If you know get to know

Triosorb®-I25 T-3 Diagnostic Kit*

The in vitro test unmatched for reproducibility, convenience and accuracy.

Reproducible. Over 15 million tests conducted over the past eight years have made Triosorb® the standard of T-3 tests.

Convenient. The disposable Triosorb® Kit is ready for immediate use at room temperature making it one of the simplest, most convenient thyroid function tests available.

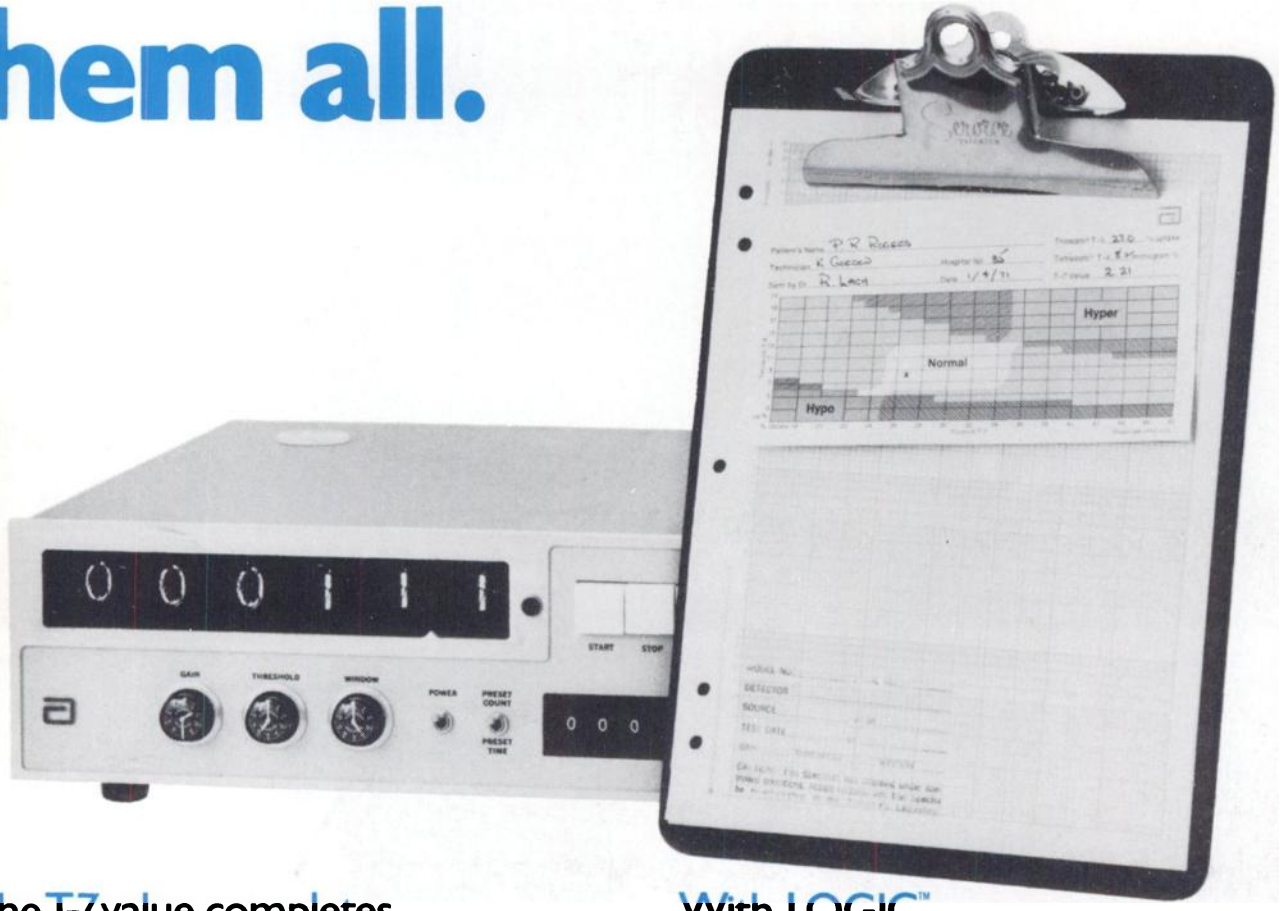
Accurate. Approximately 15 drugs and conditions produce misleading Triosorb®-T-3 test results, compared with over 200 factors which affect PBI.

* Also available as Triosorb®-131.

Tetrasorb®-I25 T-4 Diagnostic Kit

An improved, simplified method for measuring total *serum* thyroxine with diagnostic accuracy equal to or better than any currently used measures of thyroid function. Unlike other tests, exogenous iodines don't affect Tetrasorb® results.

one of these, them all.



The T-7 value completes the thyroid profile.

It's the Abbott method for determining the in vitro free thyroxine index.

T-7 is not a test but a numerical value derived from the multiplication of T-3 and T-4 test values. Because it is a product of two other numbers, the *T-7 value* will *move* only when both the T-3 and T-4 values move in the *same direction*. There are *only* two physiological conditions which cause this to occur, *hypothyroidism* and *hyperthyroidism*. With the exception of those patients receiving liothyronine or d-thyroxine therapy, all other factors which affect thyroid function tests will cause the T-3 and T-4 values to move in opposite directions, and the T-7 value to remain in the normal range.

When you provide the Abbott T-3, T-4 and T-7 values you furnish a complete thyroid profile with unparalleled clinical accuracy.

With LOGIC™ your final step is as easy as 1,2,3.

1. Establish a baseline.
   Pre-set count for 10,000; read the required time from the NIXIE tubes.
2. Take a post-wash reading.
   Pre-set *timer* for the baseline established in step 1.
3. ***Read the percentage uptake*** directly from the NIXIE tubes.
   LOGIC™ provides direct ratio readout in percentage.

   No conversions or calculations needed.

   Minimal chance for error.

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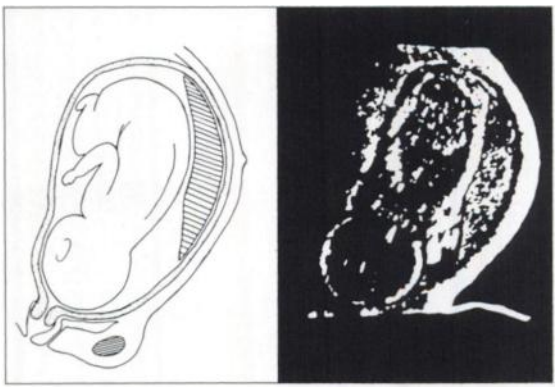
14247

How can soft tissue structures be visually scanned without radiation?

Ultrasonically.

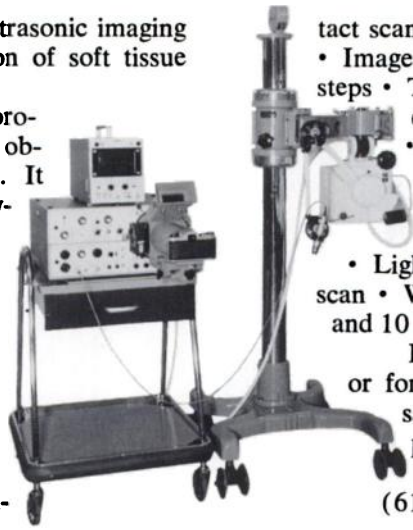


Raytheon's Sonascan is an advanced ultrasonic imaging device for two-dimensional visualization of soft tissue structures . . . without radiation.

This unique contour scanning device provides rapid cross-sectional imaging in obstetrical and gynecological applications. It can determine placental localization, hydatidiform mole, ectopic and multiple pregnancy, and solid or cystic ovarian tumors. It also can provide continuous monitoring of fetal development.

Other applications include differentiation of cystic and solid masses, as well as mapping of the liver, kidney, spleen, gall bladder and the carotid artery for blocks and occlusions.

Sonascan features a rugged, direct-contact scanner mounted on a movable stand, plus • Image minification and magnification in seven steps • Transverse to longitudinal scanning accomplished without moving the patient • Patient's name and pertinent information recorded on Polaroid film automatically • Camera mounting for 35 mm or Polaroid back as desired • Light beam marker to illuminate plane of scan • Wide frequency response — 1, 2.25, 5 and 10 megahertz.



For additional information and pricing, or for the name of your nearest Raytheon sales office, contact Raytheon Company, Medical Electronics, 190 Willow St.,Waltham, Mass. 02154. Telephone (617) 899-5949.

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RAYTHEON

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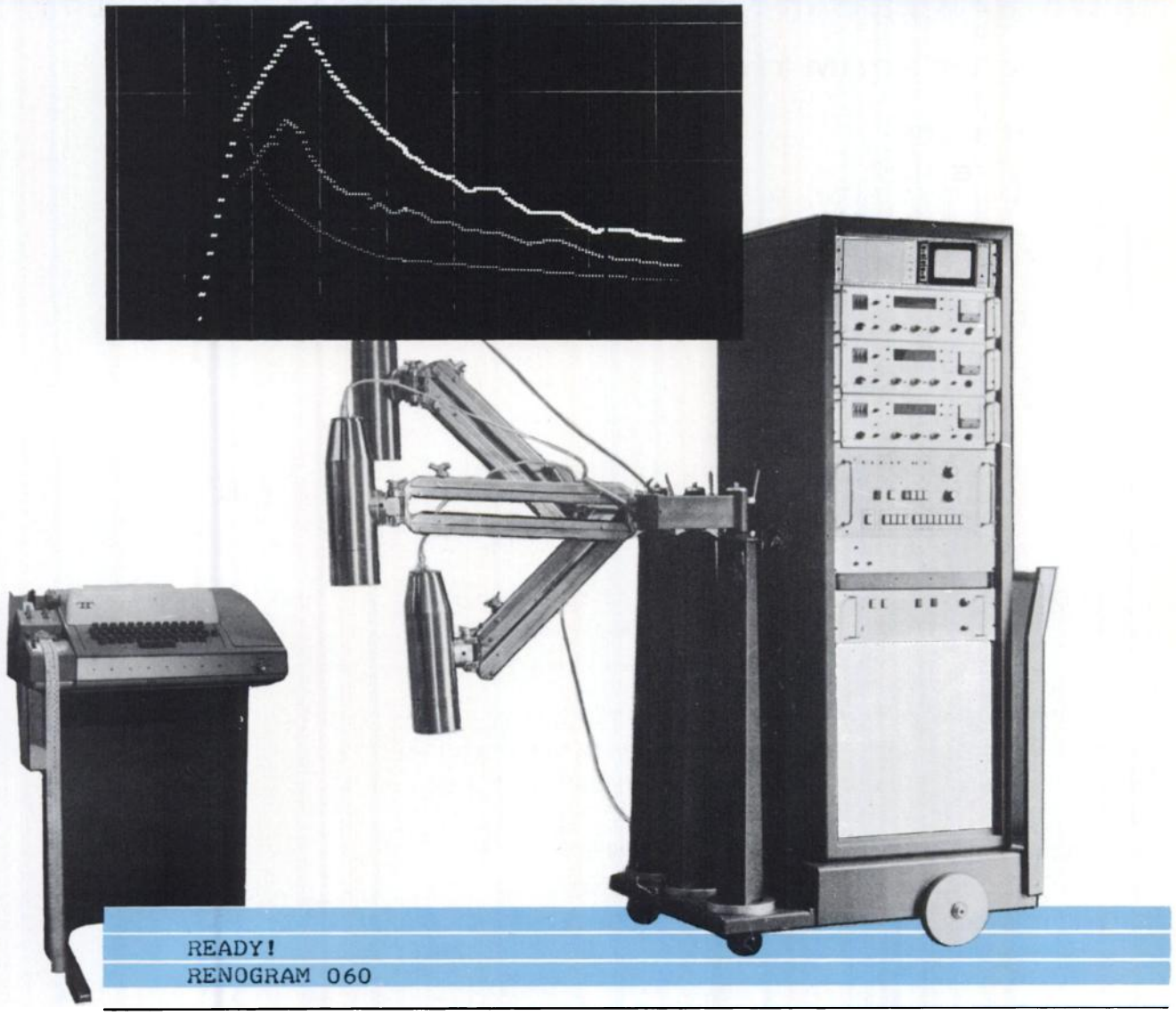
COMPUTERIZED NUCLEAR MEDICINE
WITHIN YOUR MEANS



