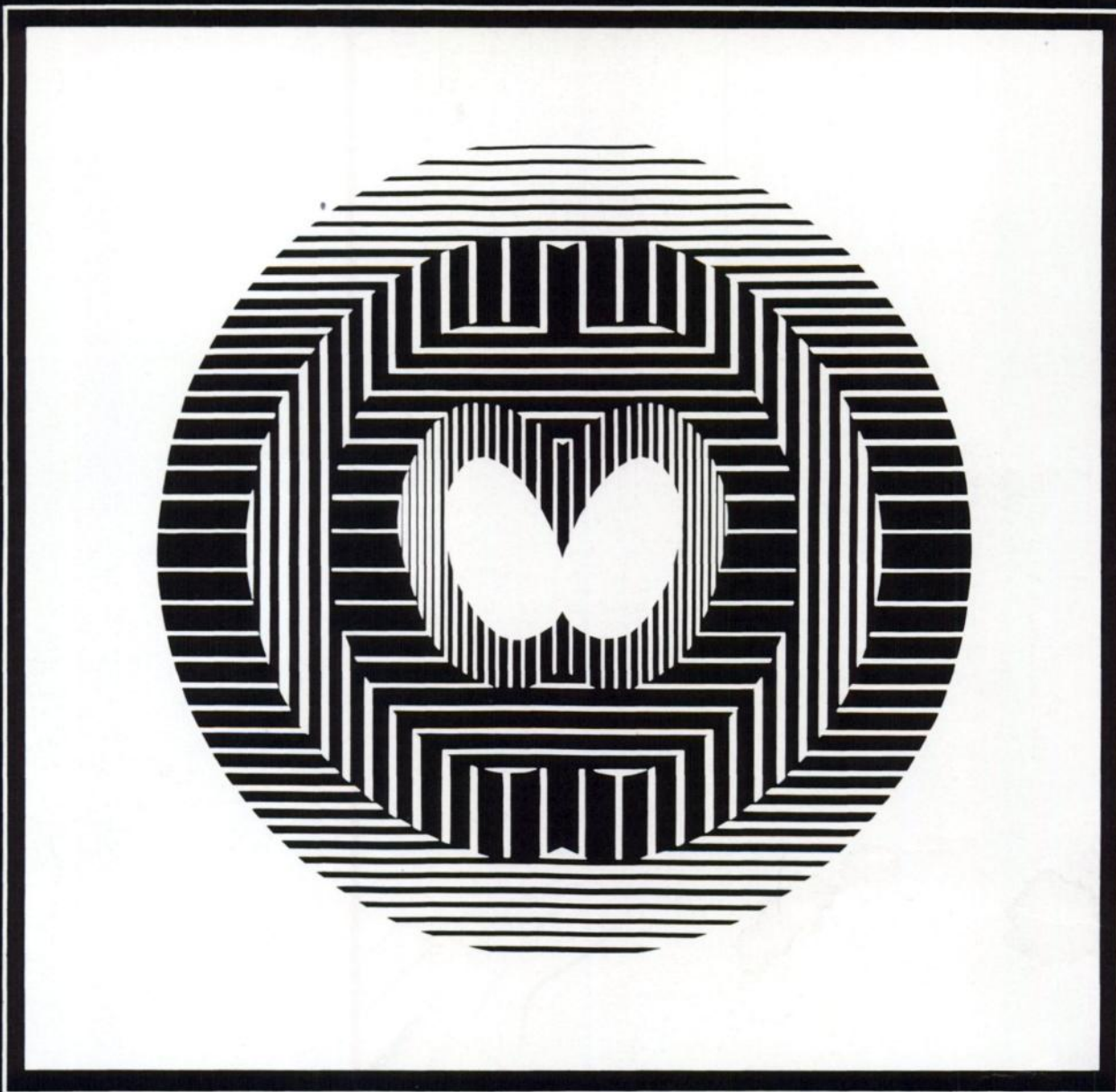


“Iodine 123 is a nearly ‘ideal’  
radionuclide for thyroid imaging.”<sup>1</sup>



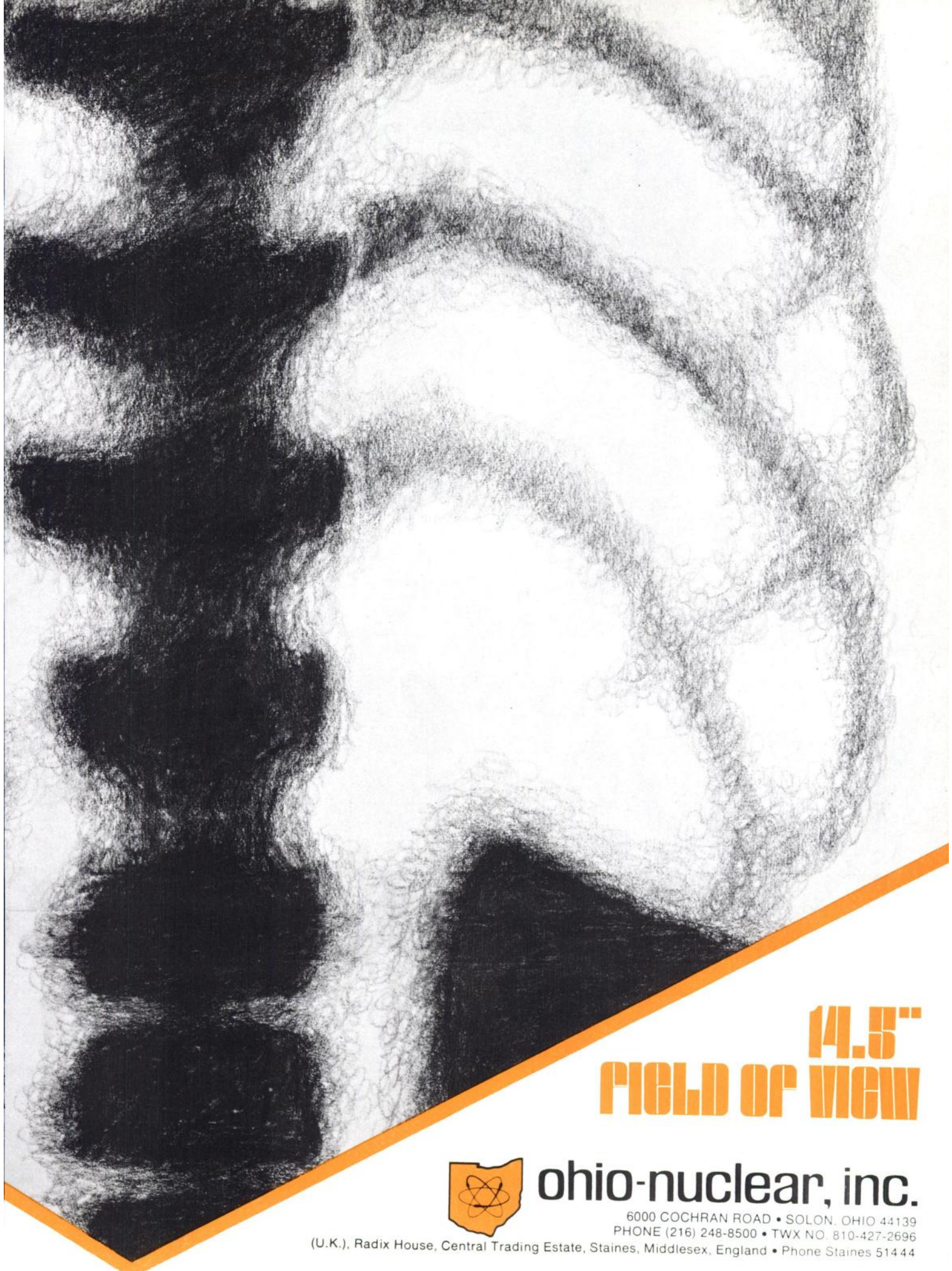
**In 1962, Myers and Anger stated: “Calculations indicate radiation exposures will be less than 5% as great when I-123 is substituted for I-131, in procedures where radioiodide ion is administered. This reduction stems chiefly from two properties: (1) I-123 emits no  $\beta$ -particles, per se, like I-131 does; (2) The  $\approx$  14-hour half-life of I-123 is only 7% that of I-131. However, this half-life is adequate for most diagnostic procedures.”<sup>2</sup> ■ In 1973, Atkins concluded simply: “Iodine**

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1. Atkins et al, *Am J Roentgenol Radium Ther Nucl Med*, 117(1): 195-201, 1973. 2. Myers and Anger, *J Nucl Med*, 3(5):183, 1962.

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**14.5"**  
**FIELD OF VIEW**

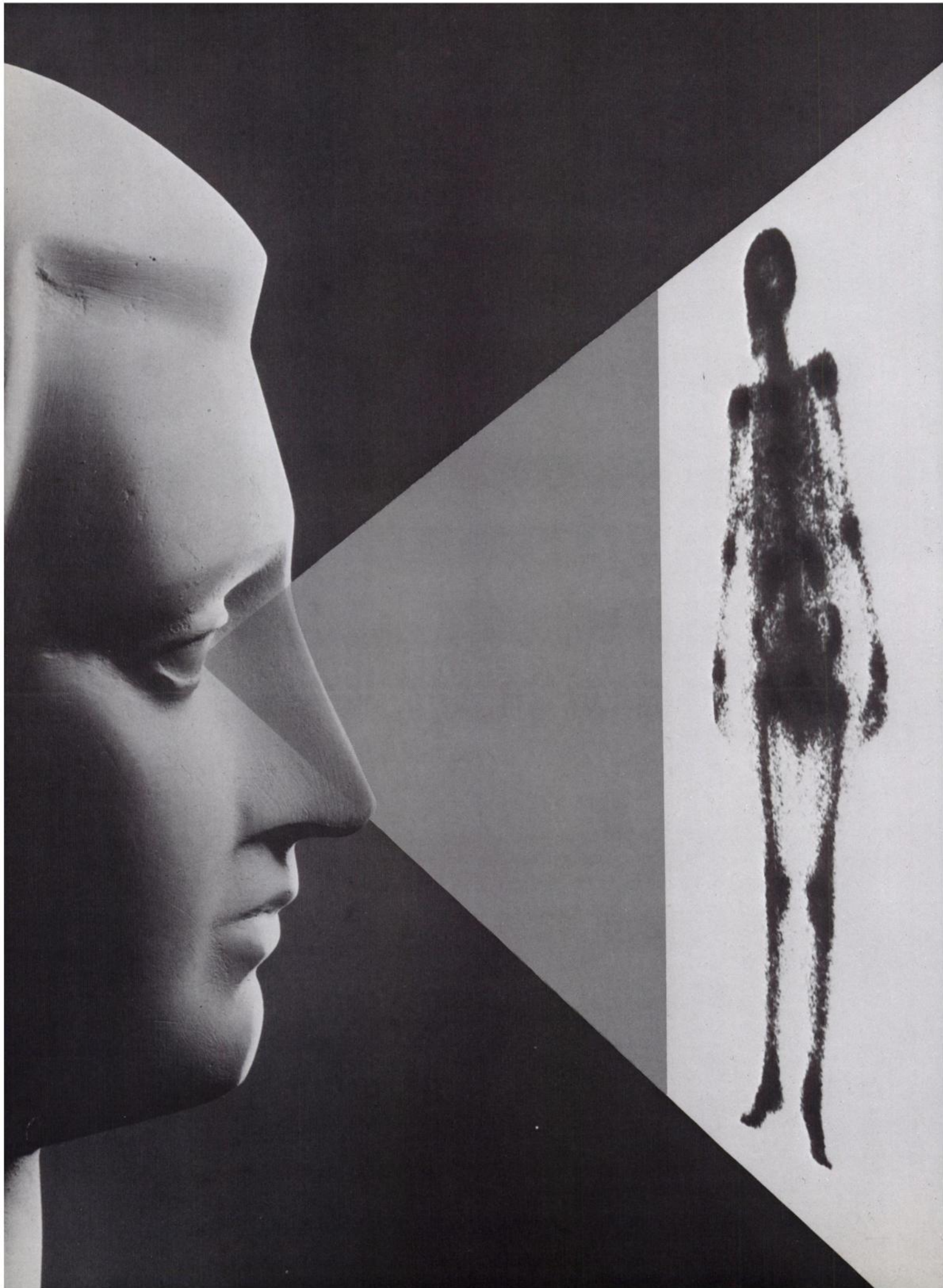


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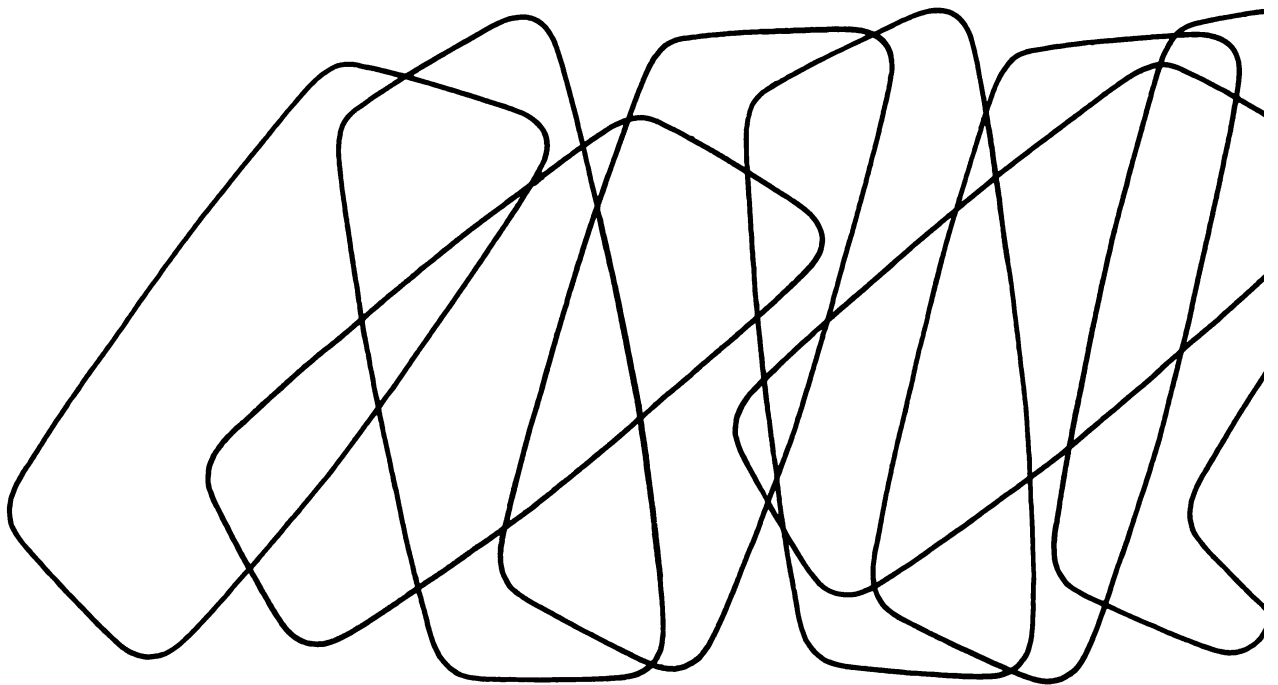


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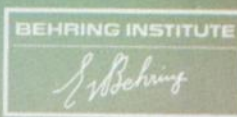
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**Stability:** 8 weeks at proper storage. The expiry date is indicated on the package.

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PERCENT  
REMAINING

HOURS	PERCENT REMAINING
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270	91.3
213	82.6
164	74.9
128	67.2
100	60.5
78.9	54.8
60.9	49.1
47.5	43.4
37.0	37.7
28.9	32.0
22.5	26.3
17.6	20.6
13.7	14.9
10.7	9.2

HOURS	PERCENT REMAINING
141	74.9
111	67.2
81	60.5
51	54.8
21	49.1
1	43.4
27.4	37.7
18.4	32.0
9.4	26.3
0.4	20.6
14.6	14.9
5.6	9.2

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Parent Molybdenum-99 prepared from  
Fission Produced Molybdenum

PK/74

For the generation of sterile, pyrogen-free Sodium Pertechnetate Tc 99m.

