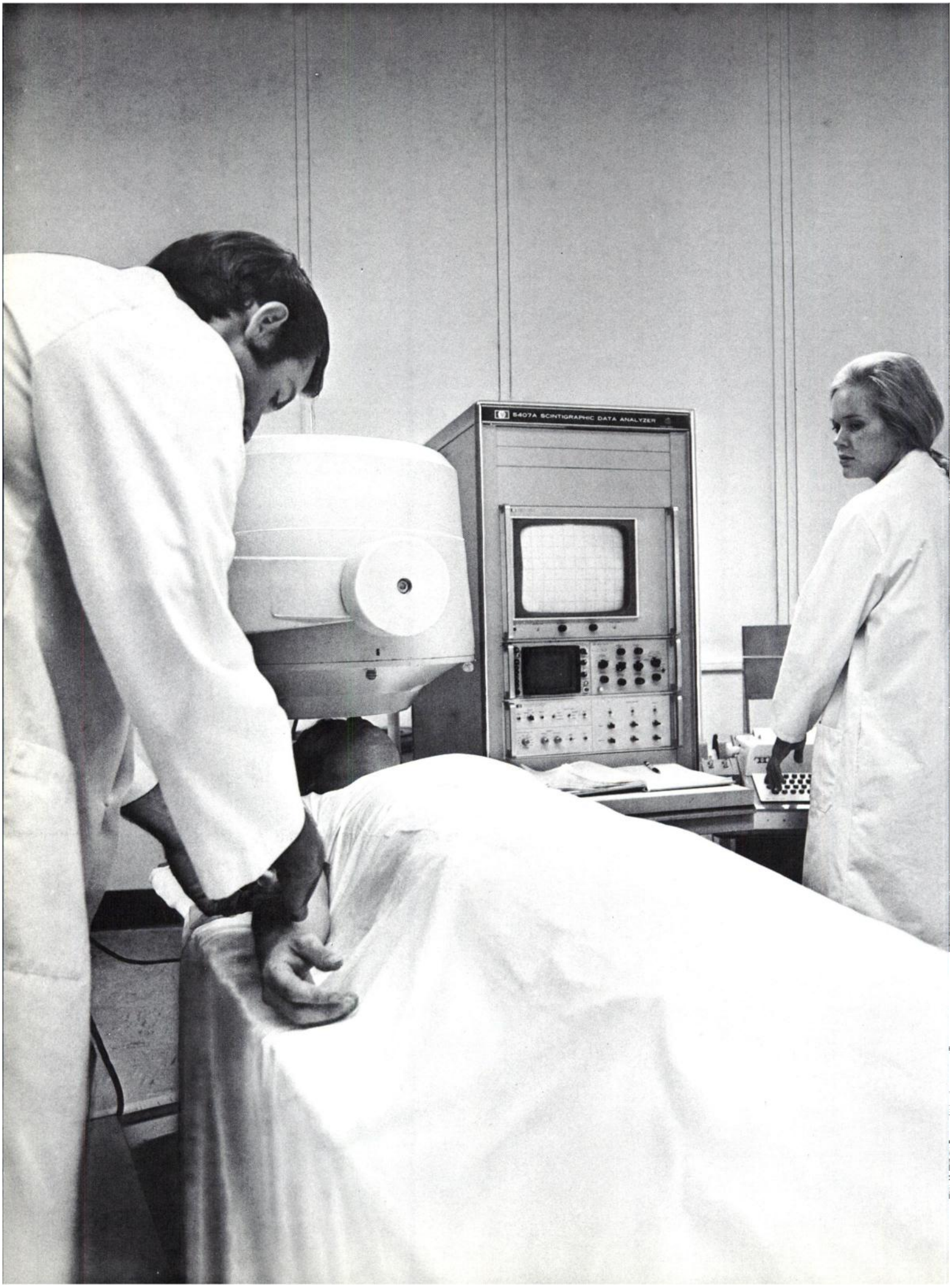
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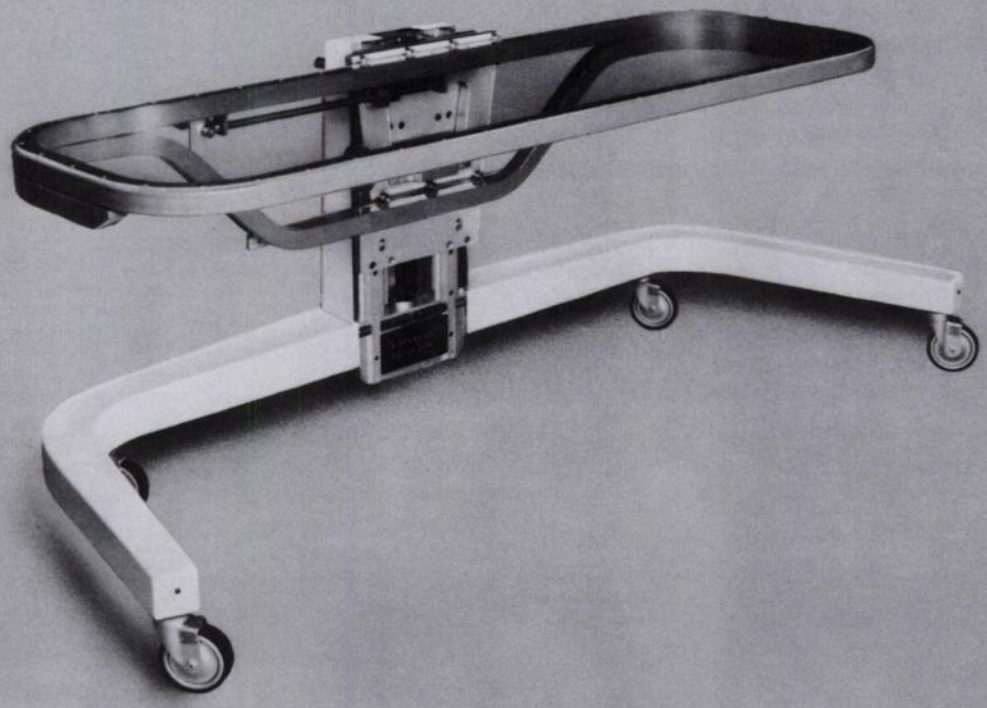

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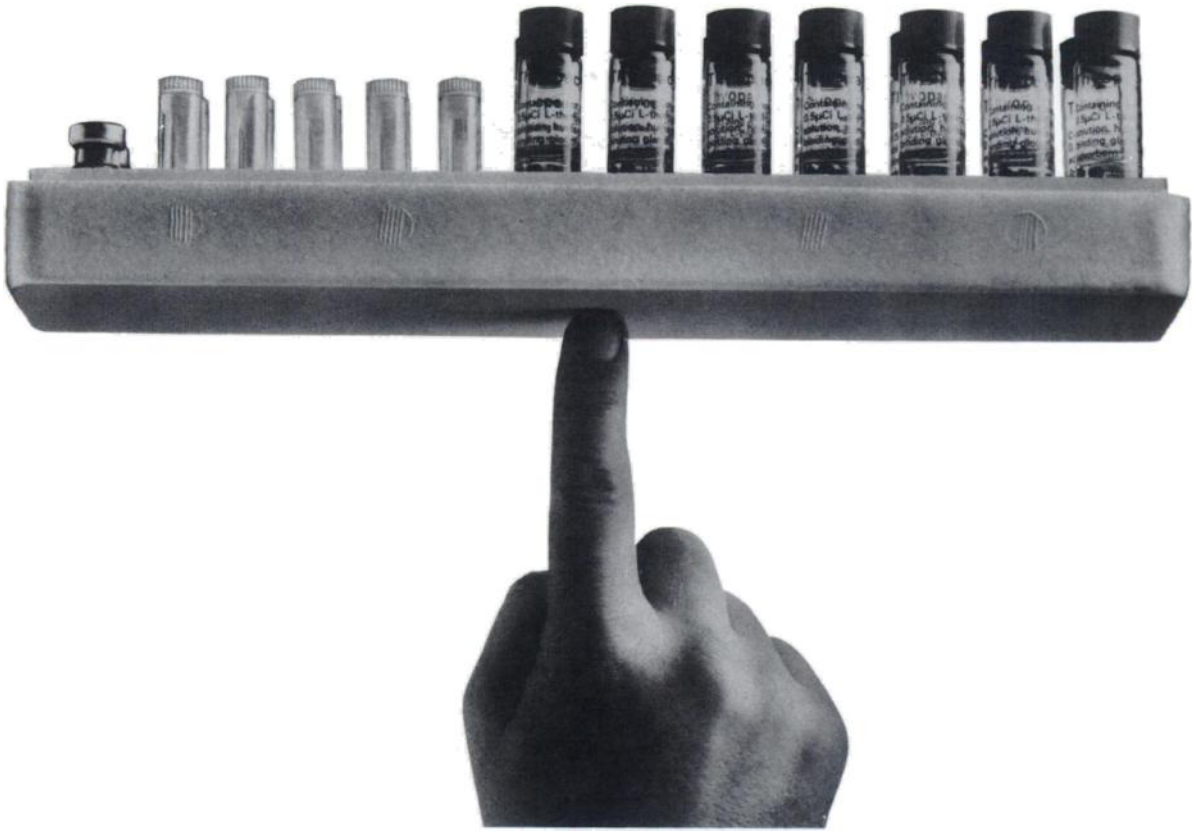

