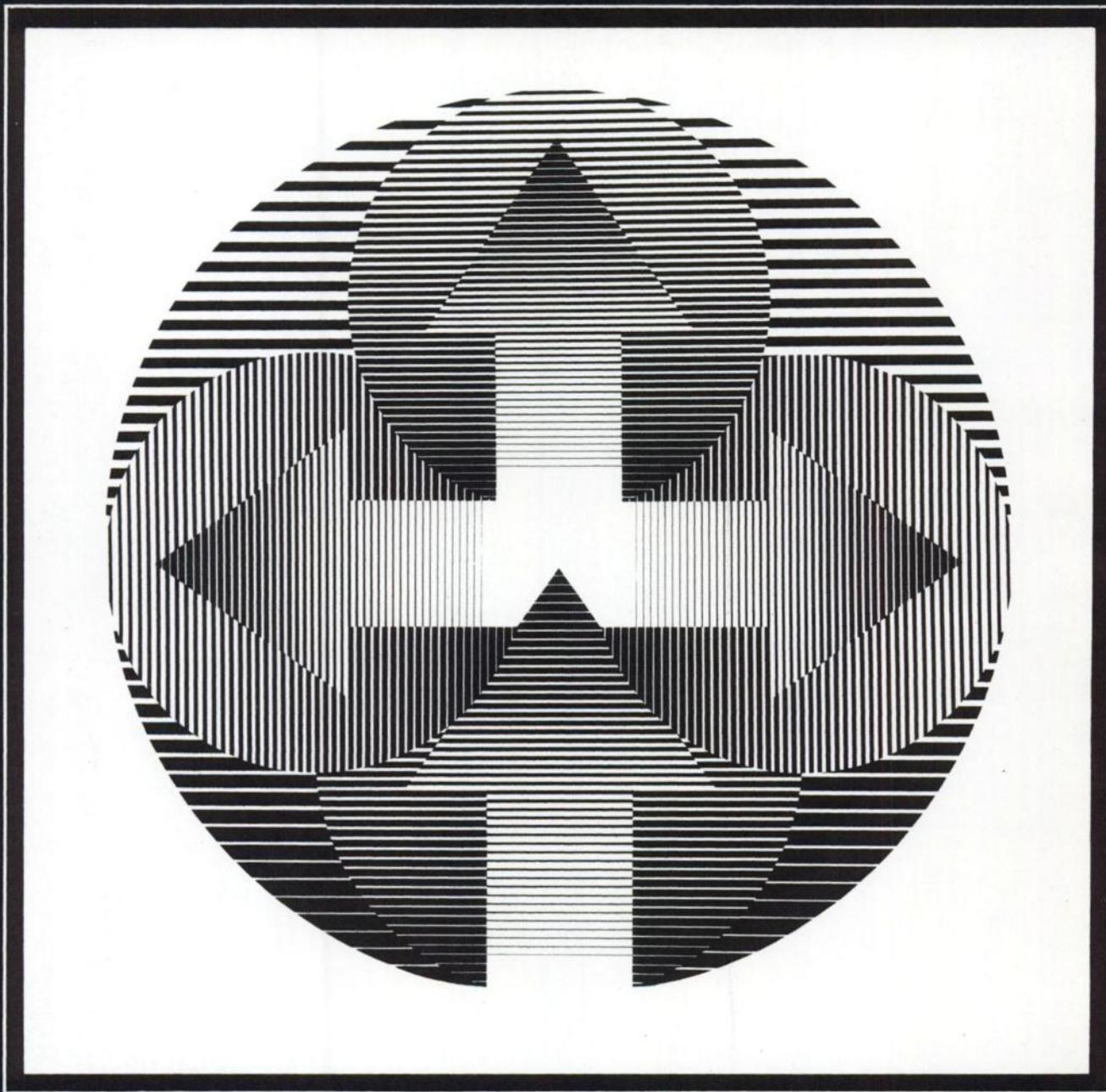


A Clinical Insight:

Indium 111 DTPA in Cisternography



The criteria suggested by Hosain and Som for a cisternographic radioisotope are: (i) physiologically governed by CSF flow, (ii) adequate half-life for desirable period of study, (iii) photons suitable for scanning, (iv) low radiation dose, (v) least probable chemical toxicity, and (vi) controlled pharmaceutical quality.¹ Chelated ¹¹¹In DTPA by Medi + Physics is a sterile, pyrogen-free radiopharmaceutical in isotonic aqueous solution for use in the study of cerebrospinal fluid pathways. It has

a radioactive half-life of 2.81 days. Its principal gamma emissions are 173 keV (89%) and 247 keV (94%). ¹¹¹In DTPA is a new drug limited by Federal law to investigational use. For information about clinical studies and licensure, call Medi + Physics toll free (800) 227-0483, or in California, (800) 772-2446. Or write: Medi + Physics 5855 Christie Ave, Emeryville, California 94608

¹Hosain, F. and Som, P., Chelated ¹¹¹In: An ideal radiopharmaceutical for cisternography, *Brit. J. Radiol.* 45, 677 (Sept. 1972).

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Medi + Physics Kidney Scintigraphin* puts mercury back in the thermometer.

Normal Study



400 k/363 SEC
HIGH-RESOLUTION



200 k/377 SEC
PINHOLE



200 k/442 SEC

Courtesy of DRS. Paul Weber and L.V. Dos Remedios

The above study is an example of renal images that you can expect with Kidney Scintigraphin.TM

Kidney ScintigraphinTM (2,3 dimer-captosuccinic acid) is a new investigational radiopharmaceutical developed by Medi + Physics. The biodistribution is similar to chlormerodrin.

For information on the clinical use and licensure of Medi + Physics Kidney

ScintigraphinTM call toll free (800) 227-0483 or in California (800) 772-2446.

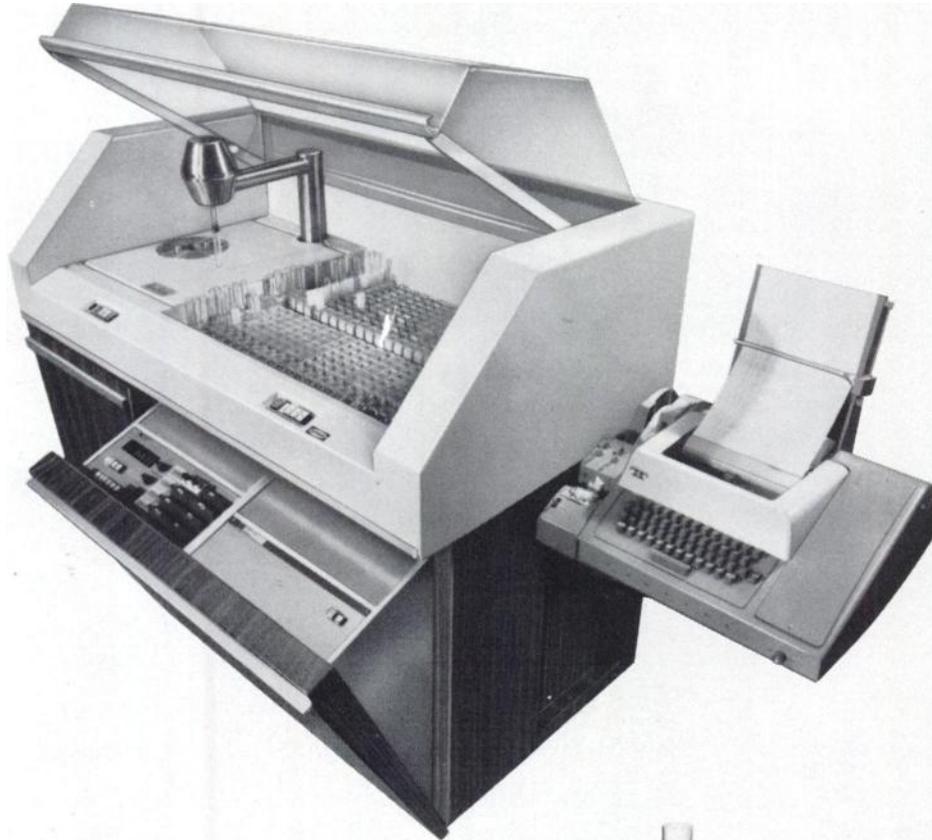
West Coast: Main Office 5855 Christie Avenue, Emeryville California. Los Angeles (213) 245-5751/Midwest: Chicago (312) 671-5444/East Coast: South Plainfield, New Jersey (201) 757-0500/Canada: Ottawa, Ontario (613) 225-2444. Vancouver, British Columbia (604) 980-9412.

* An Investigational New Drug.

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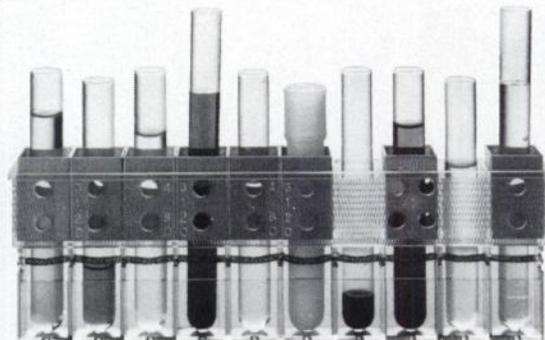
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And there are other key reasons why the GammaSet 500 is more than just a sample changer. *Contamination-proof "Set and Forget" Operation.* Sample counting/changing operation — including shut-off — is completely automatic and under full protection of the transparent cover. The foldaway electronics drawer, when closed, keeps controls from being changed accidentally. Data is recorded by printing lister, teletypewriter or punched paper tape.



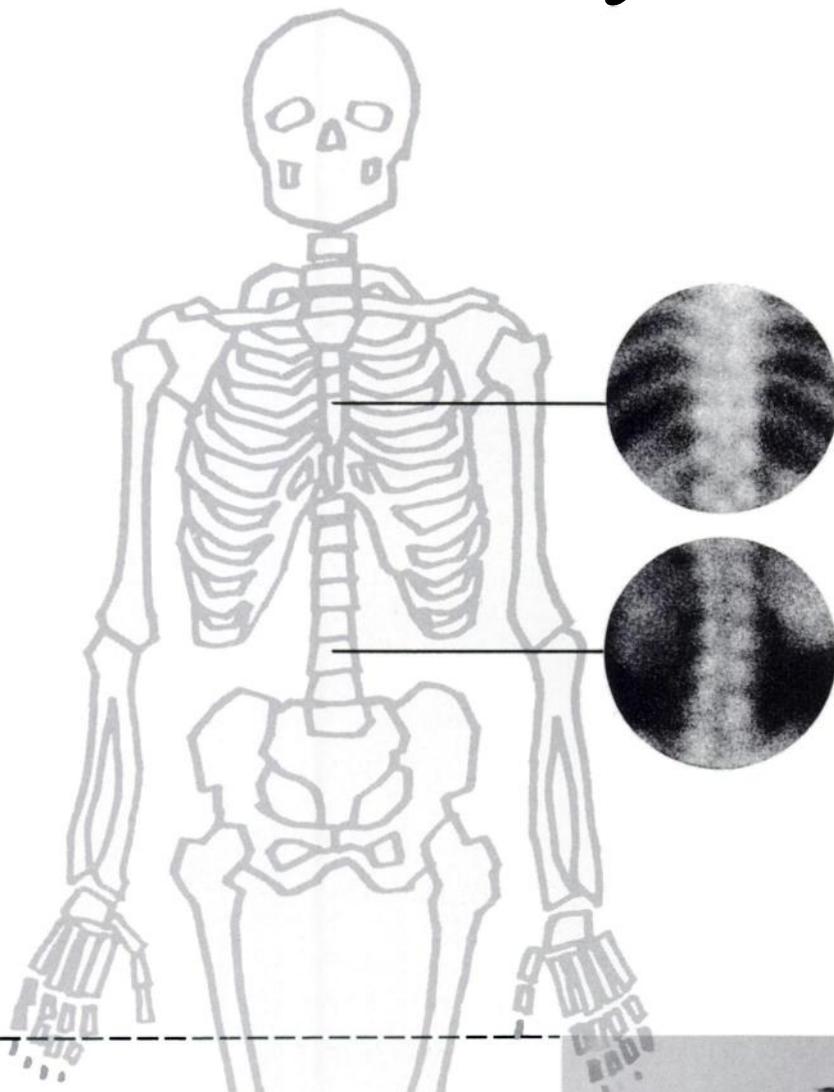
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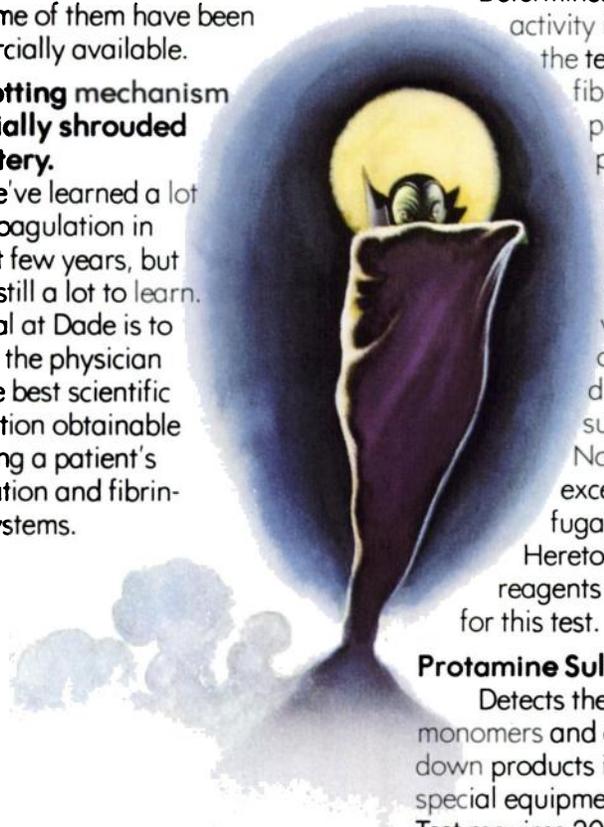
THE CLOT.

Dade announces the Data-Fi™ System: a series of reagents and controls for detecting and differentiating defibrination syndromes.

The tests in this system are specifically prepared to measure and detect Fibrinogen, Fibrinolytic activity, Fibrin monomers and early Fibrin degradation products. This is the first time some of them have been commercially available.

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We've learned a lot about coagulation in the past few years, but there's still a lot to learn. Our goal at Dade is to provide the physician with the best scientific information obtainable regarding a patient's coagulation and fibrinolytic systems.



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Determines the concentration of fibrinogen in plasma. Contains reagents for 50 tests. A complete fibrinogen assay may be completed in less than 10 minutes. This is the only product on the market that gives a quantitative result.

Euglobulin Lysis Set.

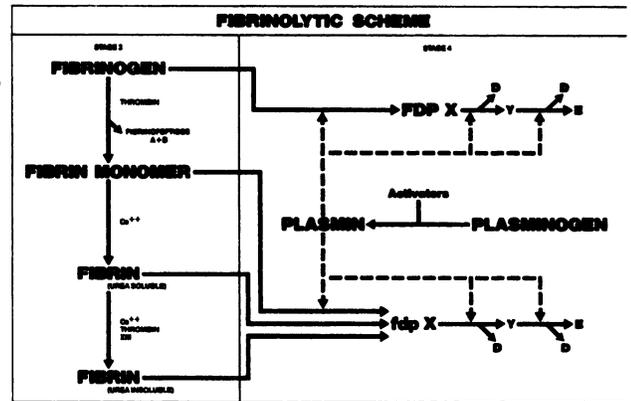
Determines fibrinolytic activity in plasma. In the test procedure, fibrinogen, plasminogen, plasmin and fibrinolytic activators are precipitated in the euglobulin fraction, while inhibitors of fibrinolysis are discarded with the supernatant fraction. No refrigeration or excessively high centrifugation is required.

Heretofore, no commercial reagents were available for this test.

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Detects the presence of fibrin monomers and early fibrin breakdown products in plasma. No special equipment required. Test requires 30 minutes. And only 1.0 ml of patient's plasma.

The Data-Fi System represents another first from the company that leads in supplying coagulation reagents and controls.