Caution: Federal (U.S.A.) law prohibits dispensing without prescription.

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FOR ADDITIONAL INFORMATION SEE PACKAGE INSERT

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ST. LOUIS, MISSOURI 63147

Before prescribing please consult the complete product information, a summary of which follows:

**CONTRAINDICATIONS**—The safety of *TechneScan MAA Tc 99m* in patients with a known right-to-left cardiac shunt has not been established and its use in such patients is contraindicated.

**WARNINGS**—In acute cor pulmonale the administration of aggregated albumin is theoretically hazardous due to the temporary small additional mechanical impediment to pulmonary blood flow. Although not reported with *TechneScan MAA Tc 99m* there are three reports in the literature of deaths occurring after the administration of radiiodinated aggregated albumin as a result of pre-existing primary pulmonary hypertension.<sup>1,2,3</sup>

The contents of the *TechneScan MAA* reaction vial are intended only for use in the preparation of *TechneScan MAA Tc 99m* and are not to be directly administered to the patient.

The contents of the kit are not radioactive. However, after the sodium pertechnetate Tc-99m is added, adequate shielding of the final preparation must be maintained.

This radiopharmaceutical preparation should not be administered to patients with severe kidney disease unless the benefits to be gained outweigh the potential hazards. Similar care should be observed with patients who are pregnant or who are lactating.

Ideally, examinations using radiopharmaceuticals, especially those elective in nature, of a woman of childbearing capacity 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.

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

**ADVERSE REACTIONS**—Although no anaphylactoid reactions have been reported in patients following the administration of *TechneScan MAA Tc 99m*, the possibility should be considered that hypersensitivity reactions may occur rarely in patients who, after the initial administration, receive additional doses a number of weeks after the initial dose.

<sup>1</sup>Dworkin, H. J.; Smith, J. R. and Bull, F. E.: Reaction after Administration of Macroaggregated Albumin for a Lung Scan, *New England J. Med.*, 275:376, August 18, 1966.

<sup>2</sup>Roberts, H. J.: Fatal hemoptysis in pulmonary embolism probably precipitated by pulmonary scanning—Report of a case and suggested precautions. *Angiology*, 21:270, 1970.

<sup>3</sup>William, J. O.: Death following injection of lung scanning agent in a case of pulmonary hypertension. *Br. J. Radiol.* 47:61, 1974.

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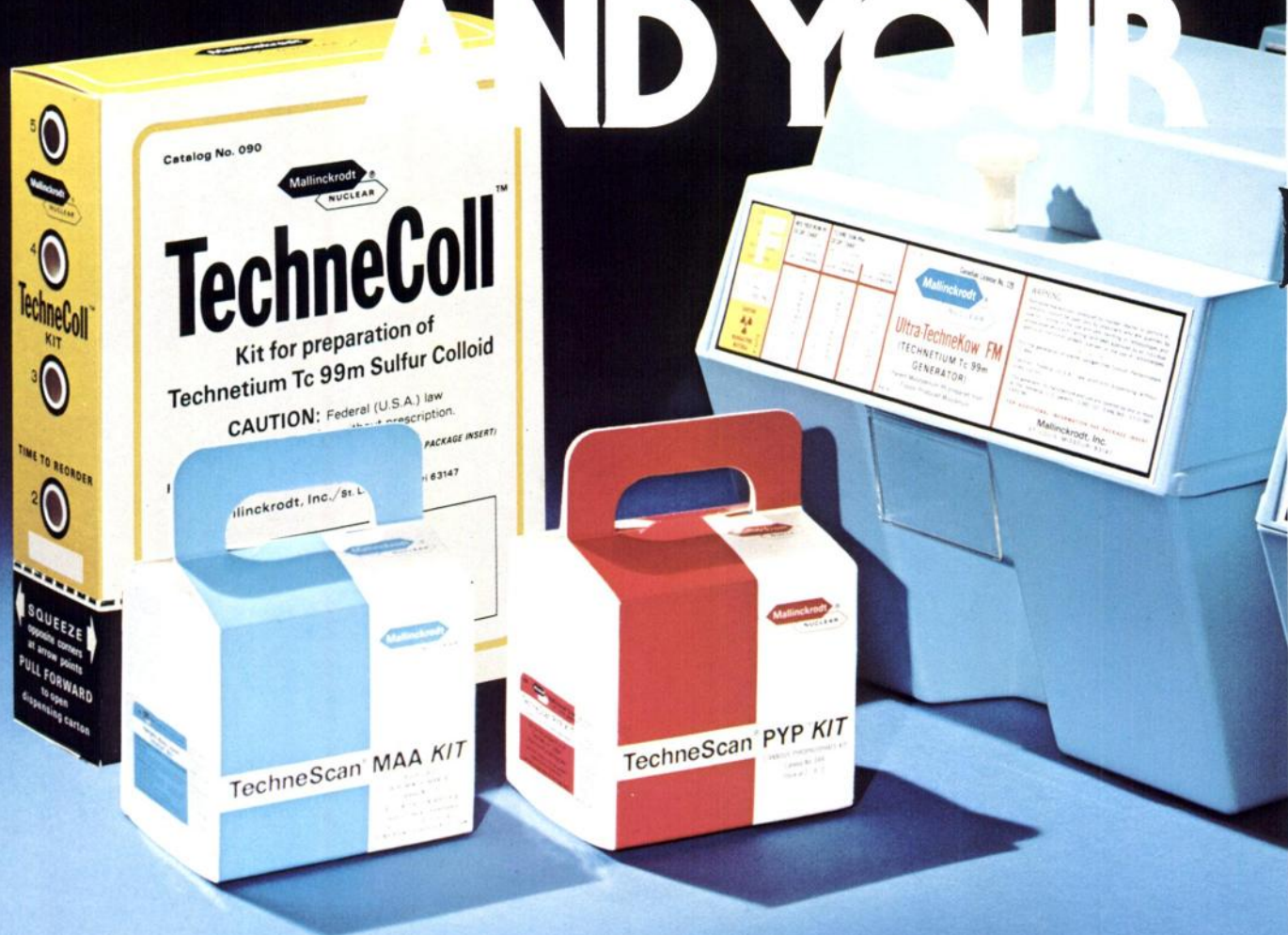
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RADIOPHARMACEUTICALS

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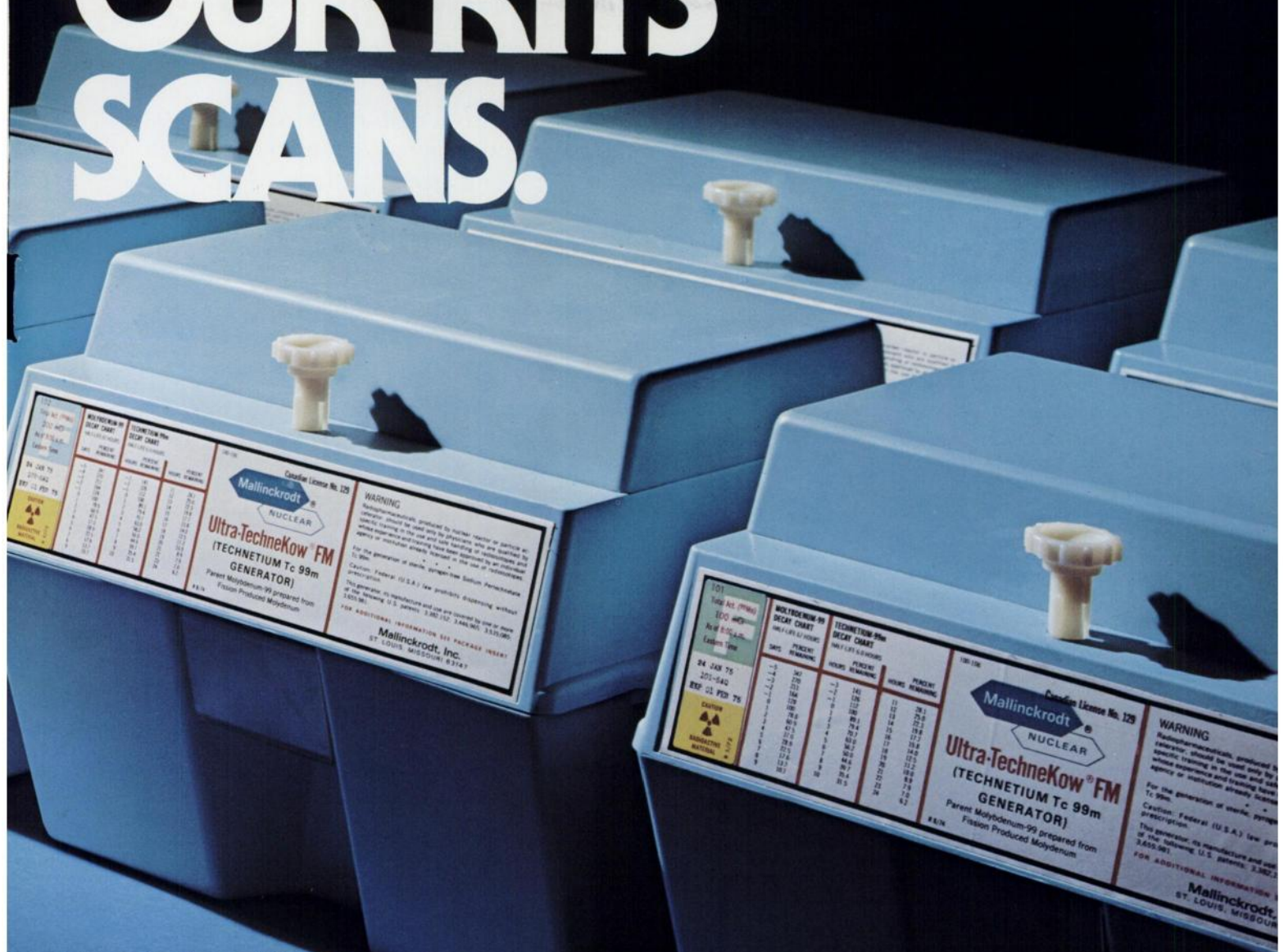
We package sulfur colloid in a unique dispenser which lets you keep a visual check on your supply. A convenient little extra.

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That little extra in all of our products adds up to a standard of quality, convenience and reliability that gives you superior scans. So, think of Mallinckrodt and those little extras when you think of a source for your Tc-99m needs.



# OUR KITS SCANS.



Before prescribing please consult the complete product information, a summary of which follows:

#### TechnoScan™ MAA Lung Scan Kit

**CONTRAINDICATIONS:** The safety of *TechnoScan MAA Tc 99m* in patients with a known right-to-left cardiac shunt has not been established and its use in such patients is contraindicated.

**WARNINGS:** In acute cor pulmonale the administration of aggregated albumin is theoretically hazardous due to the temporary small additional mechanical impediment to pulmonary blood flow. Although not reported with *TechnoScan MAA Tc 99m* there are three reports in the literature of deaths occurring after the administration of radioiodinated aggregated albumin as a result of pre-existing primary pulmonary hypertension.<sup>1,2,3</sup>

The contents of the *TechnoScan MAA* reaction vial are intended only for use in the preparation of *TechnoScan MAA Tc 99m* and are not to be directly administered to the patient.

The contents of the kit are not radioactive. However, after the sodium pertechnetate Tc-99m is added, adequate shielding of the final preparation must be maintained.

This radiopharmaceutical preparation should not be administered to patients with severe kidney disease unless the benefits to be gained outweigh the potential hazards. Similar care should be observed with patients who are pregnant or who are lactating. Ideally, examinations using radiopharmaceuticals, especially those elective in nature, of a woman of childbearing capacity 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.

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

**ADVERSE REACTIONS:** Although no anaphylactoid reactions have been reported in patients following the administration of *TechnoScan MAA Tc 99m*, the possibility should be considered that hypersensitivity reactions may occur rarely in patients who, after the initial administration, receive additional doses a number of weeks after the initial dose.

**ADVERSE REACTIONS:** Although no anaphylactoid reactions have been reported in patients following the administration of *TechnoScan MAA Tc 99m*, the possibility should be considered that hypersensitivity reactions may occur rarely in patients who, after the initial administration, receive additional doses a number of weeks after the initial dose.

<sup>1</sup>Dworkin, H. J., Smith, J. R. and Bull, F. E.: Reaction after Administration of Macroaggregated Albumin for a Lung Scan, *New England J. Med.*, 275:376, August 18, 1966.

<sup>2</sup>Roberts, H. J.: Fatal hemoptysis in pulmonary embolism probably precipitated by pulmonary scanning—Report of a case

and suggested precautions. *Angiology*, 27:270, 1970.

<sup>3</sup>William, J. O.: Death following injection of lung scanning agent in a case of pulmonary hypertension. *Br. J. Radiol.*, 47:61, 1974.

#### TechnoScan™ PYP™ Bone Scan Kit

**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 capacity 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 *TechnoScan PYP* Kit must be maintained at refrigerator temperature until use. The contents of the *TechnoScan PYP* reaction vial are intended only for use in the preparation of Technetium Tc 99m Stannous Pyrophosphate and are not to be directly administered to the patient.

Sodium pertechnetate Tc-99m solutions containing an oxidizing agent are not suitable for use with the *TechnoScan PYP* Kit. The contents of the kit are not radioactive.

However, after the sodium pertechnetate Tc-99m is added, adequate shielding of the final preparation must be maintained.

The *TechnoScan PYP Tc 99m* should not be used more than six hours after preparation.

**PRECAUTIONS:** Both prior to and following *TechnoScan PYP Tc 99m* administration, patients should be encouraged to drink fluids. Patients should void as often as possible after the *TechnoScan PYP Tc 99m* 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.