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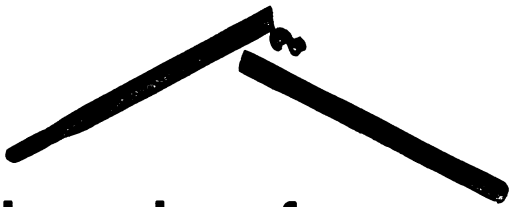

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(see over)

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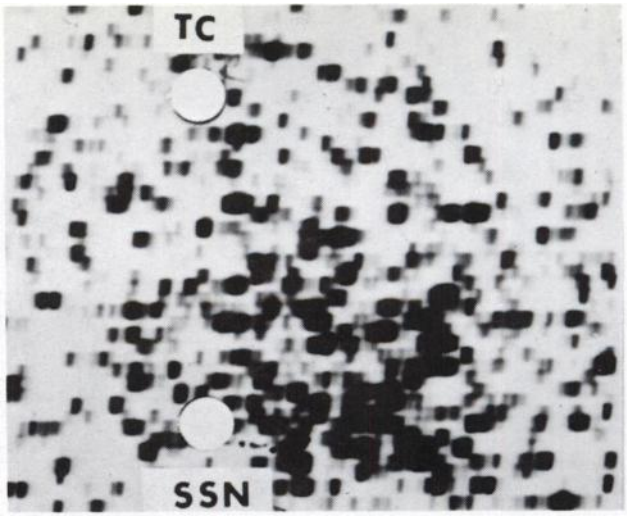

Fig. 59-2, D. Twenty-four hours after intravenous dose of 250 μCi ^{75}Se methionine. Note increased concentration of nuclide to left of suprasternal notch. A 1.2- x 2-cm parathyroid adenoma to left of suprasternal notch was confirmed at surgery. (From *Technology and Interpretation of Nuclear Medicine Procedures.*)

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By D. BRUCE SODEE, M.D., F.A.C.P., F.A.C.G., Associate Professor of Radiology (Nuclear Medicine), George Washington University, Washington, D.C.; Director, Nuclear Medicine Institute and Nuclear Medicine Department, Hillcrest Hospital, Cleveland Memorial Medical Foundation, Cleveland, O.; and PAUL J. EARLY, B.S., Physicist, Nuclear Medicine Institute and Nuclear Medicine Department, Hillcrest Hospital. April, 1972. Approx. 608 pages, 7" x 10", 410 illustrations. About $22.90.

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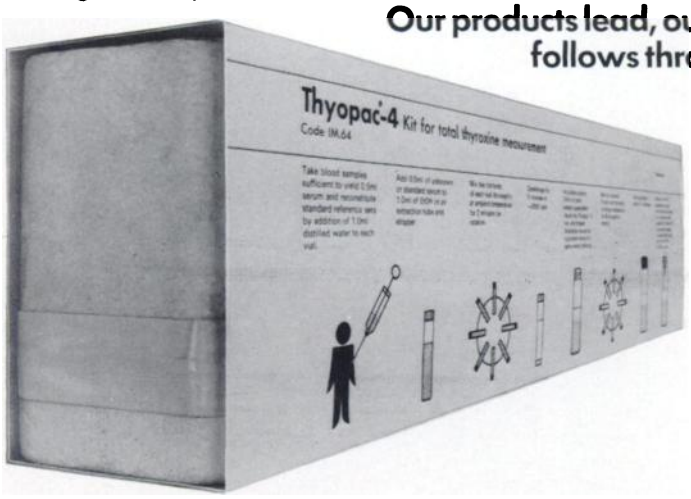

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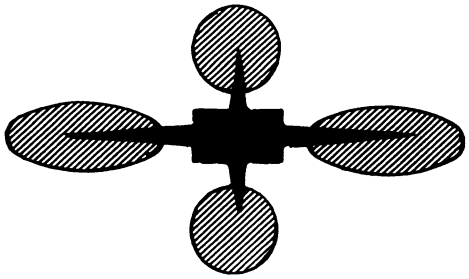

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The Pediatric Renal Study

Simplifying Difficult Renogram-Renal Scintiphoto Studies with the Nuclear-Chicago Pho/Gamma® Scintillation Camera Data-Store/Playback System

The methodology for simultaneously producing renograms and renal scintiphotos with ^{131}I hippuran has been well described. Occasionally the upper urinary tracts may be in proximity to the bladder or an ilial conduit. Positioning with the split-crystal technique then becomes difficult. This is particularly so in infants, or in patients with ilial conduits, cutaneous ureterostomies, or transplanted kidneys. An answer to these problems, however, exists in the area-of-interest specification capabilities of the Nuclear-Chicago Pho/Gamma Data-Store/Playback System. Data may be collected and stored on magnetic tape and then graphically recorded from selected regions of interest to exclude activity from unwanted regions in the resultant renograms.

SETTING UP. The camera is positioned so that the organ of interest is closest to the collimator face. Thus, in renal studies, the detector head would normally be located posteriorly. In renal transplants, however, the detector head may be placed anteriorly. The field of view when using the Data-Store/Playback System may include not only the upper urinary tracts but also the bladder or ilial conduit.

ISOTOPE AND DOSE. For renal transplant evaluation, the vascular phase is recorded with ^{99m}Tc pertechnetate administered in a bolus of 125 μCi/lb.

For the renogram-renal scintiphoto study, ^{131}I hippuran (50-100 μCi for children and 100-250 μCi for adults) is given intravenously after blocking the thyroid with a single dose of Lugol's solution.

DATA ACCUMULATION. In the renal transplant evaluation, pertechnetate transit through the transplant is recorded within the first two minutes following injection. After this time, background activity may prohibit adequate delineation of the kidney. This phase of the examination is recorded on magnetic tape which is subsequently played back to make Polaroid scintiphotos.

In the renogram-renal scintiphoto study, data is also recorded on the Data-Store/Playback System. While recording patient data, activity within the kidney can be simultaneously monitored on the system's Persistence Scope and recorded on Polaroid film from the "A"-scope of the Pho/Gamma. The recording is terminated when the majority of the radionuclide has been excreted or there is obvious retention of the radionuclide within the renal collecting system.

Areas of interest are chosen to encompass the kidney or kidneys and to exclude the ureters or urinary bladder. The relative count rates within these defined areas of interest can then be graphically displayed by using the Dual-Pen/Chart Recording System.

CASE HISTORIES. Case Study No. 1: A four-month-old male infant was admitted with a severe electrolyte imbalance following prolonged diarrhea. A cardiac arrest occurred and, subsequently, diminished renal function and a urinary tract infection were documented. While renal function was gradually returning to normal, an intravenous urogram was unsuccessful due to the collecting system being obscured by overlying gastrointestinal debris and gas. A radionuclide renogram was therefore requested.

The proximity of activity within the upper urinary tracts to that within the bladder is illustrated in Figure 1. Split-crystal technique yielded the renogram shown in Figure 2. The irregularity of the tracing is due in part to patient motion. The flatness of the excretion curve results from activity within the bladder. The study was simultaneously recorded on the Nuclear-Chicago Data-Store/Playback System for later evaluation. Electronically selected areas of interest were then positioned over the image of the upper urinary tracts in order to exclude the bladder area (Figure 3). The renogram was then recorded (Figure 4) and a definite excretion pattern is recognized.

Case Study No. 2: This 12-year-old female with chronic pyelonephritis experienced renal failure necessitating hemodialysis. Renal transplant was subsequently performed. During the initial post-operative evaluation of the transplant, the integrity of the vascular anastomosis is demonstrated with a ^{99m}Tc pertechnetate transit study. The kidney is well outlined during the vascular phase (Figure 5).

The ^{131}I hippuran study of the transplant was recorded with the Data-Store/Playback System and

then reproduced through a chart recorder. The defined area of interest (Figure 6) resulted in a satisfactory post-transplant renal-function renogram (Figure 7). There is some retention, however, within the slightly dilated ureter. Routine positioning with the split-crystal technique would have led to recording of activity not only from within the kidney, but also from a portion of the dilated ureter (in spite of exclusion of the bladder by oblique positioning of the patient) and an unnecessary artifact would have thus been introduced into the renogram.

DISCUSSION. The technique of simultaneous recording of renograms and renal scintiphotos with the Pho/Gamma has proven to be a versatile method for examining the kidneys. With conventional split-crystal techniques, the existence of data from the bladder presents difficult positioning problems when making renograms. This is also the case with infants within whom the upper urinary tracts are relatively close to the bladder; in ectopically located kidneys, whether congenital or iatrogenic; or when collecting devices such as cutaneous ureterostomies or ilial conduits make routine positioning impossible. However, the Data-Store/Playback System, with its area-of-interest analysis capabilities, provides a means of obviating such positioning difficulties. Only data from pertinent, selected areas are displayed in the renograms.