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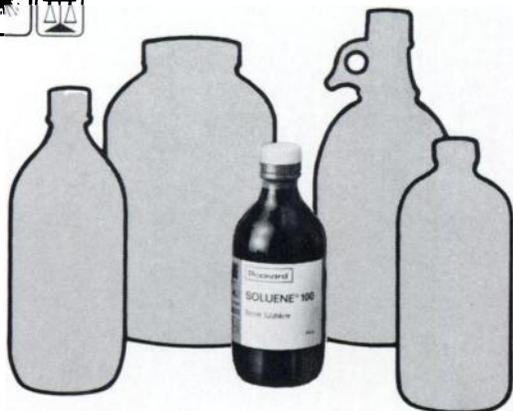
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CHEMICALS
AND SUPPLIES

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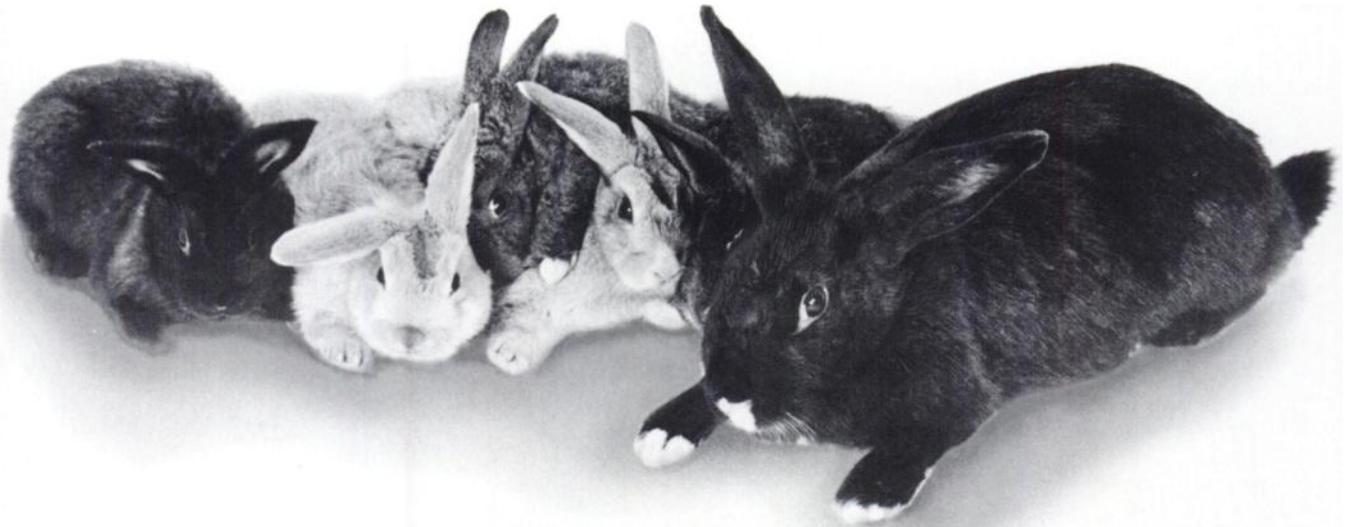
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Rabbits are not alone in their renown for predictable, consistent reproduction.

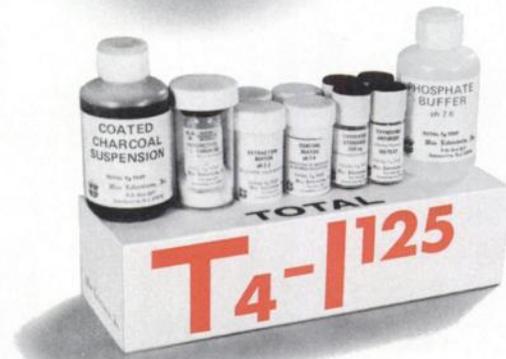
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1. Dunn, R.T. and Foster, L.B.: Radioimmunoassay of thyroxine in unextracted serum, by a single antibody technique, *Clinical Chemistry* 19:1063, (September) 1973.

*based on run of 30 assay tubes; for each additional 10 tubes, add 15 minutes

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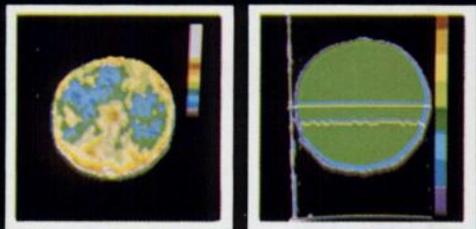
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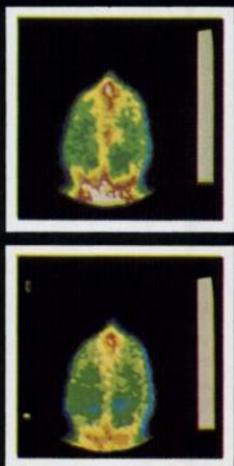
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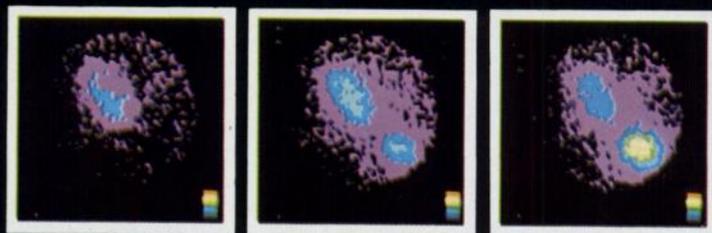


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and that definitive!**



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- Color elimination pushbuttons blank colors for isocount line determination.
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Elsclnt's Image Processor is comprised of a camera interface, the videodisplay and one of three data processors. The lowest priced processor is designed for static or slow dynamic studies. The two more complex systems offer the added capability to perform fast dynamic studies plus several additional modes of operation. The most advanced of these two systems enables complete time function data analyses to be done. It includes a built-in mini-computer (8K, 16 bit; 32 bit optional) and a complete battery of clinical programs. Time function data are displayed on a scope and printed out on a teletype or optional line printer. Thus, with no programming knowledge you can study regional blood flow, cardiac output, mean pulmonary transit time, clearance rates, rhcnography, and so forth. All systems are fully compatible with one another and each can be expanded with any of several available options to give you supplementary image processing capability as required.

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An 8K, 6 bit buffer and a 12K main memory receive and store up to 200 discrete images (400 optional), at rates to 10 frames per second. Average search and readout time for stored images is only 5 ms in forward or reverse — a real timesaving feature in multiple frame reviews. Dual disc memory cartridges speed data manipulation and leave original data untouched. Frame acquisition can be by preset limits or by physiological triggers which can also be used for time delay photographs.

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Use of the Elscint Image Processor may be learned easily in just a few hours by any of your technologists. Built-in safeguards prevent accidental loss of data and lighted buttons keep track of all processing underway. Image enhancement activities are noted with lighted indicators for each frame. Study and patient data for each image is easily entered and is thereafter displayed concurrently with the image.

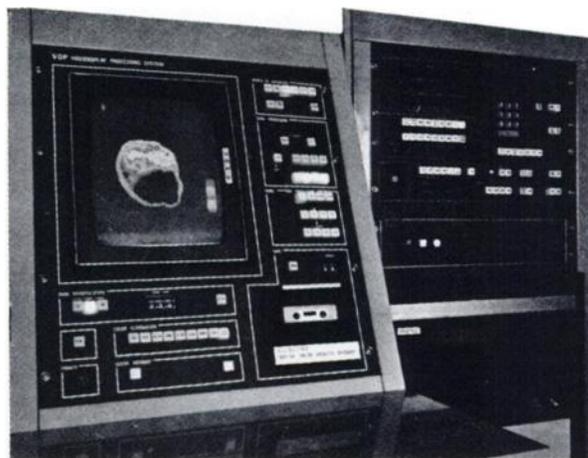
SIX REGIONS OF INTEREST MAXIMIZE DATA EVALUATION.

Six fully-positionable overlapping areas which appear on the screen, plus output from two external scalers may be selected for further digital evaluation. Time function histograms for all regions are displayed simultaneously, each in a different color.

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A twin memory is available for dual isotope studies, an optional main memory holds 200 additional image frames, a computer interface is available, a telephone interface permits communication with similar remote processors, and a camera facilitates obtaining permanent records of displays.

Note: Information given refers to several different Image Processor Systems. All models do not include all features described.



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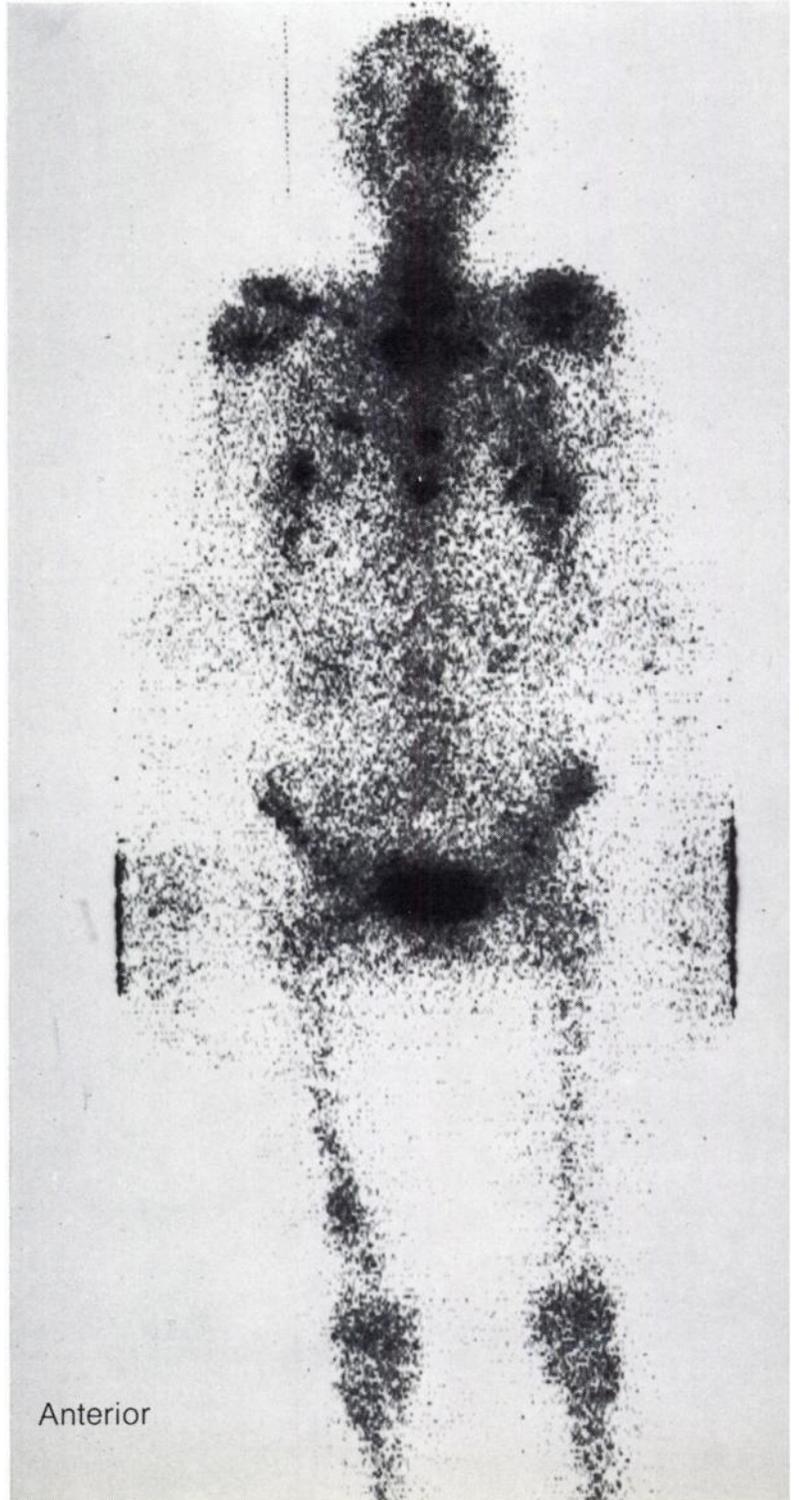
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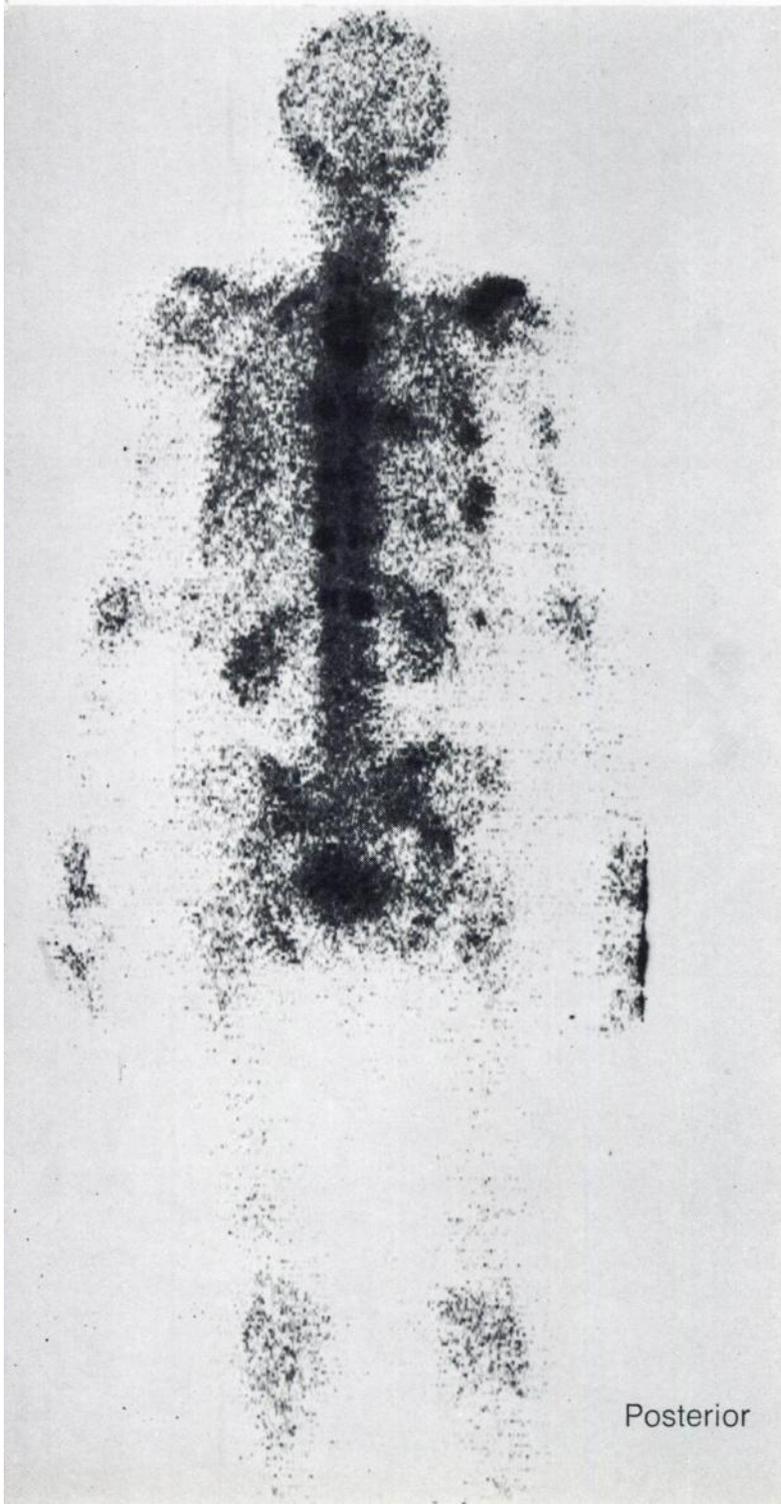


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SKELETAL IMAGING AGENT



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OSTEOSCAN

(5.9MG DISODIUM ETIDRONATE
0.16MG STANNOUS CHLORIDE)
SKELETAL IMAGING AGENT



Brief summary of Package Insert. Before using, please consult the full Package Insert included in each kit.

DESCRIPTION

Each vial of OSTEOSCAN contains 5.9 mg disodium etidronate and 0.16 mg stannous chloride as active ingredients. Upon addition of ADDITIVE-FREE ^{99m}Tc -pertechnetate, these ingredients combine with ^{99m}Tc to form a stable soluble complex.

ACTIONS (CLINICAL PHARMACOLOGY)

When injected intravenously, ^{99m}Tc -labeled OSTEOSCAN has a specific affinity for areas of altered osteogenesis. Areas of bone which are undergoing neoplastic invasion often have an unusually high turnover rate which may be imaged with ^{99m}Tc -labeled OSTEOSCAN.

Three hours after intravenous injection of 1 ml ^{99m}Tc -labeled OSTEOSCAN, an estimated 40-50% of the injected dose has been taken up by the skeleton. At this time approximately 50% has been excreted in the urine and 6% remains in the blood. A small amount is retained by the soft tissue. The level of ^{99m}Tc -labeled OSTEOSCAN excreted in the feces is below the level detectable by routine laboratory techniques.

INDICATIONS

OSTEOSCAN is a skeletal imaging agent used to demonstrate areas of altered osteogenesis.

CONTRAINDICATIONS

None.

WARNINGS

This radiopharmaceutical should not be administered to patients who are pregnant or lactating unless the information to be gained outweighs the potential hazards.

Ideally, examinations using radiopharmaceuticals, especially those elective in nature, of a woman of childbearing capability should be performed during the first few (approximately 10) days following the onset of menses.

Radiopharmaceuticals should be used only by physicians who are qualified by specific training in the safe use and handling of radionuclides produced by nuclear reactor or particle accelerator and whose experience and training have been approved by the appropriate government agency authorized to license the use of radionuclides.

The ^{99m}Tc -generator should be tested routinely for molybdenum breakthrough and aluminum. If either is detected, the eluate should not be used.