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#### RADIOPHARMACEUTICALS

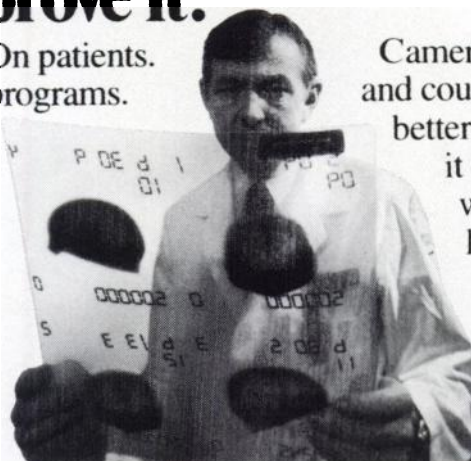
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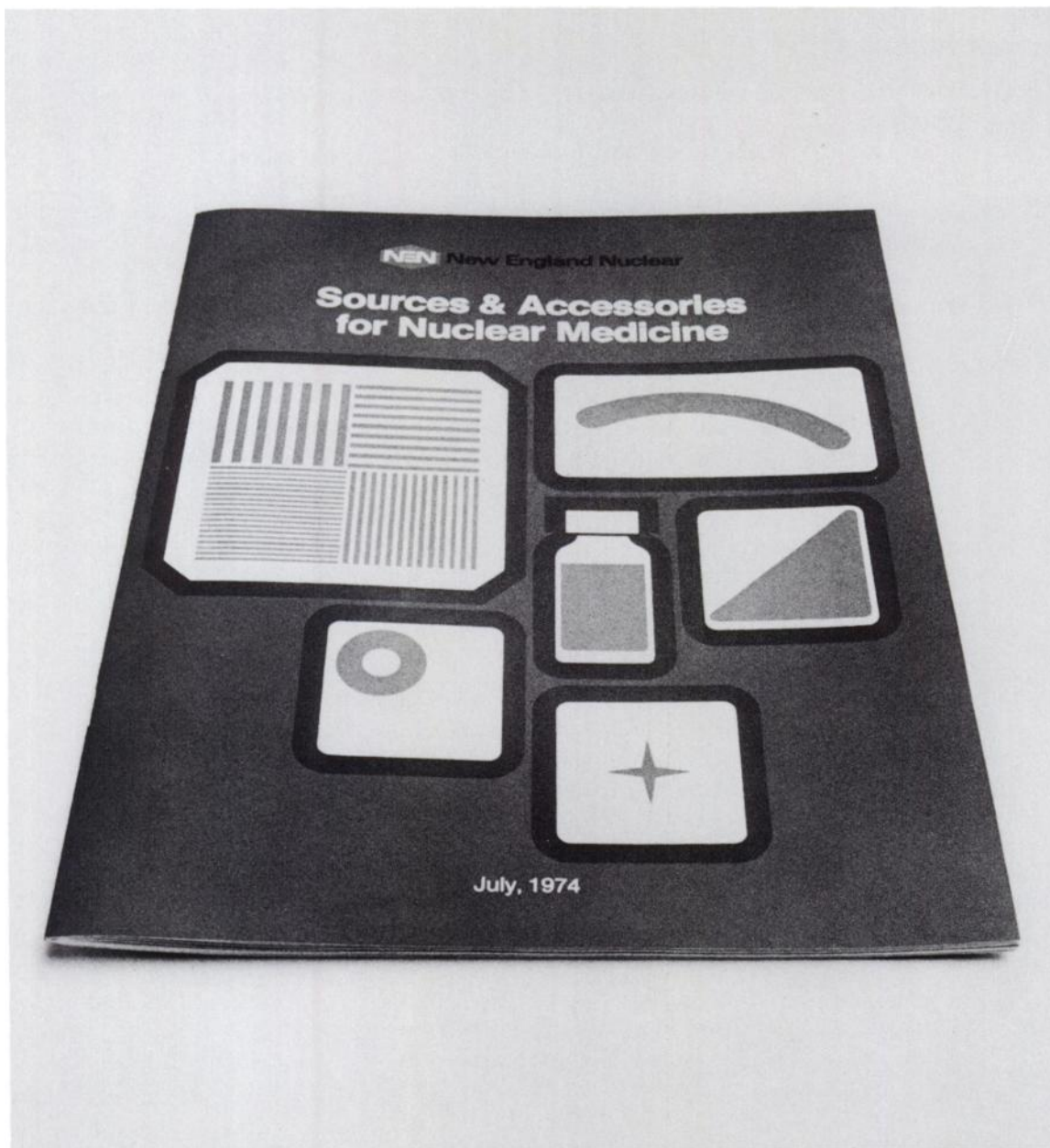
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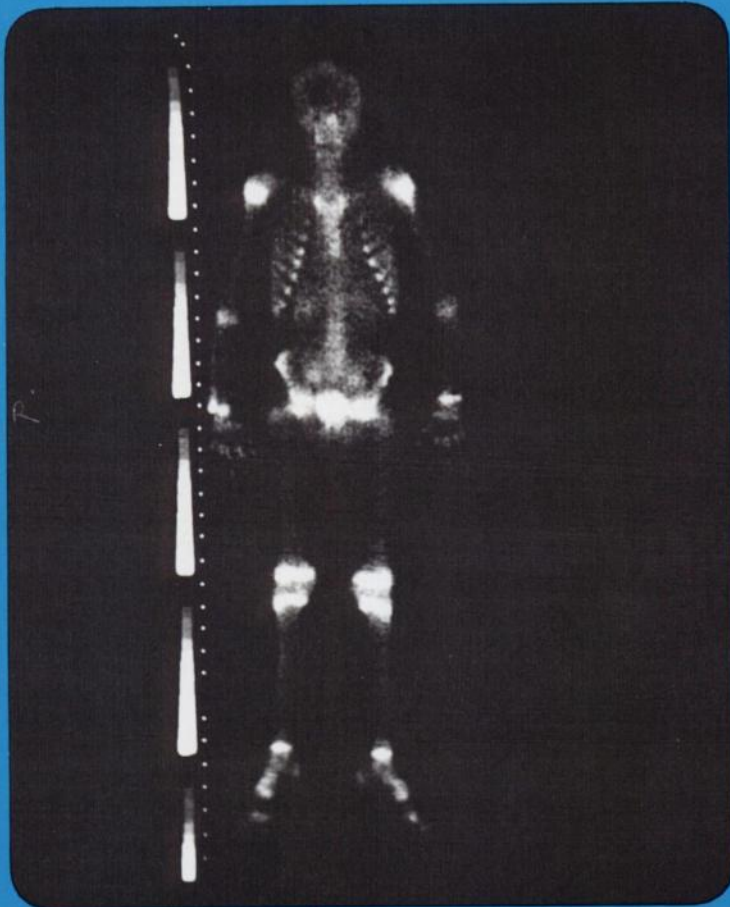
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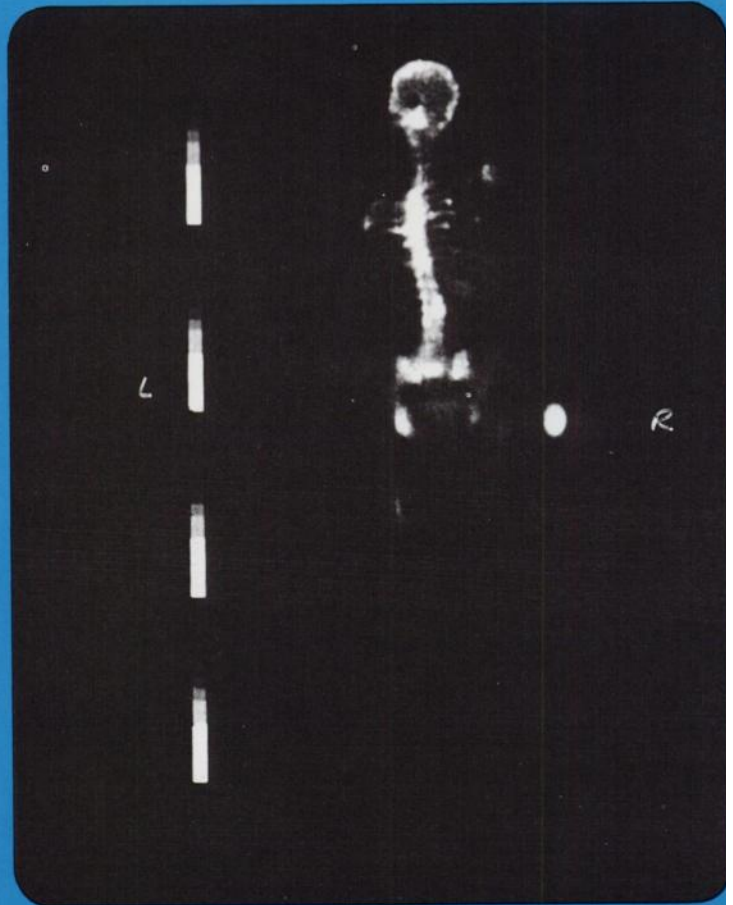
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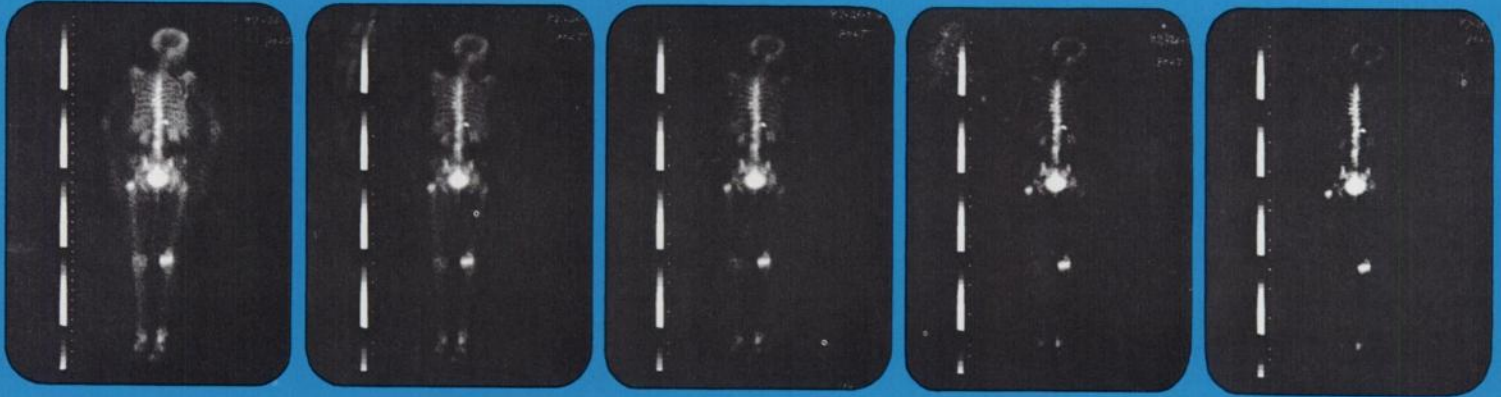
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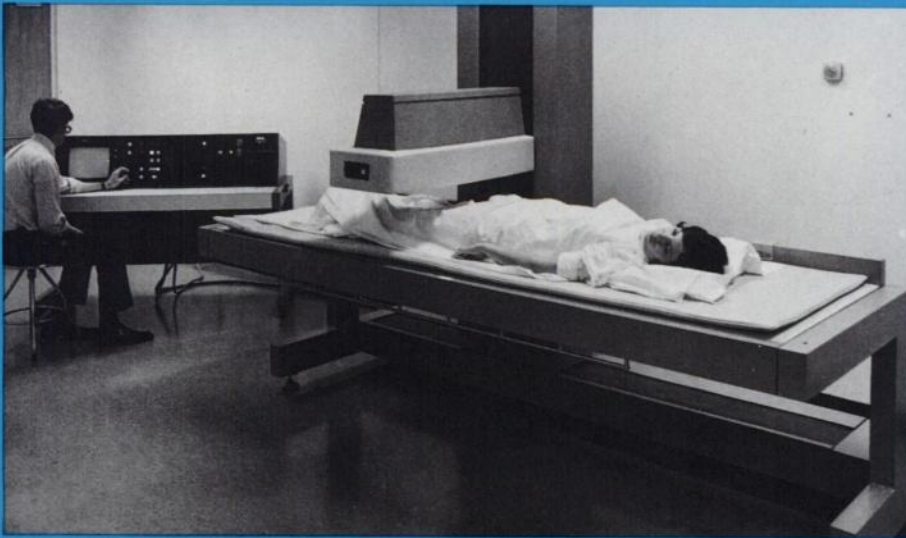


# ...AGAIN, AND AGAIN, AND AGAIN



BONE IMAGE OF 52-YEAR-OLD WOMAN, POSTERIOR.  
SCANNING AGENT =  $^{99m}\text{Tc}$ -POLYPHOSPHATE.  
LENGTH OF SCAN = 160 CENTIMETERS.  
TIME OF SCAN = 16 MINUTES.  
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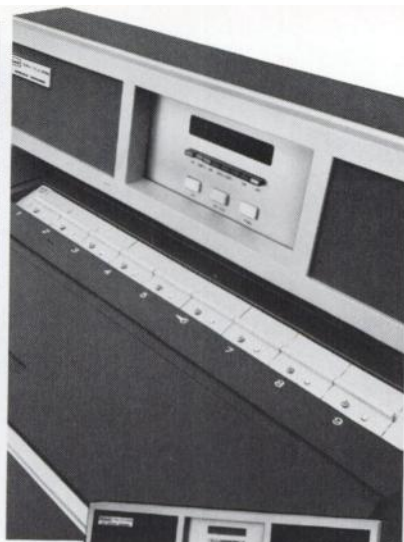
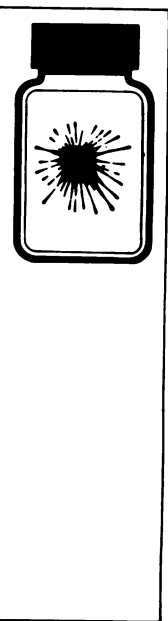


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### Estradiol $^3\text{H}$ Test Set

- 100 assay tubes - **Cat. No. ES-888**
- requires extraction and chromatographic separation
- co-specific with estrone
- precision:  $\pm 15\%$  CV

### Testosterone $^3\text{H}$ Test Set\*

- 100 assay tubes - **Cat. No. TS-333**
- simple direct extraction followed by radioimmunoassay
- sample size: 1 ml or less
- precision:  $\pm 8\%$  CV

### Total $\text{T}_4\text{-I}^{125}$ Test Set

- 200 assay tubes - **Cat. No. TS-777**
- 2-hour direct serum determination
- 13 fewer steps than the leading CPB method
- precision:  $\pm 5\%$  CV

### Also Available:

**Antibodies** — Aldosterone, Digitoxin, Digoxin, Estradiol, Testosterone, Thyroxine ( $\text{T}_4$ ), Triiodothyronine ( $\text{T}_3$ )

### Reference Serums

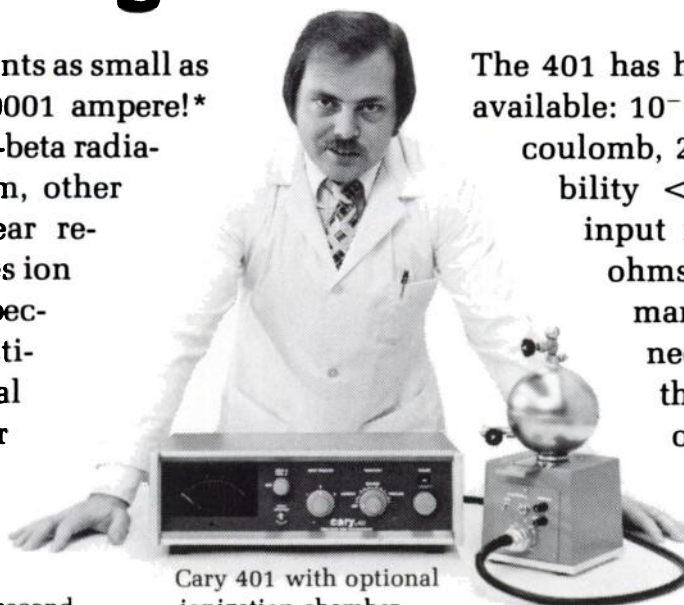
- RIA Reference Serum analyzed for Aldosterone, Corticoids, Digitoxin, Estradiol, Testosterone, Thyroxine ( $\text{T}_4$ ), Triiodothyronine ( $\text{T}_3$ )
- Digoxin Reference Serum (elevated)
- Triiodothyronine Reference Serum (elevated)
- Testosterone Reference Serum

**\*Improved**

# The Varian Cary 401 Vibrating Reed Electrometer

... Measures currents as small as 0.0000000000000001 ampere!\* Also monitors soft-beta radiation of  $\text{C}^{14}$ , tritium, other isotopes in nuclear research ... measures ion currents in mass spectrometry ... investigates the physical properties of matter ... and detects pH changes to 0.0005 pH.

\*That's 63 electrons per second.



Cary 401 with optional ionization chamber.