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RENOGRAM 060

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1/MIN	S2	000•259	000•200	001•295
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MIN••	T(M)	002•496	002•895	000•861
MIN••	T(S)	001•597	001•997	000•799
MIN••	T(C)	001•597	002•296	000•695
MIN••	T1/2	002•596	003•395	000•764
CPM••	Y(M)			000•661
CPM••	Y(C)			000•647
1/MIN	C	000•327	000•246	001•333
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	RCC	000•526	000•493	001•069

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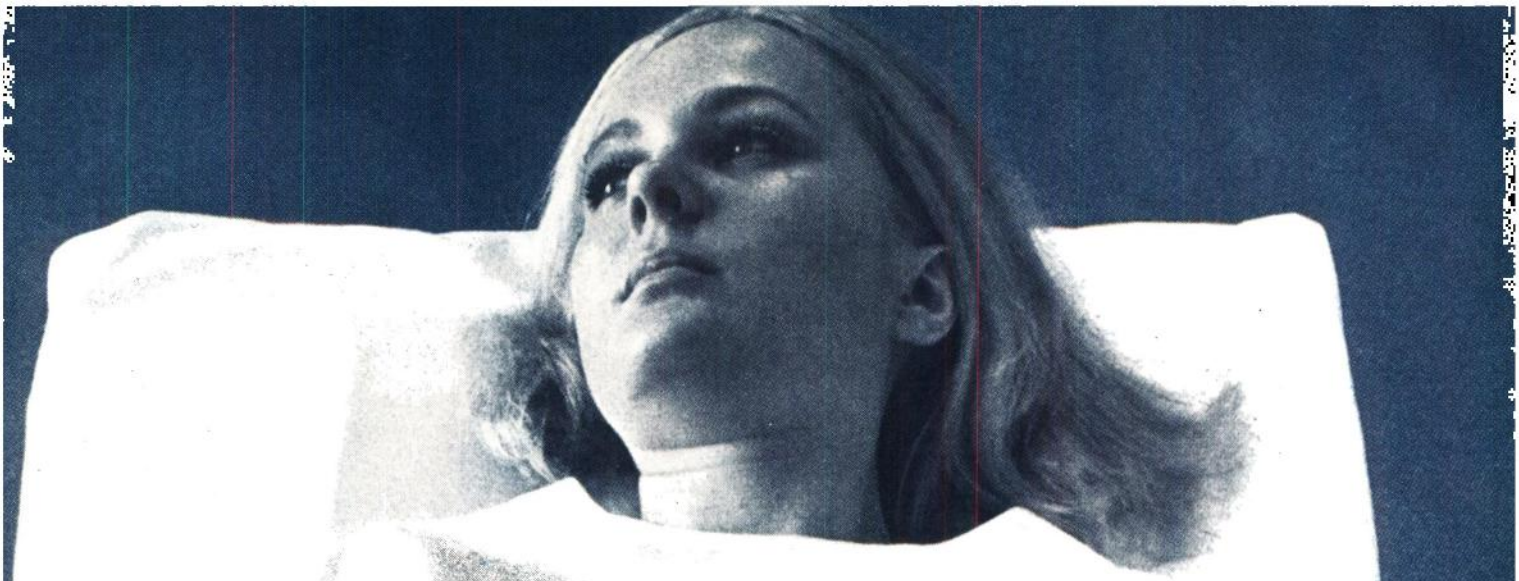

Lung scanning?

All macroaggregated serum albumins are not the same. Macroscan-131 offers all 5 of these benefits:

- **Uniformity of particle size distribution**
- **Minimal free iodide**
- **Superior manufacturing technique** (supernatant is removed in the manufacturing process)
- **Safety** (no recorded reactions to date in thousands of scans)
- **Cost** (lowest of the 3 leading products)

Macroscan-131 is aseptically prepared and non-pyrogenic. It is ready to use and should not be heated prior to use.

INDICATIONS: For scintillation scanning of the lungs to evaluate total, unilateral, and regional arterial perfusion of the lungs.

WARNINGS: Radio-pharmaceutical agents should not be administered to pregnant or lactating women, or to persons less than 18 years old, unless the information to be gained outweighs the hazards. There is a theoretical hazard in acute cor pulmonale, because of the temporary small additional mechanical impediment to pulmonary blood flow. The possibility of an immunological response to albumin should be kept in mind when serial scans are performed. If blood is withdrawn into a syringe containing the drug, the injection should be made without delay to avoid possible clot formation.

PRECAUTIONS, ADVERSE REACTIONS: Care should be taken to administer the minimum dose consistent with patient safety and validity of data. The thyroid gland should be protected by prophylactic administration of concentrated iodide solution. Urticaria and acute cor pulmonate, possibly related to the drug, have occurred. 009249

MACROSCAN®-131 AGGREGATED RADIO-IODINATED (I^{131}) ALBUMIN (HUMAN)

Each milliliter contains 1 to 3 mg. aggregated human serum albumin labeled with iodine 131, with benzyl alcohol, 0.9%, as preservative. Radioactivity is usually between 800 and 1300 microcuries per ml. on first day of shipment. For full prescribing information, see package insert.

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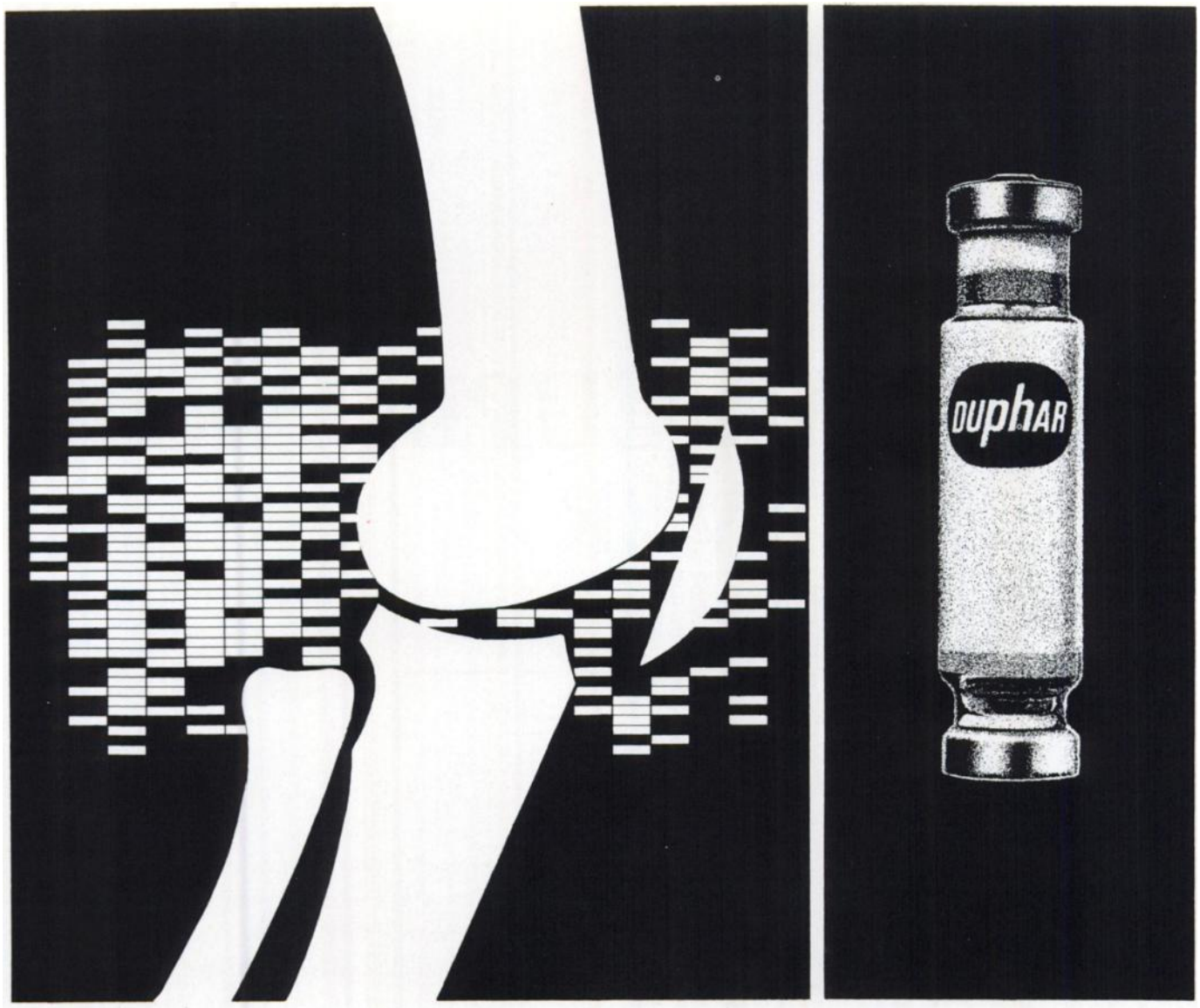

stercow™ 87m
for scanning bone lesions instantly!

It is now possible to scan bone lesions instantly with 2.8 hour Sr87m.
The parent radioisotope, Yttrium-87, has a half-life of 80 hours which enables STERCOW 87m to generate the short-lived bone seeking Sr87m for two weeks. The milk is sterile and pyrogen-free. It is not contaminated with the highly radiotoxic Sr89 or Sr90. STERCOW 87m arrives ready for use. A complete elution set is included, designed to fit the Duphar milking system - ideal for convenient and safe elution.

---

duphar

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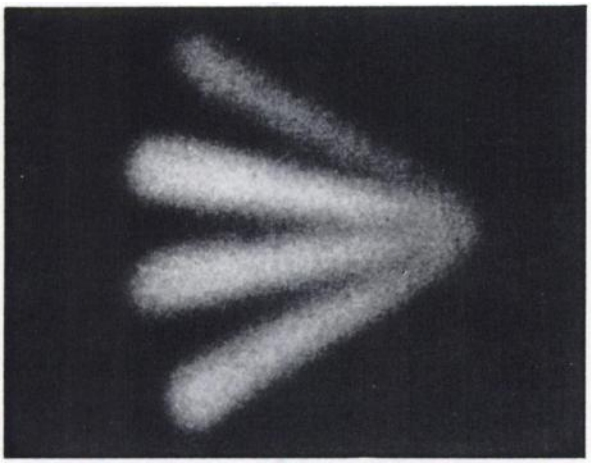
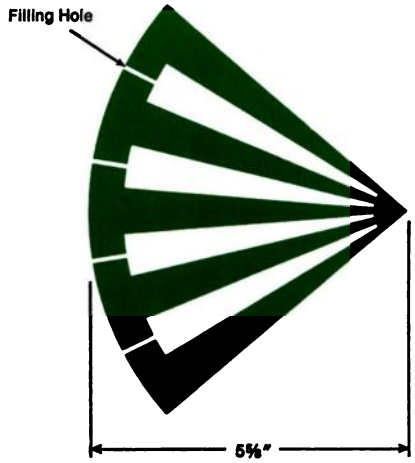
The Picker Dynacamera 2:

The scintillation camera with both high resolution and a large *undistorted* field of view:

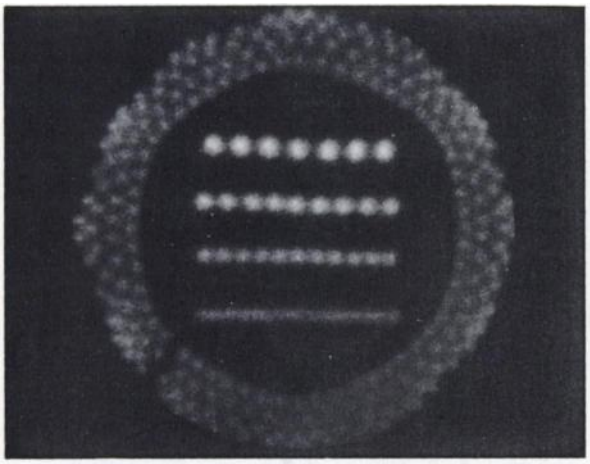
Resolution

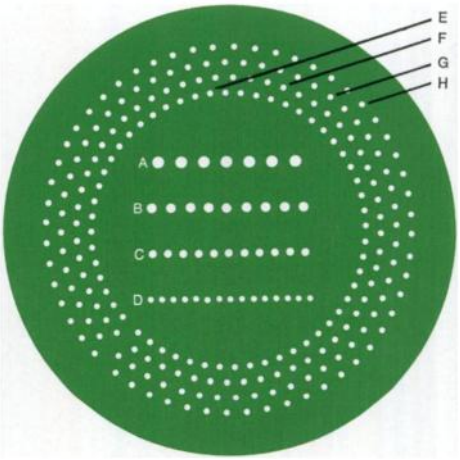




Phantom description: 3/8″ thick lucite with four 1/8″ thick radiating voids filled with activity.