PRECAUTIONS

Both prior to and following ^{99m}Tc -labeled OSTEOSCAN administration, patients should be encouraged to drink fluids. Patients should void as often as possible after the ^{99m}Tc -labeled OSTEOSCAN injection to minimize background interference from accumulation in the bladder and unnecessary exposure to radiation.

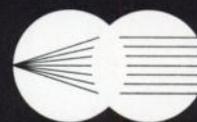
As in the use of any other radioactive material, care should be taken to insure minimum radiation exposure to the patient, consistent with proper patient management, and to insure minimum radiation exposure to occupational workers.

ADVERSE REACTIONS

None.

DOSAGE AND ADMINISTRATION

The recommended adult dose of ^{99m}Tc -labeled OSTEOSCAN is 1 ml with a total activity range of 10-15 mCi. ^{99m}Tc -labeled OSTEOSCAN should be given intravenously by slow injection over a period of 30 seconds within three (3) hours after its preparation. Optimum scanning time is 3-4 hours postinjection. The patient dose should be measured by a suitable radioactivity calibration system immediately prior to administration.



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A new Multi Imager that produces up to 80 images on a single film.

It's taken us some time but at last we can offer Pho/Gamma users a display system that puts it all together. Gone is the expensive and tediously inaccurate pulling of Polaroids. Gone is the unreliable and complicated 35 or 70 mm mechanical transport system.

The new Micro Dot Imager electronically minifies and manipulates the images across the CRT screen and displays them on a choice of three different conventionally sized X-ray films... handled and processed with conventional techniques.

In addition the new Micro Dot Imager provides the following exclusive benefits.

Clinically Oriented

- Choice of either 5 x 7 or 8 x 10 X-ray film sizes as well as the competitively available 11 x 14 film size.
- Built in whole body imaging with choice of each view presented in dual intensity on the film to facilitate diagnosis or the more economical two views with single intensity.
- Highest cine sequential time per frame resolution of up to 80 frames/study.

- Organ-specific push buttons automate, standardize and speed the proper exposure settings for routinely performed studies.

Simplified Operation

- Light emitting diode (LED) display indicates system status and exposures available for format selected as well as exposures remaining on the individual film.
- Absolute exposure control insures consistent day to day and week to week exposure levels on a separate but built in high resolution, high uniformity CRT.

Economical Operation

- A variety of film sizes guarantees the lowest operational cost of any imager offered.
- System designed lightweight, low cost cassettes with future daylight unloading capability.

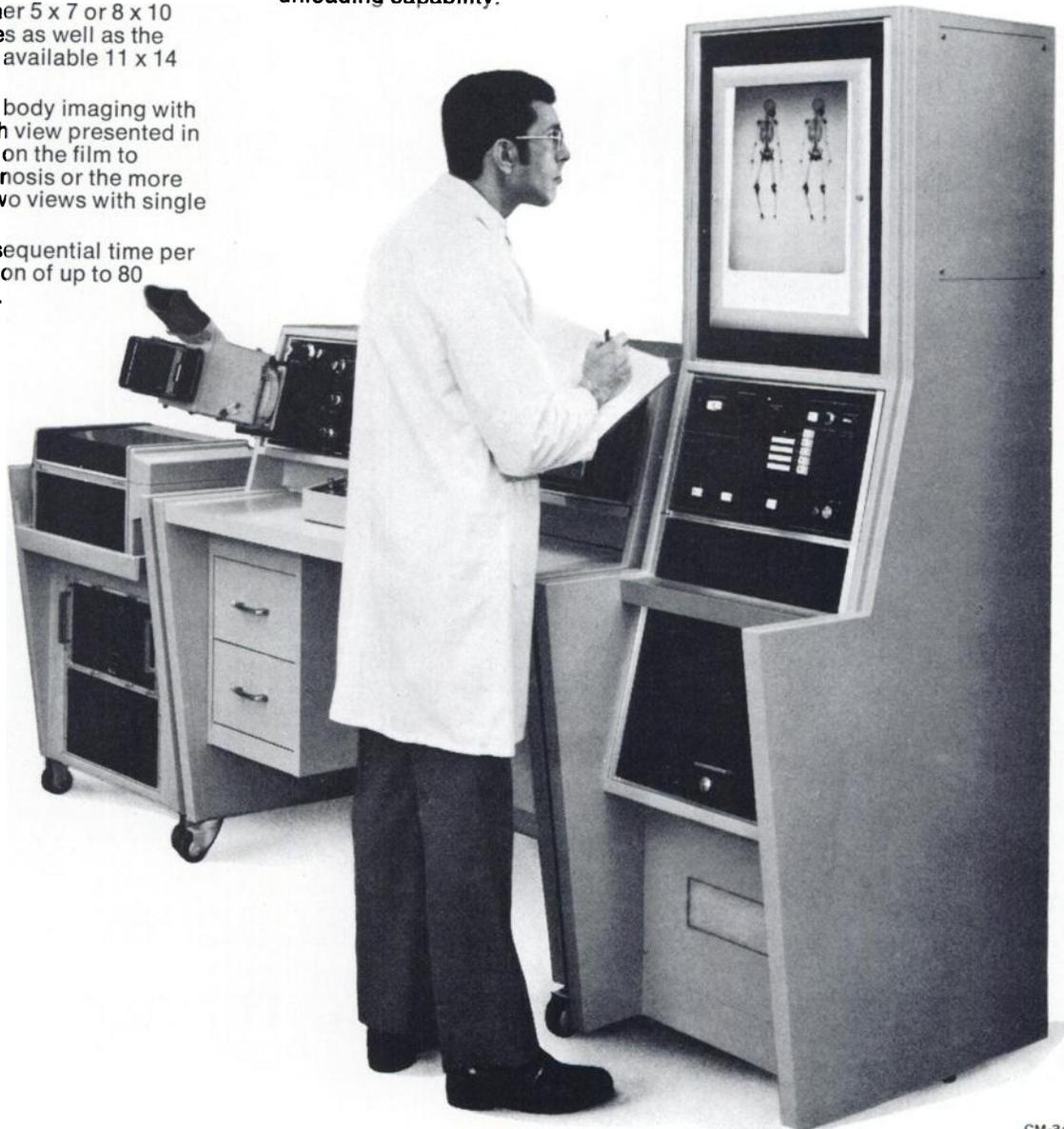
- Built in view-box saves space as well as steps.

And what's more, the Micro Dot Imager's inherent reliability is backed by a team of factory trained service engineers that perform on-site service for your total camera system. There is no longer any need to be concerned about system service responsibility, or here today, gone tomorrow... "pack it in the box and we'll service it at our factory" suppliers.

SEARLE

Searle Radiographics Inc.

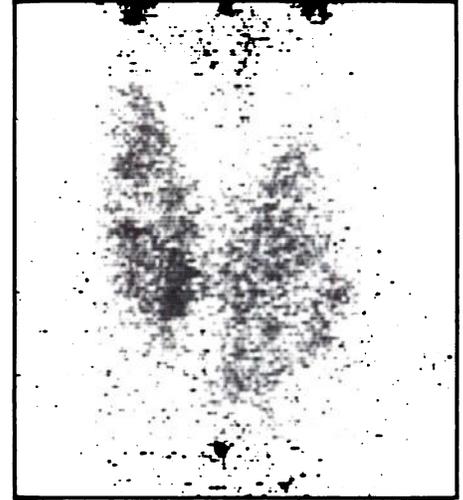
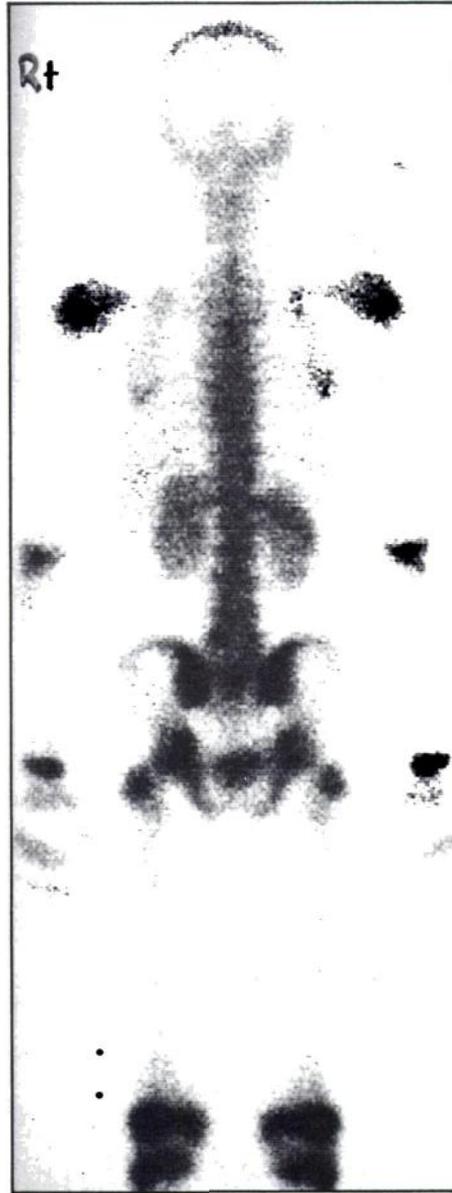
Subsidiary of G. D. Searle & Co.
2000 Nuclear Drive
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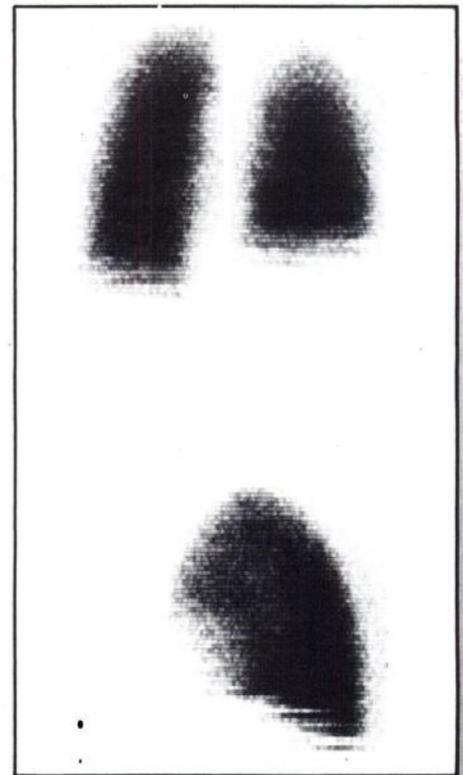
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12-year old boy—3:1 minification.



Enlarged thyroid.



Lung or liver/spleen studies easily done because of 24 inch field of view.

**Maxiscan[®] whole body scanner:
proven in-hospital performance
you can see.**

the more it makes sense.

If you're considering the use of a gamma camera and attachments for whole body scans, you should be aware of an interesting phenomenon. What begins as two to three whole body scans weekly soon mushrooms to three or more per day. And while the camera is tied up with these scans, other exams are delayed. Department scheduling can be woefully disrupted.

Consider the GE alternative. The Maxiscan™ two-probe whole body scanner. One patient position. A single pass delivers two coincident views for more definitive diagnostic information. And, instrument component cost analysis demonstrates lower cost per scan.

Skeletal surveys cover a full 24 x 80 inches. The image, minified to fit 14 x 17 inch film, permits location and diagnosis

of bone metastases, without a series of small area scans. For any single organ, select full size views or minifications of 2:1, 3:1, 4:1, or 5:1. Up to four scans may be displayed on one film, with precise quadrant placement and no image overlap.

Tilttable probes optimize brain scan views. Vertical scan option permits scanning of seated patients and vertex views of the brain. A mobile table can be equipped with automatic raising and lowering, providing easier patient positioning and transfer and numerous other advantages over fixed tables.

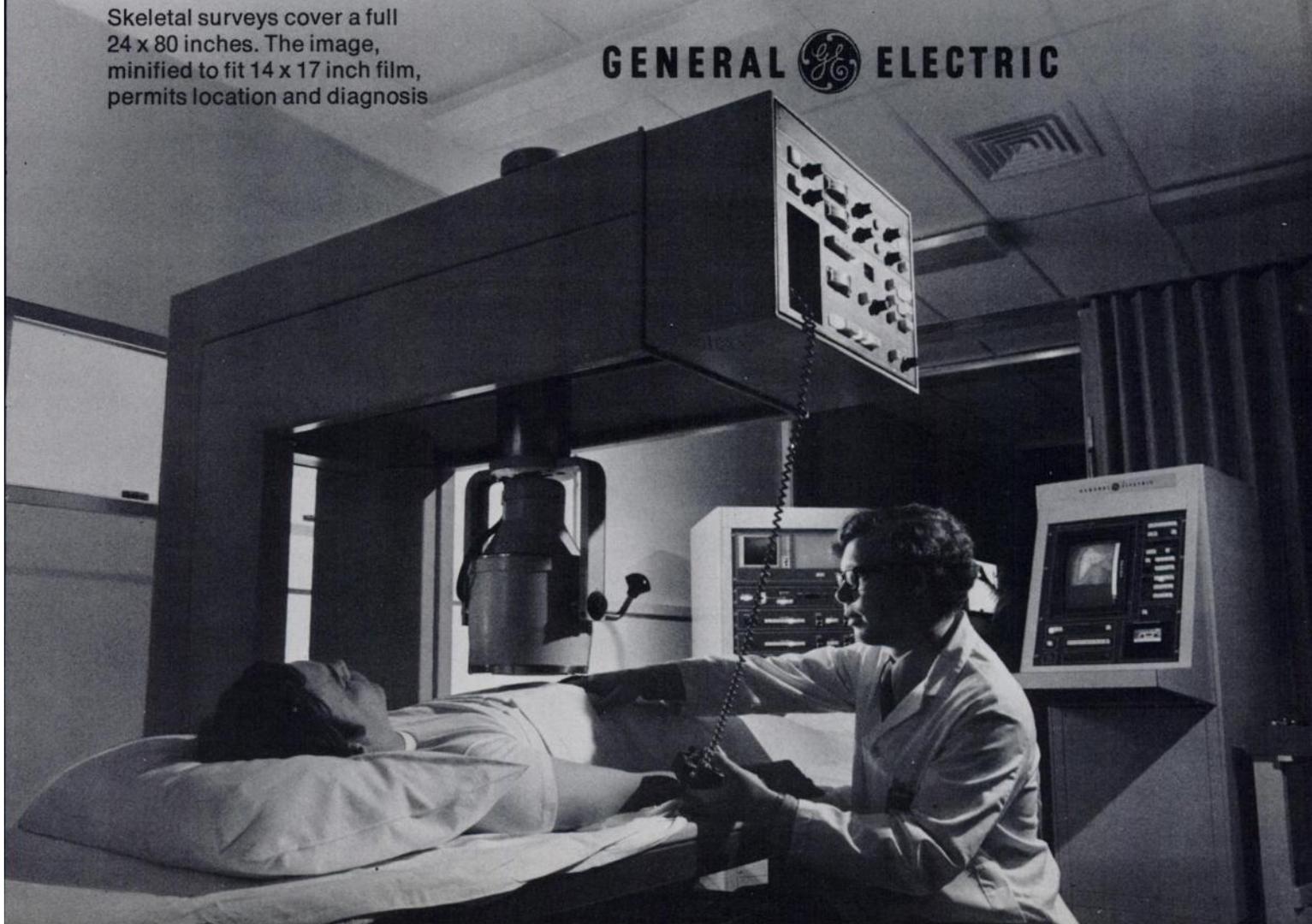
All scans can be viewed using standard film photorecording. Or, with GE's optional Video-

display processing unit, you can see patient data in B&W or fully functional color. Image contrast and density are independently selectable, and are not affected by such variables as patient-to-patient count rate differences and scanning speed.

Why not arrange to see the Maxiscan unit's total performance demonstrated in a movie, together with in-hospital case studies. Call your GE representative.

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And **EXCLUSIVE SPECIALIZATION.** Our Field Engineers work only on clinical nuclear equipment. That's what we sell. That's what we service. No other equipment. We're specialists.

We're also **RECOGNIZED IN THE INDUSTRY.** It's interesting. Two years ago, we had a tough time recruiting experienced Field Engineers. Today, they're coming to us, all the time. Does that tell you something?

Right. **WE'RE GROWING.** And that means a better opportunity, for the right man. During 1974, we plan to add five new Field Engineers each quarter, twenty for the year, just to keep up with our increasing sales.

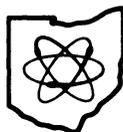
"DIRECT SERVICE IS MORE IMPORTANT THAN DIRECT SALES." Quote. Joe Teague, President, Ohio-Nuclear. Want proof? Last year, one of our sales territories was without a salesman for about six months. Yet sales continued, over projected quota. Why? Our Field Engineers were there, on the job. We figure those potential customers knew they could get service, knew the equipment was right for them, and decided we would somehow get the orders processed and the equipment installed. Which we did.

Finally, we're **COMMITTED** to service, wherever we sell. And we live up to that commitment, day after day, before and after that occasional breakdown that plagues any piece of sophisticated equipment. Ask our users. Or ask us, about service agreements. Details and cost vary with type and model of equipment. Write us for full information. We'll be here — this year, next year, and the year after.