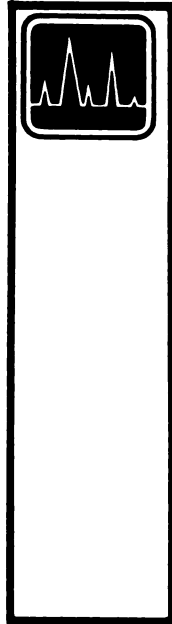
The 401 has highest sensitivity available:  $10^{-17}$  amp.,  $5 \times 10^{-16}$  coulomb,  $2 \times 10^{-5}$  volt. Stability  $< 5 \times 10^{-17}$  amp; input resistance  $> 10^{16}$  ohms. If your work demands the best, you need the 401 ... from the leading supplier of vibrating reed electrometers, ever since 1948!

varian

Varian Instrument Division, 611 Hansen Way, Box D-070, Palo Alto, CA 94303



# THE MODUMATIC™ 600-SAMPLE AUTO-GAMMA® SYSTEM



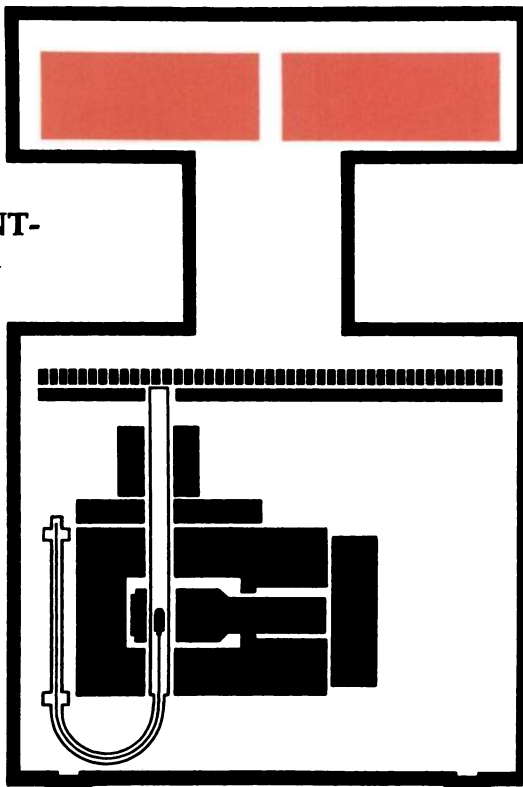
Packard

## SYSTEMS WITHIN A TOTAL SYSTEM

Packard's more than 20 years of experience has resulted in this evolutionary designed system which combines a series of development advancements in the four principal component areas of a gamma instrument – giving you a total counting system having many superior features to any conventional gamma counter so you can better meet your radioassay needs...

■ **The CONSTANT-QUANTA\* Crystal Detector System** provides for a remarkable range of constant counting efficiency regardless of varied sample volumes which may be used within that range;

■ **A Pedestal-Type Sample Elevator System** with "anti-jam" protection... accommodates



sample tubes of varying diameters, lengths and shapes, and positions such as mixed samples in the detector aperture accurately and reproducibly;

■ **A High-Speed Reversible Sample Changer System** which accepts inter-mixed sample size containers without requiring any special carriers, caps or cups... and can handle

over 1,000 samples per day;

■ **A Fully Modular Electronic Control System** that provides you with maximum operating flexibility, yet is functionally simple in design for ease of use.

In addition, this refrigerated temperature-controlled system can be utilized with an extensive variety of on-line and off-line data processing equipment to maximize your system's effectiveness.

\*Packard designation

Get the  
book on the  
MODUMATIC  
System

Please send Bulletin 1203 describing the new MODUMATIC Auto-Gamma System in detail

Name \_\_\_\_\_  
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Address \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_ Zip \_\_\_\_\_



**PACKARD INSTRUMENT COMPANY, INC.**  
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**PACKARD INSTRUMENT INTERNATIONAL S.A.**  
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**the image quality  
and exact  
diagnostic format  
you need**

## Searle Micro Dot Imager

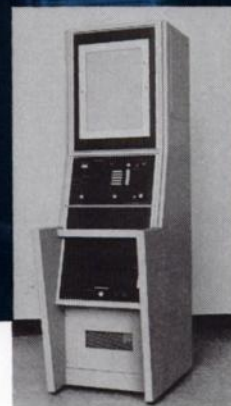
*Static, dynamic & whole body imaging . . . 15 formats, 3 film sizes*

The Searle Micro Dot Imager offers Pho/Gamma users a versatile display system for single-organ or whole body imaging using economical X-ray film. Three film sizes and 15 image formats let you choose the exact format best suited for any study. State-of-the-art optics and electronics put as many as 80 images on one film with single-image fidelity. You can even mix static, dynamic and different size images on the same sheet of film. An exclusive, lightweight cassette design speeds and simplifies loading and unloading of film.

The Micro Dot provides distinct, well-focused scintidots in all image sizes; it gives you superior imaging clarity, constant focus and freedom from astigmatism regardless

of dot intensity and location. Absolute exposure control—with pushbutton settings for routine studies—assures correct, repeatable exposures from day to day and month to month in all image sizes.

Designed for clinical utility and operational simplicity, the Micro Dot Imager is the most complete display system available for the Pho/Gamma Scintillation Camera. For more information—including complete specifications—just write or phone your Searle representative. He'll be glad to show you how it can add unmatched versatility, convenience and economy to your laboratory's gamma imaging capabilities.



**SEARLE**

**Searle Radiographics Inc.**

Subsidiary of G. D. Searle & Co.

2000 Nuclear Drive, Des Plaines, Illinois 60018

Phone 312-298-6600



# QUALITY ANTISERA AND REAGENTS FOR THYROID HORMONE RIA

**Endocrine sciences T3-38 and T4-15 thyroid hormone antisera offer:**

**Increased sensitivity and specificity**

**Assay times less than 5 hours\***

**Low sample volume requirements:**

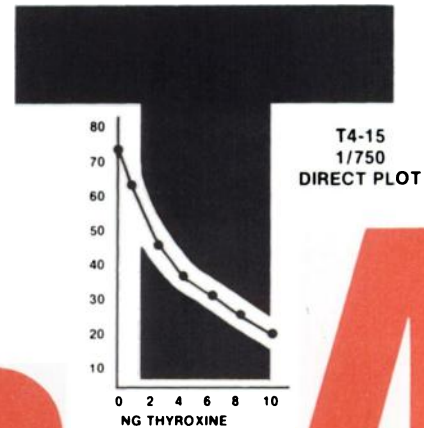
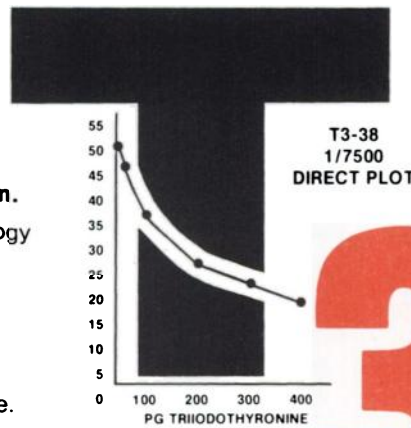
Only 0.1 ml for T3-38\*  
Only 0.02 ml for T4-15\*

**Stability: Freeze-dried antisera are stable indefinitely if stored at -10°C, after reconstitution.**

Proven Endocrine Sciences methodology supplied with each antisera.

Each vial sufficient for the immunoassay of 500 tubes.\*

Expert technical assistance: experienced Endocrine Sciences professionals always readily accessible.



# 3 4

## DIRECT PLASMA RIA

T3-38 and T4-15 are specific, high-affinity reagents developed for the radioimmunoassay of triiodothyronine (T3) and thyroxine (T4). Tested through routine use in our own clinical laboratories for over a year, T3-38 and T4-15 have been used in a simple RIA to determine T3 and T4 **directly** in plasma. The higher sensitivity and specificity of these antisera used in direct RIA offer distinct advantages over methods involving extraction and competitive protein binding. Increased sensitivity alone allows more precise measurement of T3 and T4 at critical lower physiological concentrations. Greater accuracy and precision are attained through elimination of errors associated with extraction and other sample processing.

**Sensitivity:** Standard curves normally obtained with T3-38 at a dilution of 1/7500 and T4-15 at a dilution of 1/750 are shown. Range and sensitivity of each curve were selected to measure generally encountered physiological concentrations of each hormone using sample volumes indicated above. The range of each can be adjusted to meet individual requirements by varying the dilution of the respective antiserum.

**Specificity:** T3-38 and T4-15 demonstrate very low cross-reactivity.

Multiple sample sizes with either T3-38 or T4-15 exhibit consistent linearity.

Hormone levels obtained in direct plasma RIA using T3-38 or T4-15 and those obtained after solvent extraction show no significant differences.

Recovery of known amounts of T3 or T4 added to plasma samples is excellent.

Comparison of RIA using T4-15 with competitive protein binding:

Mean plasma T4 by RIA	9.5 ug%
Mean plasma T4 by CPB	9.0 ug%

Today there is no better way to measure thyroid hormone levels in plasma than by radioimmunoassay, but RIA is only as reliable as the antiserum employed.

Clinical and research laboratories have been using Endocrine Sciences specific thyroid hormone antisera for more than a year now with complete confidence. Why? Because our T3 and T4 antisera were developed to meet exacting standards of specificity and sensitivity. Our customers know that each batch of T3 and T4 antiserum undergoes extensive quality control testing before its shipment. Users of our T3 and T4 antisera also know that our biggest customer is Endocrine Sciences Clinical Services Laboratory where these antisera must meet our own rigid standards daily.

Our antisera and reagents are offered as components rather than kits, because we believe in allowing more sophisticated users greater flexibility in methodology without incurring the additional expense of unnecessary reagents. Optimal sensitivity and reliability are easily attained using recommended procedures, thus eliminating the variability associated with most RIA kits. Check our specifications, then contact us for complete technical bulletins or to arrange for shipment.

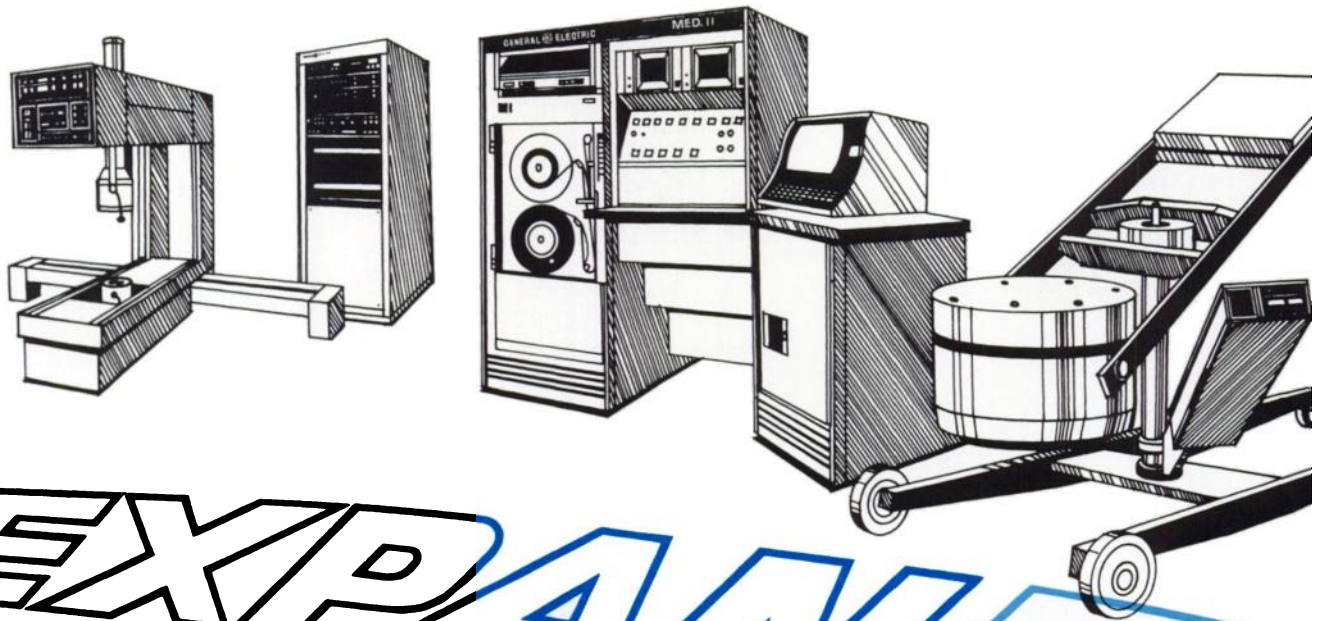
Other Endocrine Sciences quality RIA reagents including T3 and T4 free plasma, <sup>125</sup>I hormones, and purified bovine serum albumin are also available. Inquiries should be directed to our products division.

\*Based on use of RIA procedure similar to that provided by Endocrine Sciences.

**ENDOCRINE SCIENCES**  
18418 OXNARD STREET • TARZANA  
CALIFORNIA 91356 • TELEPHONE: 213/345-6503



# What's General Electric doing in nuclear medicine?



# EXPAND

Previously, General Electric's nuclear medicine line included a Maxiscan™ 2-probe whole body scanner, and a Videodisplay processing unit. Both products are backed by a knowledgeable sales/service group, large in number, nearby when needed.

Now, to meet the growing demands of nuclear medicine, General Electric has acquired the rights to the nuclear medicine product line of Nuclear Data, Inc.

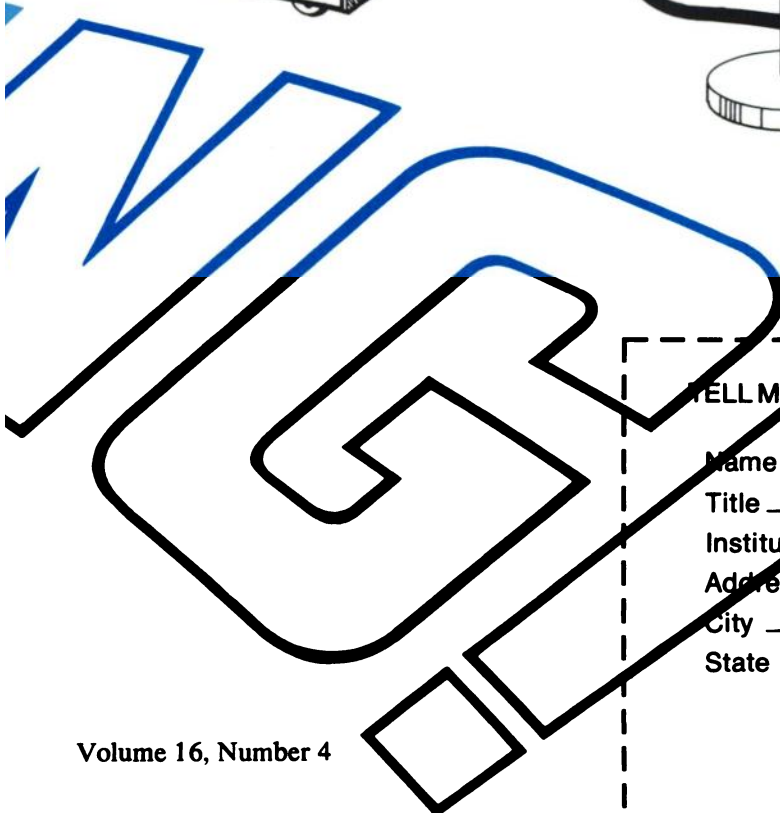
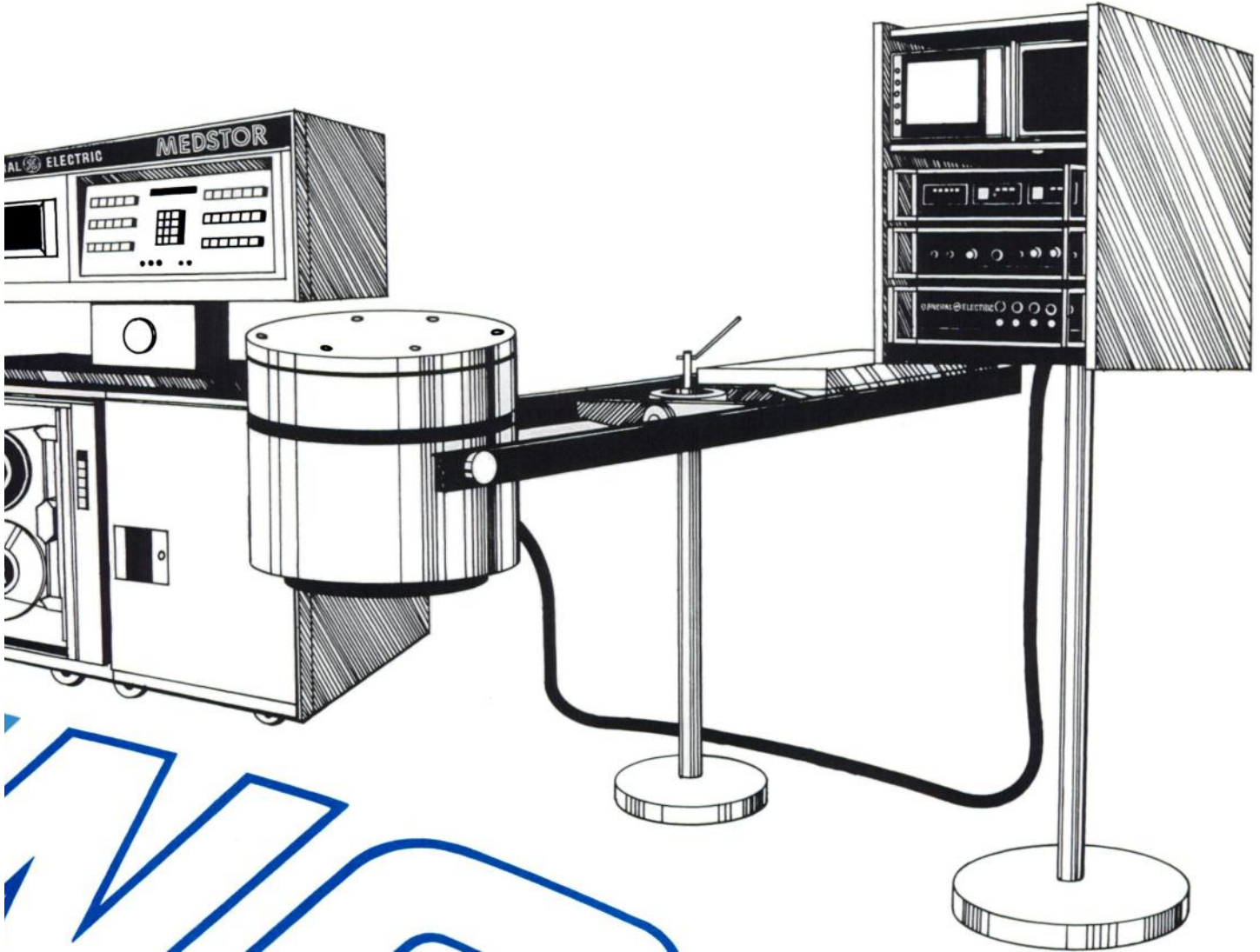
These products have a proven track record. Innovative scintillation cameras (PortaCamera, RadiCamera II)