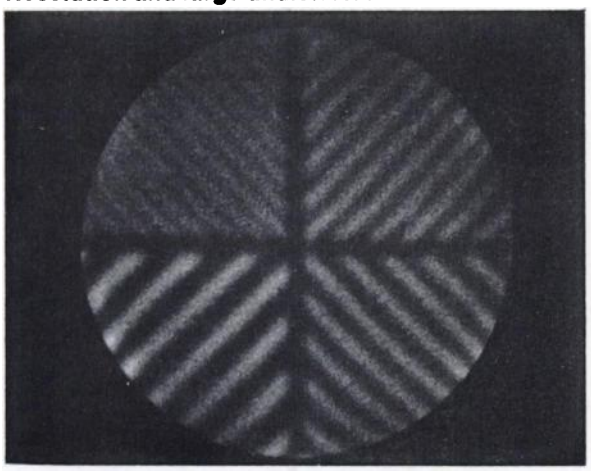
Resolution and large undistorted field of view

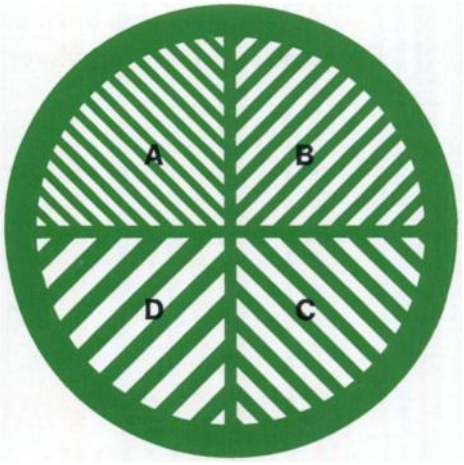




Phantom description: 1/8″ thick by 15″ dia. lead circle mounted between two circular pieces of 1/8″ thick lucite.
A. 3/8″ dia. 3/8″ space
B. 5/16″ dia., 5/16″ space
C. 1/4″ dia., 1/4″ space
D. 3/16″ dia., 3/16″ space
E. 3/16″ dia. holes with centers on 9″ dia. circle.
F. 3/16″ dia. holes with centers on 10″ dia. circle.
G. 3/16″ dia. holes with centers on 11″ dia. circle.
H. 3/16″ dia. holes with centers on 12″ dia. circle.

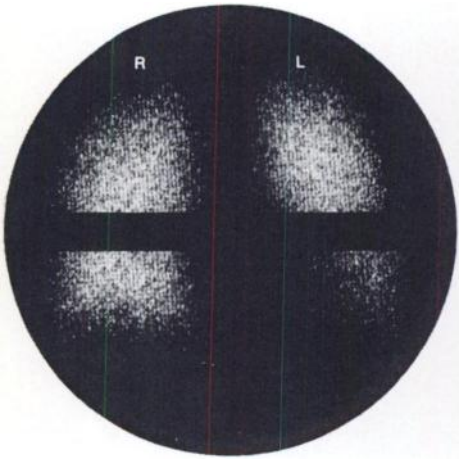
Resolution and large undistorted field of view

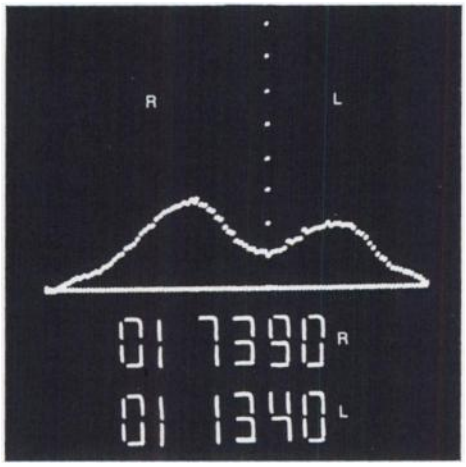




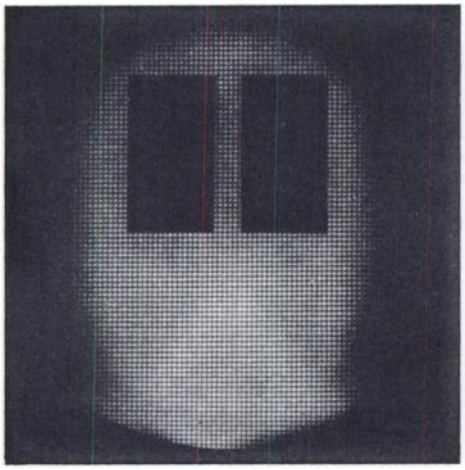
Phantom description: 1/8″ thick lead bars mounted between two circular pieces of 1/8″ thick lucite. A 14″ outside diameter, 1″ wide, lead ring surrounds the bars.
A. 1/4″ bars, 1/4″ spaces
B. 5/16″ bars, 5/16″ spaces
C. 3/8″ bars, 3/8″ spaces
D. 1/2″ bars, 1/2″ spaces

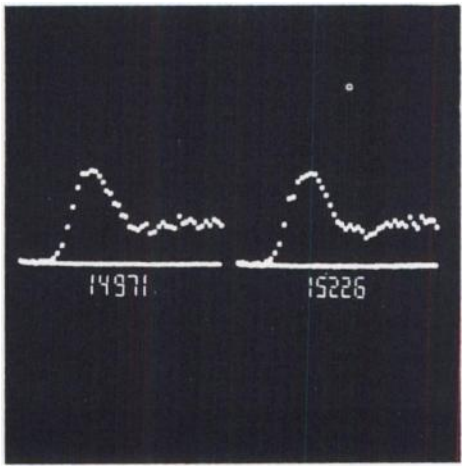
The scintillation camera with more clinically useful and proven capabilities:



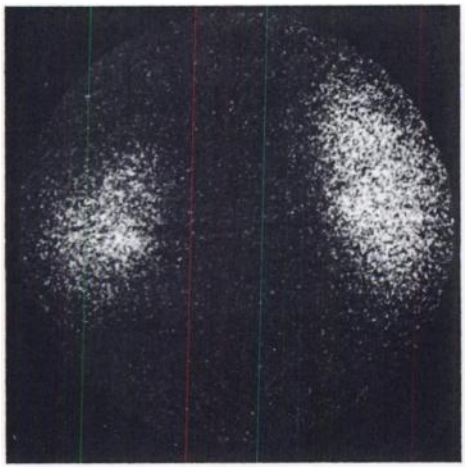


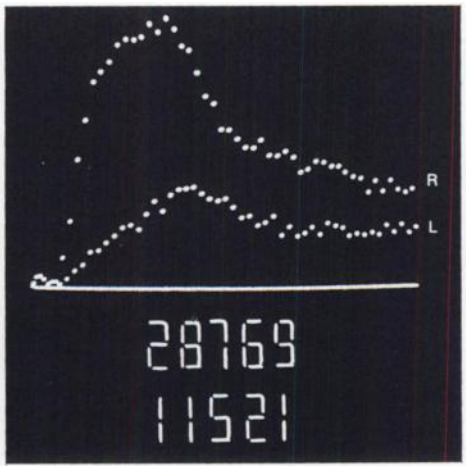
Quantification of static studies
(a built-in capability)
Dynacamera 2 is the scintillation camera that provides both Scintigrams and the total count in an organ or any portion of it.





Quantitative regions of interest
(a built-in capability)
Dynacamera 2 permits the selection of two regions of interest and simultaneously displays both count rate vs. time and total integrated counts in both regions.





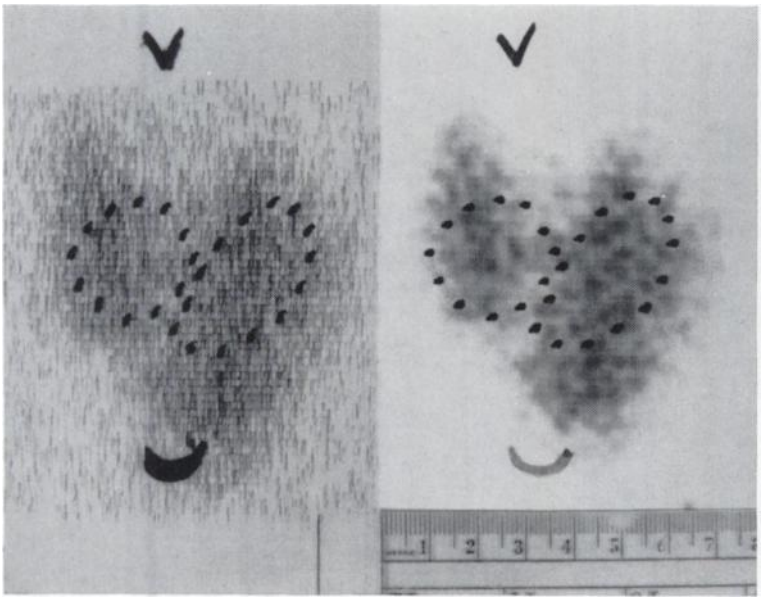
Quantitative dynamic studies
(a built-in capability)
Dynacamera 2 performs quantitative dynamic function studies in selected regions without the need for modifications, accessory systems, or extra cost and produces digital histograms simultaneously for quantification of each discrete phase.

Please call your local Picker technical specialist for information about other Dynacamera 2 features or to learn about Dynacamera 3, the scintillation camera with a built-in image enhancement system. Or write Picker Medical Products Division, Dept. N, 595 Miner Road, Cleveland, Ohio 44143.

PICKER

The "single source responsibility" company.

TOXIC NODULAR GOITER. RHEUMATIC HEART DISEASE.



RECTILINEAR SCANS.
Isotope: ^{131}I iodide. Dot scan (left). Photo scan with 61-hole collimator. 0% suppression. Scan time 10 minutes. Broken lines define palpable nodules not evident in scan recordings.

PHO/GAMMA SCINTIPHOTO.
Isotope: ^{131}I iodide. Pho/Gamma equipped with single-pinhole collimator. Total counts 10,000. Total exposure time 3 minutes, 32 seconds. Cold nodule evident in left lobe (see text).

THE PHO/GAMMA SCINTILLATION CAMERA

The Thyroid Study

A Basic Technique for Evaluation of Regional Thyroid Function with the Nuclear-Chicago Pho/Gamma® Scintillation Camera

Scintiphotography, using ^{131}I iodide and the Pho/Gamma Scintillation Camera, serves as both a primary diagnostic method and as a supplement to rectilinear scanning in the evaluation of thyroid function.

SETTING-UP. The patient is positioned with his thyroid at the appropriate distance (usually about 3 inches) from the aperture of the Pho/Gamma single-pinhole collimator which is directed at the thyroid isthmus. The patient must be positioned to remain stationary during the exposure.

ISOTOPE AND DOSE. Normally, 50 μCi of ^{131}I iodide is given orally 6 to 24 hours prior to the study. Smaller doses may be used, depending upon radioiodide uptake. The 24-hour uptake is generally twice the 6-hour uptake and therefore permits data accumulation at double the rate. (Note: Thyroid scintiphotography may also follow oral or intravenous administration of ^{99m}Tc pertechnetate to yield higher data densities and good images of small nodules.)

DATA ACCUMULATION. With ^{131}I iodide, small cold nodules located within thyroid lobes may be defined by data densities as low as 5000 counts in the entire scintiphoto. Better resolution is produced in the image by longer counting times to accumulate an increased number of counts. Extended exposure times may also be necessary to obtain thyroid images in children who are given reduced isotope doses.