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Searle Analytic's patented programmable tray system lets you pipette, incubate, centrifuge, decant and count without touching a test tube. Color coded samples are never handled or removed from tray until you throw them away. Less prep time, less mess, less chance for error.

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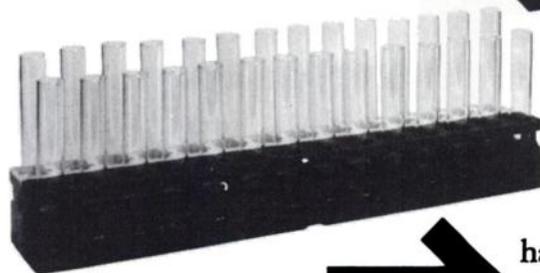


Micromedic Systems has successfully adapted the majority of available RIA reagents to instrumentation. Now, in another major step, we offer:

RIA reagent kits

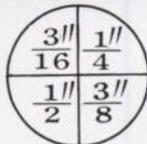
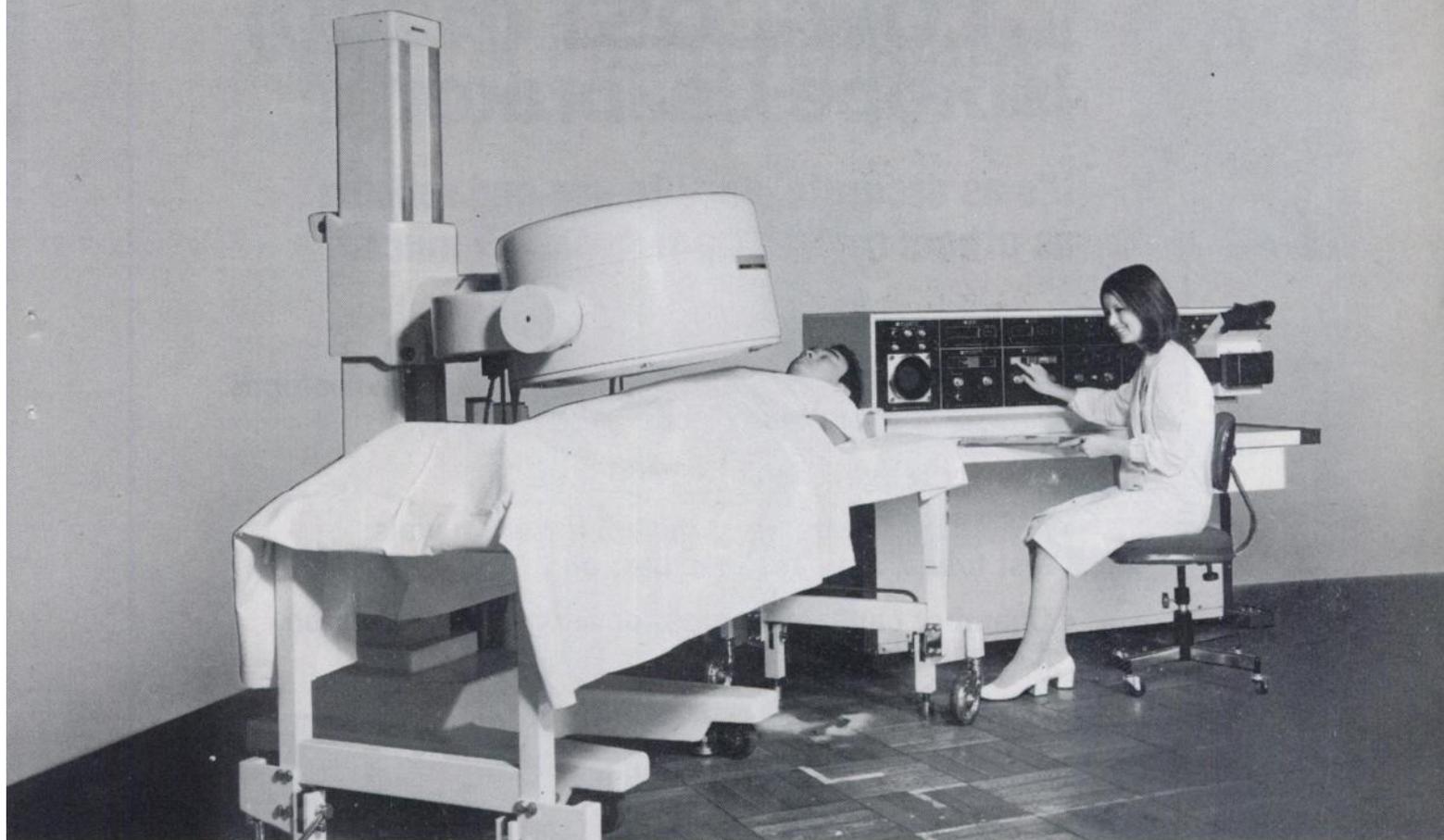
of exacting standards, developed by a leading university research center. All kits are ^{125}I -labelled, double antibody, utilizing a standard buffer from assay to assay. Protocols are matched to the system's performance and standards of the instruments below.

Automated pipetting station, allied to the RIA rack, assures hands off RIA all through the system... no individual tube handling, no massive micropipetting, no deviations in volume and dilution. Flexible through-put: handles small or large numbers of tubes with equal ease, all with reproducibility of 0.5% C.V. or better.

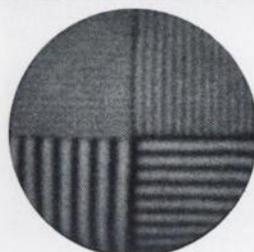


The RIA rack... heart of hands off, precise-reaction, total system RIA offered only by Micromedic Systems... samples prepared, incubated, centrifuged and counted, all in the same rack, all without handling or misnumbering.

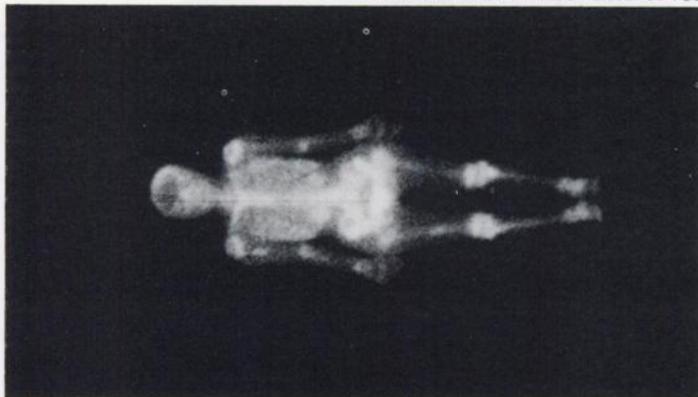
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Toshiba's Jumbo Gammacamera, model GCA-202, has an effective field of view 350mm in diameter. Other features include:

- * The ability to image a large organ alone or in combination with smaller organs.
- * No divergent collimator is needed.
- * Images with high resolution and sensitivity without distortion.

The Jumbo Gammacamera and its Whole Body Adaptor make whole-body-imaging possible in only ten minutes. Other advantages:

- * You get more time for other tests and diagnosis.
- * More accurate diagnosis.
- * Patients don't have to go through time-consuming examinations.

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#1...Multi-Imager System

The complete system for static, dynamic, whole body, and physiological function gated imaging.

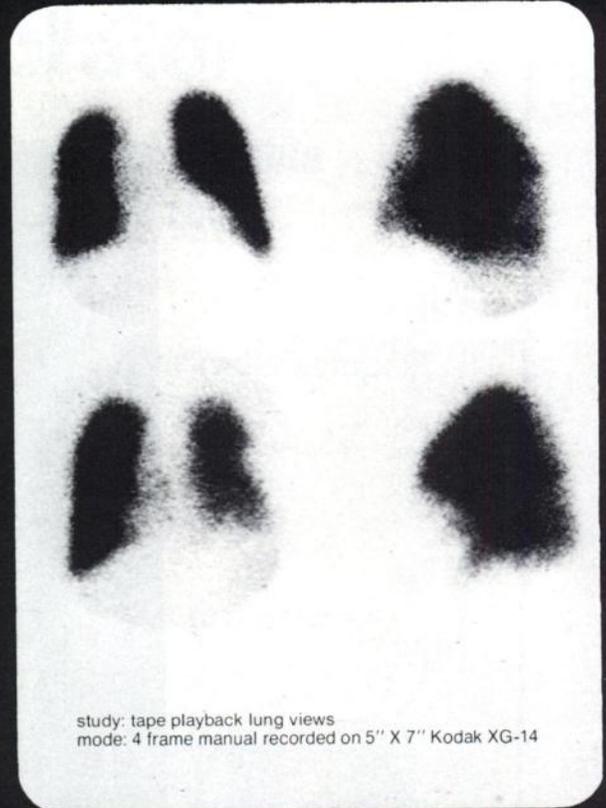
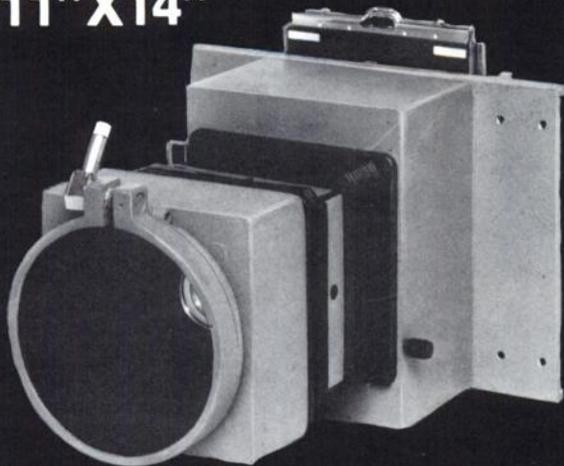


Three film size formats for optimum imaging versatility:

4" X 5"

5" X 7"

11" X 14"



study: tape playback lung views
mode: 4 frame manual recorded on 5" X 7" Kodak XG-14



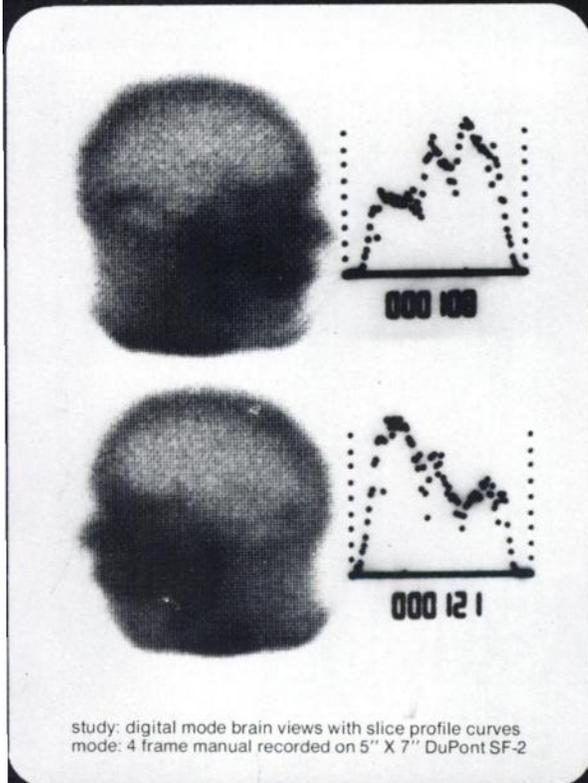
study: Tc 99 m pertechnetate renal flow
exposure: 0.8 seconds/frame
mode: 16 frame dynamic recorded on 11" X 14" X-ray film

MATRIX INSTRUMENTS

Mail coupon to receive actual size sample studies.



study: tape playback cerebral flow with histogram curves
 exposure: 1 second/frame
 mode: 16 frame recorded on 5" X 7" DuPont SF-2



study: digital mode brain views with slice profile curves
 mode: 4 frame manual recorded on 5" X 7" DuPont SF-2

The Multi-Imager System offers

- Up to 36 image frames on a single sheet of film
- Physiological gating permitting imaging of predetermined multiple phases of the respiratory and/or cardiac cycles in separate frames
- Electronic frame advance without any moving mechanical components
- Electronic frame advance dead time of less than one μ second
- Film cost savings of up to several thousand dollars per year
- Compatibility with all scintillation cameras

The Multi-Imager System is designed for use with scintillation cameras to provide dynamic, static, whole body, and physiological function synchronized imaging. The system operates by altering the CRT deflection signals, changing the size, location, and duration of the image on the display scope. Frame advance is achieved electronically, yielding sequential exposures with essentially no data loss.



THE ONLY SYSTEM THAT CAN RECORD BOTH END-SYSTOLE AND END-DIASTOLE SIMULTANEOUSLY

The Cardiac Gate accessory records both end-systolic and end-diastolic images simultaneously, using a two frame format. The Multi-Imager System alternates exposures between the two frames synchronous with the patient's cardiac cycle. The Cardiac Gate is a complete ECG instrument, including a heated stylus strip chart recorder that records both the cardiogram and the exposure gates.

The Respiratory Gate accessory records both inspiration plateau and expiration plateau images simultaneously, using a two frame format. The Multi-Imager System alternates exposures between the two frames synchronous with the motion of the organ being imaged. The Respiratory Gate operates without attaching any sensors to the patient. Either the gamma camera split crystal mode or areas of interest are used to sense organ motion.

Cardiac and respiratory gating can be combined to simultaneously record in a four frame format all four possible combinations: end-systole/inspiration plateau, end-systole/expiration plateau, end-diastole/inspiration plateau, and end-diastole/expiration plateau.

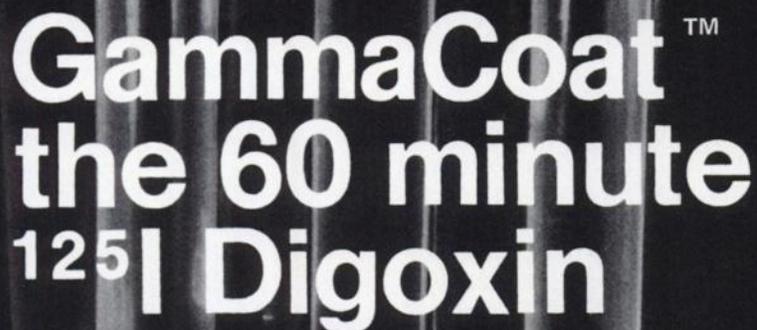
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Please send Multi-Imager System literature and sample studies.

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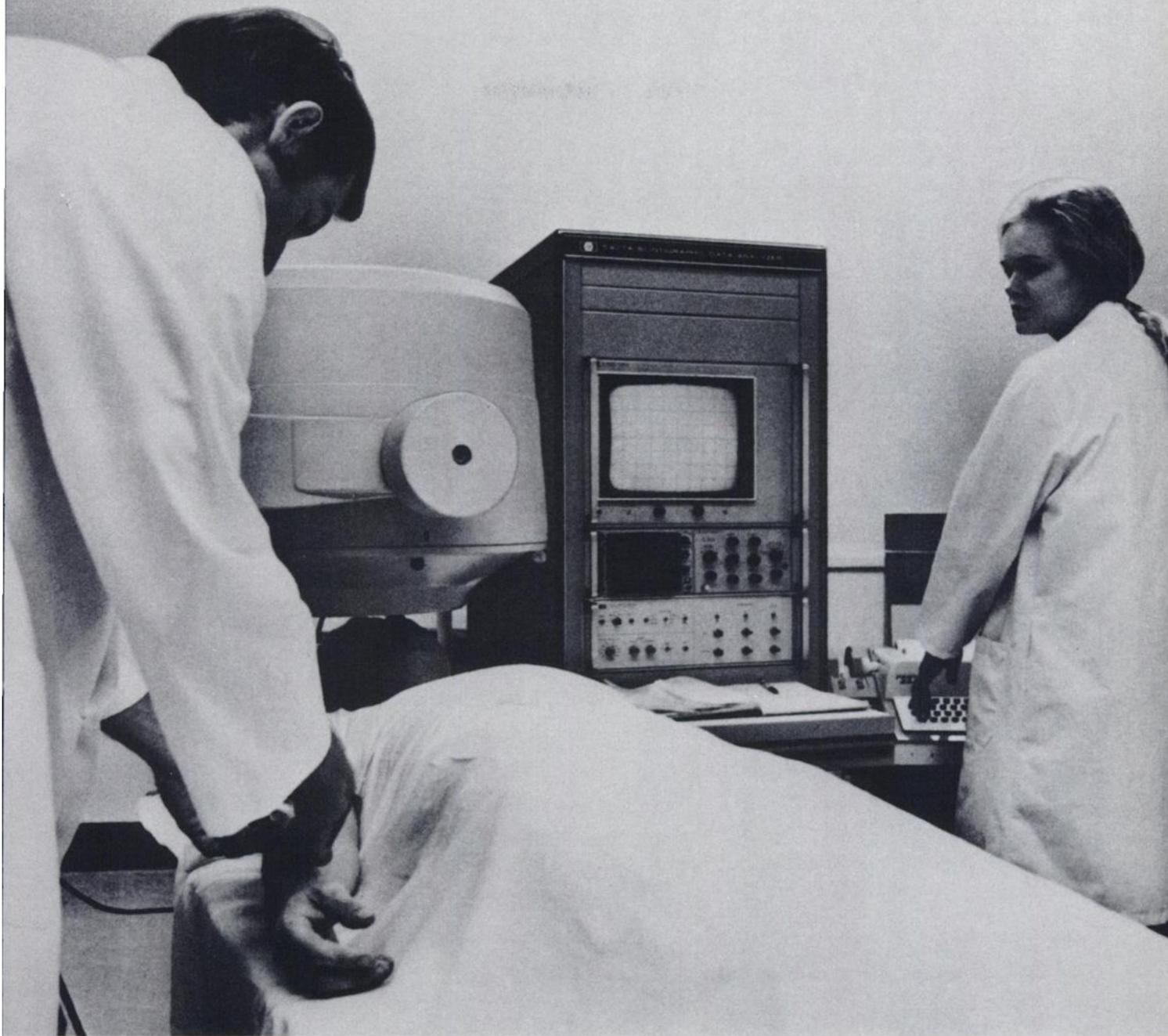
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The HP Scintigraphic Data Analyzer



More flexible data handling *now...* faster data acquisition for years to come

HP's Scintigraphic Data Analyzer offers you the most flexible data manipulation available in nuclear medicine.