The transit study through a transplanted kidney has proven of use in the immediate post-operative period. It permits evaluation of the vascular integrity of the renal transplant. In instances where a normal renal outline is not visualized, contrast arteriography should be performed for further evaluation. In addition to vascular obstructions, acute rejection phenomena may slow circulation within the kidney sufficiently to prevent a normal vascular appearance with the radionuclide transit study, regardless of intact vascularity.

CONCLUSIONS. The Data-Store/Playback System minimizes positioning considerations when recording renograms and renal scintiphotos. Areas of interest can be selected to exclude unnecessary and distorting data, thus providing a more significant study for interpretation. 1-215

CASE STUDY NO. 1. SIMULTANEOUS RENOGRAM-RENAL SCINTIPHOTO STUDY.

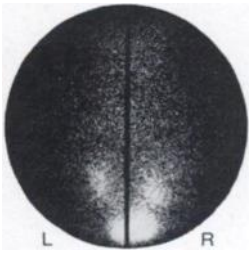


FIGURE 1.
^{131}I SCINTIPHOTO.
POSTERIOR VIEW.

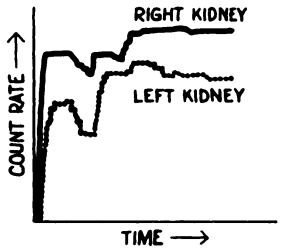


FIGURE 2.
SPLIT-CRYSTAL
RENOGRAM.

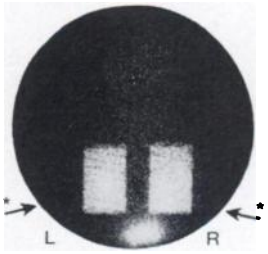


FIGURE 3.
AREA-OF-INTEREST
SCINTIPHOTO.
POSTERIOR VIEW.

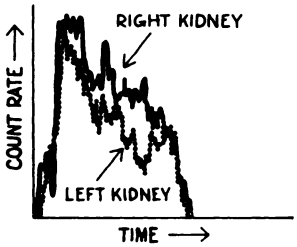


FIGURE 4.
AREA-OF-INTEREST
PLAYBACK
RENOGRAM.

CASE STUDY NO. 2. RENAL TRANSPLANT EVALUATION.

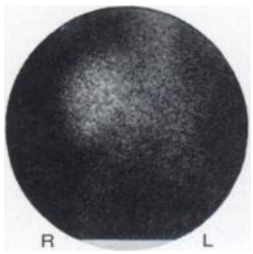


FIGURE 5.
^{99m}Tc SCINTIPHOTO.
ANTERIOR VIEW.

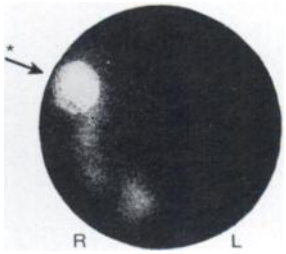


FIGURE 6.
AREA-OF-INTEREST
^{131}I SCINTIPHOTO.
ANTERIOR VIEW.

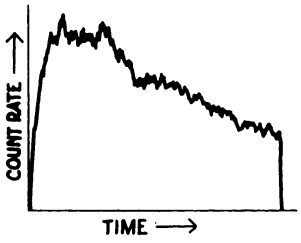
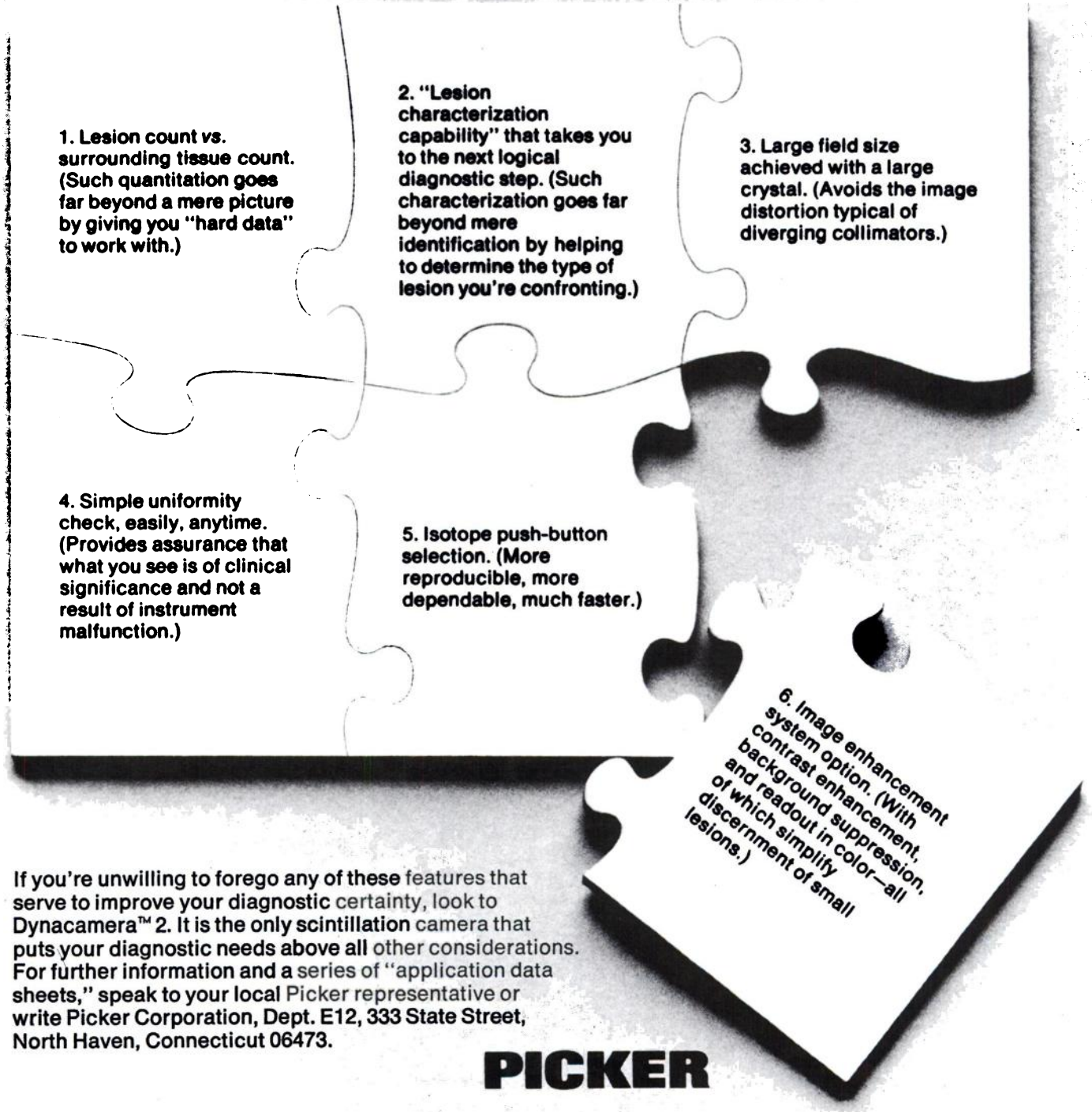


FIGURE 7.
AREA-OF-INTEREST RENOGRAM.
FULL-CRYSTAL PLAYBACK.

*Arrows indicate the electronically generated areas of interest. Note varied sizes and shapes.

Which of these scintillation camera features are you willing to do without?

They all do one thing: increase your diagnostic certainty.



If you're unwilling to forego any of these features that serve to improve your diagnostic certainty, look to Dynacamera™ 2. It is the only scintillation camera that puts your diagnostic needs above all other considerations. For further information and a series of "application data sheets," speak to your local Picker representative or write Picker Corporation, Dept. E12, 333 State Street, North Haven, Connecticut 06473.

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NUCLEAR MEDICINE RESEARCH & Education trainees: Two positions available July 1, 1972 for Research and Education trainees in Nuclear Medicine. Excellent opportunity for research and advanced clinical training in either a one-year or two-year program. Affiliated with Stanford University. Must have completed two years of residency. Requires current license any state and U.S. Citizenship or Immigrant Visa and three years in the U.S. Salary $10,301 to $11,361 based on number of years of residency completed. Contact David A. Goodwin, M.D., Chief, Nuclear Medicine Service, VA Hospital, 3801 Miranda Ave., Palo Alto, Calif. 94304. Tel: 415-326-5520.

NUCLEAR MEDICINE TECHNOLOGIST with experience. New department. Salary commensurate with experience and qualifications. Excellent employee benefit program. Contact: M. Yankosky, M.D., Radiologist, Lebanon Valley General Hospital, 4th & Willow Streets, Lebanon, Penna. 17042.

NUCLEAR MEDICINE TECHNOLOGIST. Position immediately available for well trained and qualified individual to set up and supervise new laboratory in modern Richmond hospital. Send resume to Box 501, Society of Nuclear Medicine, 211 East 43rd Street, New York, New York 10017.

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NUCLEAR MEDICINE TECHNOLOGIST needed for rapidly growing Nuclear Medicine Department. Real opportunity for sharp technologist. Salary commensurate with training and experience; employee benefits. Send resume to: Lawrence Moser, M.D., Nuclear Medicine Division, City of Hope National Medical Center, Duarte, California 91010.