CASE HISTORY. The clinical illustrations on the facing page are for a patient with the following case history: Female, 53 years old. Scheduled for mitral-valve surgery. Referred for thyroid evaluation because of atrial fibrillation and recent weight loss. Pertinent physical findings limited to a fine tremor and a 60-gram multinodular thyroid gland. Neck radioiodide uptake was 43% at 24 hours and TT_4 was 9.4 μgm% (normal maximum 8.2 μgm%). Initially, a rectilinear scan was ordered.

EVALUATION. The rectilinear scan was performed with the focal distance of the collimator carefully adjusted to the level of the thyroid gland. The images thus produced failed to show any clear definition of two discrete palpable nodules, which are shown, as palpated, in outlines superimposed on the images.

The Pho/Gamma scintiphoto study was therefore ordered, following the procedure described above. In the scintiphoto obtained from this study, a definite cold nodule is apparent. It is seen as a large area of decreased labelling laterally in the mid-portion of the more actively functioning tissue in the left lobe. Other areas of decreased labelling are seen in both lobes.

CONCLUSIONS. The Pho/Gamma thyroid-imaging technique illustrated here is most often used as a primary diagnostic method for the determination of regional thyroid function. It may be used as a secondary or supplementary method when rectilinear scanning fails to demonstrate the nature of a clearly palpable nodule. In the latter case, the scintiphoto made with the Pho/Gamma single-pinhole collimator often demonstrates cold nodules, even though they are not apparent on the scan. Pho/Gamma imaging generally requires one-third the time of a rectilinear scan of the same area. 0-233

Nuclear Reviews

PHO/GAMMA AT WORK: A DISTILLATION. For convenient reference, we offer a new brochure containing both clinical and phantom studies, plus results of the latest advances in scintillation-camera technology. Profusely illustrated. Properly detailed. Write for it.

SCINTILLATION SYSTEM PAR EXCELLENCE. Pho/Gamma with its Data-Store/Playback unit equips you to achieve such things as unambiguous area-of-interest pulmonary dilution curves. And, in addition to comparative quantification of data, studies can be replayed at will—for teaching, for reviewing and comparing dynamic pre-and post-operative studies—and for re-doing scintiphotos that didn't make it (without having to repeat the original study). Interested? A new issue of "The Nucleus," our publication for the nuclear-medicine community, is now available. It contains an informative discussion of the many capabilities of Pho/Gamma with Data-Store/Playback. It includes studies which demonstrate these capabilities in clinical practice, and discusses (in detail) the techniques involved in producing taped dynamic studies with the Data-Store/Playback unit. Your copy (or copies) are ready on request.

An exchange of information on topics related to nuclear medicine sponsored by NUCLEAR-CHICAGO A SUBSIDIARY OF G. D. SEARLE & CO. which has more than a passing interest in the field and the people who work in it.

2000 Nuclear Drive, Des Plaines, Illinois 60018, U.S.A.
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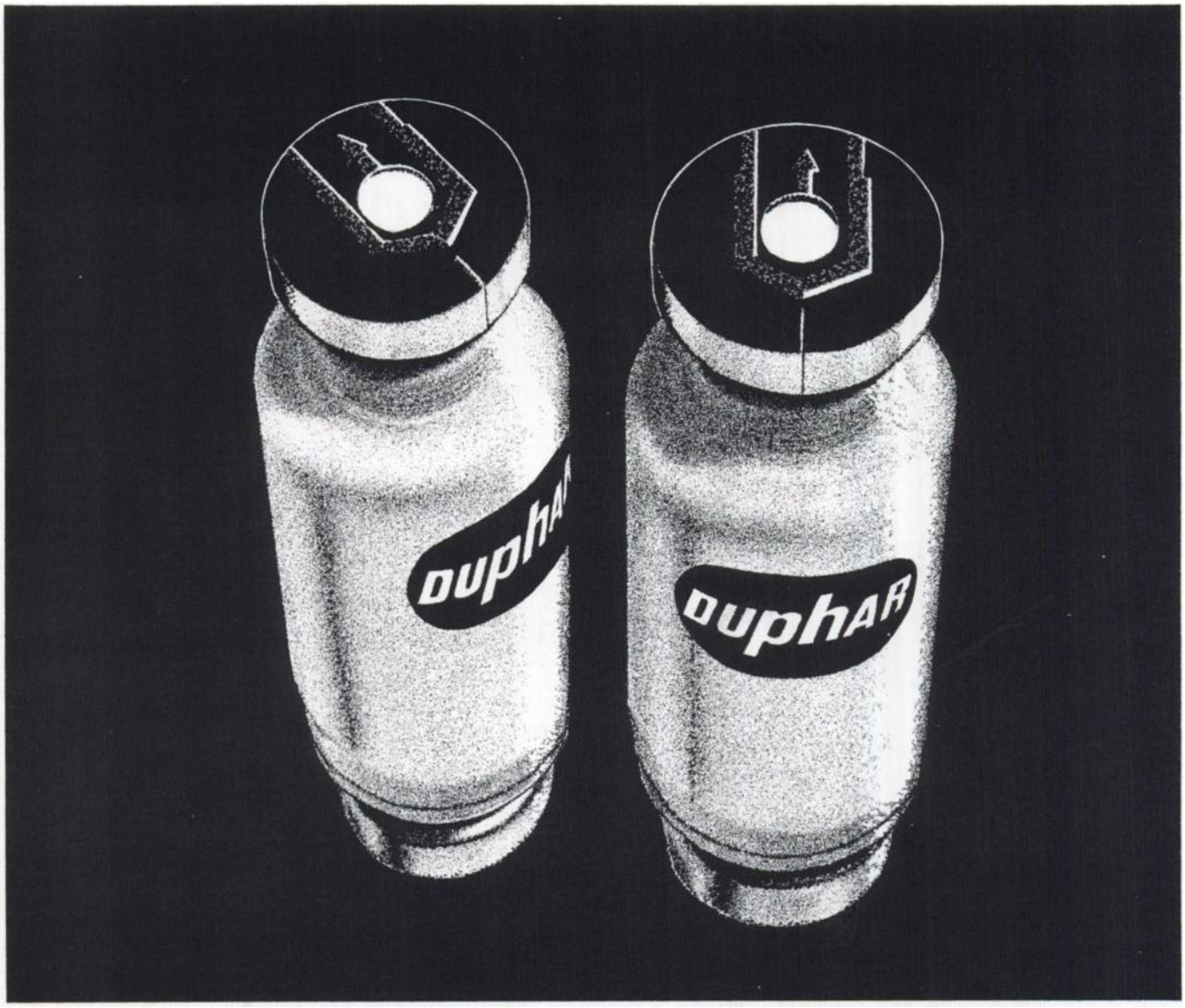
CM-189



What's the difference between a Tc 99m-generator and stercow™ 99m?

A Tc99m-generator provides a handy means of producing a short-lived isotope. STERCOW 99m provides such an isotope whenever and wherever you need it sterile. Moreover, STERCOW 99m fits into the Duphar milking system providing the ultimate in **safe** and **simple** elution with evacuated vials. STERCOW 99m is designed to be **top loaded** with 550 mCi molybdenum-99 parent and produces sterile, pyrogen-free Tc99m eluate in a maximum concentration.

That's the difference

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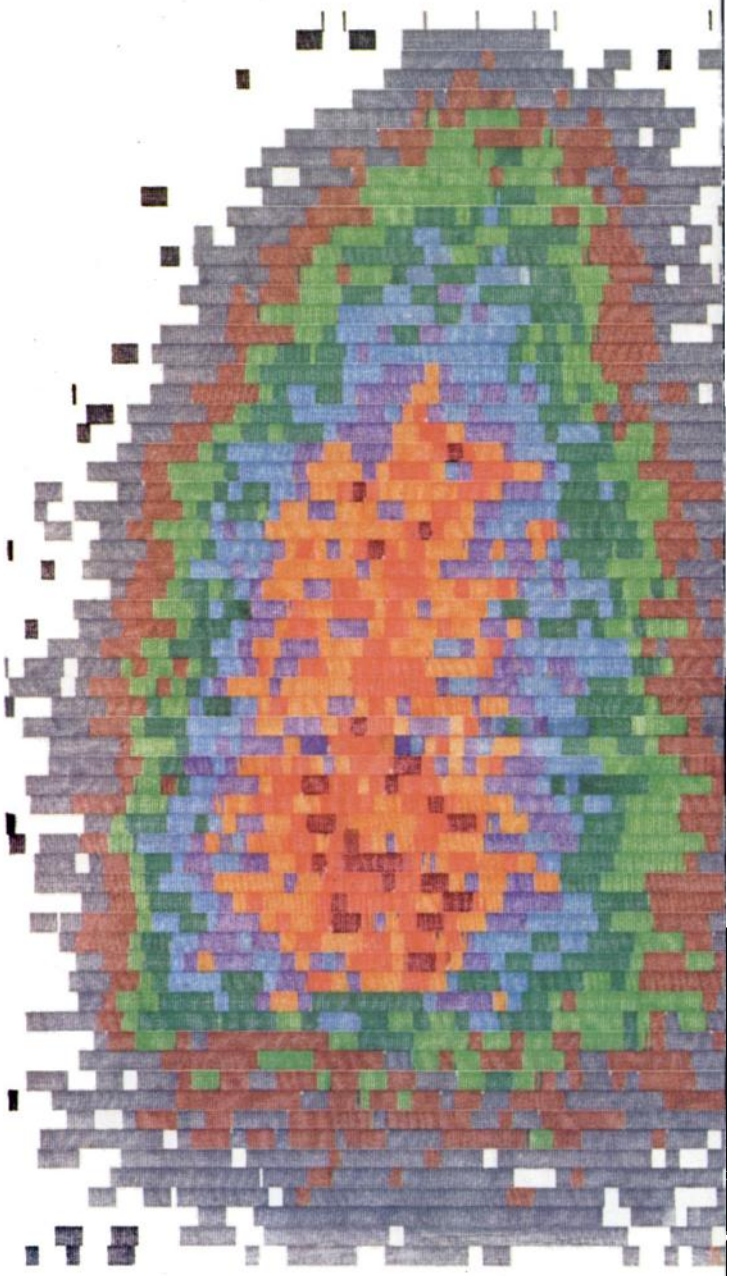
Color scans have always been colorful.



Now they're useful.

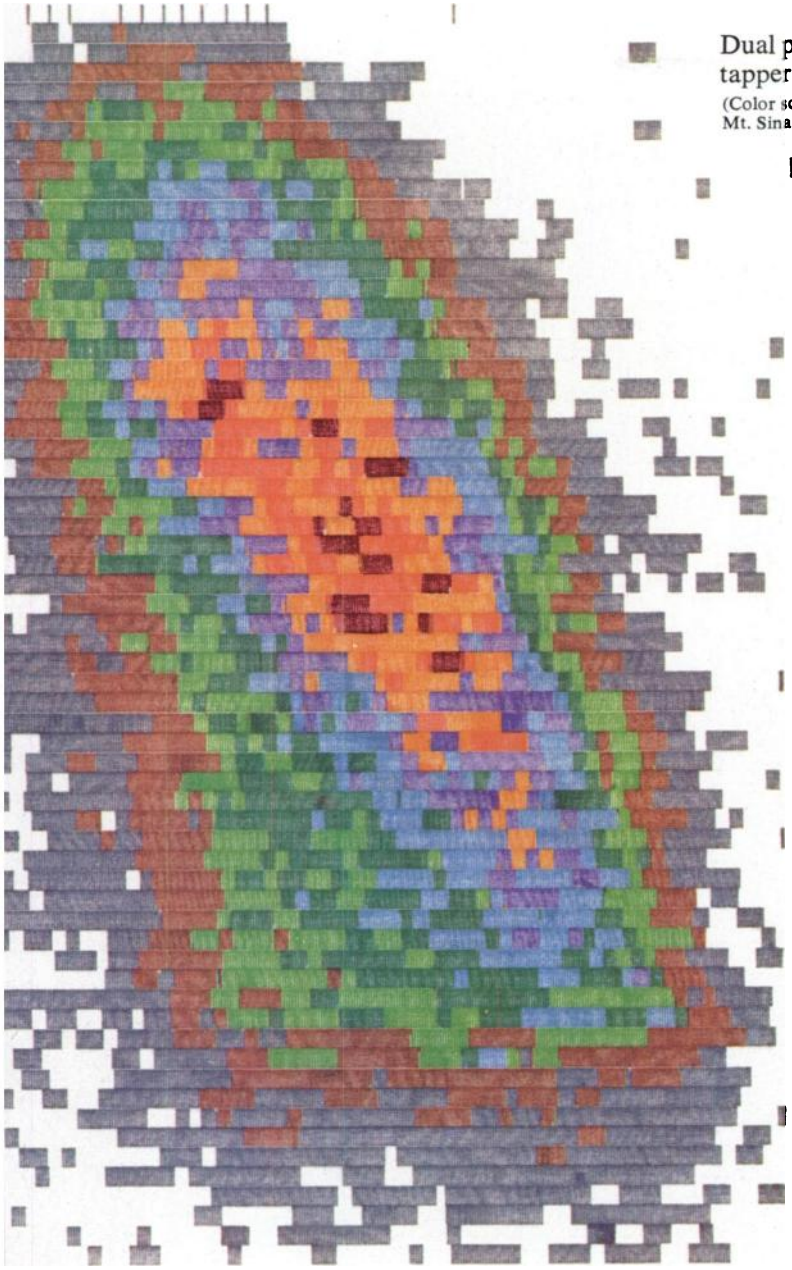
When count rate differences between target and non-target areas are extremely small, color contrast enhancement produces scans that contain considerably more information, thus simplifying diagnoses. And only Raytheon nuclear imaging devices give you this advantage.