Its unique *list mode* preserves all data from the study. You can choose the frame rate you need to manipulate data the way you want—up to 100 frames/second—after the study is over.

In *histogram mode* the system accepts data up to 300,000 events/second at preset frame rates up to 20/second—ideal for static and slower dynamic studies.

That's performance enough for the fastest studies now being investigated

and for the new generation of gamma cameras now appearing.

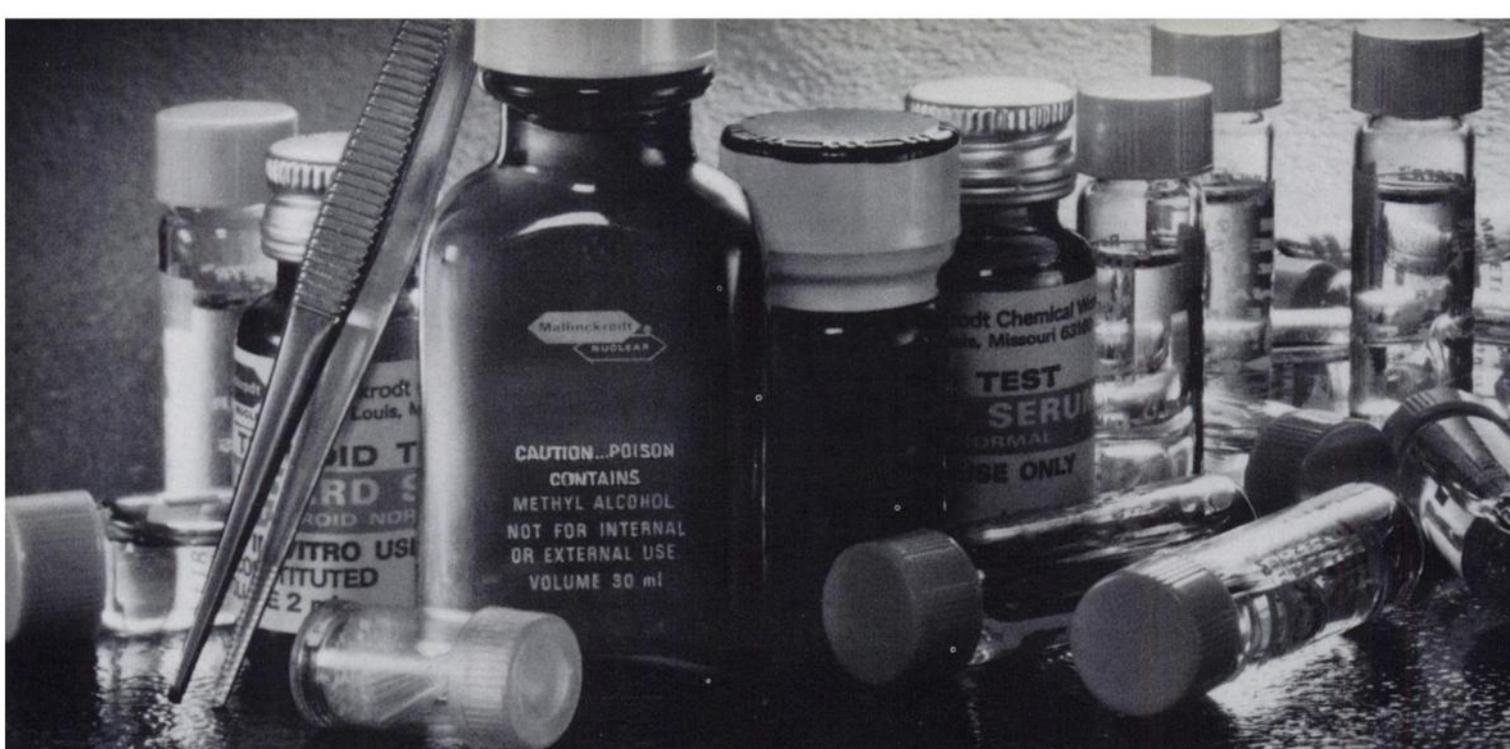
Yet for all its sophistication, the HP 5407 Scintigraphic Data Analyzer is easy to understand and operate. Its simple keyboard lets you or your technician tell the system exactly what to do. By using the light pen you can assign up to 16 overlapping regions of interest, with ample facilities to insert and display verbal information on the display scope.

The HP 5407 is already providing clinically-significant patient information in more than 20 leading hospitals in the U.S. and Europe. System performance

is only one reason why. As a world leader in medical computer systems, HP has the equipment, experience and qualified personnel to assure dedicated training and service assistance to meet your needs today and in the future. Send for "HP's Total System Approach to Nuclear Medicine." HP brochure No. 3597.

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The Res-O-Mat[®] ETR[®] Test for thyroid function: what it can do, can't do and needs to do.

What the **ETR** test can do is deliver fast, highly accurate diagnosis of thyroid function. It's the first in vitro test to consider simultaneously total T4 concentration and the degree of hormone saturation of protein binding sites.¹

It completely obviates the effects of pregnancy, the pill, iodides and many commonly used drugs. They don't even figure in the test system.

Based on actual clinical evaluation, this test has been shown to have a high degree of correlation with the true thyroid function of the patient.^{2 3} The **Res-O-Mat ETR** test has proven to be an extremely valuable method of monitoring thyroid therapy.

What the **Res-O-Mat ETR** test doesn't do is talk the routine language of traditional thyroid tests. It talks in **ETR units**. Precise, informative, but somewhat different. The test doesn't reflect protein abnormality. It isn't designed to. Its specific job is determining thyroid performance.

What the **ETR** test needs to do is to get a chance to prove itself to you. It's unfamiliar, so it's easy to resist. Those who have tried it usually see its advantages right away. They find themselves with a fast, highly accurate test.

Isn't that worth looking into?

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NUCLEAR

(1) Mincey, E. K., Thorson, S. C., and Brown, J. L., et al.: A new parameter of thyroid function—The effective thyroxine ratio. *J. Nucl. Med.* 13:165-168, February 1972.

(2) Gladding, T. C.: Effective thyroxine ratio (ETR)—A new test for thyroid function. *J. Tenn. Med. Assn.* 65:442-444, May 1972.

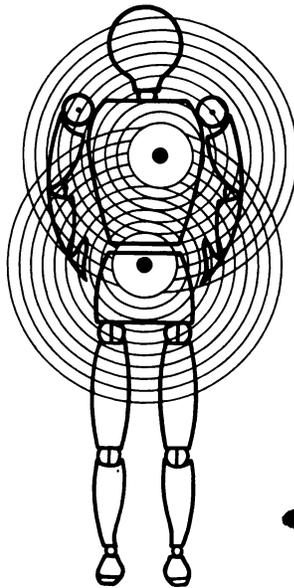
(3) Murray, I. P. C., Parkin, J., and Gubanyi, M.: The "Effective Thyroxine Ratio" in the assessment of thyroid function. *Med. J. Australia* 1:1190-1193, June 3, 1972.

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Biokit[®] Aldosterone

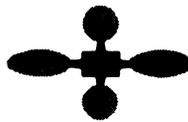
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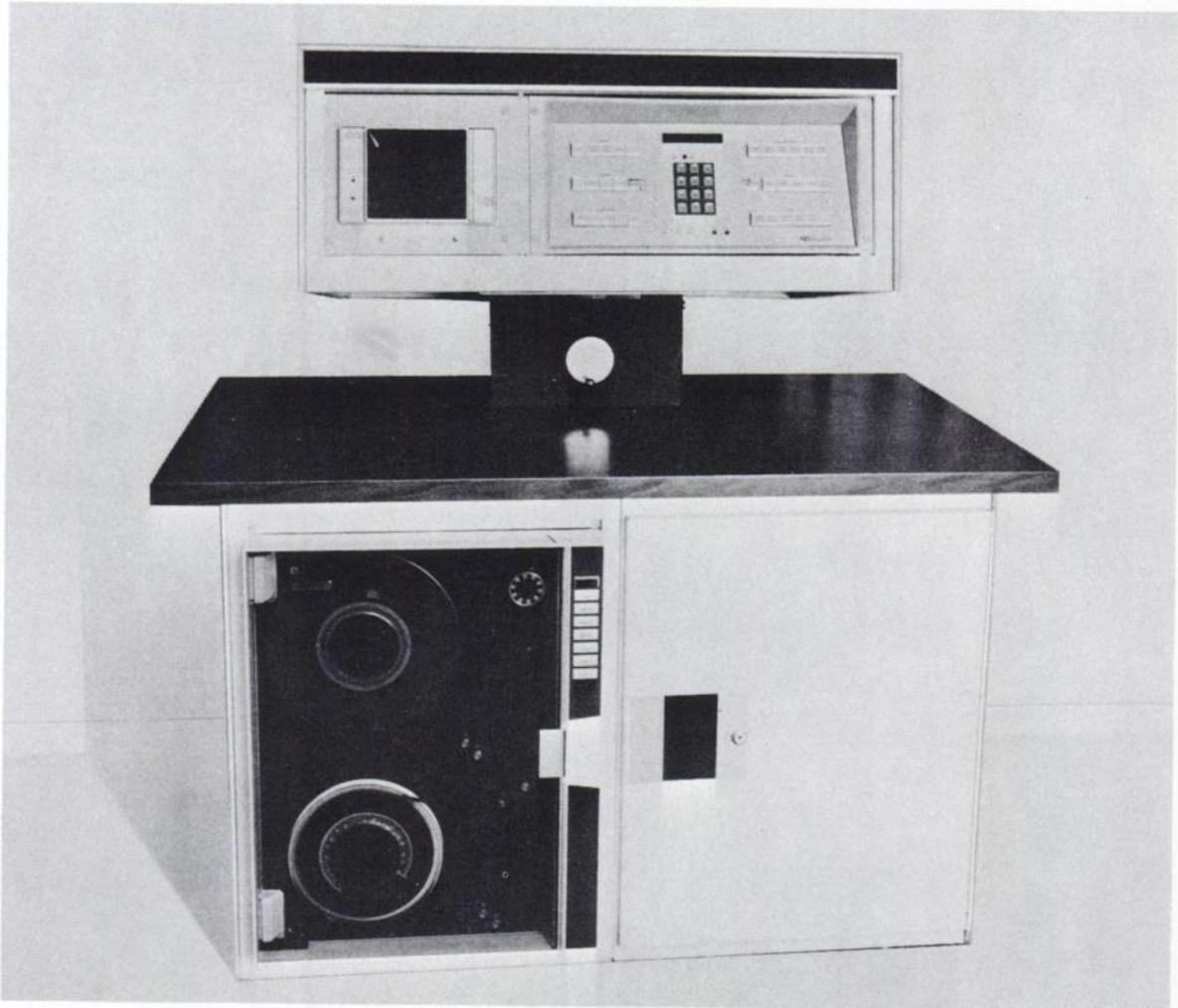
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B13M

This is the simplest way to computerize your scintillation camera



Nuclear Data's Med Stor™

Nuclear Data's new MED STOR™ is a moderately priced computerized image storage and processing system that can be used with any scintillation camera. MED STOR provides computer controlled acquisition of static and dynamic function data, selection of up to four regions of interest, and simultaneous generation of up to four time/activity histograms. It also provides variable image framing rates, high speed list mode acquisition, file and display of patient and study data, static image display selections of 64x64, 128x128, or even 256x256 data points, and almost instant data storage and retrieval by high density magnetic computer tape. This latter capability permits playback of an image in seconds regardless of the real time required for the camera to produce the image.

Though MED STOR is a real computerized system, you don't have to be a programmer or computer expert to use it fully. MED STOR has complete built-in software and operates totally by simple understandable push-buttons. And, because MED STOR is a true computerized system, it represents only the beginning of your department's image processing and storage capability. MED STOR readily upgrades at any time to the advanced and programmable MED II image storage and processing system.

Important questions to consider before you computerize your scintillation camera.

- (1) Which is the only company that actually makes its own scintillation cameras and medical computers? **(Nuclear Data)**
- (2) Who is the most experienced producer of computerized image storage and processing systems in the world? **(Nuclear Data)**
- (3) Which company has the most such systems in routine clinical use? **(Nuclear Data)**
- (4) What one computerized image storage and processing system has done away with the typewriter keyboard and is operated totally by simple pushbuttons? **(Med Stor)**
- (5) What company has the most experience in interfacing computers with cameras? **(Nuclear Data)**
- (6) Which modestly-priced image storage and processing system is a real computer and not just a hard-wired multichannel analyzer? **(Med Stor)**
- (7) Which company can be described in these words: "... The most sophisticated developer of software in this field and who has been doing it for a longer time than anyone else and who has more clinical software than anyone else in this field ..."? **(Nuclear Data)**
- (8) Which computerized image storage and processing system can actually be mastered in about two hours? **(Med Stor)**
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Some gamma cameras reveal more lung than others, because they are gated by Brattle synchronizers.



UNGATED (300K)



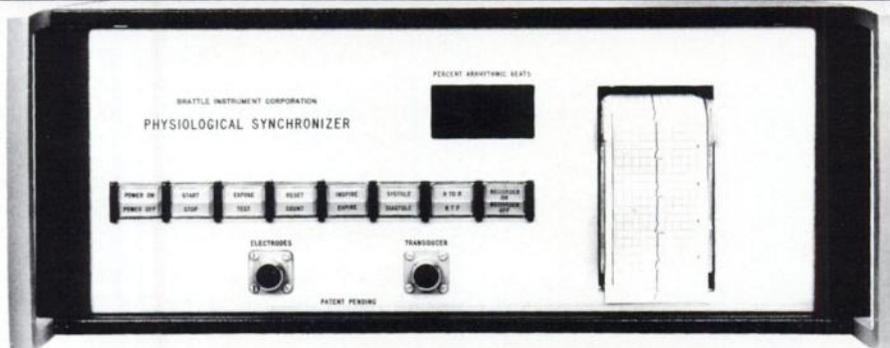
INSPIRATORY PLATEAU (300K)



EXPIRATORY PLATEAU (300K)

Scintigrams gated on Full Inspiration not only reveal more lung (the lower lobe), but they facilitate diagnoses based on comparisons with chest x-rays and ventilation studies. In the Ungated study, detail is compromised; even if the photo had more

lower lobe exposure, it would still be blurred by the large excursion demonstrated above. Write or call for a portfolio of Brattle-gated studies of motion-free lungs, livers and hearts. (Photos courtesy of Massachusetts General Hospital.)



No knobs, no meters, no errors
The spartan panel above tells the second-best part of our story. If you want to photograph peak systole, press the SYSTOLE button. If, say, you want systole only at full expiration, press the EXPIRATION button as well. If only breathing is relevant, don't press the heart button.

The Brattle is connected to the patient and to your gamma (or x-ray or ultrasonic) camera. Whenever the patient is in the selected phase, both the scope and the scaler on your gamma camera are gated ON, and film is exposed. Otherwise, they are OFF.

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Two of these hospitals, Johns Hopkins and Mass. General, have kindly supplied us sample clinical pictures which we'll gladly show you. And if you want references on effectiveness, reliability and safety, we'll supply them, as well as a bibliography on ten years' worth of medical uses of synchronization.