BOARD ELIGIBLE NUCLEAR MEDICINE specialist to join growing private Nuclear Medicine practice in Northern California. Nearby medical school. 1.5 hours from Squaw Valley or San Francisco. Prefer someone with clinical and academic interests. Box 502, Society of Nuclear Medicine, 211 East 43rd St., New York, New York 10017.

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ASCP-MT AND ASCP-NMT LICENSED technologist desires change of pace. Chief Radioisotope Technologist for past 12 years. Has set up one government and one private hospital Nuclear Medicine Service from scratch. Has demonstrated ability to manage a department budget and come out in the "black" within 2 years, and with a 40% increase in patient load. Wants a combined research and clinical position—with all the latest equipment. "Fly me to your computer"! Box 503, Society of Nuclear Medicine, 211 East 43rd Street, New York, N.Y. 10017.

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FOR SALE—ALMOST NEW. MAGNAscanner III without color, consisting of: 2806F Magnascanner (transistorized), 2809D Ultraprobe, 2102 Fine Focus Collimator, 2107 Coarse Focus Collimator, 2107A High Efficiency Collimator, 42612B Stainless Steel Cassette, 3602 Thyroid Phantom and Teledeltos Printer, and (2101) Flat Field Collimator for Ultraprobe. Cost $12,000.00. Sale price $10,000.00 or best offer. Box 506, Society of Nuclear Medicine, 211 East 43rd Street, New York, N.Y. 10017.

TECHNOLOGIST SECTION
THE SOCIETY OF NUCLEAR MEDICINE
19TH ANNUAL MEETING

July 11–14, 1972 **Sheraton Boston Hotel** **Boston, Mass.**

CALL FOR SCIENTIFIC EXHIBITS:
NUCLEAR MEDICINE TECHNOLOGISTS' PROGRAM

The Technologist Scientific Sessions Committee announces that abstracts of exhibits are now being reviewed for the 19th Annual Meeting. Abstracts of exhibits are welcomed from technical affiliates.

All exhibits will be illuminated by available room light. There will be no provisions for transillumination, e.g., view boxes. The exhibit should be mounted on poster board not exceeding 30 in X 30 in. No more than two boards may be entered for a subject. Exhibits should be clearly titled.

Abstract format: Exhibitor's name; title of exhibit (10 words maximum); abstract (100 words); dimensions (A maximum of two boards not exceeding 30 in. X 30 in.).

Exhibit Awards: The section is pleased to announce the presentation of 1st, 2nd and 3rd place awards for the three most outstanding scientific exhibits. These are judged on the basis of scientific merit, originality, display format, and appearance.

LARRY S. CAVENDISH
Dept. of Radiology
Peter Bent Brigham Hospital
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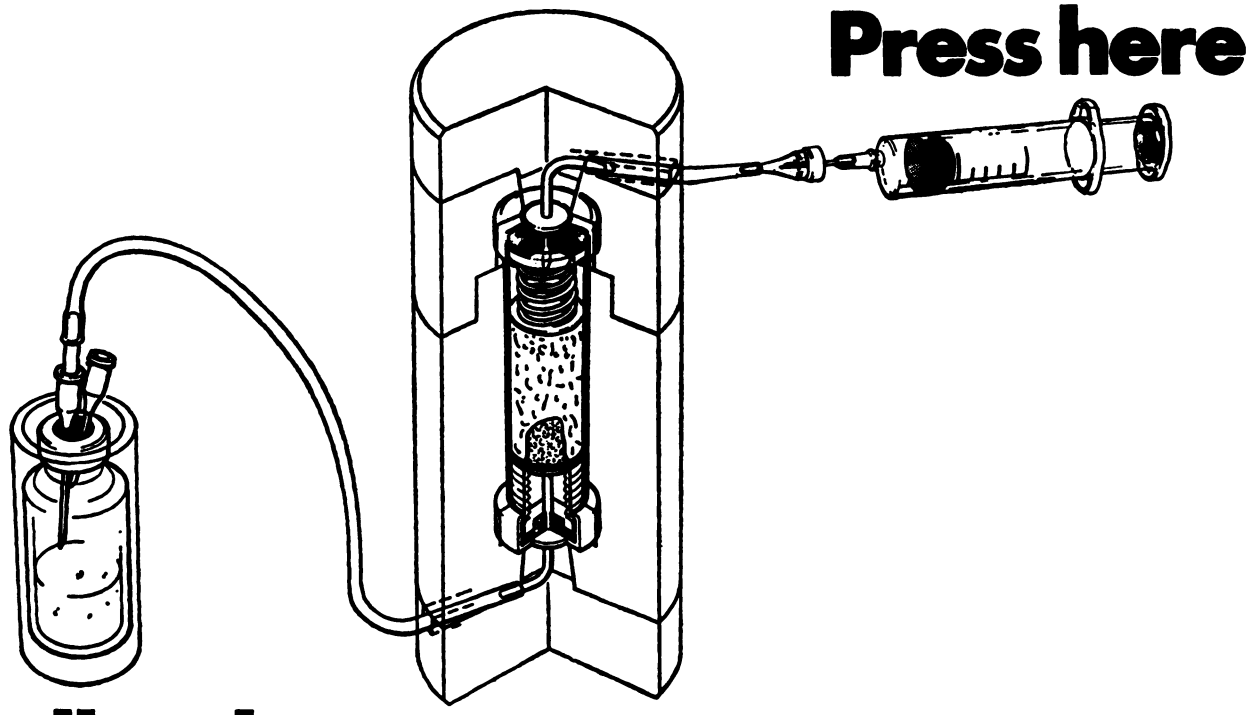

New range of sterile generators from TRC—designed by The Radiochemical Centre for greater simplicity, safety and reliability in preparing material for scanning brain, bone, liver and blood pool.

Small elution volume with high radioactive concentration—the new design of tapered generator body gives a reduction in the total bed volume. This reduces the elution volume required, increases the radioactive concentration and speeds the overall elution process.

Consistently good yields—the elution bed has been stabilized by using a spring loaded frit to eliminate disturbance by sterilization and to reduce the risk of channelling.

Improved elution flow—the new nylon mesh filter gives a fast reproducible flow and eliminates blockage by particles.

Maximum control over operation—the positive pressure flow system allows simple, fast elution with easy fractional elution if required.

Maximum security against parent breakthrough—the tapered generator body has been designed to reduce the bed volume but retain sufficient length to prevent breakthrough of the parent isotope.

Safety during transport and handling—the glass generator body has been replaced by a tough plastic material to reduce the risk of radioactive contamination due to breakage.

Please write for full information on the new range of sterile generators and the specifications of the daughter isotope.

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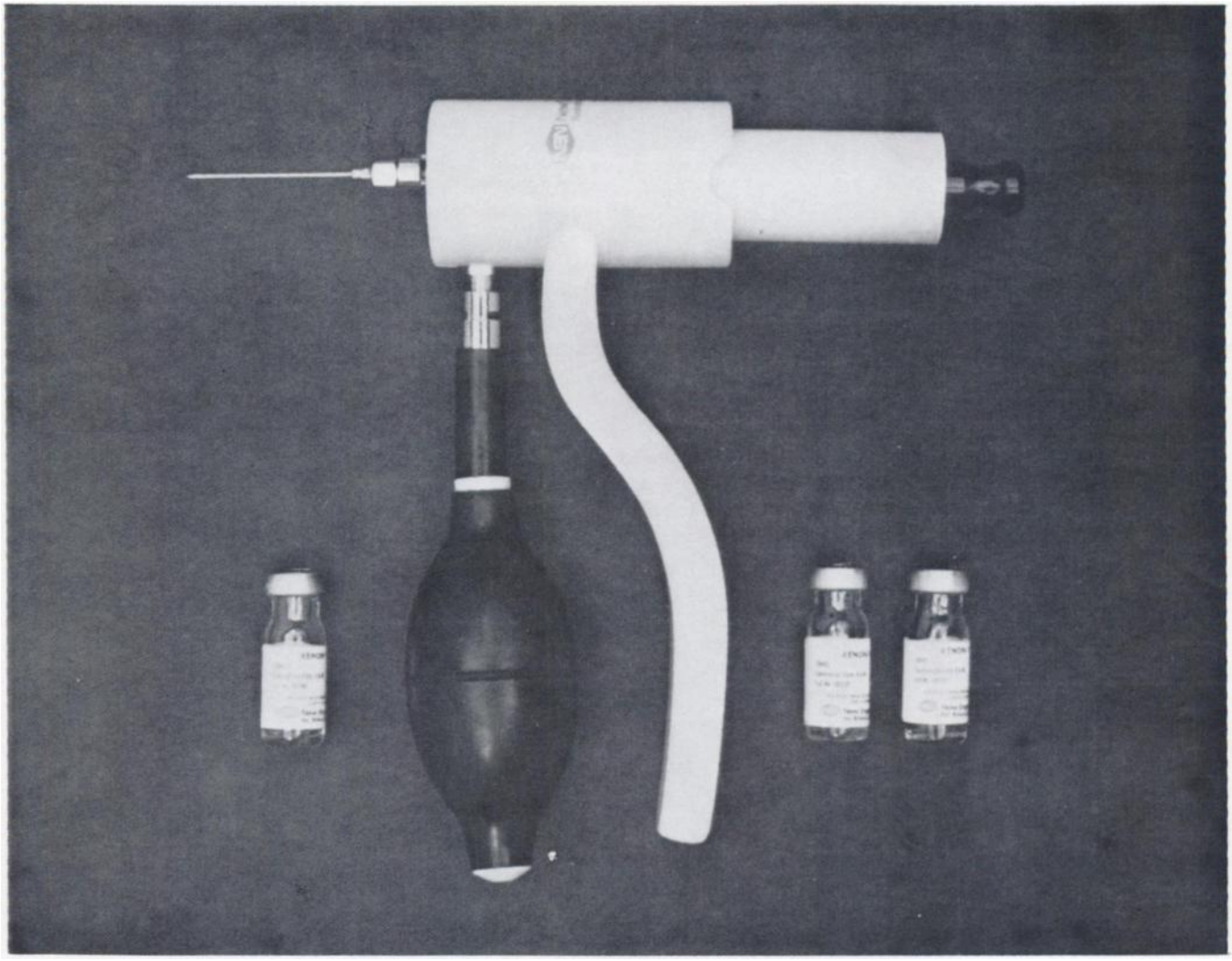
0632/5/71

New convenience in Xenon-133 dispensing.