By simply inserting a plug, you can change a Raytheon imaging device from conventional linear color operation to the color dot contrast enhancement mode. Raytheon offers a wide variety of plugs to meet your clinical requirements for color contrast enhancement. The accompanying graph illustrates the results you can expect at various count rate activity levels.

In addition, you have a choice of continuous color, another Raytheon exclusive, or conventional color recording with variable tapper frequency.

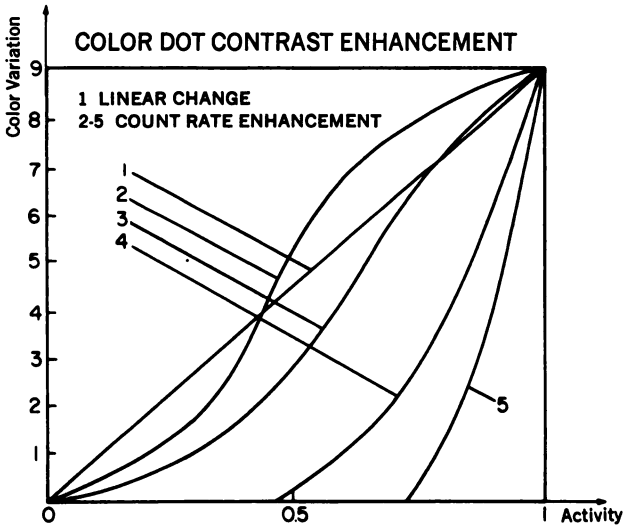
But there are a number of features of Raytheon nuclear imaging devices that make them the most advanced units available today. For example: The scanning heads are completely flexible. Tomograms, oblique scans of normally masked areas, parallel-headed scanning for whole body applications, and conventional opposed-head scanning are some of the ways the heads can be manipulated.

Here is another important feature: You can get four different scintigrams simultaneously when the scanner is equipped with a subtraction option. Thus, you can obtain four views of the brain at one time: 1. right lateral on photo; 2. left lateral on photo; 3. right lateral plus left lateral on color dot recorder; 4. right lateral minus left lateral on color dot recording. Or perhaps you may only want one view with four levels of contrast enhancement. No need to perform multiple scans. The Raytheon



Dual probes in summation with continuous tapper and linear color.

(Color scan courtesy of Amiel Z. Rudavsky, M.D., Mt. Sinai Hospital, New York City.)



scanner will give you various levels of enhancement simultaneously.

With a Raytheon nuclear imaging device, you can also have a unit that can be updated to meet your future needs. You can convert a single 3″ scanner to a single 5, dual 3, or dual 5 right in the hospital.

Ease of operation is built into each unit. To set up for a scan, just insert the automatic energy selector plug, search for the hot spot, and select line spacing and a scan speed of up to 600 cm/min. Information density and film contrast are read out on a single easy-to-read meter.

We would like to provide you with additional details on Raytheon's family of nuclear imaging devices. Write or call Raytheon Company, Medical Electronics, 190 Willow St., Waltham, Mass. 02154. Tel. 617-899-5949.

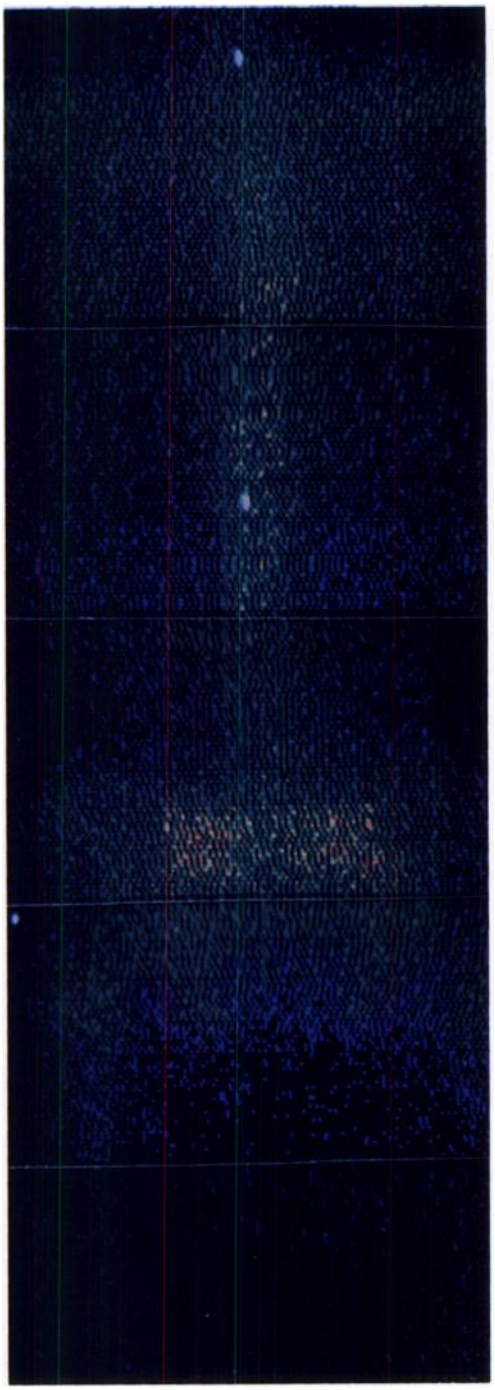
RAYTHEON

Raytheon's 12-minute, color film on nuclear imaging devices is available for your viewing. To arrange a convenient time to see this informative film, contact your nearest Raytheon sales representative. Or, get in touch with Raytheon Company, Medical Electronics, 190 Willow Street, Waltham, Mass. 02154. Telephone 617-899-5949.

RAYTHEON

Printed in U.S.A.

When high in-depth resolution is required but scanner speed is too slow, what then? (Simply consider the Picker Colorpix™ 2.)



Whole body bone study, AP view.
Time: Approximately 4 minutes per view, 30-45 minutes for the entire study. Isotope: F 18. Dose: 1 mCi.

Users of nuclear medical equipment are accustomed to compromise. To get, you give. High in-depth resolution? (Okay, but at slow speed.) High speed? (Yes, but...)

Until now. With the development of the Colorpix 2 even institutions with heavy static-imaging loads can enjoy maximum diagnostic information. And more.

We show herewith a sampling of typical Colorpix 2 scans. And we list below—in the briefest of forms—the outstanding Colorpix 2 features. Finally, we've also included a Business Reply Card to simplify your request for the detailed Colorpix 2 booklet. (Now it's no longer a question of speed *versus* resolution.)

Colorpix 2 Features

(1) Superb in-depth resolution (uses focusing collimators).

(2) High speed (complete organ views in 2 or 3 minutes).

(3) Color scans to enhance perception of small count variations.

(4) Image enhancement capabilities.

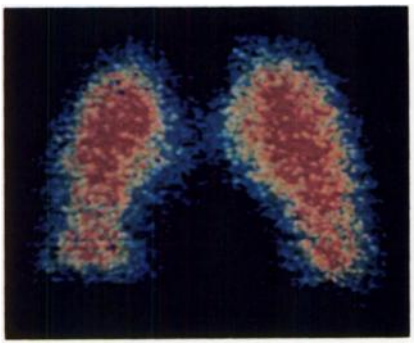
(5) High counting efficiency for low dose studies.

(6) Ability to handle high energy gamma emitters (like strontium 85 for bone studies).

(7) Dynamic function study capability (e.g., renal uptake studies).

(8) Field large enough to do lungs or liver in a single view.

(9) Tape recorder available to record and replay for optimizing enhancement and background suppression levels.



AP. Count: 144,771
Abnormal lung study. Bilateral perfusion defects are noted in this patient who had multiple pulmonary emboli secondary to a deep thrombophlebitis of the leg. Isotope: I 131 Macroaggregated Albumin. Dose: 350 μCi.

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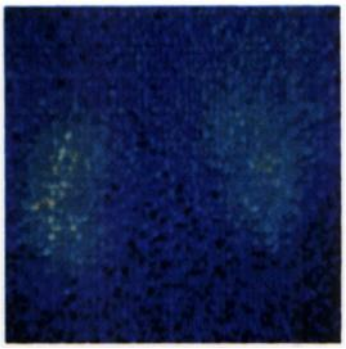
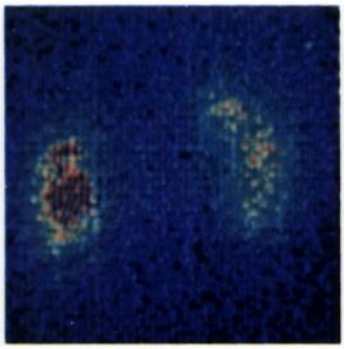
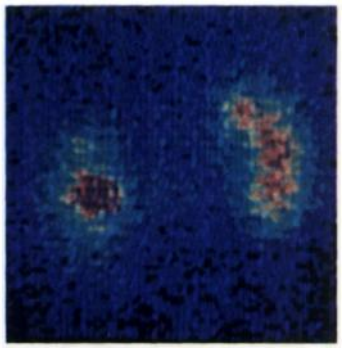


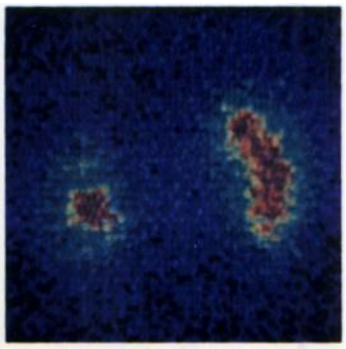
1. 0-2 minutes. Count: 50,531



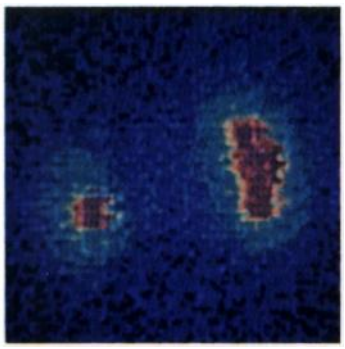
2. 4-6 minutes. Count: 61,179



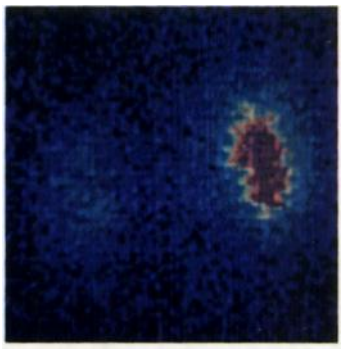
3. 8-10 minutes. Count: 58,696



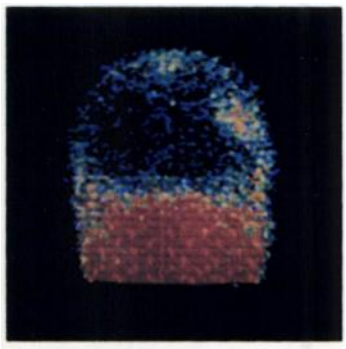
4. 12-14 minutes. Count 55,836



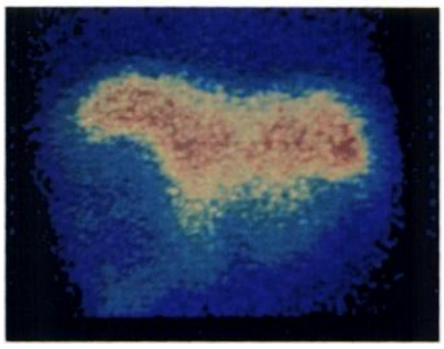
5. 16-18 minutes. Count 53,907



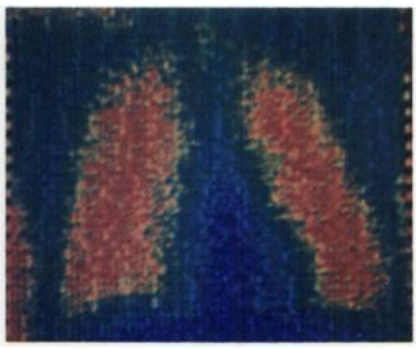
6. 20-22 minutes. Count 41,196



7. AP. Count: 175,227



8. AP View.



9. AP. Transmission Scan

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1-6. Sequential PA scans of abnormal renal function. Widespread adenocarcinoma. Isotope: I 131 Hippuran. Dose: 700 μCi.