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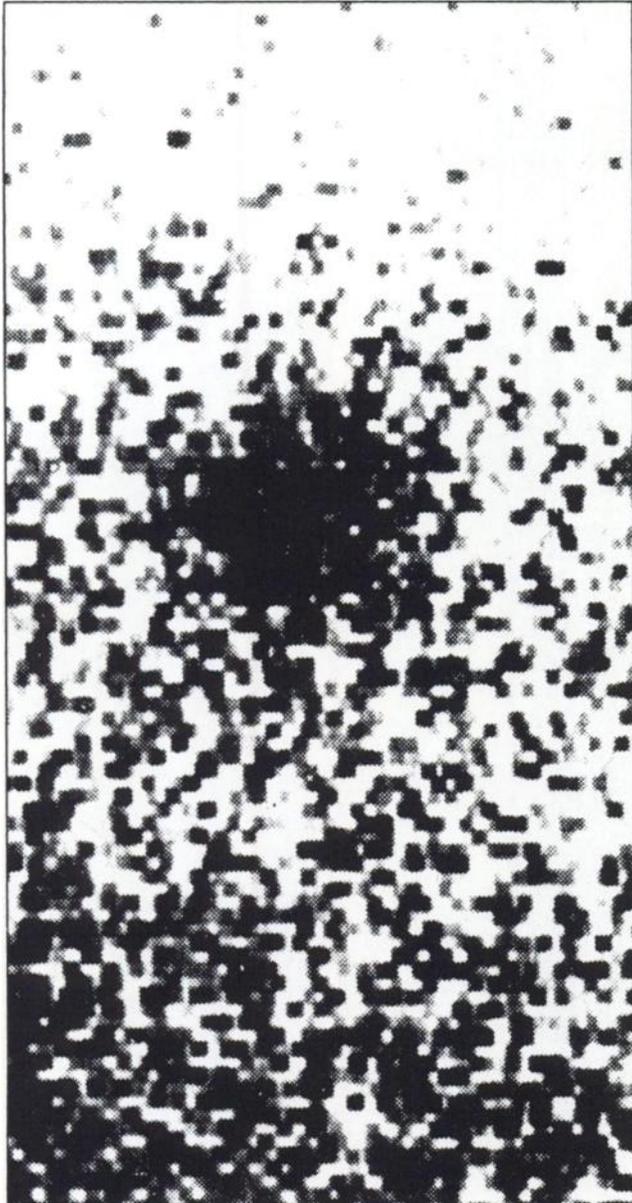
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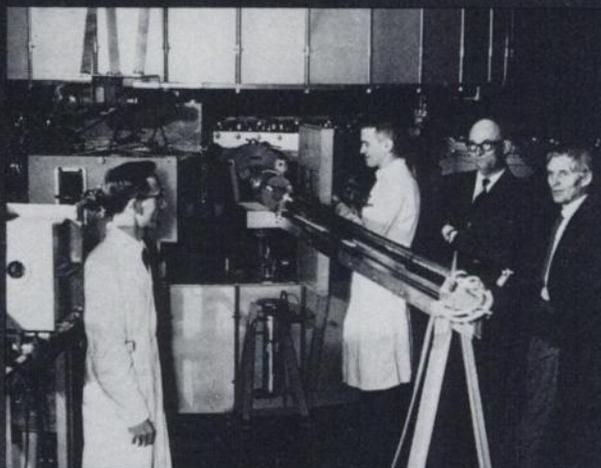
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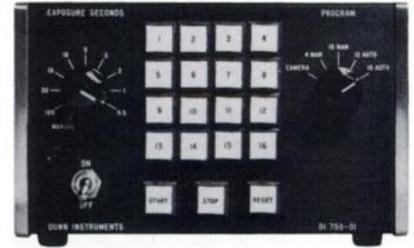
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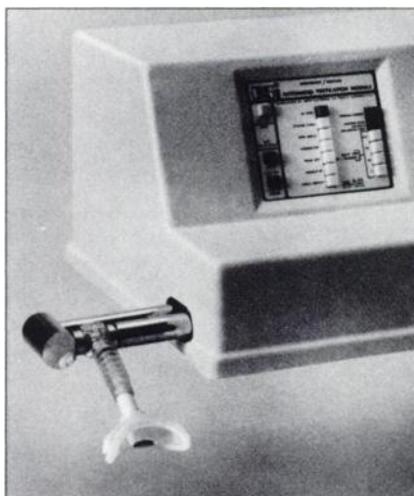
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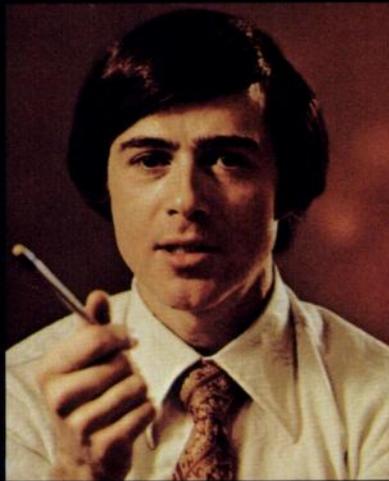
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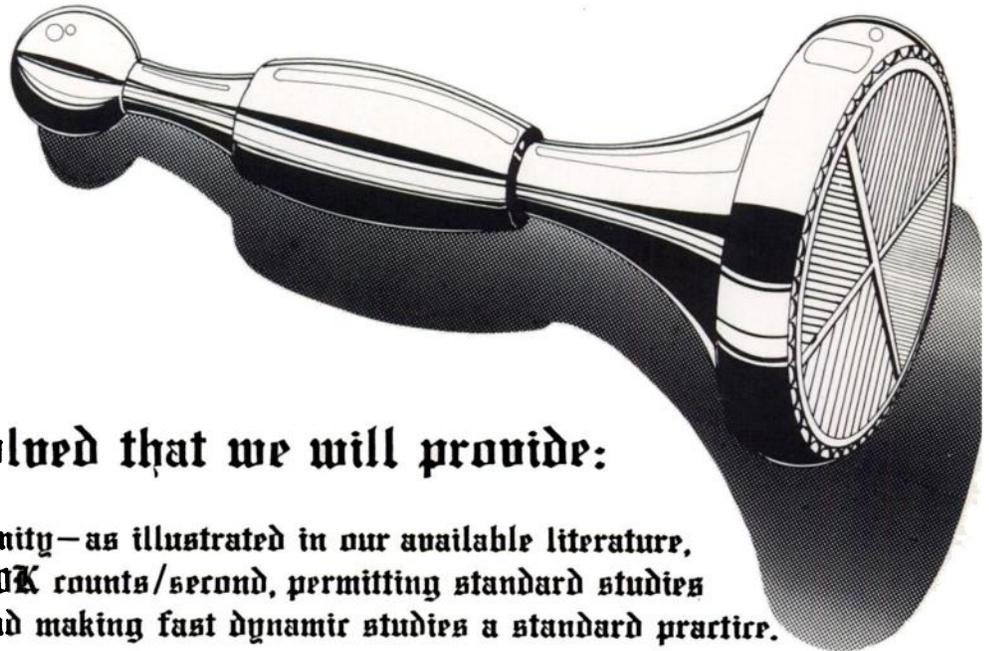


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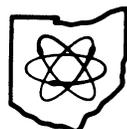
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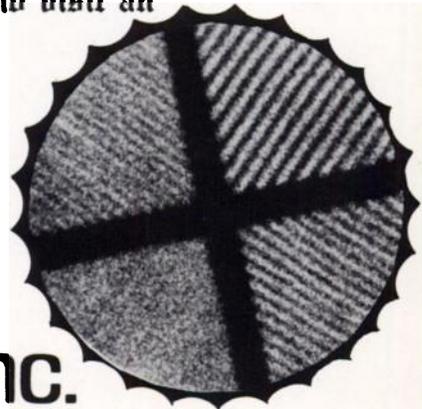
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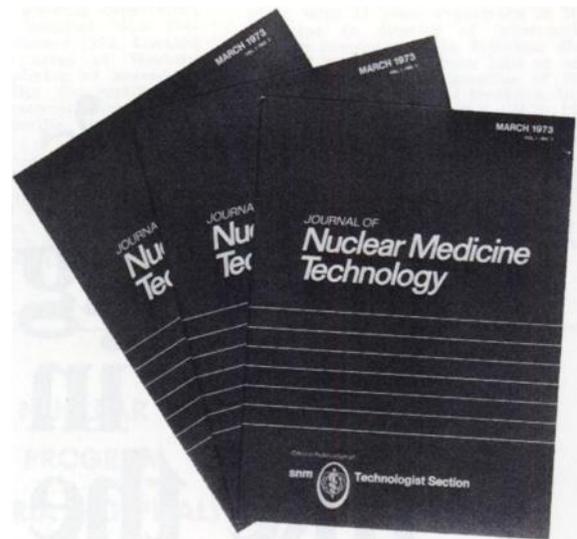
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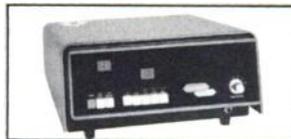
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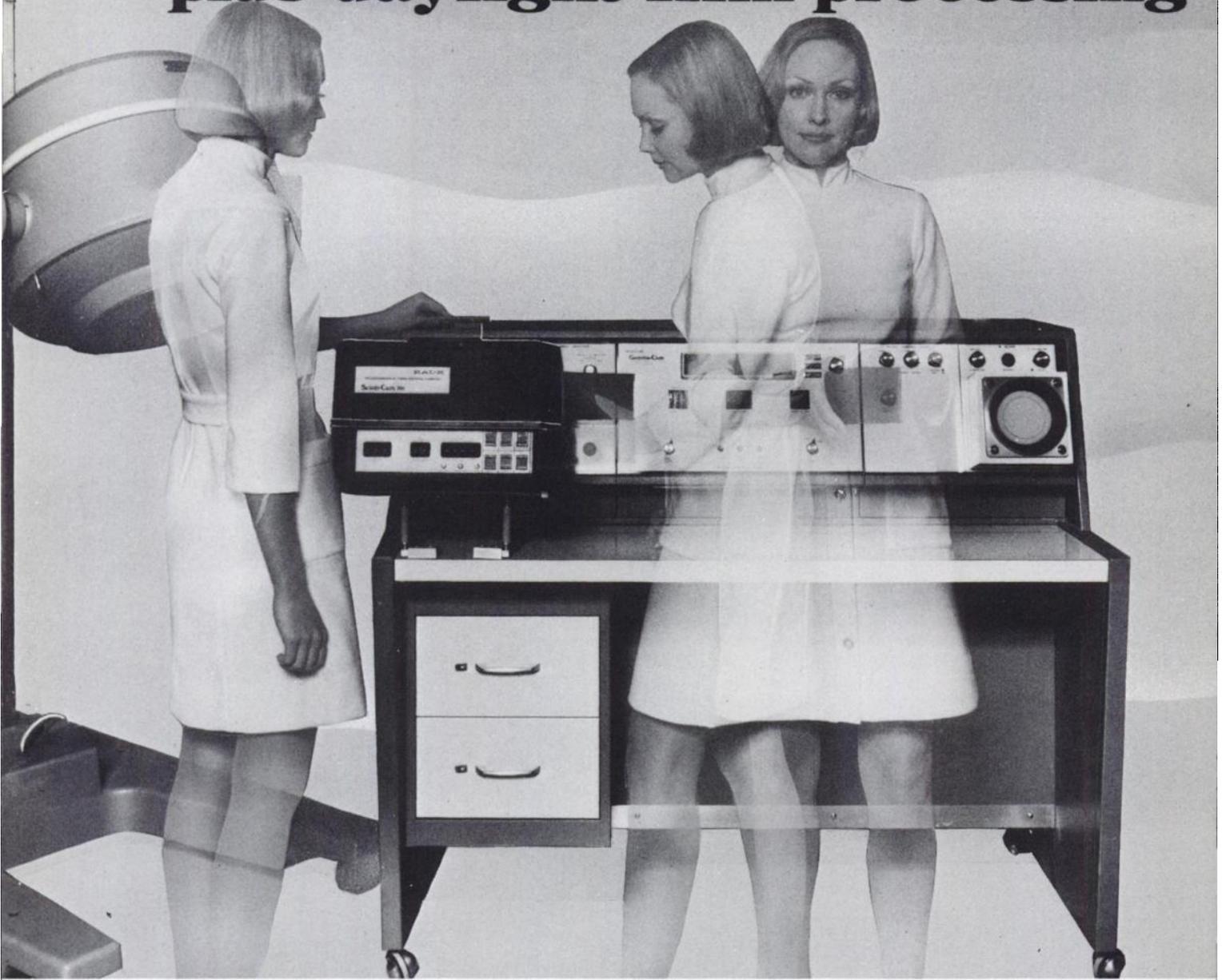
Mallinckrodt Chemical Works
675 Brown Rd.
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Spoil yourself a little...

with RES-O-MAT® T3 and T4 Kits.



Programmed, Instantaneous plus daylight film processing



RADX has the system

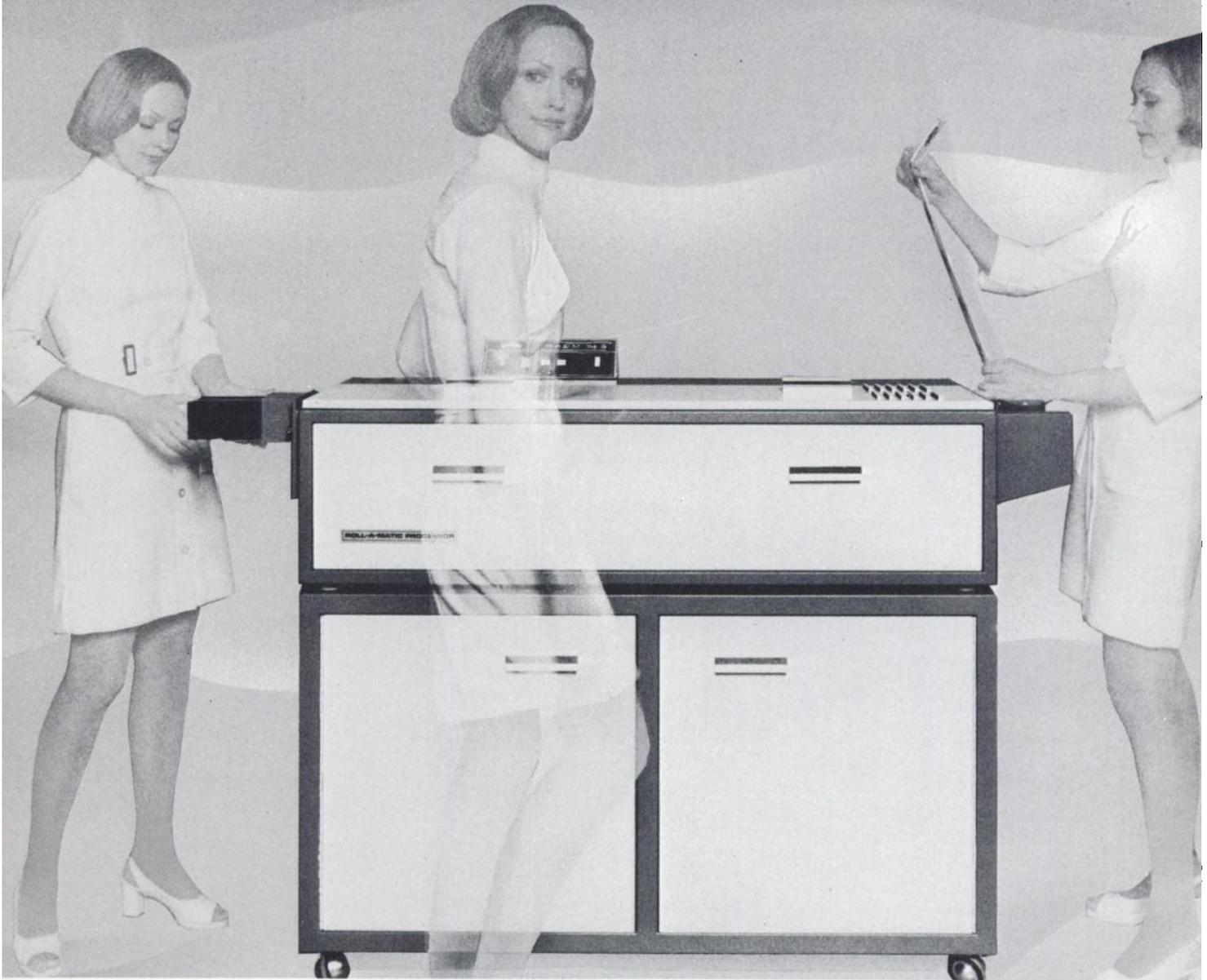
Here's the system that meets the exacting standards of scintiphotography. Streamline your nuclear medicine department economically with the 70mm scintiphotography camera and film processor from RADX. The system that maximizes information output of your gamma camera, adds convenience and speeds patient diagnosis.

The RADX Scinti-Cam 750 programmable 70mm camera installs in minutes on the CRT of any existing gamma camera. After daylight loading of up to 174 feet of 70mm film (or an average of 730 exposures per roll), the rest is a fast, simple, pushbutton operation which carries through to even automatic film cutting. The result is your exposed film contained in a "light-tight" cassette that is ready to be processed. That's when the RADX M-3 Roll-A-Matic Processor takes over.



Scinti-Cam 750 70mm Camera
Programmable daylight loading camera
that mounts on all existing gamma cameras
and takes up to 10 exposures/second.

70mm scintiphotography... in less than a minute.



After the technician selects the processing rate and locks the Scinti-Cam film take-up cassette into place, the M-3 automatically extracts the exposed film. And in as little as 42 seconds, the processed film appears—dry and ready for viewing.