Just slide a pre-calibrated vial of Xenon-133 gas from the lead storage tube into the shielded gun, push the plunger to break the seal, and squeeze.

Fast, trouble-free handling. Precise dose, pre-calibrated at rated strength (10-100mCi) as of Wednesday noon in your facility. And we let you have the dispenser free for as long as you use our new Xenon-133 system. Call us.

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Here are four ways to handle your in-vitro and in-vivo testing requirements.

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LOGIC™ is a simplified integrated spectrometer and well counter that's easy to operate. Most important is the LOGIC™ unique service commitment. When problems arise, a unique service program goes into action and your unit is back in operation fast. Every LOGIC is built with solid state and integrated circuitry to give greater reliability and less downtime.

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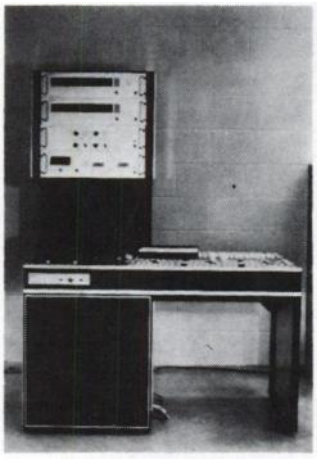
Wallac automatic gamma sample changer

The Wallac LKB 80000 automatic sample changer handles a large capacity of samples to free your skilled staff for other duties. It allows long uninterrupted automatic runs with either uniform or intermixed samples.

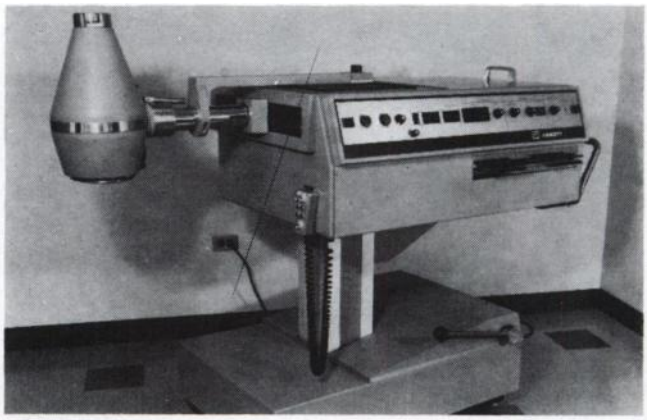
The sample conveyer operates as an endless belt giving you fast, safe and secure pneumatic handling of samples. There are two methods for positive sample identification before measurement, its position on the conveyer belt, and a binary coded cap. And, samples are changed in only 10 short seconds. Data readout is supplied in printed form or on punched tape. The Wallac automatic sample changers simple foolproof controls allow you to handle your needs efficiently and accurately.



IN-VIVO

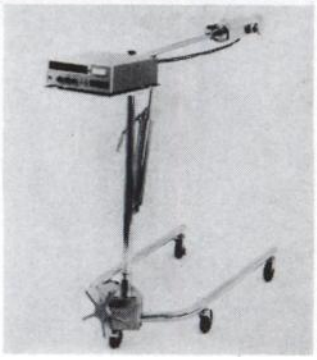
GRAPHIC™ Rectilinear scanner

GRAPHIC™ operation is simple. The control panel is designed for a logical left to right set-up procedure. Start at the left with Power On and work your way in a logical sequence to the right of the panel to Scan On. GRAPHIC™ two-position film cassette allows you to scan 14″ x 17″ in either direction, across the chest or lengthwise along the body. GRAPHIC™ will accomodate a variety of large scan field requirements with uniform ease. And, GRAPHIC™ is built to last requiring a minimum of service attention. It's so rugged that we warranty it for mobile operation. You have to be tough to work under these conditions.



LOGIC™ with uptake module

By simply adding a medical stand and probe with collimator to either of two LOGIC™ models, the 111 or 121, you're ready for thyroid uptake studies. The LOGIC™ modular concept provides add-on capabilities for you. Buy what you need when you need it. And, you still get the unique service commitment provided only by LOGIC™ . . . when problems arise, we'll repair or replace your instrument with a service loaner in 24 hours or less.



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The new Picker Isotope Calibrator:

It's as if you had studied the others... and then designed your own.

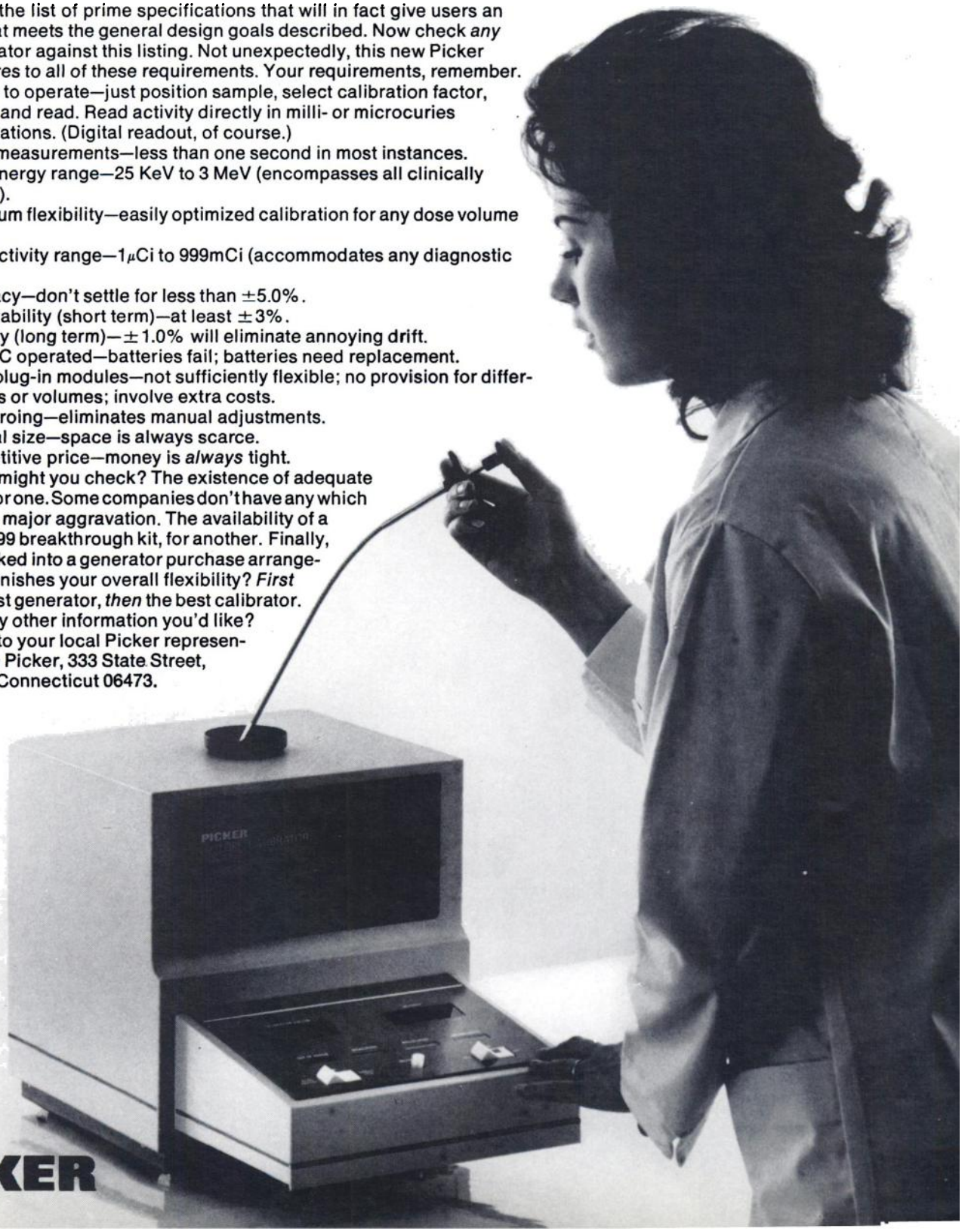
Which is, of course, precisely what happened. As expected, many of the existing instruments have desirable features. Why not then combine these features into a single instrument? Why not provide an instrument that emphasizes simplicity of use, dependability (dependability in the broadest sense: dependable data, dependable operation), and maximum flexibility? These are, after all, the characteristics that users care most about.