7. Abnormal brain study. 62-year-old male patient recovering from an acute myocardial infarction when he sustained an acute CVA with right-sided hemiplegia. Time: Approximately 10 minutes. Isotope: Tc^{99m}. Dose: 15 mCi.

8. Abnormal liver study, 27-year-old female. Metastatic carcinoma of the rectum. Scanning time: 4-5 minutes. Isotope: Tc^{99m} Sulphur Colloid. Dose: 4 mCi.

9. Transmission scan of normal lungs. Isotope: Tc^{99m}. Dose: 15 mCi.

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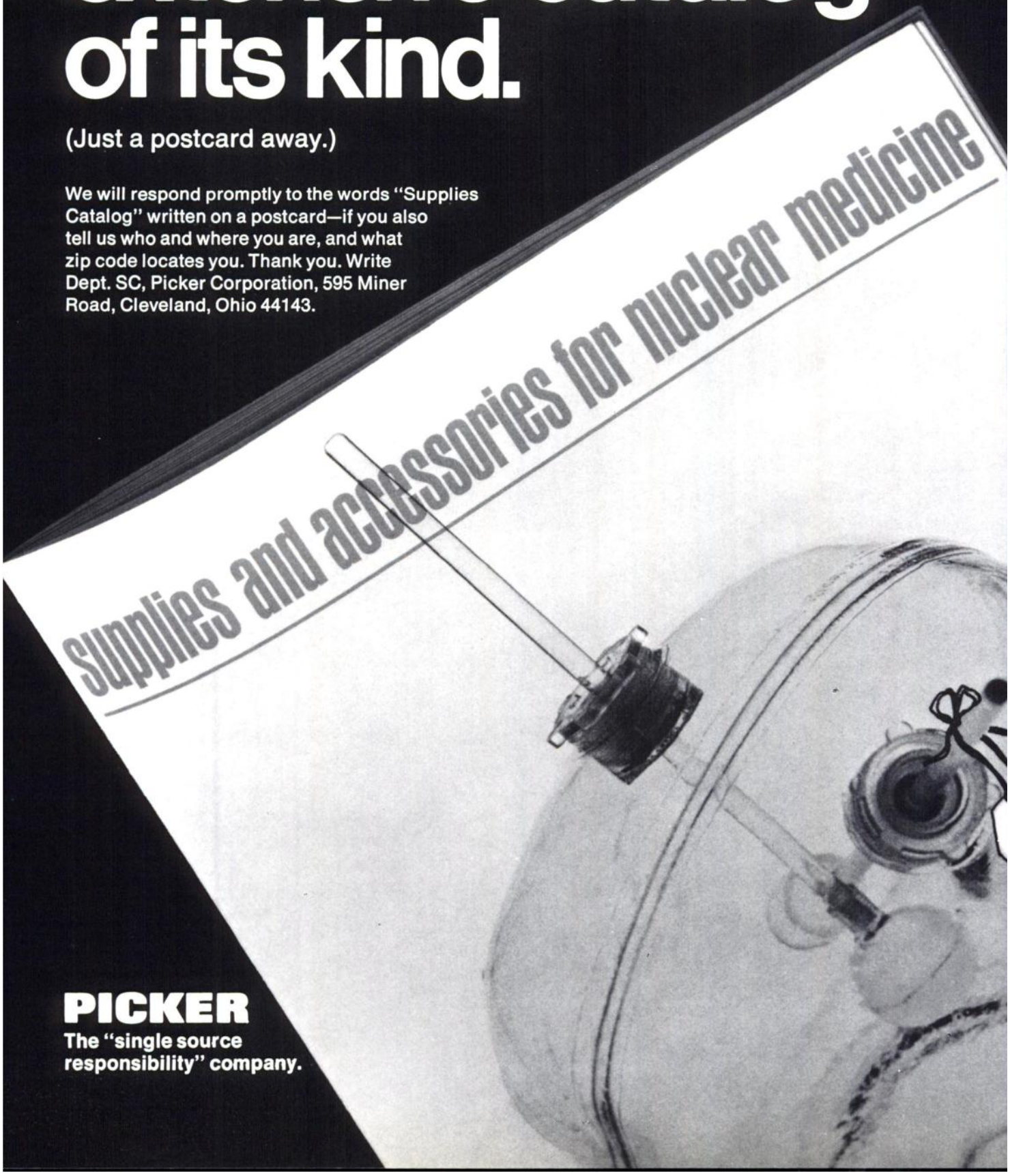

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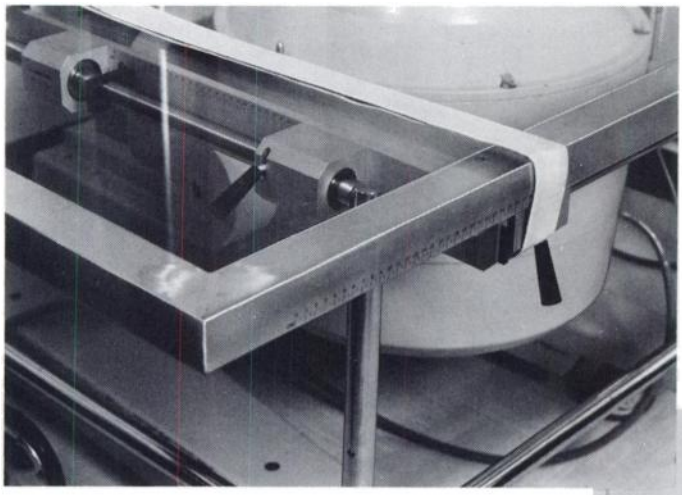

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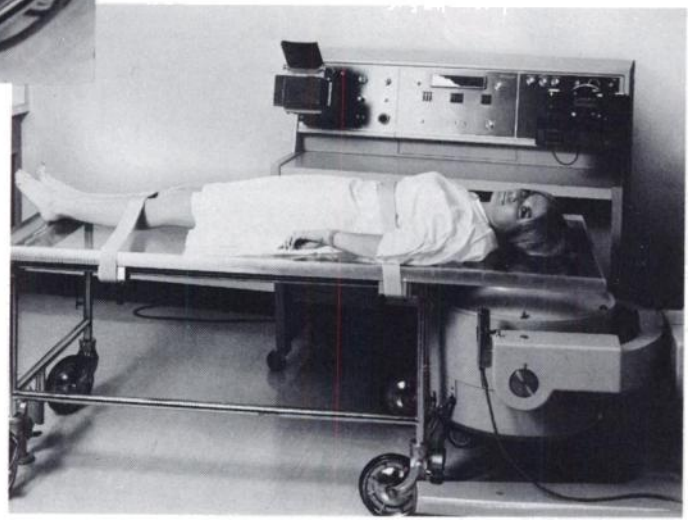

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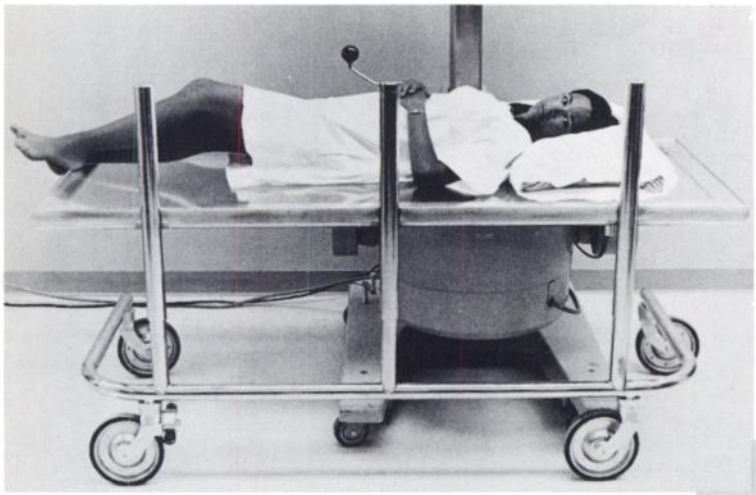

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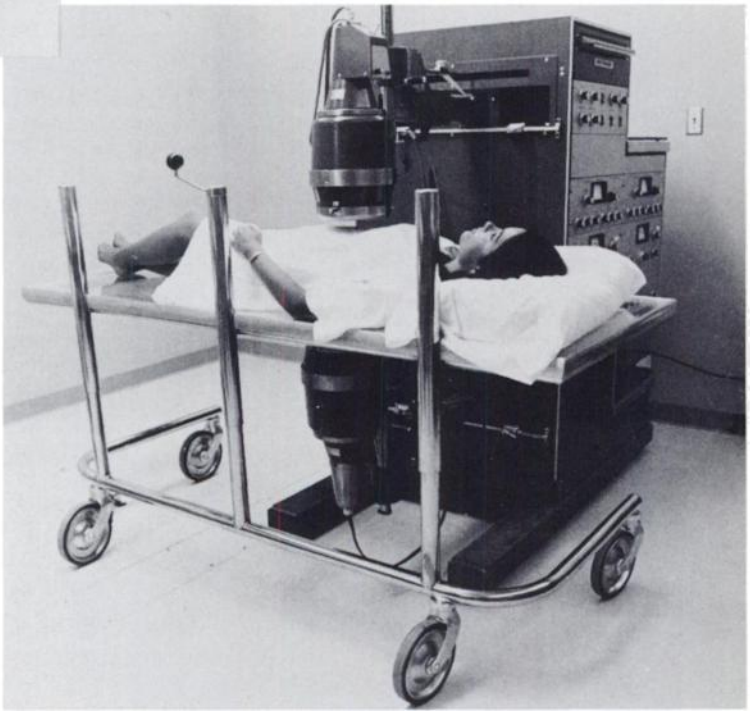

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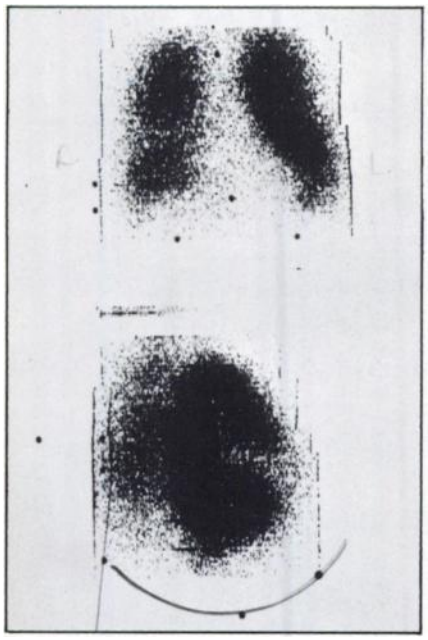

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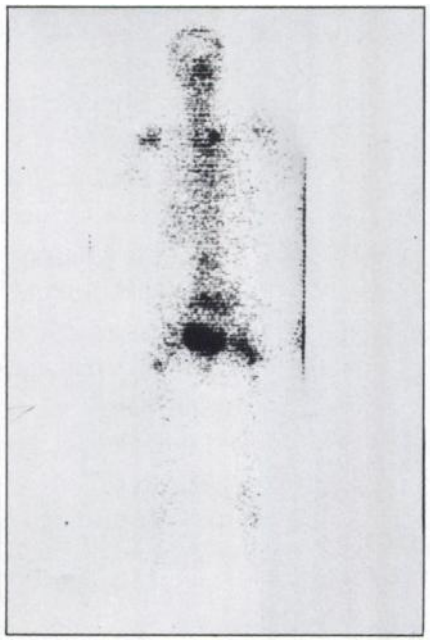