Don't delay the total coordination of your clinical procedures any longer. Call or write RADX for further information about the Scinti-Cam 750 and M-3 Roll-A-Matic system.

P.O. Box 19164, Houston, Texas 77024, 713/468-9628.

RADX
CORP

M-3 Roll-A-Matic Film Processor

Daylight film loading processor, designed primarily for 35mm and 70mm roll film. Compact, totally self-contained, no external plumbing or drains required. Castor mounted console (illustrated) optional.

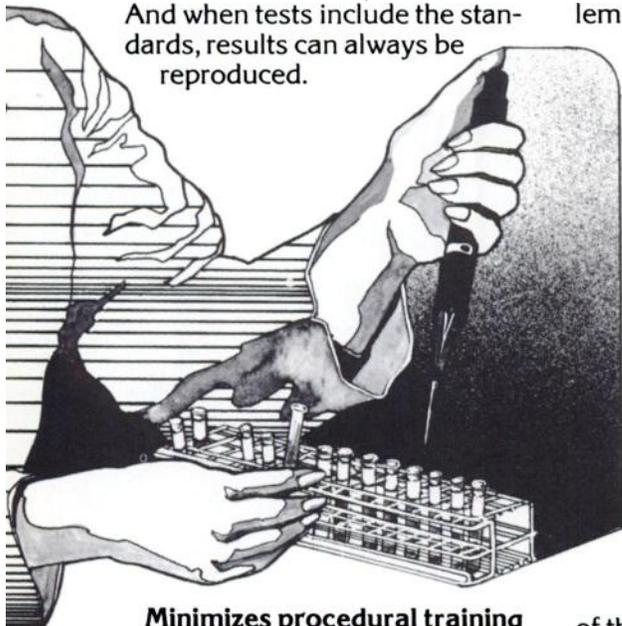


57A

Phadebas Radioimmunoassays.*

Their similarities are some of their biggest advantages.

Phadebas radioimmunoassays have a lot in common. For example, each Phadebas test is specific and highly sensitive. Results, therefore, are consistently accurate. And when tests include the standards, results can always be reproduced.



Minimizes procedural training

Techniques vary only slightly from test to test. So when you've learned one, you've just about learned them all.

In general, Phadebas testing procedures are considerably faster, simpler and more convenient than other presently available methods.

Expands your lab's capabilities—immediately

The Phadebas line of RIA's can increase your laboratory's capabilities with a minimum of problems. Especially if you are already performing RIA's.

To help you establish capabilities immediately, Pharmacia will act as your reference lab until activities reach a level that warrants setting up your own procedures. For complete information about the Pharmacia Reference Laboratory, simply mail in the enclosed coupon.

Four Phadebas tests—four growing fields

There are presently four Phadebas RIA's available. For use in four expanding areas. You can join in the growth of any or all of them.

Phadebas B₁₂ Test.

Vitamin B₁₂ deficiency can give rise to a number of problems, especially pernicious anemia. Serum B₁₂ determinations are of diagnostic value in the differential diagnosis of polycythemia, myelogenous leukemia and other abnormal metabolic states. The Phadebas B₁₂ Test can provide accurate serum B₁₂ levels in just four hours.

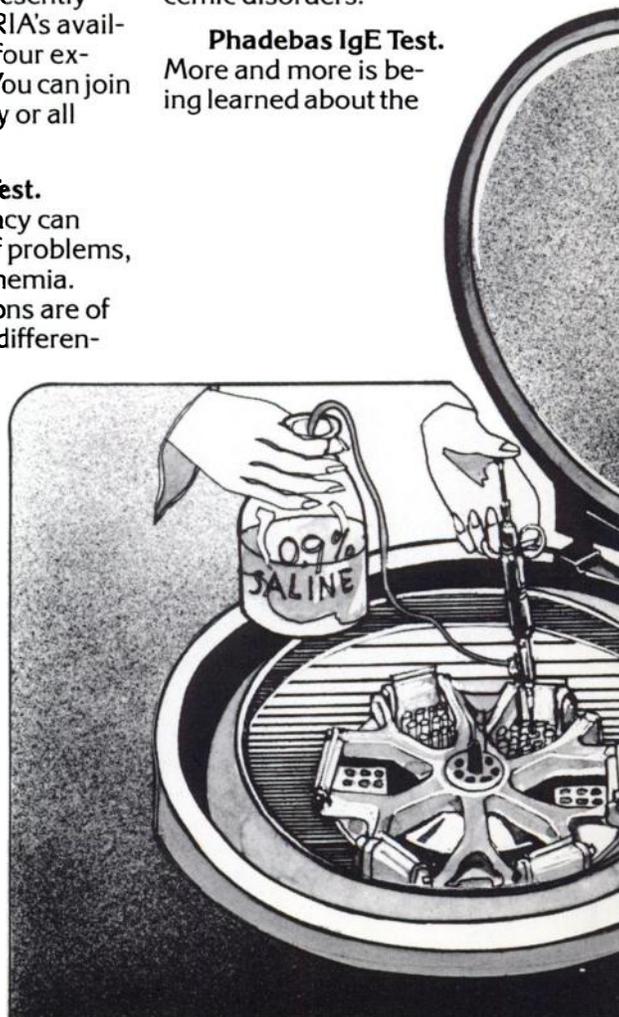
Phadebas HCS Test. Monitoring the HCS levels of pregnant women, especially between the thirty-fifth and fortieth weeks, can serve as an exceptionally accurate warning to the attending obstetrician of potential risk to the fetus. In time to save a life. Or forestall the development of certain prenatal complications. The Phadebas HCS Test requires only a single blood collection—not the complicated 24 hour urine collection.

Phadebas Insulin Test.

Determining serum insulin levels can be valuable in the investigation and management of pancreatic diseases, diabetes mellitus in all stages, and the hypoglycemic disorders.

Phadebas IgE Test.

More and more is being learned about the



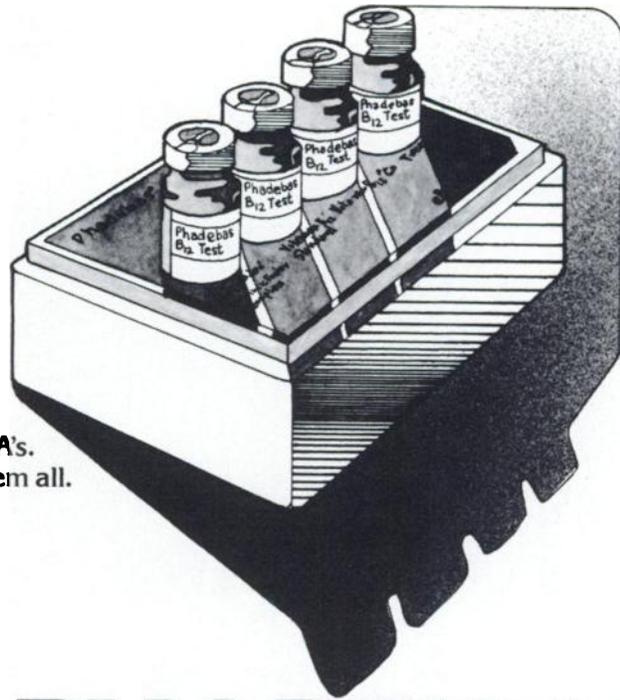
*The Phadebas B₁₂ Test, which uses intrinsic factor as the binding protein, does not rely on an immunological reaction for binding.

significance of elevated IgE levels in such diseases as asthma, hay fever and eczema. The importance of the Phadebas IgE Test lies in its convenience and simplicity—in its broadening of the clinical and research applications of IgE testing.

Phadebas RIA's. Each test unit includes all the necessary reagents (the buffer is not included in the B₁₂ test). Each is sufficient for fifty determinations—except the insulin test, which is sufficient for one hundred. And each is economical to perform. For further information about any of the tests, or about

the Pharmacia Reference Laboratory, simply mail us the enclosed coupon.

**Phadebas RIA's.
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you can work with them all.**



Please send me further information on the following Phadebas RIA tests:

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Truly concerned people make the difference. Unusual people, the people at Landauer, take a personal interest in protecting your people who wear our dosimeters. This attitude — thinking of badges not as badges but as people — is a part of what makes Landauer the world's leader in dependable dosimetry services. Add to that the latest in Gardray[®] advanced techniques, equipment and facilities and you have a service second to none. The kind of service you need and get only from the leader, Landauer, where people make the difference.

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...IS FOR EVERYBODY



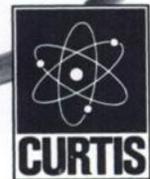
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Curtis instruments, pipettes and lyophilized serum standards further insure reliable test results.

Regardless of the family needs, Curtis has radioimmunoassay diagnostic test kits for the assessment of hematological and hormonal problems.

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Three Westchester Plaza, Elmsford, New York 10523 Telephone (914) 592-4060



Ready when you are!

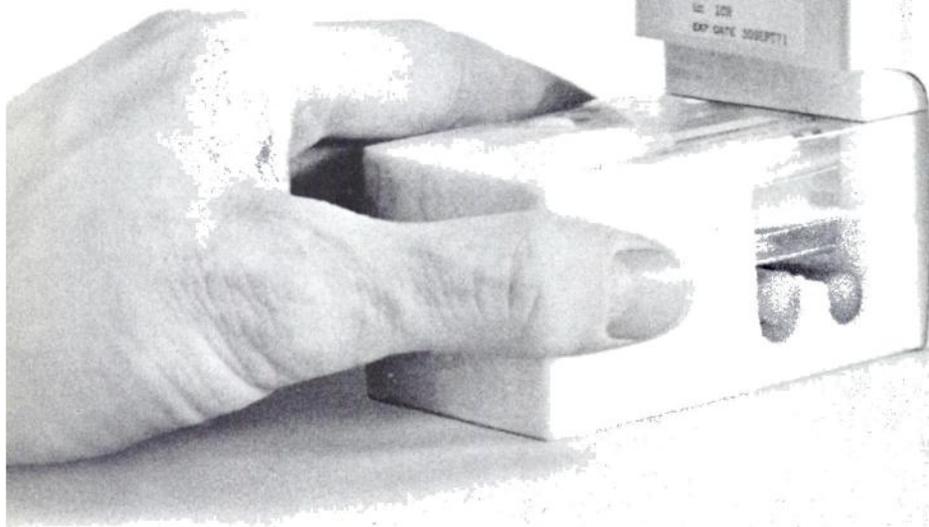
Mallinckrodt's convenient kit for preparation of Technetium-99m Sulfur Colloid

You'll find it easy to prepare technetium-99m sulfur colloid in your own laboratory . . . whenever you need it. This 5-unit kit was designed to help you—to make the procedure as reliable as possible—to provide you with a finished product having consistently high quality.

The Mallinckrodt/Nuclear **TechneColl™** Kit offers exclusive convenience in use:

- Dispenser package makes the preparation units readily available.
- Viewing aperture shows when it's time to reorder.
- Each of the 5 preparation units is complete and self-contained, to eliminate possible mixing of components.
- Unique two-compartment syringes permit separate storage of reagents for maximum stability.
- Mallinckrodt/Nuclear's formulation allows use of the kit with any commercially available generator.

Try this convenient kit now in your own laboratory (subject to necessary licensing). Ask your Mallinckrodt representative for a demonstration.



Catalog No. 090



TechneColl™

Kit for preparation of Technetium 99m Sulfur Colloid

CAUTION: NEW DRUG — Limited Federal U.S.A. Law to Investigate and Control

READ ENTIRE PROCEDURE BEFORE USE SEE PACKAGE INSERT

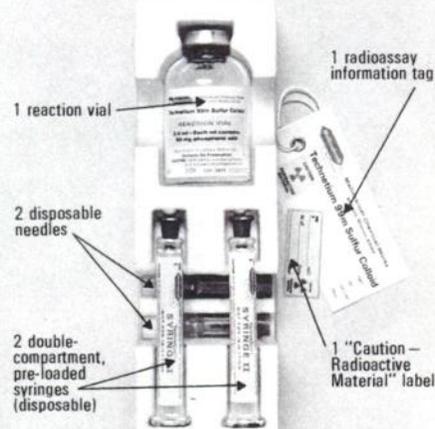
Mallinckrodt Chemical Works
St. Louis, Missouri 63160

PACKAGE CONTAINS

Five Technetium 99m Sulfur Colloid preparation units
Each unit contains:

- 1 Reaction vial
- 2 Disposable needles
- 2 Double-compartment, pre-loaded syringes (disposable)
- 1 radioassay information tag
- 1 "Caution—Radioactive Material" label

Ready-to-use **TechneColl** unit contains:



Mallinckrodt

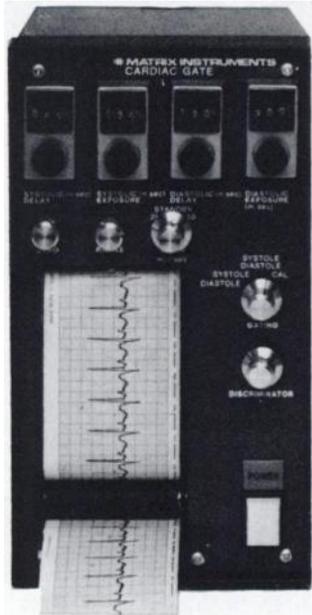
NUCLEAR

RADIOPHARMACEUTICALS

Mallinckrodt Chemical Works
675 Brown Road
Hazelwood, Missouri 63042

Cardiac and respiratory gating for gamma cameras and ultrasound scanners.

Cardiac Gate



Respiratory Gate



The only system that can record both end-systole and end-diastole simultaneously. The Cardiac Gate allows cardiac blood pool imaging at end-systole and end-diastole. It is a complete ECG instrument, including a heated stylus strip chart recorder that records both the patient's cardiogram and the exposure gates. Independent delay and gate duration controls, calibrated in milliseconds, for both systolic and diastolic images allow optimum synchronization with each individual patient's cardiac cycle.

The Respiratory Gate is designed to minimize respiration motion artifacts in gamma and ultrasound imaging, particularly in liver and lung studies. When used with a gamma camera, the system operates without attaching any sensors to the patient. Unique circuitry allows direct sensing of organ motion by using the split crystal mode or areas of interest of the gamma camera. Thus, the motion of the organ itself is sensed, rather than indirectly through monitoring of respiration.

The Cardiac Gate and the Respiratory Gate can be combined to provide both cardiac and respiratory gating. When used with our Multi-Imager System all selectable states of the cardiac and respiratory cycles can be recorded simultaneously using multiple frame formats. Thus, both end-systolic and end-diastolic images, and both inspiration plateau and expiration plateau images can be recorded simultaneously using a two frame format. If both cardiac gating and respiratory gating is selected, a four frame format simultaneously records all four possible combinations: end-systole/inspiration plateau, end-systole/expiration plateau, end-diastole/inspiration plateau, and end-diastole/expiration plateau.



MATRIX INSTRUMENTS

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(212) 524-5789

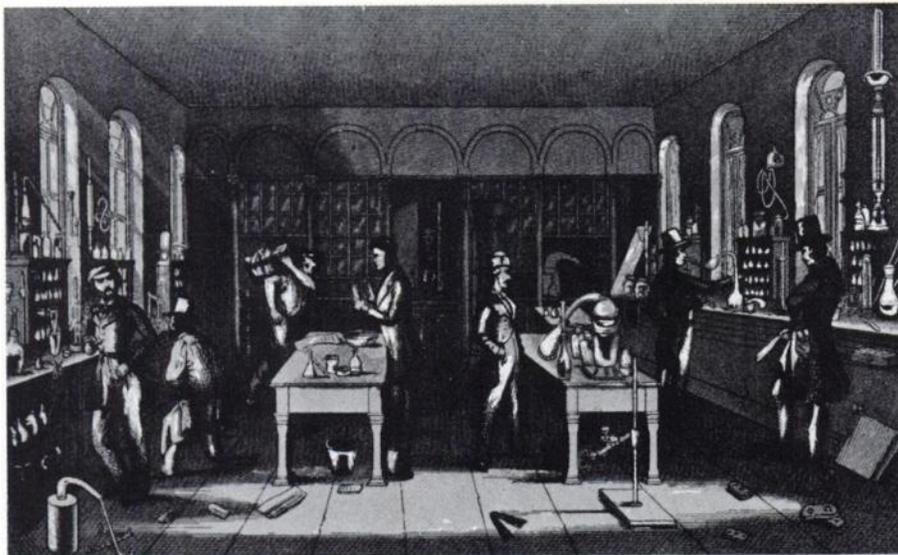
Mail coupon to receive actual size sample studies.

Please send Cardiac and Respiratory Gate literature and sample studies

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Name _____ Title _____
 Hospital _____ Dept. _____
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This lab still isn't using Serono R.I.A. kits.