Herewith, the list of prime specifications that will in fact give users an instrument that meets the general design goals described. Now check *any* isotope calibrator against this listing. Not unexpectedly, this new Picker product adheres to all of these requirements. Your requirements, remember.

1. Simple to operate—just position sample, select calibration factor, push a button and read. Read activity directly in milli- or microcuries without calculations. (Digital readout, of course.)
2. Rapid measurements—less than one second in most instances.
3. Wide energy range—25 KeV to 3 MeV (encompasses all clinically used isotopes).
4. Maximum flexibility—easily optimized calibration for any dose volume or geometry.
5. Wide activity range—1μCi to 999mCi (accommodates any diagnostic dose).
6. Accuracy—don't settle for less than $\pm$5.0%.
7. Repeatability (short term)—at least $\pm$3%.
8. Stability (long term)—$\pm$1.0% will eliminate annoying drift.
9. 110V AC operated—batteries fail; batteries need replacement.
10. Avoid plug-in modules—not sufficiently flexible; no provision for different geometries or volumes; involve extra costs.
11. Self-zeroing—eliminates manual adjustments.
12. Minimal size—space is always scarce.
13. Competitive price—money is *always* tight.

What else might you check? The existence of adequate field service, for one. Some companies don't have any which can become a major aggravation. The availability of a molybdenum-99 breakthrough kit, for another. Finally, will you be locked into a generator purchase arrangement that diminishes your overall flexibility? *First* choose the best generator, *then* the best calibrator.

Is there any other information you'd like? Please speak to your local Picker representative, or write Picker, 333 State Street, North Haven, Connecticut 06473.



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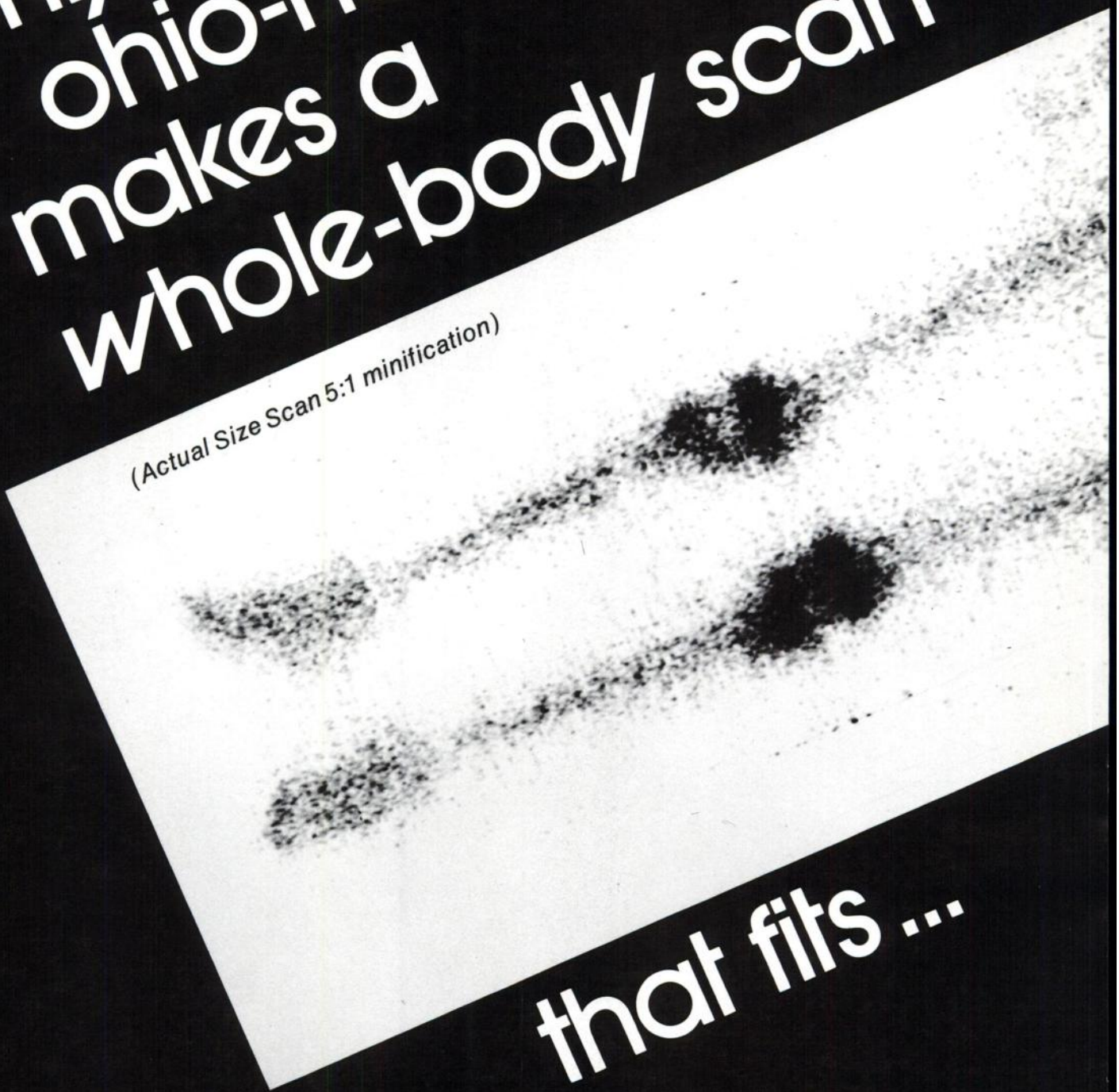

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INTRODUCING ICON 380

"No, 'tis not so deep as a well, nor so wide as a church-door; but 'tis enough, 'twill serve." —SHAKESPEARE

Mr. Shakespeare was obviously not thinking of our new ICON 380 Scintillation Camera when he wrote those words. But compared to other Cameras, the ICON 380 is a very deep well and a very wide church-door indeed. (We agree that wells and church-doors are hardly accurate units of measure, but we like the quotation). For those who insist on more exact terms, here is what the new ICON 380 offers:

A useful field of view of **38 cm.** (15 inches) diameter.

Delay line arithmetic.

Resolution better than 6 mm (¼") as measured with ^{99m}Tc and bar phantom.

Two Zones-of-Interest, each capable of independent size, shape and position adjustment.

A unique "field of view" control which selects 38 cm., 28 cm., or 19 cm. circular concentric fields, rejecting all counts outside the selected field size, but maintaining the displayed image size.

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Dunn Instruments

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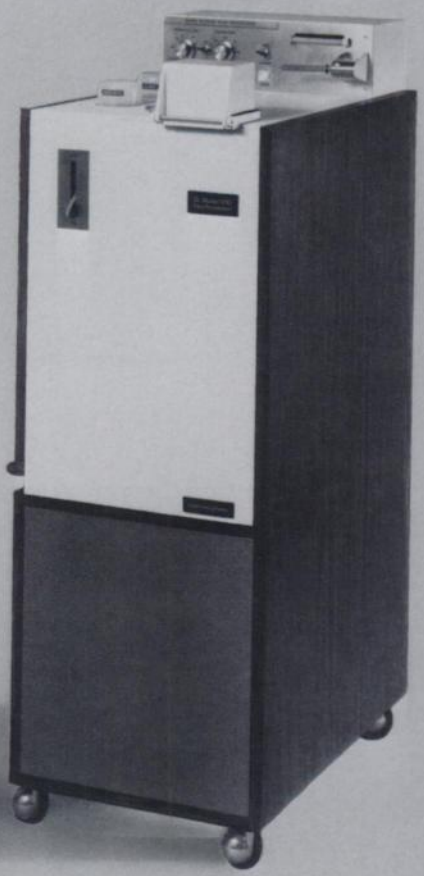