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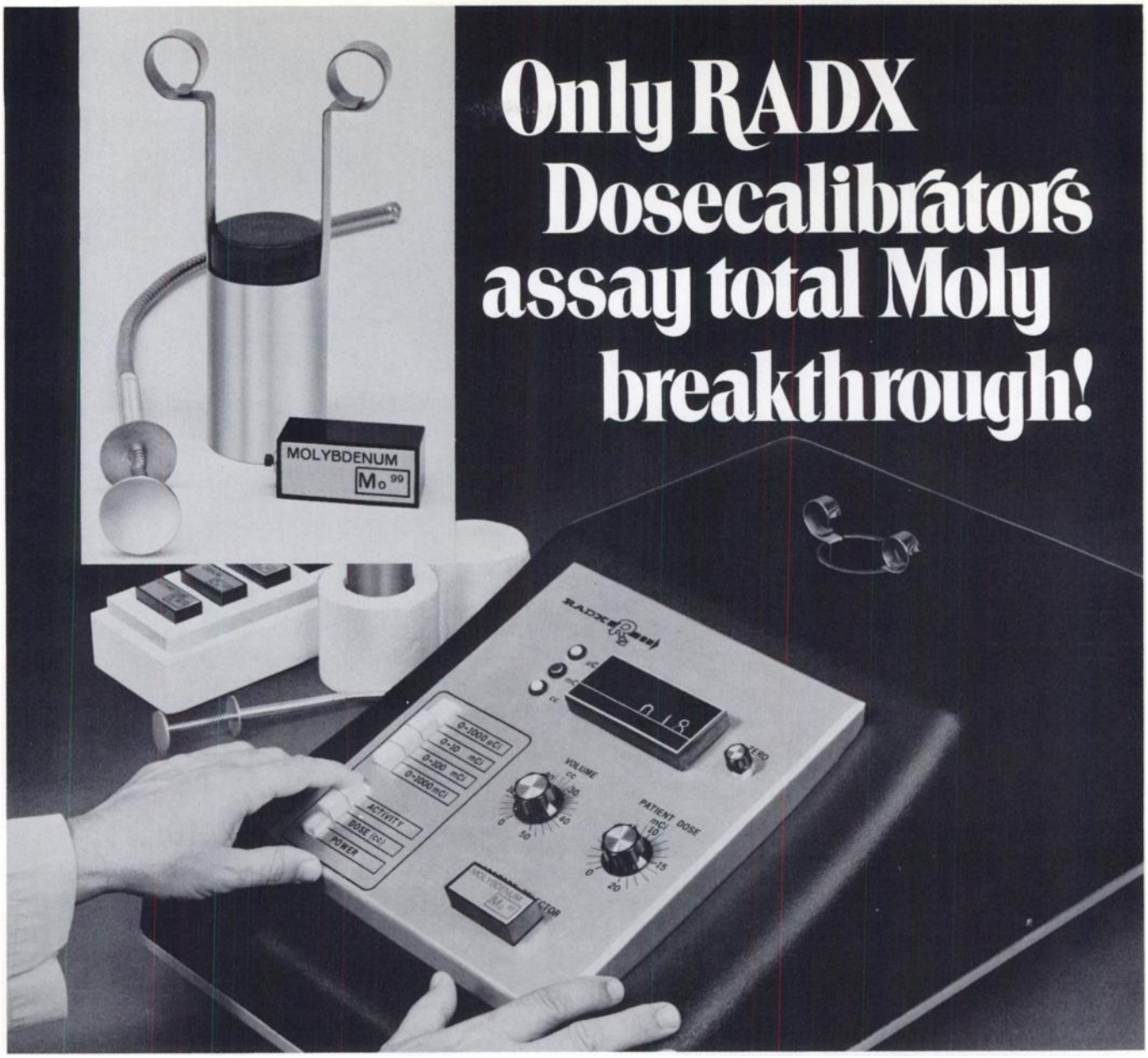

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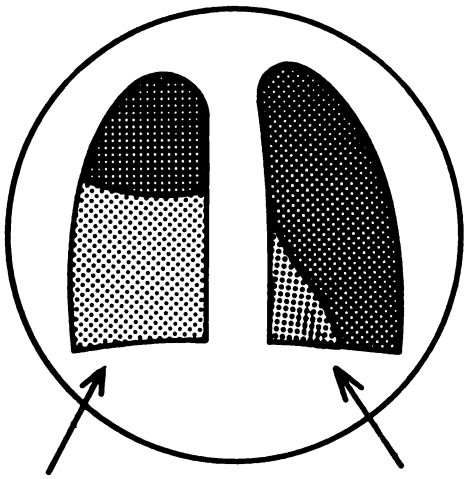

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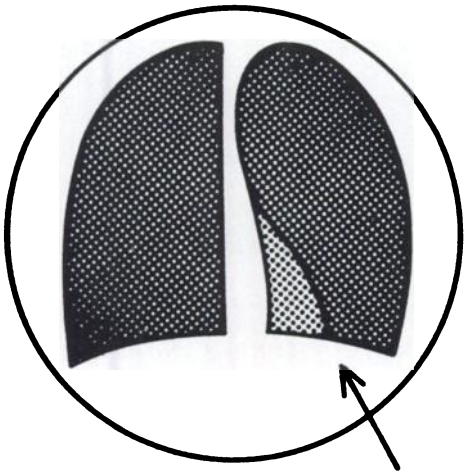

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②

DE NARDO G.L., et al: THE VENTILATORY LUNG SCAN IN THE DIAGNOSIS OF PULMONARY EMBOLISM. NEW ENG J MED 282:1334-1336 (JUNE) 1970

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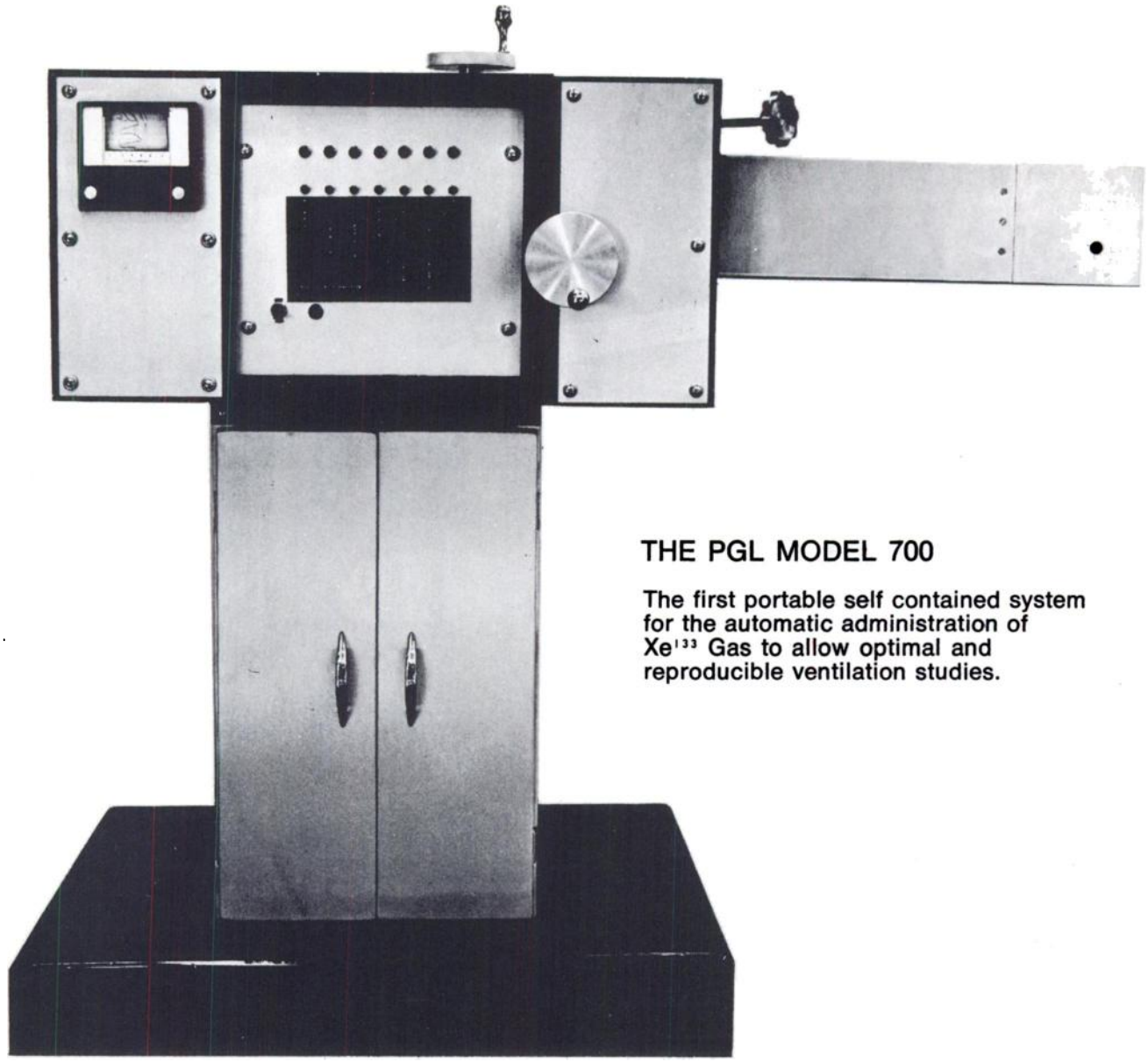

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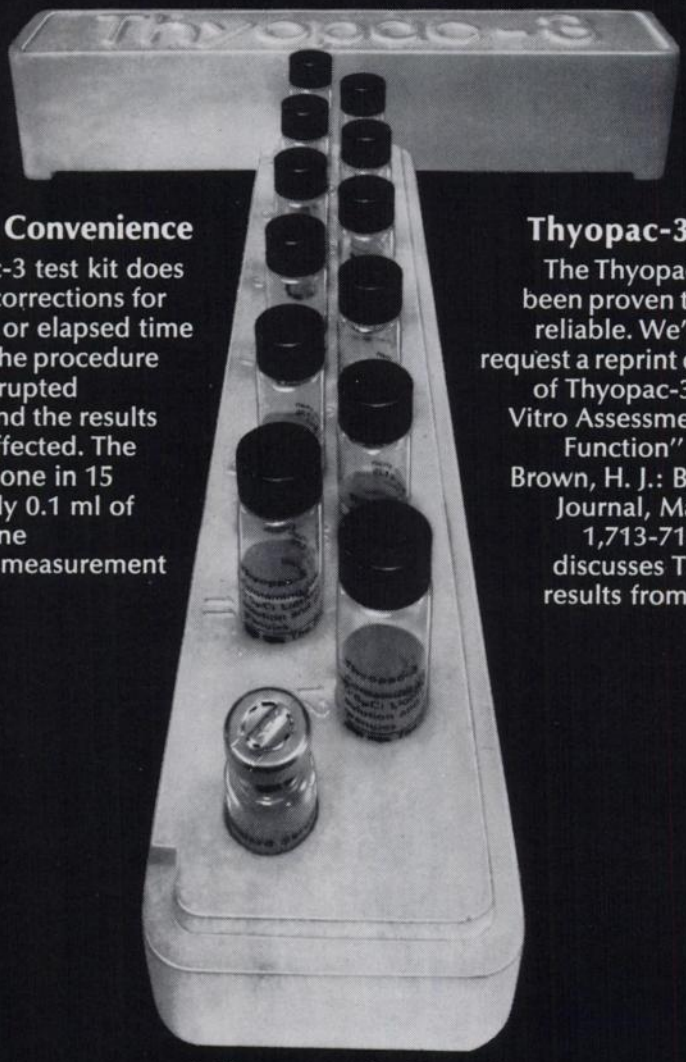

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NUCLEAR MEDICAL SYSTEMS, INC.