with unrivaled performance and remarkable portability. First and second generation computerized systems (Med Stor, Med II) specifically designed for nuclear medicine diagnostic tests. And ancillary equipment, such as a whole body imager attachment.

So now you get nuclear medicine capability second to none. Your General Electric representative has full details. Get in touch. Look for the commitment behind the equipment.

General Electric Medical Systems,  
Milwaukee, Toronto, Liege, Madrid





TELL ME about GE's expanded commitment to nuclear medicine.

Name \_\_\_\_\_  
Title \_\_\_\_\_  
Institution \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_ Zip \_\_\_\_\_

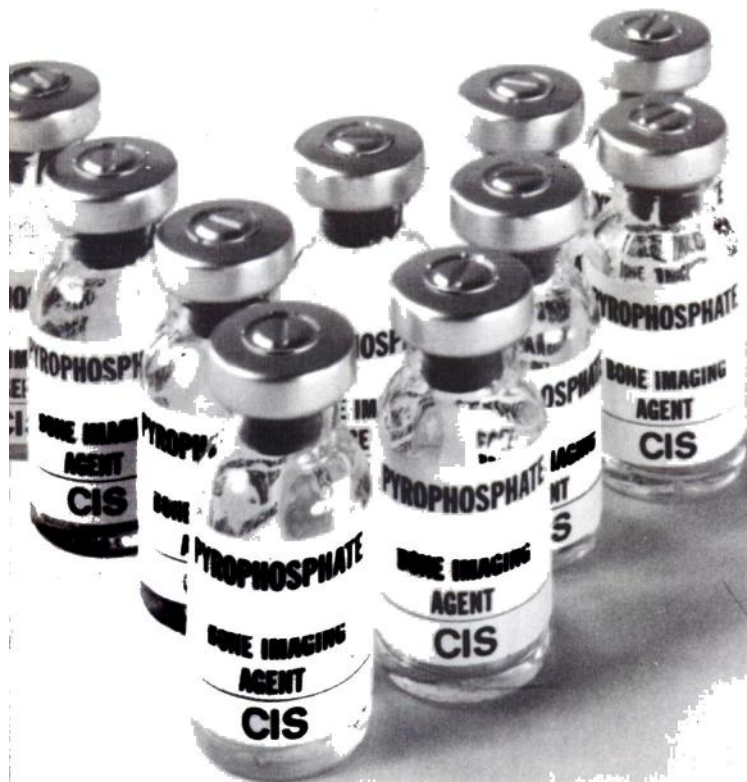


# REPRODUCIBLE, batch after batch.

Most everyone agrees that PYROPHOSPHATE is the best bone imaging agent. Unlike diphosphonate, it is a physiologically natural compound. Unlike polyphosphate, it is a fully identifiable compound that doesn't vary from batch to batch. Reliable bone imaging is achieved whether PYROPHOSPHATE is used today or years from now.

Far safer than strontium agents, our PYROPHOSPHATE is technetium labeled. It exhibits rapid urinary clearance, low blood levels and it isn't picked up by the liver or intestines. It exhibits 90% labeling compared to the 50% to 70% labeling of polyphosphate.

B. Bock, R. Perez, C. Panneciery and R. DiPaola *J. Nuclear Med.* 14, 380 (1973); R. M. Hopkins, J. M. Creighton and D. R. VanDeripe *Ibid* 409; F. Hosain, P. Hosain, H. N. Wagner, G. L. Dunson and J. S. Stevenson *Ibid* 410; R. Marty and J. D. Denney *Ibid* 423; M. R. McKamey, E. J. Artis and D. D. Hansen *Ibid* 426.



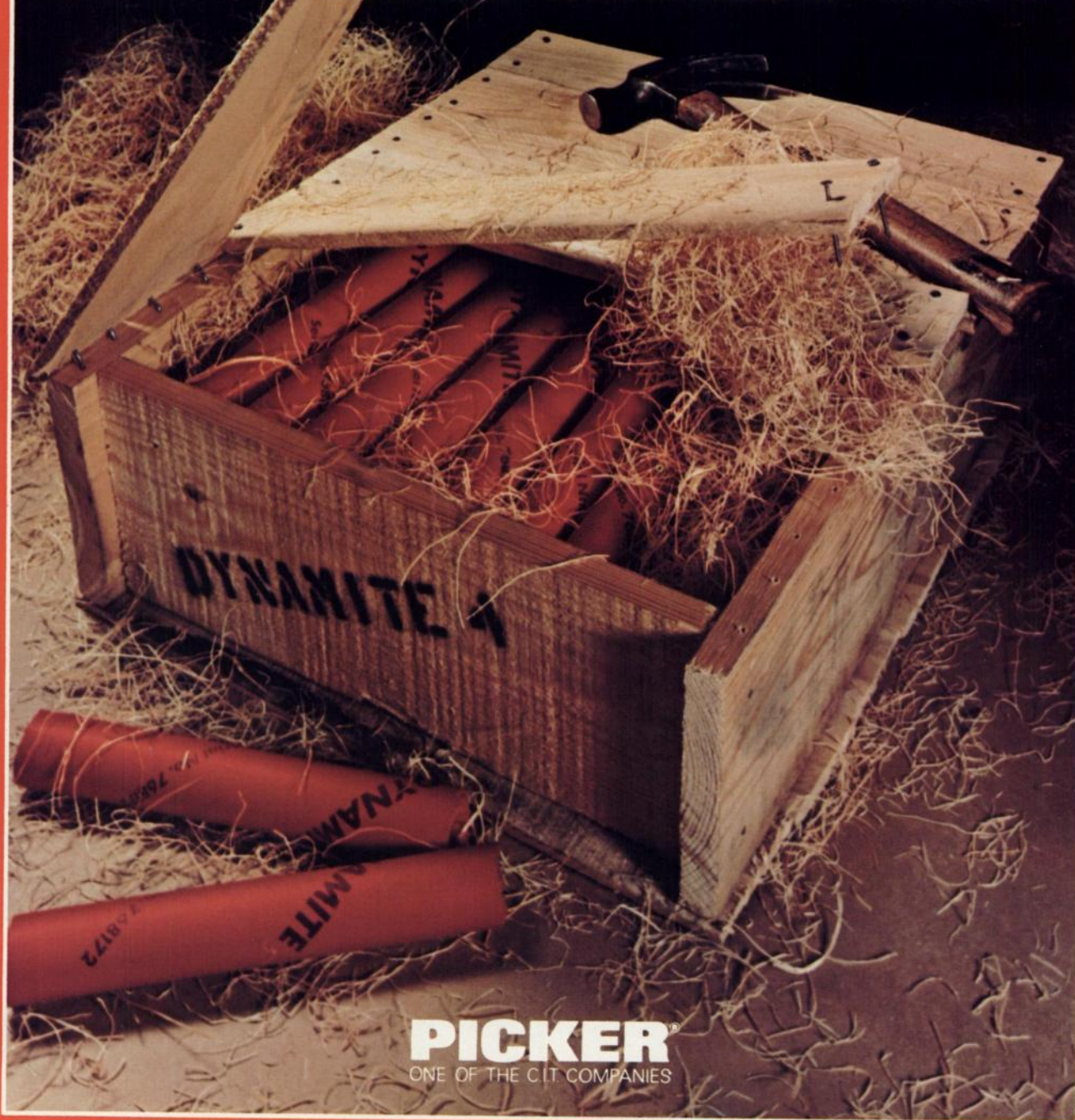
Write or call for full information. Our PYROPHOSPHATE is comparably priced with polyphosphate and diphosphonate.



**CIS Radiopharmaceuticals, Inc.**  
5 DeANGELO DRIVE/BEDFORD, MA. 01730  
Tel. (617) 275-7120

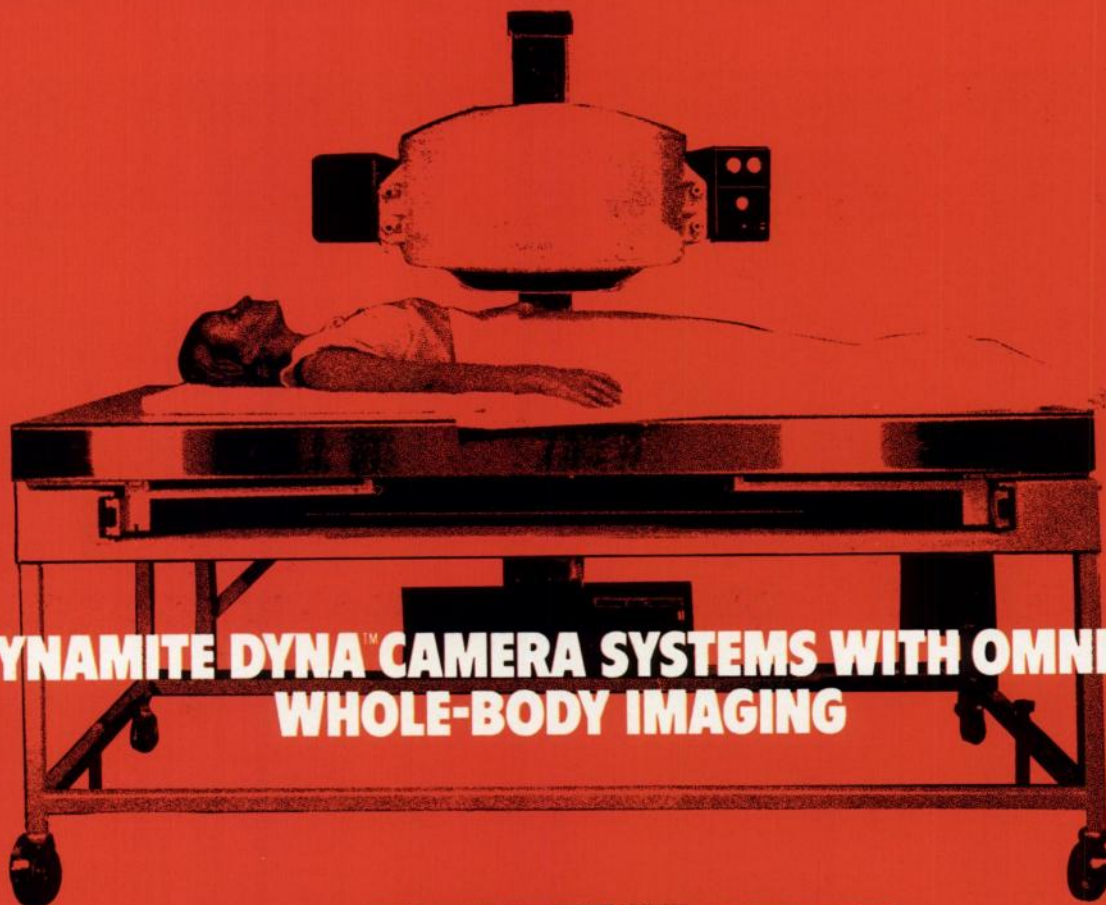


# IT'S DYNAMAMITE



**PICKER**  
ONE OF THE CIT COMPANIES





## NEW DYNAMITE DYNA™ CAMERA SYSTEMS WITH OMNIVIEW™ 4 WHOLE-BODY IMAGING

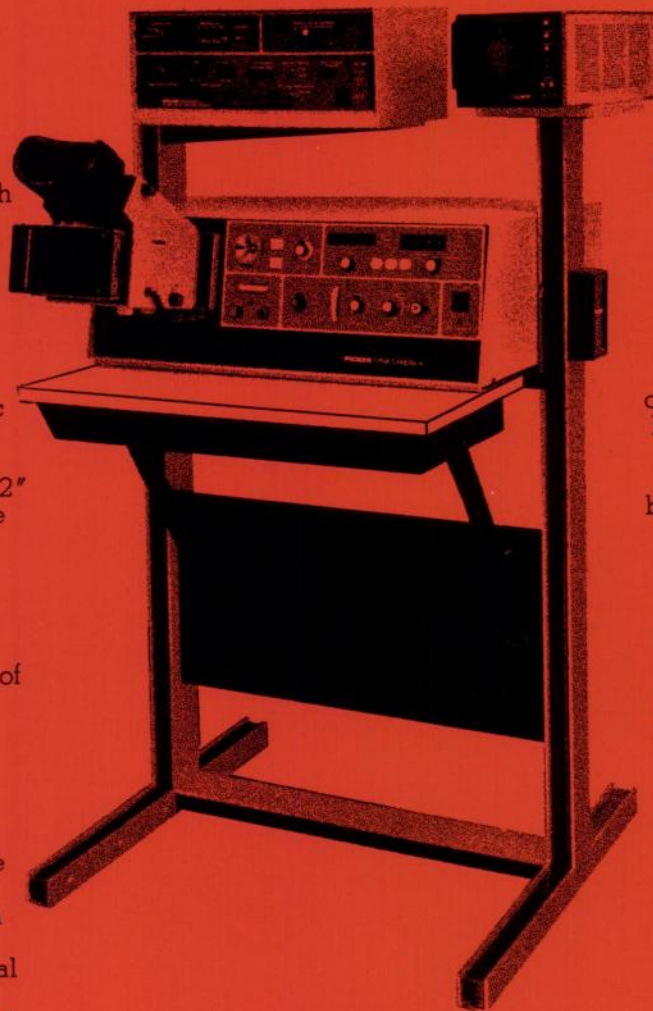
With the introduction of Omniview 4 you can now do whole-body scanning with both the DynaCamera 3C and the DynaCamera 4. Picker gives you a choice.

Choice of detector size, choice of operation console, choice of camera options—Picker DynaCamera systems effectively match your specific imaging needs.

Choose analog or analog/digital capability, 1/8" or 5/32" resolution, automatic exposure control or preset information density exposure control. There's a DynaCamera conformation to fit your requirements.