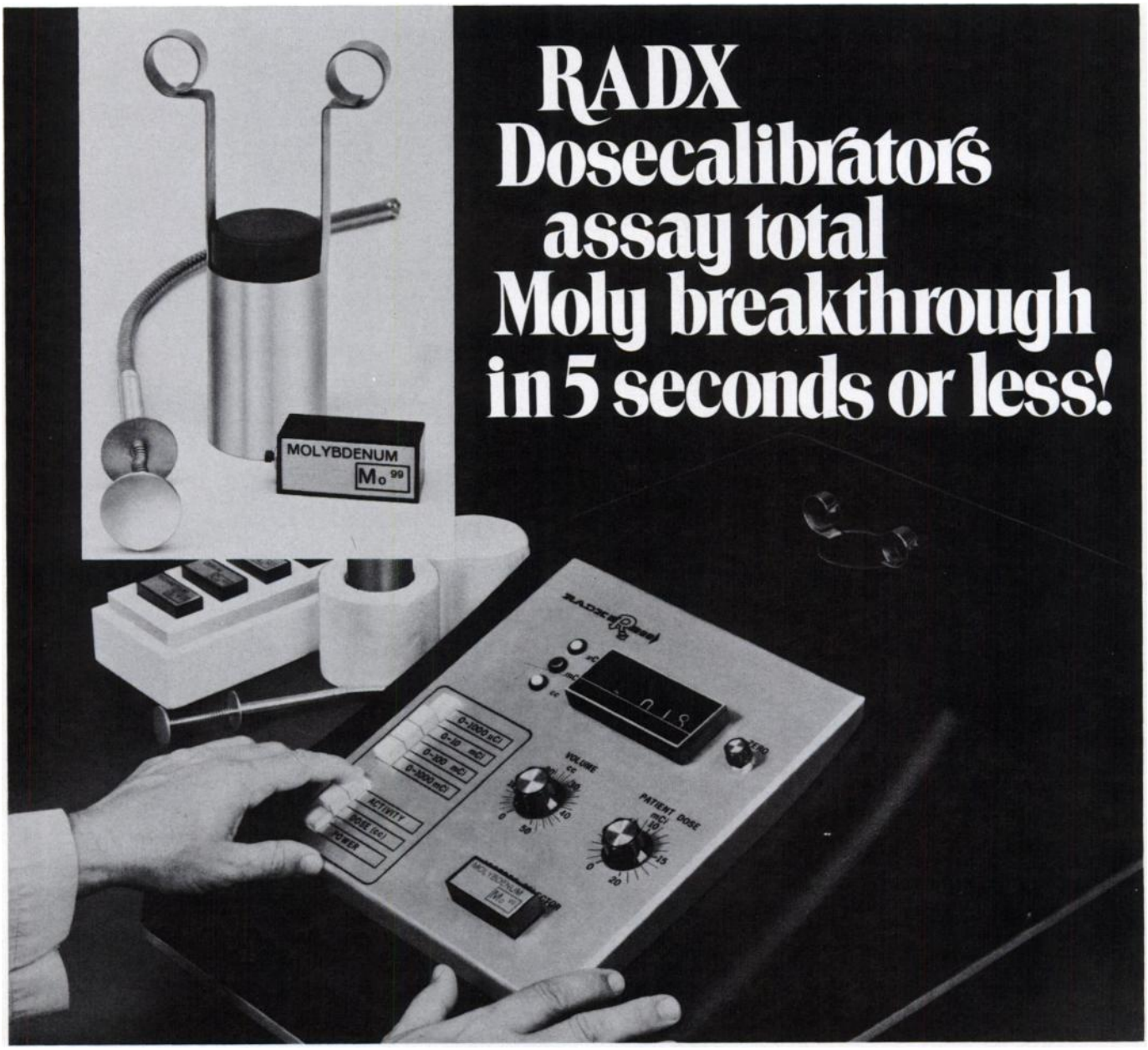

RADX Dosecalibrators assay total Moly breakthrough in 5 seconds or less!

You may now have, with the use of a RADX isotope dosecalibrator, the capability of measuring, in 5 seconds or less, the amount of molybdenum contamination to be found in the total vial of eluent produced from a technetium generator.

1. Available in 2 models: Mark IV (analog readout), Mark V (digital readout).
2. Capable of instantaneously assaying any commercially produced radionuclide.
3. Electronic computation of the volume to be injected for a prescribed millicurie dose.

We will send you a descriptive brochure which also explains the details of our unequaled warranty and service policy.

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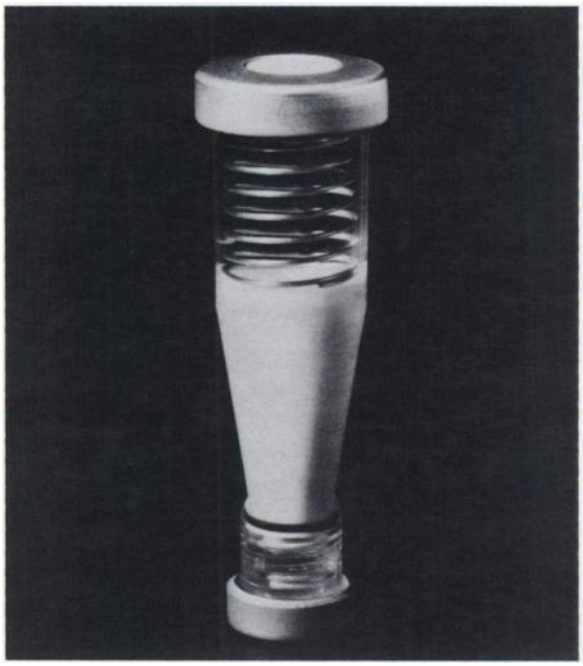

the tapered body of our new sterile Tc 99m generator.

At The Radiochemical Centre we believe in meeting the customer's needs exactly. So, before designing our new sterile technetium-99m generator, we asked users of sterile generators to define precisely the improvements they would like to see.
First on the list of improvements was a smaller elution volume with a higher radioactive concentration, making bolus injection a feasible operation if required.
To meet this requirement we designed an entirely new kind of body, tapered to give maximum length with minimum volume. The length of the bed is sufficient to eliminate molybdenum-99 breakthrough, whilst the volume substantially reduces the amount of eluate required.
Within the body, the stability of the elution bed is maintained by a spring-loaded frit so that there is no disturbance by sterilization or transport and minimum risk of channelling. This ensures consistently good yields, from generator to generator and from day to day.
Also included in the body is an improved filter system, using nylon mesh instead of sintered glass—making for more reliable elution with fast reproducible flow, and no blockage by particles.
Finally, we chose plastic as the material for the body, because it is tougher than glass and eliminates the risk of radioactive contamination due to breakage during transport and handling.
In keeping with the simplicity and efficiency of the body, you will find that the total operation of The Radiochemical Centre generator is remarkably fuss-free.
The positive pressure flow system allows maximum control of operation with easy possibility of fractional elution (and no evacuated vials to go wrong), which means that the volume of any fraction can be as small as the user demands.
Slotted lead end plugs are used (so there is as much shielding above and below the generator as there is around it) with special right angle needles in the eluent flow line: this eliminates the need for holes above and below the generator and minimises the radiation dose to the operator.
The generator is free-standing, takes up the minimum amount of space on the laboratory bench, and requires no elaborate extras.
It allows you, the user, full control over a safe and reliable system which can be used to deliver the daughter isotope in discrete fractions of maximum radioactive concentration.

Further information on the new sterile technetium-99m generator is available on request.

The Radiochemical Centre Amersham England

Available only outside Canada and the USA.

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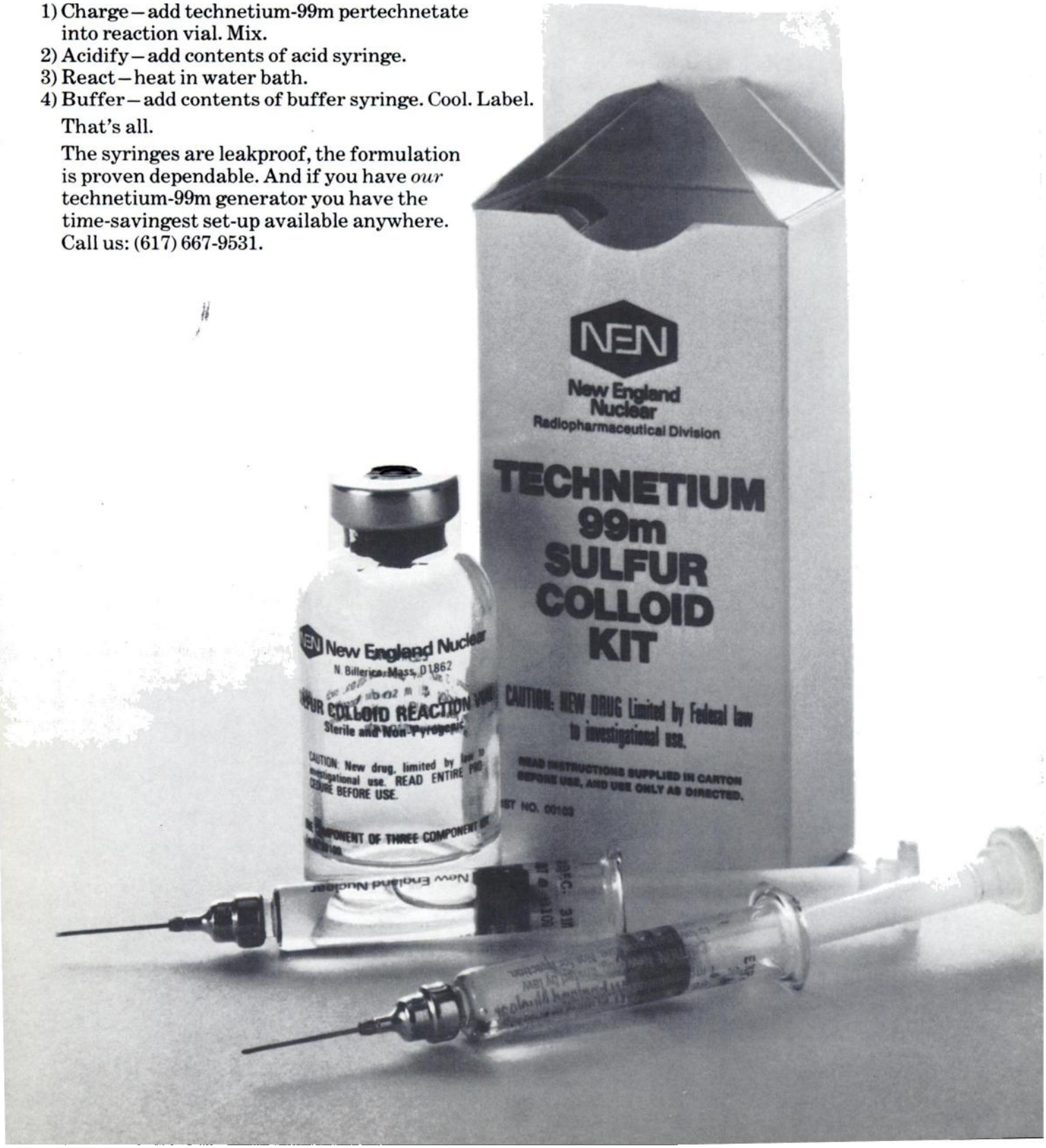
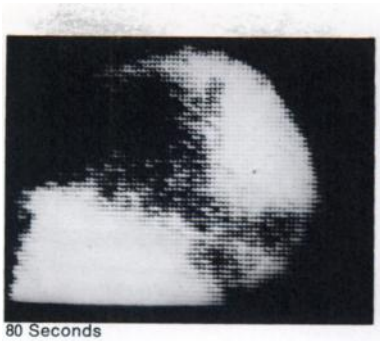
Simplify your life a little.