142 Mineola Avenue
Roslyn Heights, N.Y. 11577
(516) 621•6700

Does the 35mm or 70mm Photography System you are planning to install on your Gamma Camera include the following important features?

I. An intervalometer that provides:

a. Digitally set and controlled exposure intervals over the range of 0.1 seconds to 99.9 minutes in 0.1 second increments.

b. Digitally set and controlled inter-exposure intervals over the same range.

c. A frame counter that can be set for automatic, unattended operation.

d. Operation from a remote location.

II. A Housing that provides:

a. Gamma Scope Viewing with the system mounted in place so that scope focus and intensity can be adjusted without removing the mount.

b. A camera mount that is rigid and secure and that does not dangle the camera by its fragile front lens element.

c. A camera mount that allows camera to scope distance to be quickly changed, so that variable image size is possible.

d. A mount which allows the use of the incomparable Hasselblad 500 EL 70mm camera.

If the system you are considering does not have these features, but only takes photos, then stop considering it.

CONSIDER OURS.

We're NUCLEAR MEDICAL SYSTEMS, INC.

Write or Call us:

In the West at: Medcorp, Inc.
820 West Hyde Park Boulevard
Inglewood, California 90302
213-673-2201

Midwest: Medcorp, Inc.
510 Lothair Drive
Libertyville, Illinois 60048
312-362-1025

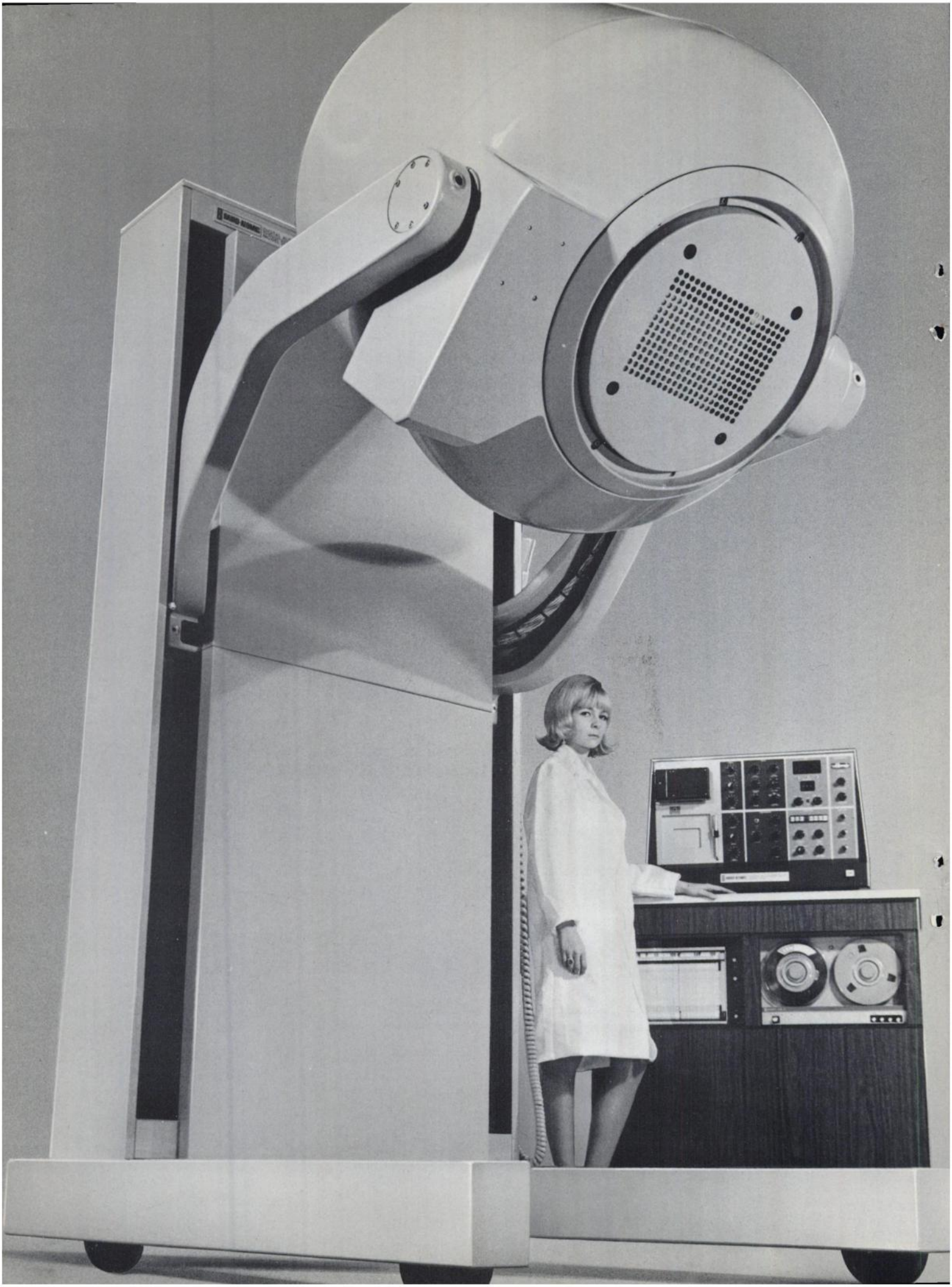
Southeast: Pulcir, Inc.
1001 Corning Road
Knoxville, Tenn. 37919
615-584-7871

Northeast: Spectrum Sciences
165 Marine Street
Farmingdale, New York 11735
(516) 687-9169

Middle Atlantic: J.F.M. Associates
Suite 9
1000 Connecticut Ave. N.W.
Washington, D.C.
202-298-6700

Or call us directly:

NMS, INC.
142 Mineola Avenue
Roslyn Heights, New York 11577
516-621-6700



What is the ~~secret~~ Success behind the Baird-Atomic Scintillation Camera

The Autofluoroscope® has been perfected. Its ~~secret~~ success lies in the detector. Small individual crystals forming a rectangular 294 element matrix are positioned to collect data from that part of the patient's body opposite each crystal. Each crystal is tied electronically to its own magnetic core memory in the computer console, consequently it is the only scintillation camera specifically designed for quantitative imaging where discrete picture elements are collected and stored and may be manipulated for both visual observation and quantitative assessment at will. Send for Brochure. 125 Middlesex Turnpike, Bedford, Massachusetts 01730, Telephone: (617) 276-6200. Baird-Atomic Limited, Braintree, Essex, England Baird-Atomic (Europe) N.V., The Hague, The Netherlands.

BA BAIRD-ATOMIC

The image bank

. . . becomes an essential part of scintiphotography. Behind it all—the Model 3122 Data-Store/Playback Accessory for the Pho/Gamma® Scintillation Camera.

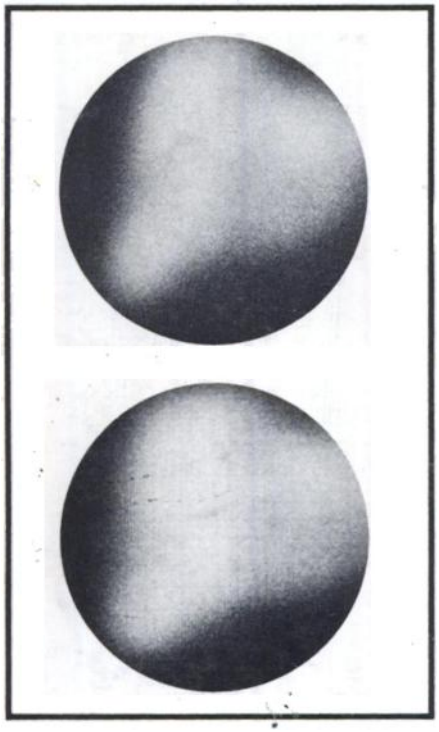
With the 3122, you make data deposits—on magnetic tape, in real time—in a high-resolution (256 x 256) digital matrix. You get a high-speed image-data-storage rate for unprecedentedly low data "drop out" and resultant high-resolution digital recordings. Analog-to-digital image fidelity remains excellent, even at count rates exceeding 20,000 cps. Pulse-pair resolving time for the Data-Store and Pho/Gamma Systems combined is unparalleled—*only 10* μsec.

The benefits? An even greater diagnostic capability for all Pho/Gamma studies, particularly dynamic studies such as cardiovascular transit time and regional renograms.

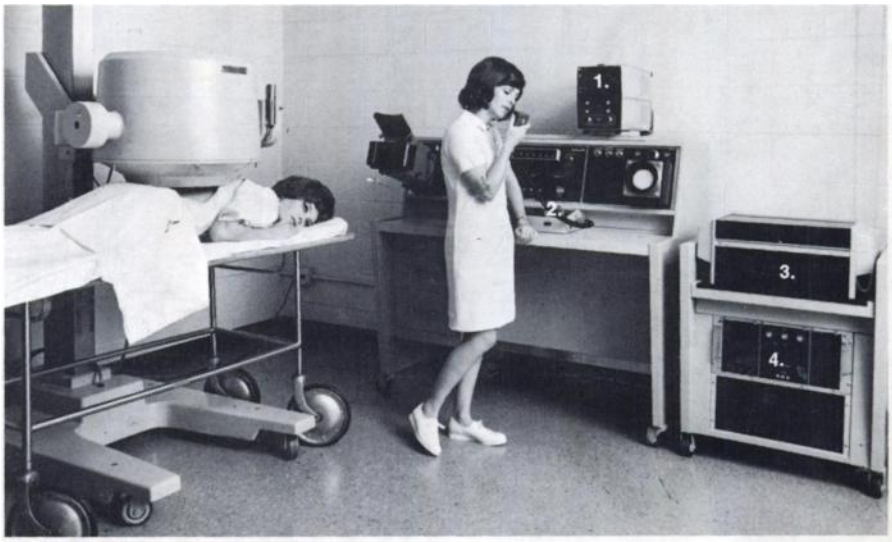
Real-time, digital image recording also means you can make data withdrawals anytime. Never a worry about improper set-ups, recording errors, defective film. Always plenty of time for thoughtful replaying and incisive analysis of the data.

Focus your interest on virtually any definable area. You control height, width, *and* shape. You analyze paired organs, region by region.

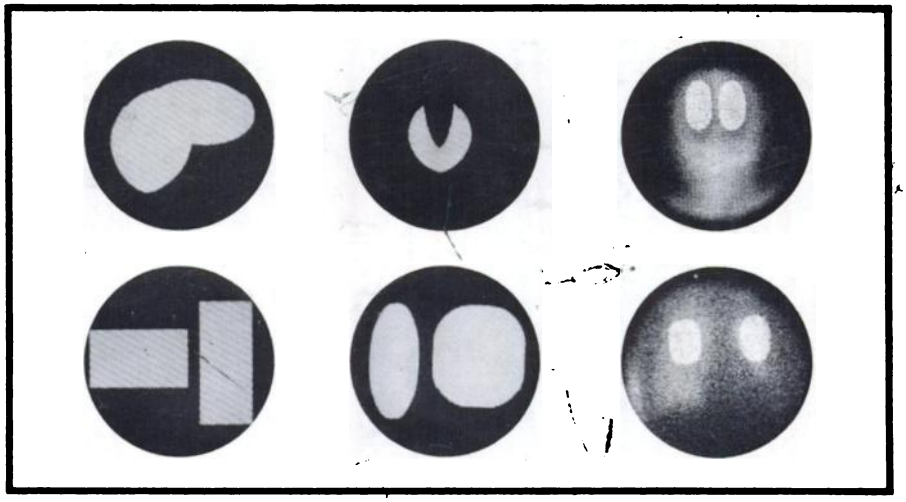
The possibilities are limited only by your inspiration. And the Model 3122 Data-Store/Playback Accessory is compatible with *all* Pho/Gammas. Call your Nuclear-Chicago sales engineer or write for complete details.



Normal Pho/Gamma analog display of image data (top). High-resolution recorded digital image played-back (bottom) demonstrates minimal raster artifact.



Components of the Data-Store/Playback Accessory: 1. Variable persistence oscilloscope. 2. Push-button control panel and microphone. 3. Data recorder. 4. Desk-height consolette for housing the data recorder and the required electronics.



Variety of selectable areas of interest processed from recorded data by Data-Store/Playback Accessory. Note total control of size, position, and shape of region of interest areas. 0-238

NUCLEAR-CHICAGO
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