And now with the addition of Omniview 4 for whole-body imaging, Picker offers you maximum scanning capabilities.

The Omniview 4 expands DynaCamera 4's field of view to 24 x 76". A choice of three scanning widths—8", 16", 24"—matches scanning width to patient or organ size. Built-in physical and biological half-life compensator automatically corrects for short



half-life radioisotopes. Built-in centering and magnification of taped playback image permits convenient reconstruction for detailed image study.

Omniview 4 gives you complete choice of scanning limits, continuously variable table-speed settings and a tradition of quality from the company that pioneered whole-body imaging with scintillation cameras.

A DynaCamera system can be as specialized or as general, as fully-optioned or as simple as you need it to be.

The continuing growth of Nuclear Medicine's diagnostic importance demands the modularized good sense that only Picker DynaCamera Systems now with Omniview 4 can offer you.

Ask your Picker representative about DynaCamera 3C, DynaCamera 4, Omniview 4 and all the other dynamite DynaCamera products in the Picker family of nuclear systems.

Or write Picker Corporation,  
12 Clintonville Rd.,  
Northford, CT 06472.



Omniview 4 Clinical Studies



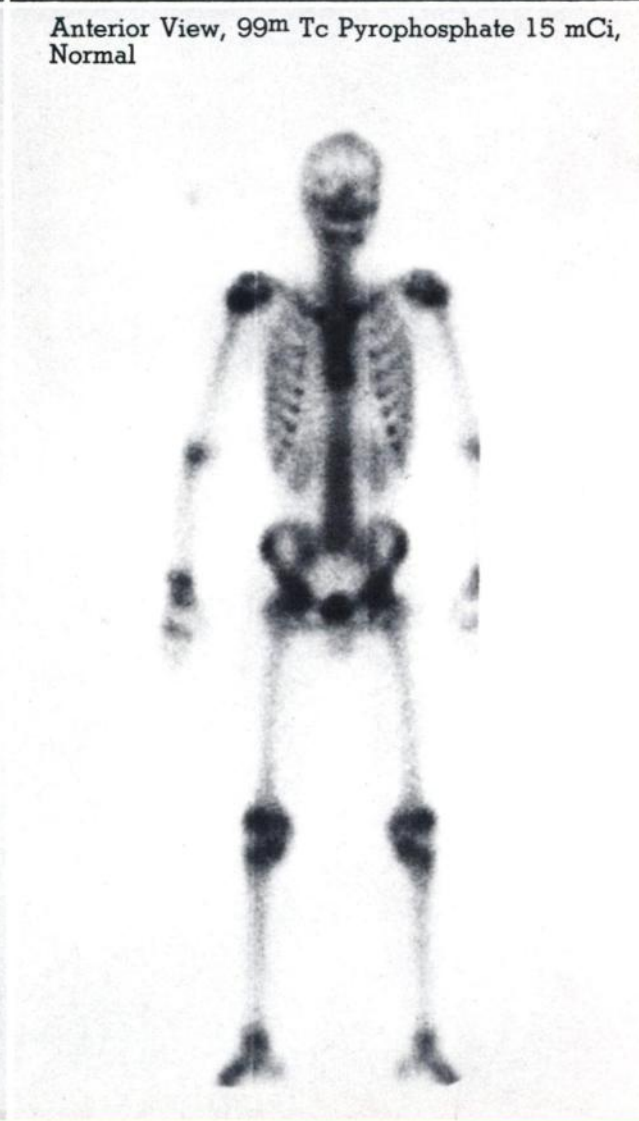
Posterior View,  $^{99m}\text{Tc}$  Pyrophosphate 15 mCi,  
Osteomyelitis, Thoracic Spine



Posterior View,  $^{99m}\text{Tc}$  Pyrophosphate 15 mCi,  
Normal



Posterior View,  $^{99m}\text{Tc}$  Pyrophosphate 15 mCi,  
Renal Osteodystrophy (note absence of kidney)



Anterior View,  $^{99m}\text{Tc}$  Pyrophosphate 15 mCi,  
Normal



# DYNAMITE DYNA CAMERAS

The only scintillation camera system offering a choice of two operating consoles and two detectors. Now you can select a detector/console combination that is exactly right for your department's study makeup, workload and budget.



10" Diameter Field  
1/8" Resolution  
± 10% Uniformity

## Detector S

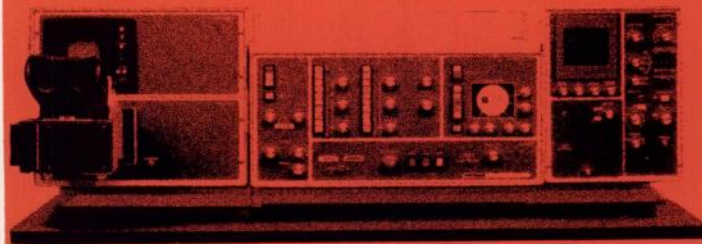
A special purpose detector for highest quality small area imaging. Ideal for small organ work such as cerebral and cardiac studies. A complete set of collimators gives it capability for high and low energy, high resolution, high sensitivity and increased area studies.



12" Diameter Field  
better than 5/32" Resolution  
± 10% Uniformity

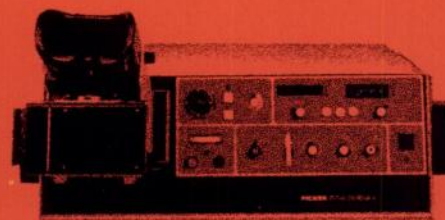
## Detector G

The lowest cost, highest performance, and most widely used large field detector available. Over 500 currently in use. The only detector offering complete imaging capability at no extra cost. Images all organs including over 90% of lung pair population.



## DynaCamera 3C

1. Analog and digital imaging.
2. Dual regions of interest.
3. Dual dynamic curve readout and integration.
4. Profile histogram readout and integration.
5. Storage oscilloscope standard.
6. Low cost tape recording option.
7. Available with the original Omniview™ Whole Body Imager.

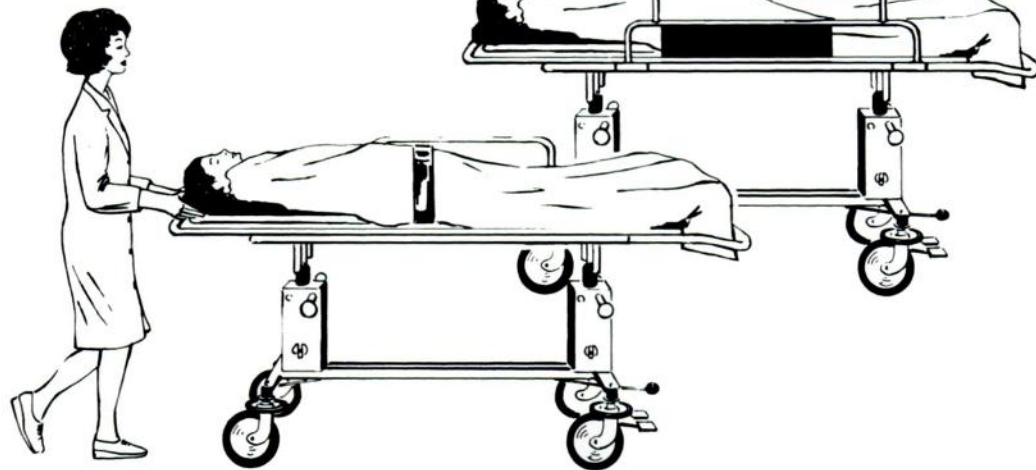


## Special DynaCamera 4 Features

1. A complete analog camera at lowest price.
2. Electronic patient landmarking directly on images.
3. Automatic exposure control produces consistently fine images, eliminates repeat studies due to improper exposure.
4. Accessory add-ons without price penalty at any time for advanced imaging.



# The "TranScan"<sup>TM</sup> is a "two-fer"



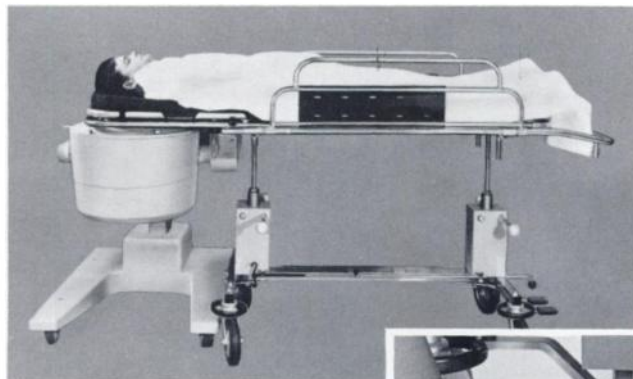
The **ONLY** dual-purpose imaging table designed for

1. **PATIENT TRANSPORTATION**, and
2. **PATIENT EXAMINATION** during nuclear medicine imaging procedures.

...*"two-fer" the price of one.*

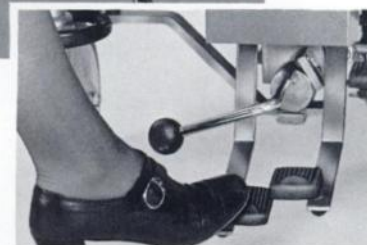
- Minimizes patient handling. Patients transferred from bed to the "TranScan" need not be moved to another table for examination.
- Effortless maneuverability—vertical & horizontal. Wide floating top permits 22" longitudinal travel. Top tilts to 45° angle for easy posterior and Townes-view positioning.
- Foot-lever hydraulic lift can raise and lower patients 33" to 45" above the floor. Capacity 400 lbs.

**Rides effortlessly...  
offers maximum  
positioning control.**



Camera head can be positioned under the center or either end of table.

Dual-pedal foot control permits table to be raised, lowered and angled.



For full details, ask for Bulletin 161-B

TM Nuclear Associates Inc.



**NUCLEAR ASSOCIATES, INC.**

Subsidiary of

**RADIATION-MEDICAL PRODUCTS CORP.**

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## What's new:

The handy handle.

A quick-opening, peel-off top.



Catalog No. NRP-196





# Technetium Tc 99m Generator

The parent Molybdenum Mo 99 has been prepared from irradiation of stable molybdenum.

**CAUTION:** Federal (U.S.A.) law prohibits dispensing without prescription. Must be administered only by qualified personnel in conformity with applicable regulations of appropriate governmental agencies.

**CAUTION:** Generators received in advance of the calibration date contain correspondingly greater levels of radioactivity than the calibration amount (consult Molybdenum Mo 99 decay chart on label). This factor should be considered in its handling and use.

Catalog # NIP-196

## What isn't:

It's completely pre-assembled, ready to use.

The simple, fast procedure — charge, elute.

High concentration Tc 99m.

Extra high concentration from fractional elution.

Every unit is tested for sterility and non-pyrogenicity.



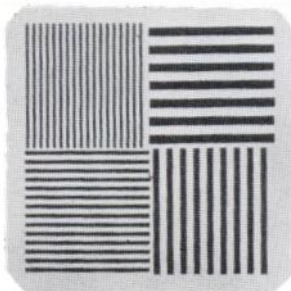
### New England Nuclear Radiopharmaceutical Division

Atomlight Place, North Billerica, Mass. 01862  
Telephone (617) 667-9531

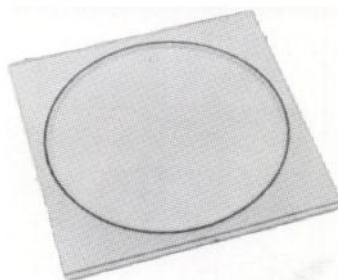
Canada: NEN Canada Ltd., Dorval, Quebec, H9P-1B3,  
Tel: (514) 636-4971, Telex: 05-821808  
Europe: NEN Chemicals GmbH, D6072 Dreieichenhain,  
W. Germany, Siemensstrasse 1,  
Tel: Langen (06103) 85035



# Some of the Many Products for Nuclear Medicine from **ATOMIC DEVELOPMENT CORP.**



CP-808 Bar Phantom \$210.00



CP-805 Standard Flood Phantom \$90.00



Brain & Thyroid Phantom \$85.00



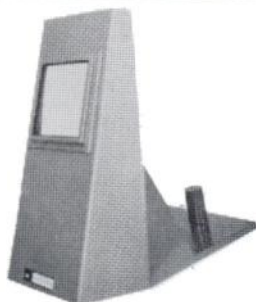
VS-101 Vial Shield \$75.00



SH-277 Syringe Holder \$17.00



SC-722 Syringe Carrier \$42.00



Pb-111 Laboratory Protective Barrier  
\$290.00



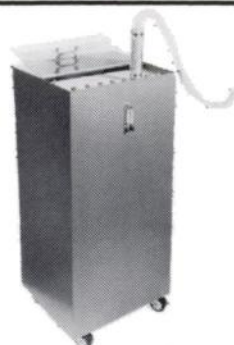
LLR-101 Lead Lined Refrigerator  
\$595.00



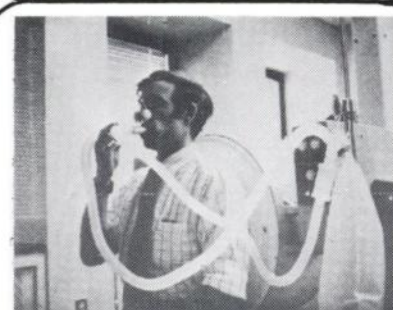
CP-244 Collimator Protector \$50.00  
BKT-101 Bracket \$18.75



VC-101 Vertex Scanning Cape \$70.00



XE-102 Gas Trap \$895.00



DX-103 Disposable Xenon-133  
Rebreathing System \$13.95

For information describing the above and a wide variety of additional products write or call:

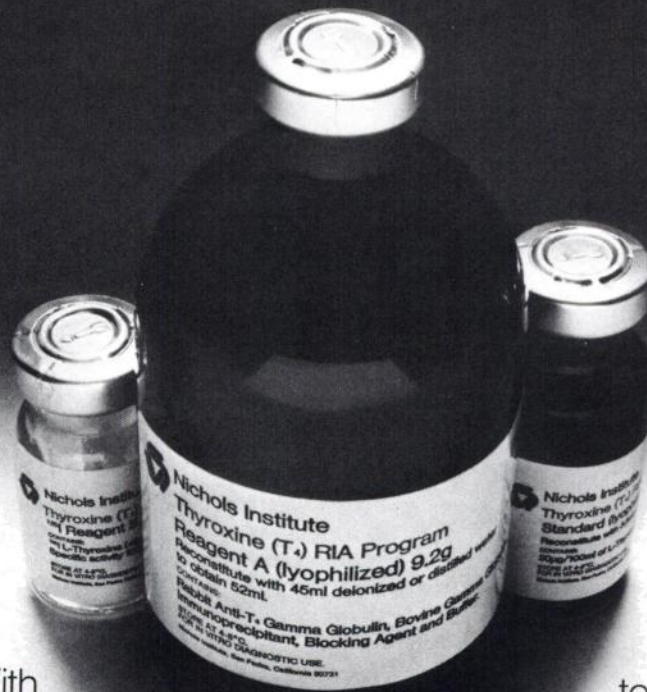
## **ATOMIC DEVELOPMENT CORP.**

7N FAIRCHILD COURT ■ PLAINVIEW, NEW YORK 11803 ■ (516) 433-8010





# Introducing the Nichols 3-Pak.



Now T4 RIA is easier than ever. With our new kit there are only three bottles of reagents, with no wastage or storage problems. ● The Nichols T4 RIA Program has been developed in our own reference laboratory and is now offered on a lab-to-lab basis. It has proven accuracy, reproducibility and clinical correlation. By using the new Nichols kit, your total technical time is reduced. The steps are simple and minimal. ● The part that doesn't come in

our kit is important, too. Consultation with Nichols staff chemists is always available, by phone or in person. The program is applicable to both hospital and private lab where fast turn-around is essential. And the procedure can be easily automated. ● The Nichols T4 RIA Program. Perhaps the most important thing about it is the name behind it.