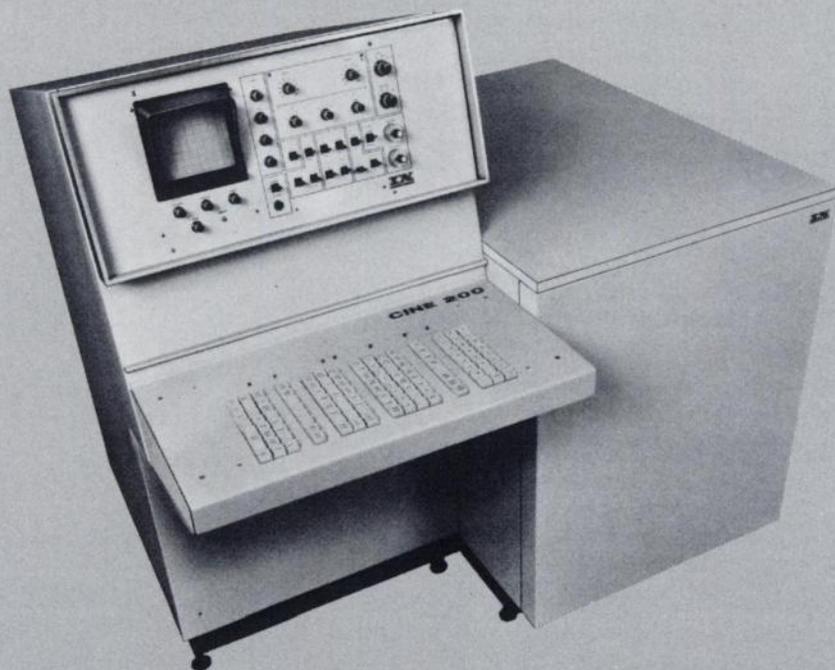


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INDEX TO ADVERTISERS

American Hospital Supply Corp. Evanston, Ill. 12A	Hoechst Radiopharmaceuticals Frankfurt, Germany 9A	Omnimedical Services Long Beach, Calif. 48A
Amersham/Searle Corp. Arlington Heights, Ill. 24A	Isolab, Inc. Akron, Ohio 30A	Packard Instrument Co., Inc. Downers Grove, Ill. 13A, 15A
Baird-Atomic Bedford, Mass. 66A, IBC	Laikin Optical Corp. Los Angeles, Calif. 20A	Pharmacia Labs., Inc. Piscataway, N.J. 58A, 59A
Biolab S.A. Brussels, Belgium 39A	R. S. Landauer, Jr., & Co. Glenwood, Ill. 60A	Picker Corp. Mentor, Ohio 49A
Brattle Instrument Corp. Cambridge, Mass. 42A	LKB Instruments, Inc. Rockville, Md. 45A	Procter & Gamble Cincinnati, Ohio 18A, 19A, 20A
Cambridge Nuclear Corp. Princeton, N.J. 26A	Mallinckrodt/Nuclear St. Louis, Mo. 10A, 11A, 38A, 55A, 62A	Radiochemical Centre Amersham, England 43A
Capintec, Inc. Mt. Vernon, N.Y. 6A	Matrix Instruments New York, N.Y. 34A, 35A, 63A	Radx Corp. Houston, Texas 56A, 57A
CIS Radiopharmaceuticals, Inc. Bedford, Mass. 53A	Medi-Physics, Inc. Emeryville, Calif. IFC, 1A, 321	Raytheon Co. Waltham, Mass. 2A, 65A
Clinical Assays, Inc. Cambridge, Mass. 36A	Micromedic Systems, Inc. Philadelphia, Pa. 28A, 29A	Searle Analytic, Inc. Des Plaines, Ill. 27A
Curtis Nuclear Corp. Los Angeles, Calif. 61A	C. V. Mosby Co. St. Louis, Mo. 44A	Searle Radiographics, Inc. Des Plaines, Ill. 21A, 33A, BC
Dunn Instruments San Francisco, Calif. 46A, 47A	New England Nuclear Boston, Mass. 4A, 51A	Serono Labs., Inc. Boston, Mass. 64A
Elscont, Inc. Palisades Park, N.J. 16A, 17A	Nuclear Associates, Inc. Westbury, N.Y. 32A	SNM Placement New York, N.Y. 52A
General Electric Medical Systems Milwaukee, Wis. 22A, 23A	Nuclear Data, Inc. Palatine, Ill. 40A, 41A	Toshiba International Corp. Wheeling, Ill. 31A
Hewlett-Packard Co. Loveland, Col. 37A	Ohio-Nuclear, Inc. Solon, Ohio 25A, 50A	Wien Labs., Inc. Succasunna, N.J. 14A

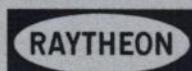
There's a new way to say simultaneous acquisition and processing.



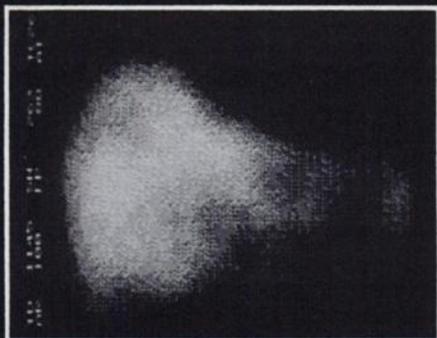
CINE 200.

And CINE 200 means even more. Simultaneous acquisition from two imaging devices. Clinically useful routines. Human engineering. And prices that put these capabilities within the range of your budget.

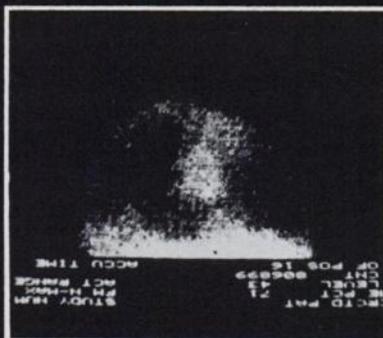
There's more to the capability story of the CINE 200. Find out all the details of why it is one of the most versatile image-data processors ever developed — for cameras and scanners. CINE 200 from Intertechnique is sold and serviced in the U.S. exclusively by Raytheon Company. For information, contact Raytheon Company, Medical Electronics, P.O. Box 397, Fourth Avenue, Burlington, Massachusetts 01803 (617) 272-7270



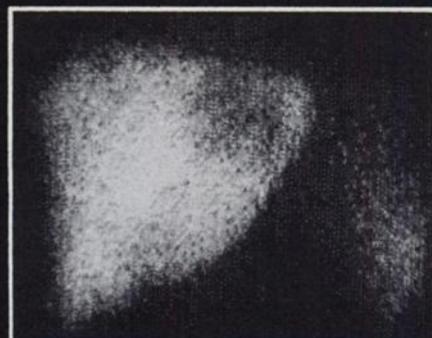
Statics



Abnormal Liver Scan — ant. view
(Metastatic Disease)
Study Time — 224 sec.
Isotope — 4mCi ^{99m}Tc Sulfur Colloid
Total Counts — 2,676,795



Abnormal Brain Scan — right lat. view
(CVA)
Study Time — 80 sec.
Isotope — 12mCi ^{99m}Tc
Total Counts — 806,899

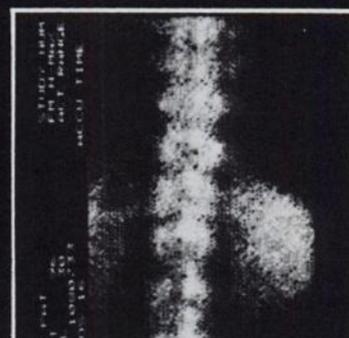


Abnormal Liver Scan — ant. view
Study Time — 320 sec.
Isotope — 2mCi ^{99m}Tc
Total Counts — 445,502

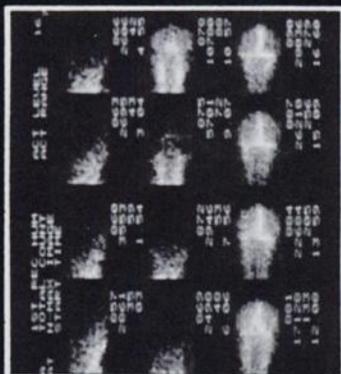


Brain-Bone Scan — left lat. view
(abnormal foci in the convexity and orbit)
Study Time — 240 sec.
Isotope — 6mCi ^{99m}Tc Polyphosphate
Total Counts — 222,926

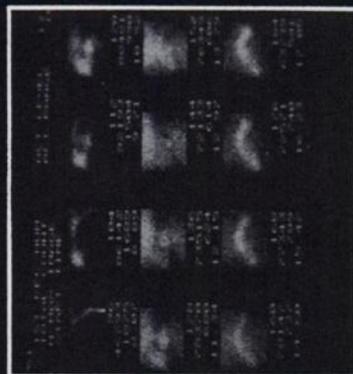
Normal Thoracic and Lumbar Spine Scan
— post. view
Study Time — 480 sec.
Isotope — 6mCi ^{99m}Tc Polyphosphate
Total Counts — 1,000,733



Dynamics



Normal Cerebral Blood Flow —
post. view
Accumulation Interval — 0.5 sec.
Display Interval — 1.5 sec.
Peak Counts per sec. — 26,210
Isotope — 15mCi $^{99m}\text{TcO}_4^-$



Normal Cardiac Blood Flow — ant. view
Accumulation Interval — 0.1 sec.
Display Interval — 1.0 sec.
Peak Counts per sec. — 78,147
Isotope — 15mCi $^{99m}\text{TcO}_4^-$



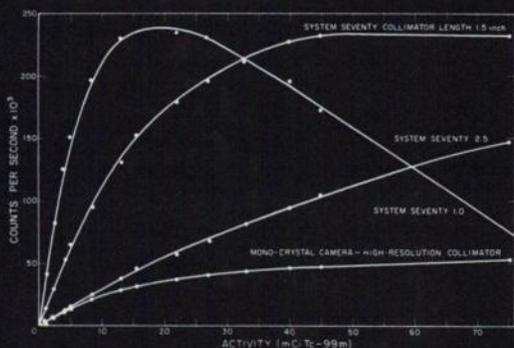
Normal Left Ventricular Quantitative Histogram

Each double vertical line represents a 1.0 sec. time interval.

The entire histogram is 10.0 sec. long and consists of 100, 0.1 sec. count accumulations. This area-of-interest histogram took less than 1.0 min. to produce from end-of-study.

Note — definition of sinus rhythm of left heart.

Performance



These curves provide a useful calibration of System Seventy. The observed count rate for 15 mCi of ^{99m}Tc for the 1.0, 1.5, and 2.5-inch thick collimators is 230,000, 150,000, and 45,000 cps respectively.

The count-rate curve obtained from a mono-crystal camera using the high-resolution collimator shows an efficiency about equal to that of the 2.5-inch thick collimator

at low count rates and exhibited a saturation rate of about 40,000 cps. The same saturation rate has also been observed with the other collimators available for this type of system.

The efficiencies of the parallel-hole collimators are such that the saturation rate of 230,000 cps is observed with 15, 45, and 180 mCi of ^{99m}Tc with the 1.0, 1.5, and 2.5-inch thick collimators respectively.

System Seventy

Or...

(how the unique combination of a programmed computer and a matrix detector allow you to practice the NOW and FUTURE art of nuclear medicine consistently, simply and reproducibly.)

Diagnostic Superiority

That's what you're really looking for. We routinely obtain 3-4mm. static resolution scans — regardless of energy. Dynamic studies can now be accomplished at high frame rates with count/unit time accumulations (at low dose rates) that are not achievable on any other gamma camera, and the results can be displayed or printed-out in histogram or numerical form within seconds of the end-of-study. That's diagnostic superiority!

Operation Simplicity

Our unique "back-lit" front panel reduces each operation to a logical-computer assisted-series of steps. Select the mode; i.e. Static/Dynamic, and only those buttons or controls necessary to complete the study will be illuminated. That's operation simplicity!

New Standard!

The New Standard in diagnostic nuclear medicine. The only words that can describe a camera that is easy to use, delivers the greatest patient throughput, and provides the most technically superior diagnostic data while doing it.

No ONE of these terms really describes SYSTEM SEVENTY.

SYSTEM SEVENTY offers the highest spatial resolution, and that's why our static images are the best. This means that you can choose to increase patient throughput by selecting the best clinical measurement which optimizes spatial resolution and efficiency.

The system's high count rate capability (>200,000 cps) enhances the time resolution of dynamic studies which is a

scientific necessity to achieve diagnostically meaningful evaluations of physiological time parameters. Stop thinking about the eventual possibility of more meaningful dynamic procedures and do them *now*, with SYSTEM SEVENTY.

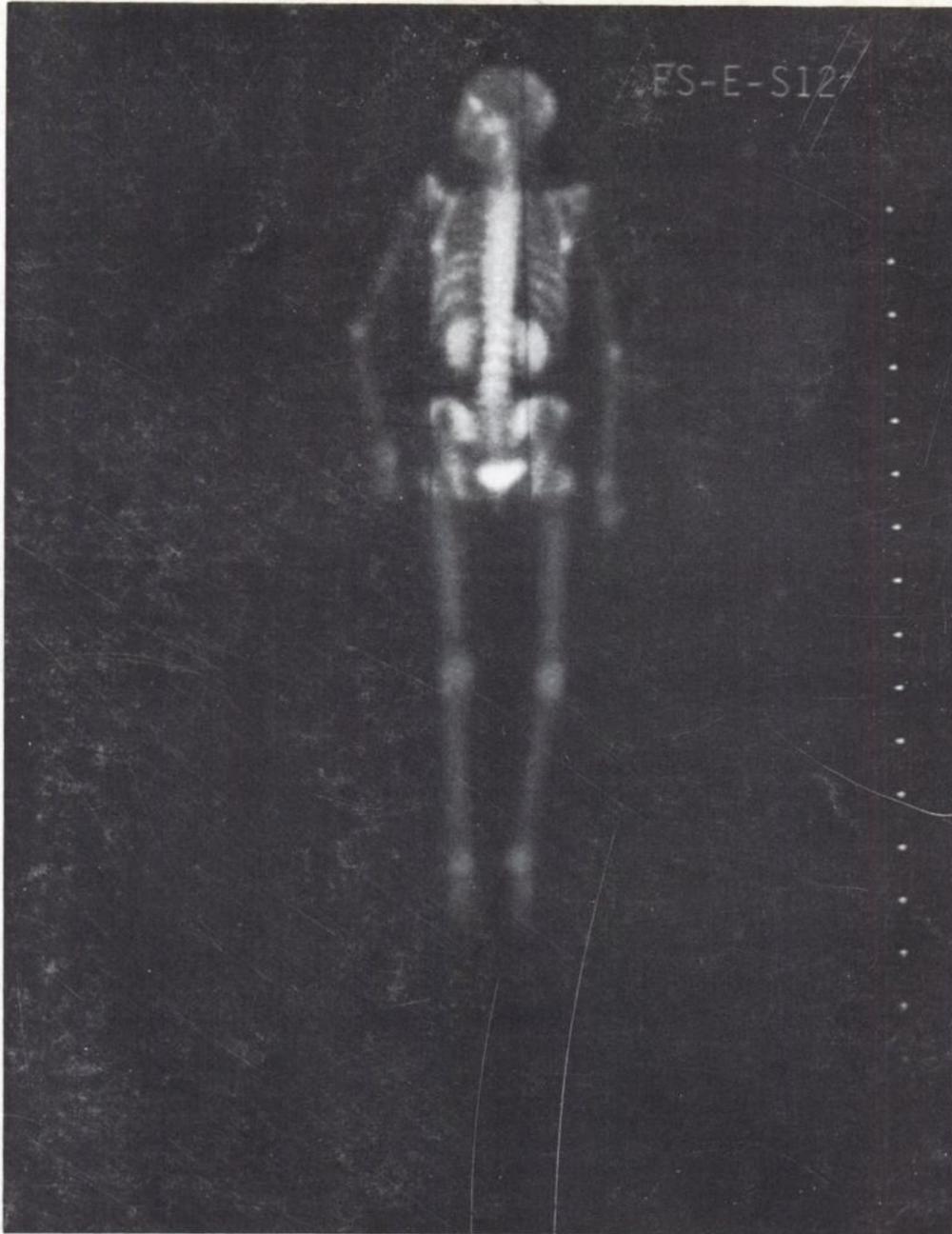
And, the operational functions we've wired into the system and the software support we provide leave very little for you or your technician/operators to learn in putting SYSTEM SEVENTY to

work and realizing the technically superior results.

So, looking back on them, certainly ALL of those terms apply, though no one of them really does SYSTEM SEVENTY justice.



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Searle Radiographics. We do more gamma imaging than anyone in the world.



We changed our name from Nuclear-Chicago to Searle Radiographics. We have also strengthened our organization so that we can offer more comprehensive service devoted to the field of diagnostic imaging. Our primary concern, however, remains unchanged. We want you to have the best possible equipment for this very vital procedure, because the patient is our ultimate concern as well as yours.

Saying that we do more gamma imaging than anyone in the world may sound boastful, but it happens to be true. Pho/Gamma is the instrument of choice in well over 70% of the hospitals and laboratories utilizing this type of diagnostic

tool . . . and for very good reason: The importance of the procedure is only surpassed by the quality of the system. And the quality of our system is quite simply unsurpassed. Pho/Gamma and Searle Radiographics means gamma imaging. Need we say more?

SEARLE

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Des Plaines, Illinois 60018

CM-319