1) Charge – add technetium-99m pertechnetate into reaction vial. Mix.
2) Acidify – add contents of acid syringe.
3) React – heat in water bath.
4) Buffer – add contents of buffer syringe. Cool. Label.

That's all.

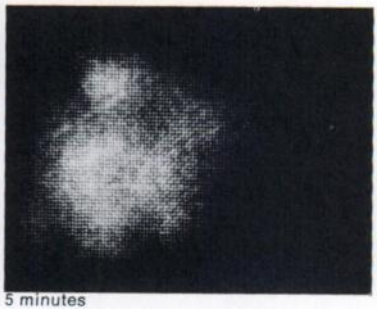
The syringes are leakproof, the formulation is proven dependable. And if you have *our* technetium-99m generator you have the time-savingest set-up available anywhere. Call us: (617) 667-9531.





80 Seconds

Typical Brain Scan
This is a six-year-old white male with a recurrent astrocytoma on the left side. Left lateral delineating the major portion of the recurrent tumor – ^{99m}Tc pertechnetate-5.0mCi. (The comparable scan took 5 minutes.)



5 minutes

Typical Liver Scan
This shows polycystic disease of the liver in a 45-year-old male. Note that the individual cysts are well-defined on the autofluorogram. Anterior view of liver with comparison studies – ^{99m}Tc sulfur colloid-1.0mCi. (The comparable scan took 25 minutes.)

If you had 4704 eyes, you'd see a lot better too.

The Baird-Atomic IMAGER 5700, with 4704 "eyes", delivers an image resolution better than any other.

What's the secret? Our detector!

Housed just above the multi-holed collimator on the Imager, the detector is a unique matrix of 294 NaI (Tl) crystals. Each crystal is a sensor, sending each detected event, on its own, to the magnetic core memory. Combine this imaging with the computerized bed that's programmed to index 16 times – 2.78mm per move – and you have our secret . . . a matrix of 4704 individual detectors or "eyes".

As a result, you see better . . . with an image of superior integrity. With no interference from events in adjacent crystals. No "ghosts" to tune out. And no mispositioning at high count rates.

With Baird-Atomic's IMAGER 5700 you get a scintillation camera that can be used as a scanner and still be capable of rapid imaging as well. Many of our customers perform both Statics and Dynamics, with one patient set-up.

The IMAGER 5700 performs at 3 to 4 mm resolution . . . routinely. And you know what this can mean.

In addition, its fast Dynamics allow the physician to interpret rather than interpolate. And you know what that means, too.

Baird-Atomic has worked with physicians and pharmaceutical manufacturers as a team to do a better job of taking care of people . . . for faster diagnosis and quicker treatment. That's why we've been a leader in nuclear medical research and other analytical instrumentation for 35 years.

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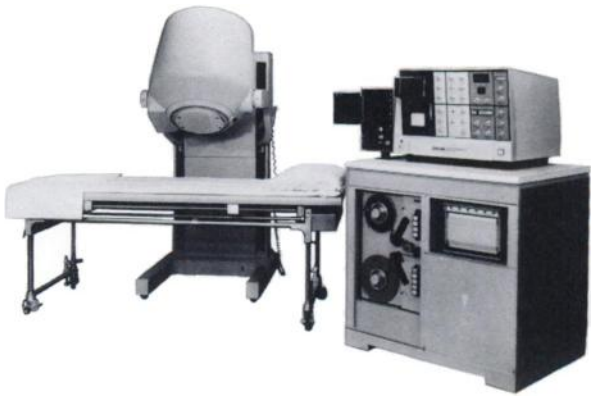
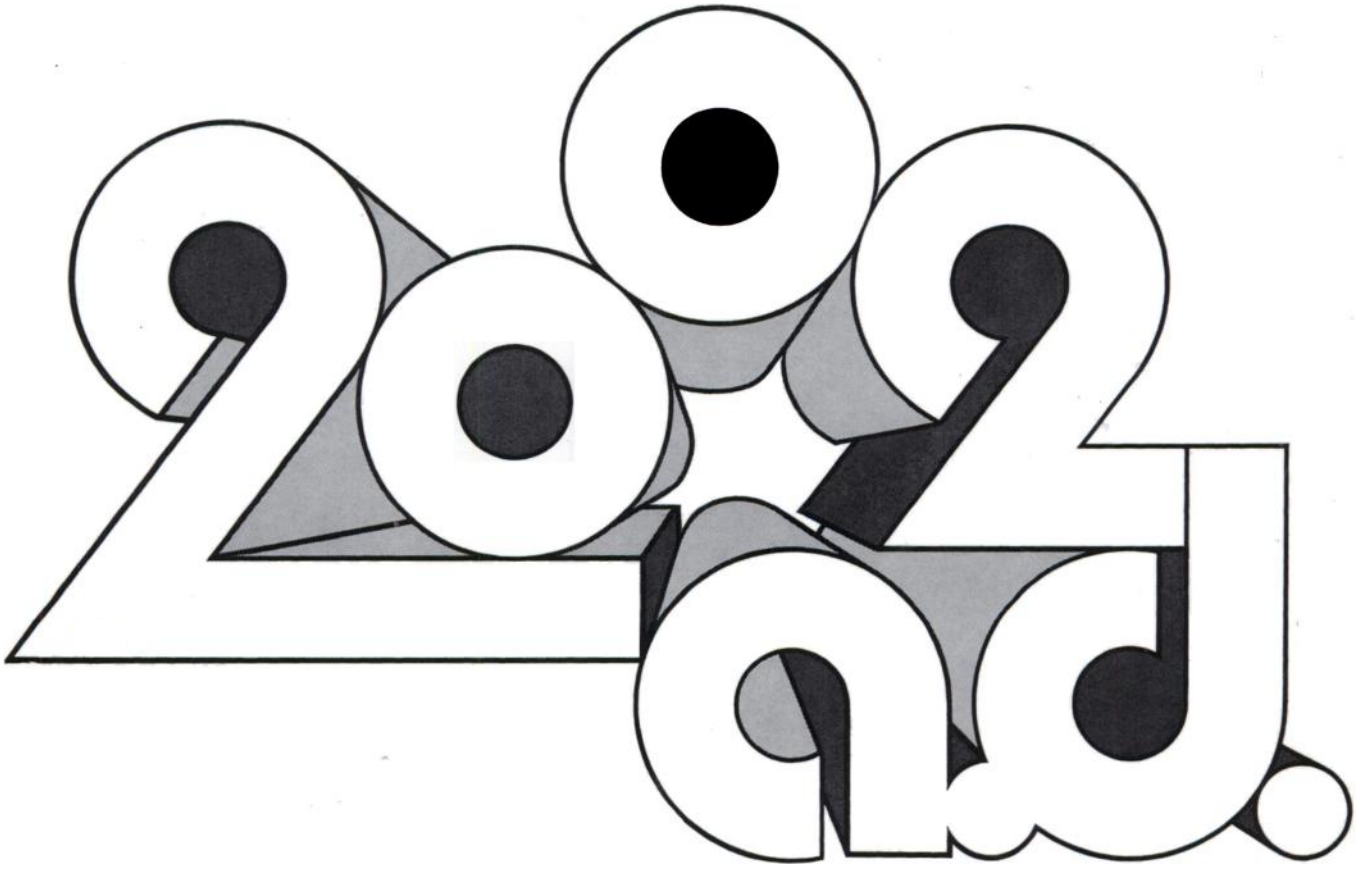


Send for our new descriptive brochure on the IMAGER 5700 system. It's mailed without obligation.



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