**Nichols Institute**  
1300 S. BEACON ST. • SAN PEDRO, CA 90731  
TELEPHONE: (213) 547-0856



# WIDE FIELD RADIOISOTOPE CAMERA

**Field of View.** The useful field is a hexagon that is 14.5" (36.8cm.) across the flats.

**Resolution.** With the high resolution low energy collimator installed, 5/32" (4.0mm) Pb bars separated by 5/32" (4.0mm) spaces can be resolved using  $^{99m}\text{Tc}$ .

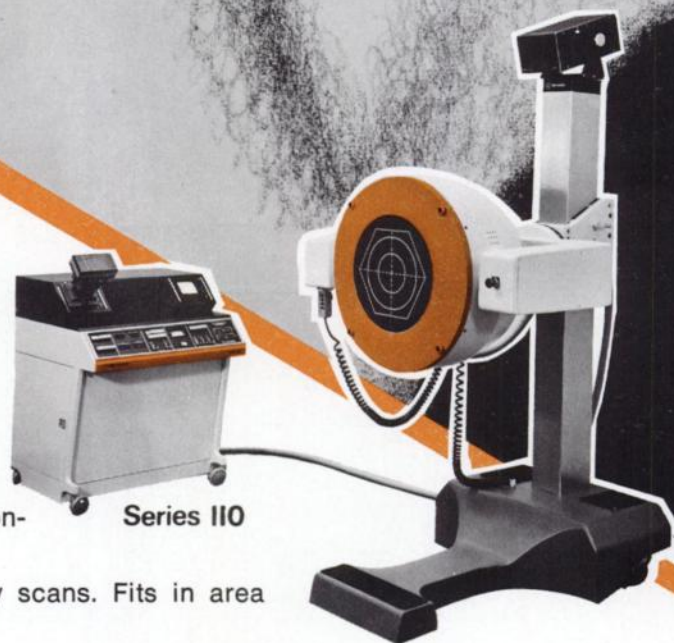
**Speed.** Maximum output count rate of 100K counts/sec. Performs standard studies more rapidly. Helps make fast dynamic studies a standard practice.

**Ease of Operation.** 14.5" field of view eliminates need for frequent collimator changes. Fast set-up with two speed-conventional and express-detector motion. Manual or pushbutton isotope selection. Entire study conducted from hand control without leaving patient's side.

**Area Scan.** Permits rapid trunk and whole body scans. Fits in area 10' x 10' (3.05m.)

**Economy.** Reduced set up time. Reduced study time. Photomultiplier tube gains balanced by your technologist, eliminating need for serviceman.

**Want Proof?** Send for our Series 110 Radioisotope Camera brochure, and our Systems Resolution product bulletin. Visit an installation... we'll arrange it. And talk to us. We have something better. The Superior Wide Field Radioisotope Camera. From Ohio-Nuclear.



Series 110



# ...even when you're using the fastest decay isotopes, you'll get sharp precise images.

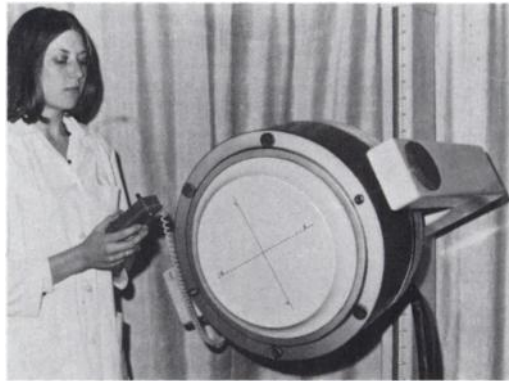
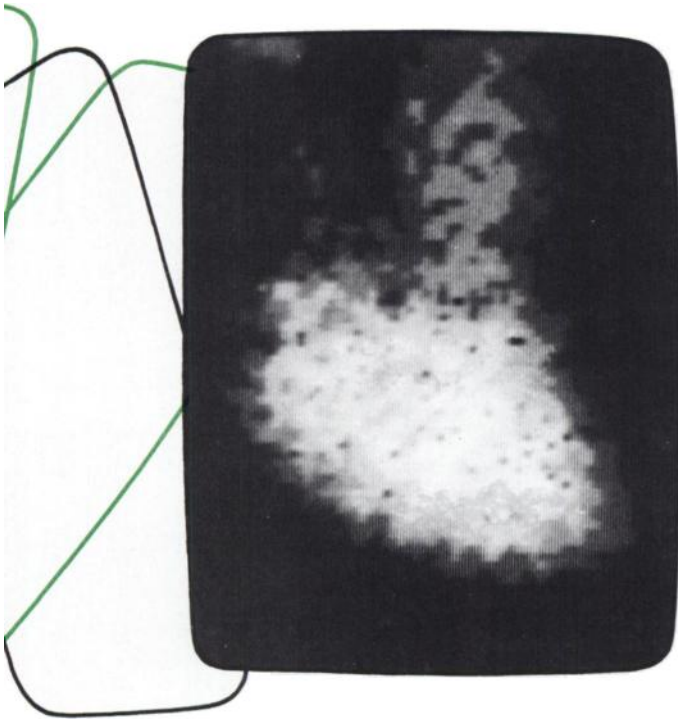
The new Elscint CE-1 Gamma Camera gives you the fastest route to improved dynamic studies. Its short dead time enables you to obtain high densities of information even with extremely short frame times.

Of course, Elscint provides the full spectrum of features required for state-of-the-art performance: excellent uniformity, linearity and resolution, and a maximum count rate of more than 200,000 cps. Included are a wide range amplifier and isotope selector and a 7-decade scaler-timer with preset time and count selection. Built-in A/D converters

speed recording and computer processing of output data.

For enhanced image display and processing Elscint offers a full line of videodisplay processors. Their modular design brings their capabilities into your facility for a small investment. As your needs grow, modules can be easily added to simplify and expand your studies.

For the complete picture on the fastest and most advanced Camera and Image Processing System available today, call or write your nearest Elscint Sales Office.



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# Pediatric Radiology

Now, for the first time, an English-language scientific quarterly makes available all significant new material dealing with pediatric radiology in a single journal.

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As *Pediatric Radiology* reports new methods and aspects of investigation in this rapidly developing field, it enables the pediatrician to be up-to-date on the latest radiological methods that can be applied for diagnosis and for following up the course of various disorders. The quarterly also features nuclear medicine and ultrasonic techniques which are becoming increasingly important.

The journal contains reviews, original papers, notes on technical innovations and accessory equipment, letters to the editor, and bibliographical listings of vitally related literature.

Radiologists, pediatricians, and pediatric surgeons will find this new publication an excellent means for keeping abreast of the most recent advances in pediatric radiology.

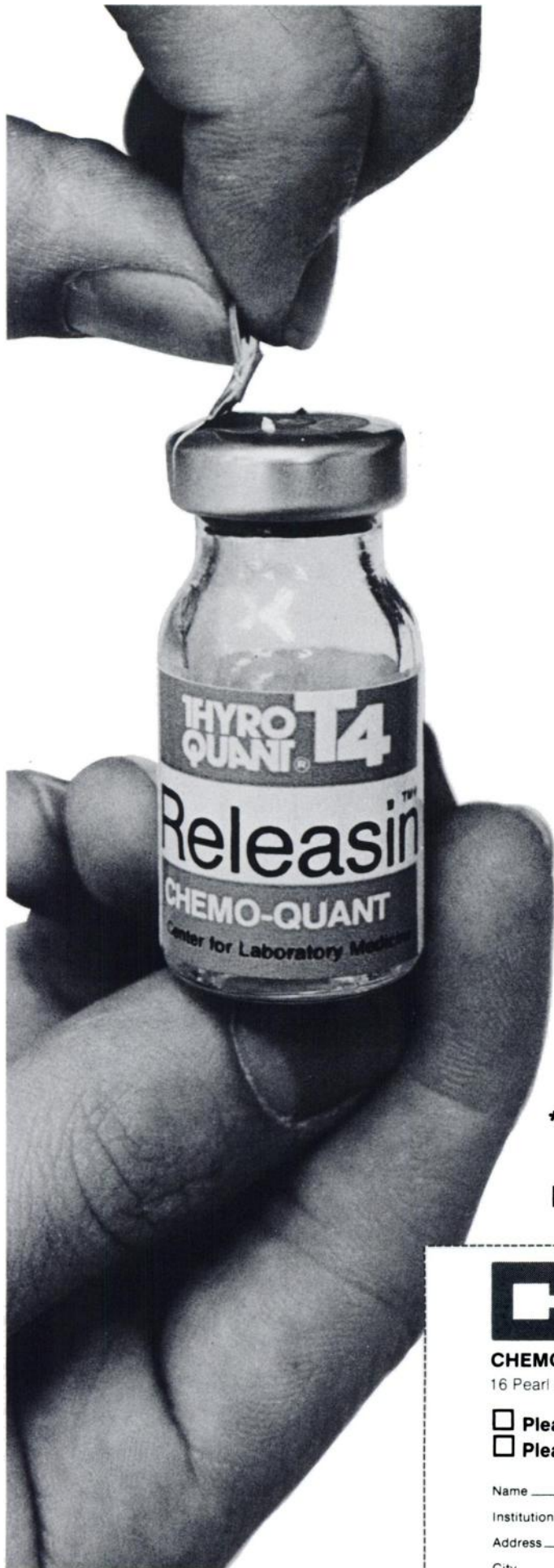
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# Introducing **TechneScan<sup>®</sup> MAA** (Aggregated Albumin [Human])

## **Lung Scan Kit**

with features only a frozen product can give

### *Tagging Efficiency...*

The tagging efficiency experienced with the **TechneScan MAA Kit** is remarkably consistent, always at or near 100% conversion of pertechnetate to labeled MAA, with little or no loss of the label for up to 24 hours.

### *Particle Size Range...*

Specifications require that not less than 90% of the particles are 10 to 90 microns in size with not more than 10% below 10 microns, and none greater than 150 microns.

Our investigations indicate that 95% of the **TechneScan MAA** particles are in the 10 to 60 micron range, with 5% less than 10 microns, 0.1% between 60 and 150 microns and none greater than 150 microns. This controlled particle size range, plus the fact that there is no tendency to agglomerate, results in good images of lung perfusion.

### *Simplicity...*

Preparation of **TechneScan MAA Tc 99m** is extremely simple, requiring only aseptic addition of a pertechnetate solution to the vial. There is no heating, sonication, centrifugation, clean-up or transfer required. The total preparation time is less than 20 minutes.

### *Stability...*

The expiration date of each **TechneScan MAA Kit** is 6 months after date of manufacture. This 6-month shelf-life permits large inventories to be maintained, reducing the likelihood of depleted supplies.

### *Safety...*

**TechneScan MAA** is extremely well tolerated. It may be used with reliance on its proven safety, shown by clinical studies. Lung clearance half-time is approximately 6 hours . . . virtually complete urinary excretion occurs in about 24 to 48 hours. And there is to date no evidence of antibody formation.

### *Economy...*

Up to 6 adult patients can be scintigraphed from the preparation of a single **TechneScan MAA Vial**, helping reduce procedure cost per patient.

If tagging efficiency, particle size range, safety, reliability and convenience are factors in your laboratory, consider the **TechneScan MAA Kit**. It's a step forward in lung scanning. For further information contact your Mallinckrodt representative.

**CONTRAINDICATIONS:** The safety of **TechneScan MAA Tc 99m** in patients with a known right-to-left cardiac shunt has not been established and its use in such patients is contraindicated.

**WARNINGS:** In acute cor pulmonale the administration of aggregated albumin is theoretically hazardous due to the temporary small additional mechanical impediment to pulmonary blood flow. Although not reported with **TechneScan MAA Tc 99m** there are two reports in the literature of deaths occurring after the administration of radioiodinated aggregated albumin as a result of pre-existing primary pulmonary hypertension.<sup>1,2</sup>

The contents of the **TechneScan MAA** reaction vial are intended only for use in the preparation of **TechneScan MAA Tc 99m** and are not to be directly administered to the patient.

The contents of the kit are not radioactive. However, after the sodium pertechnetate Tc-99m is added, adequate shielding of the final preparation must be maintained.

This radiopharmaceutical preparation should not be administered to patients who are pregnant or during lactation unless the benefits to be gained outweigh the potential hazards.

Ideally, examinations using radiopharmaceuticals, especially those elective in nature, of a woman of childbearing capacity 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.

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

**ADVERSE REACTIONS:** Although no anaphylactoid reactions have been reported in patients following the administration of **TechneScan MAA Tc 99m**, the possibility should be considered that hypersensitivity reactions may occur rarely in patients who, after the initial administration, receive additional doses a number of weeks after the initial dose.



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<sup>1</sup>Dworkin, H. J.; Smith, J. R. and Bull, F. E.: Reaction after Administration of Macroaggregated Albumin for a Lung Scan. *New England J. Med.*, 275:376, August 18, 1966.

<sup>2</sup>Roberts, H. J.: Fatal hemoptysis in pulmonary embolism probably precipitated by pulmonary scanning—Report of a case and suggested precautions. *Angiology*, 21:270, 1970.



# WHAT'S NOW SQUIBB?

On the current nuclear medicine scene



## MINITEC® (Technetium 99m) Generator

The Technetium 99m Generator using fission product molybdenum to produce technetium 99m. MINITEC is unlike any generator you've ever used—made small to make sense.

### Designed for easy handling

- MINITEC has its own handle for easy lifting, easy carrying and reduced hand exposure
- Weighs only 24½ lbs., less than 5" in diameter, under 8½" high

### Designed for easy elution

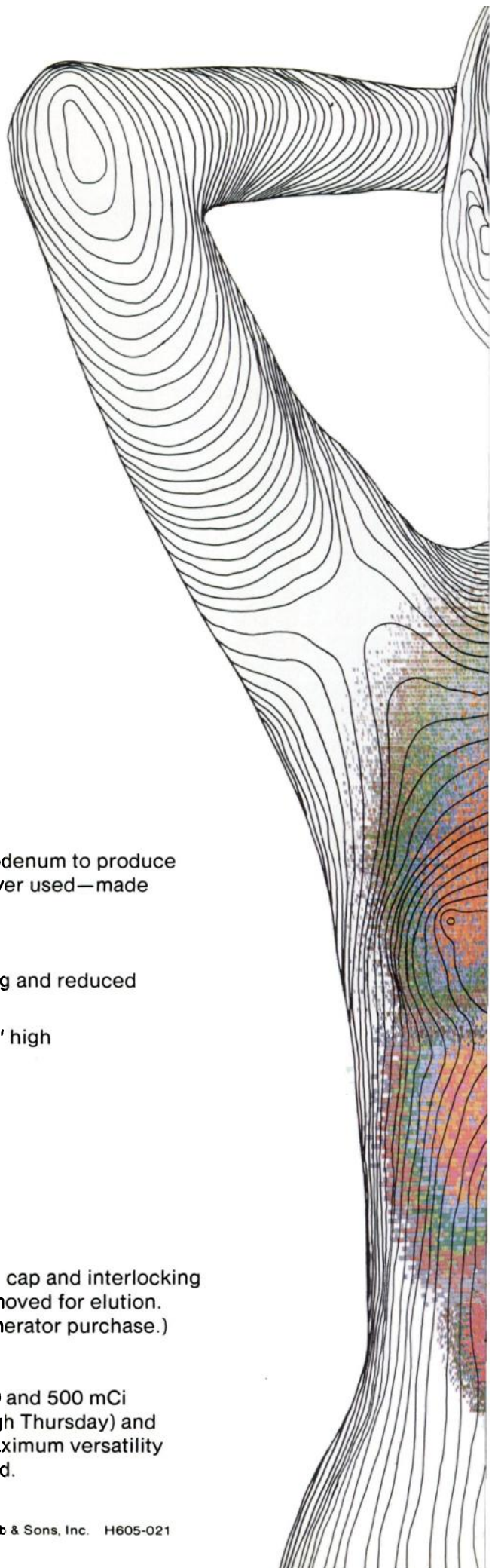
- Sets up in seconds
- Elutes in only 3 minutes after eluent vial has emptied

### Designed for safety

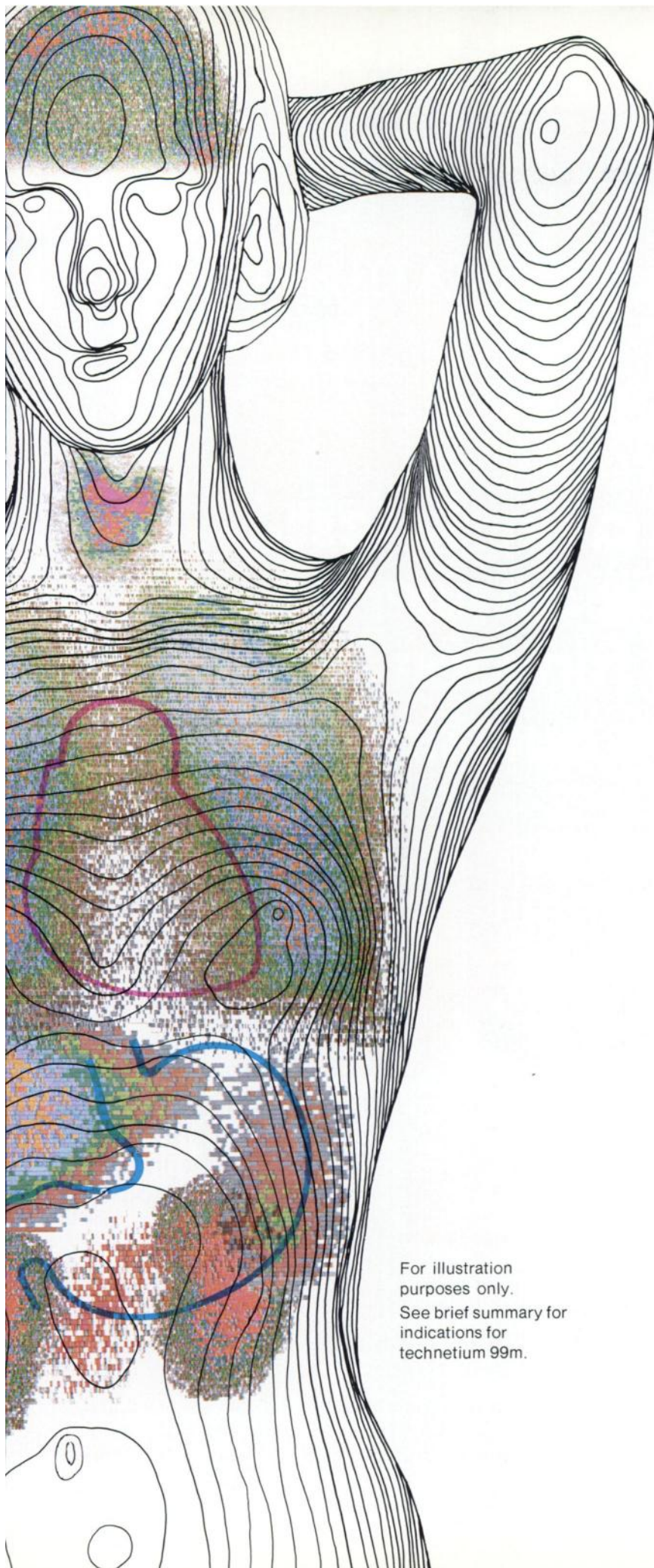
- No exposed tubing when eluting
- 1½" lead surrounds the MINITEC column
- 1½" of extra lead protection from MAXI-SHIELD™. Base, cap and interlocking half rings easily assembled on site . . . only the cap is removed for elution. (You get MAXI-SHIELD free with your first MINITEC Generator purchase.)

### Designed for convenience

- MINITEC Generator is available in 50, 100, 200, 300, 400 and 500 mCi potencies. Delivery on Monday AM (precalibrated through Thursday) and Wednesday (precalibrated through Monday) provides maximum versatility to satisfy technetium requirements of your lab's work load.







For illustration purposes only. See brief summary for indications for technetium 99m.

# Minitec<sup>®</sup> (Technetium 99m) Generator

Minitec<sup>®</sup> (Technetium 99m) Generator provides a means of obtaining a sterile, non-pyrogenic supply of technetium 99m (<sup>99m</sup>Tc) as sodium pertechnetate <sup>99m</sup>Tc.

**Indications:** Sodium pertechnetate<sup>99m</sup>Tc is indicated for brain imaging, thyroid imaging, salivary gland imaging, blood pool imaging, and placenta localization.

**Contraindications:** At present, there are no known contraindications to the use of sodium pertechnetate <sup>99m</sup>Tc.

**Warnings:** Radiopharmaceuticals should be used only by physicians who are qualified by specific training in the safe use and safe handling of radionuclides, produced by nuclear reactor or cyclotron, and whose experience and training have been approved by the appropriate federal or state agency authorized to license the use of radionuclides.

This radiopharmaceutical should not be administered to women who are pregnant or who may become pregnant or during lactation unless the information to be obtained outweighs the possible potential risks from the radiation exposure involved. 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.

Since radioactive pertechnetate is secreted in milk during lactation, formula-feedings should be substituted for breast-feedings.

**Important:** Since material obtained from the generator may be intended for intravenous administration, aseptic technique must be strictly observed in all handling. Only the eluent provided should be used to elute the generator. Do not administer material eluted from the generator if there is any evidence of foreign matter.

**Precautions:** 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.

At the time of administration, the solution should be crystal clear.

**Adverse Reactions:** At present, adverse reactions have not been reported following the use of sodium pertechnetate <sup>99m</sup>Tc.

For complete prescribing information, consult package insert.

**How Supplied:** Minitec (Technetium 99m) Generator is available in potencies of 50, 100, 200, 300, 400, and 500 mCi. Supplied with the generator are vials of eluent containing 5 ml. of a sterile, non-pyrogenic solution of 0.9% sodium chloride in water for injection. Also supplied is suitable equipment for eluting, collecting, and assaying the technetium 99m.

Medotopes<sup>®</sup>



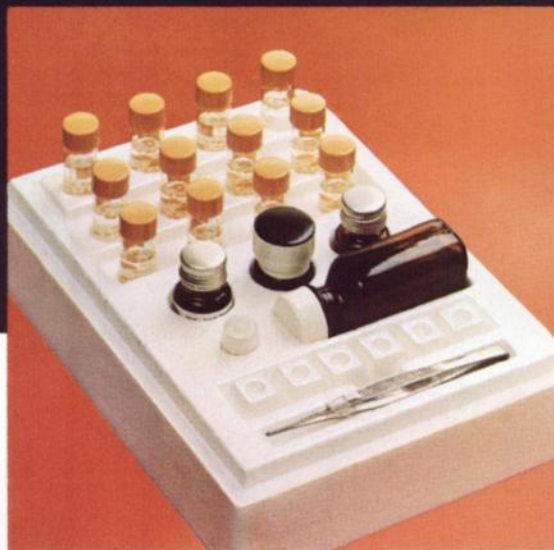
**SQUIBB HOSPITAL** DIVISION  
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A T4 says she's  
hyperthyroid.

A T3 Uptake says she's  
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Now, using a single test,  
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thyroid function  
...not more questions.



It obviates many of the  
factors which previously  
have caused diagnostic  
uncertainty in thyroid  
testing.

# The Res·O·Mat<sup>®</sup> ETR<sup>®</sup> Test.

Run a T3 on a pregnant euthyroid patient. It probably will report hypothyroidism.

Run a T4 on that same patient. It probably will report hyperthyroidism.

Now, run an *ETR* test on the same woman. Since the *ETR* test cuts through many of the knowns and unknowns that can distort other tests, it will ignore the effects of pregnancy and report the true thyroid status.

As you know, biological or technical variants





—such as pregnancy, the pill or interfering drugs—affect T3 and T4 in opposite or compensating directions. It's only when the two tests are related mathematically, to indicate effective or free thyroxine, that a reliable answer on thyroid status is reached.

Even though the *ETR* is a single in vitro test, it combines the concepts of T3 and T4. It arrives at a direct indication of the free or metabolically effective thyroxine. And it does it rapidly and accurately. It has this ability because it simultaneously considers total T4 concentration and hormone saturation of protein binding sites.<sup>1</sup>

Besides pregnancy, the pill, iodides and other

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That's why it leads to answers on basic thyroid function—not more questions.

\*Patients receiving d-thyroxine or replacement therapy with liothyronine (T3) will give erroneous results as with other thyroid function tests.

<sup>1</sup>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.

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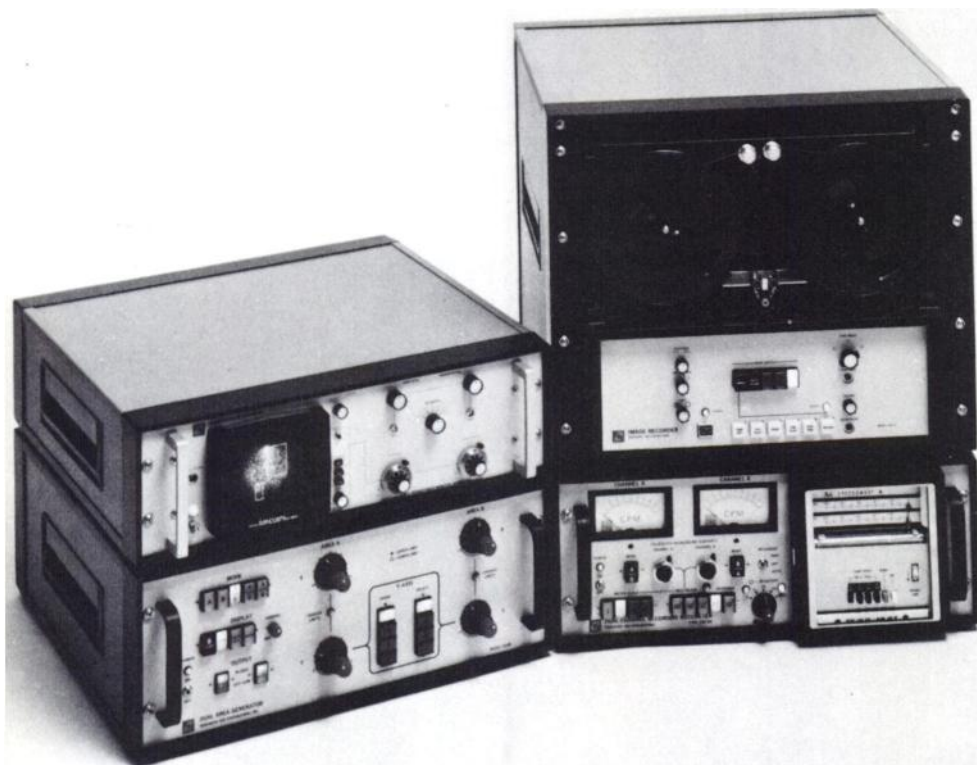
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# MODEL 145 LOCALIZATION MONITOR

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and other in vivo applications



- CPS & PERCENTAGE READOUT
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High voltage  
Threshold  
Window  
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Response (fast & slow)  
CPS or percent switch  
Reset

For DEEP VEIN THROMBOSIS DETECTION, the Model 145 offers the important features of **portability**, standard D cell operation yielding at least 100 hours of uncycled use, **unlimited** channel selection, and **prompt** servicing.

Using I-125 labelled fibrinogen and the Model 145, early detection of deep vein thrombosis of the legs can be accomplished. With the Model 145, the leg is scanned after intravenous injection of the labelled fibrinogen. As a thrombosis develops, the radioactive fibrinogen is detected with the Model 145 and measured directly in percentage, where 100% is determined over the precordial area.

### SPECIFICATIONS

RANGE: 30, 100, 300, 1000, 3000 cps  
and 0 - 120%

TIME CONSTANT: Fast 2 sec., slow 14 sec.

SIZE: 4½ x 5½ x 8 inches (HxWxL exclusive  
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WEIGHT: 6.5 lbs total

DETECTOR: 1mm x 1 inch NaI (TL) mounted  
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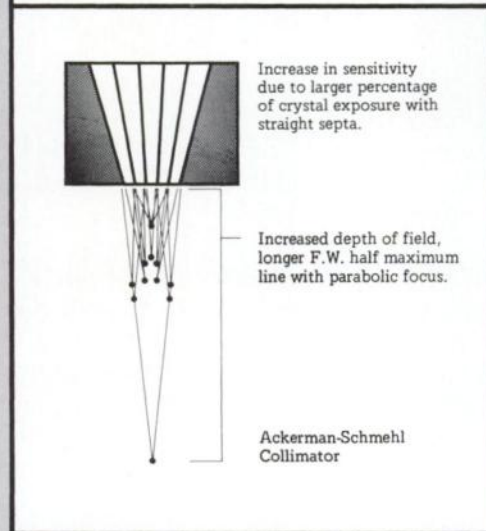
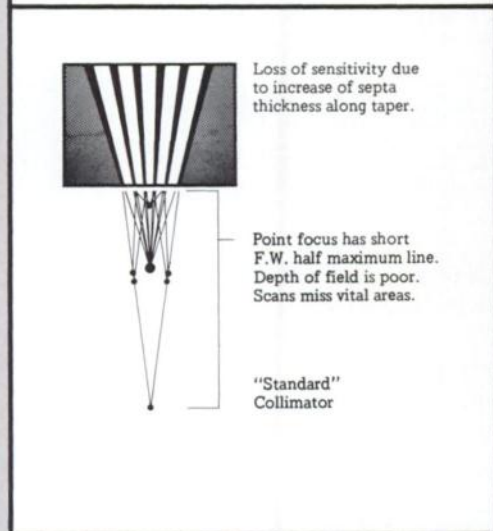
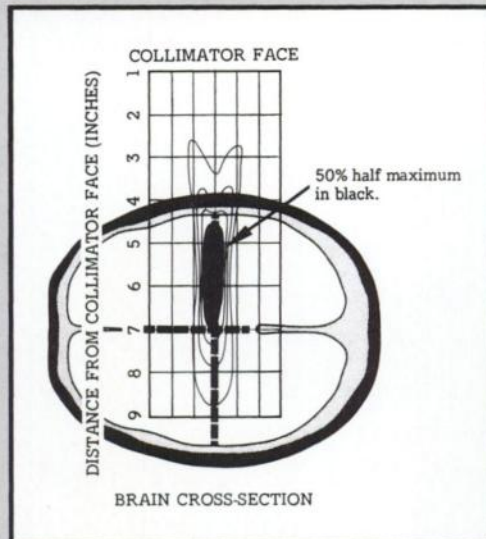
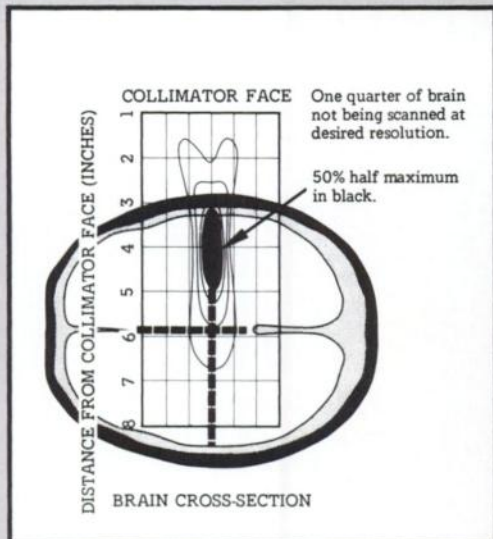
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Parabolic focus produces the best combination of resolution, sensitivity, and focal depth. Add to that a new parameter: Depth of Field, which is defined as "The length visualized in any organ at the same resolution".

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Many physicists tell us that depth of field is just as important on a rectilinear scanner as it is with a scintillation camera. Resolution and sensitivity are insignificant unless you are scanning the organ. Ackerman-Schmehl offers six low energy collimators to suit different scanning needs at \$750 each.

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**Monitor and Survey with the Searle Dual-duty Log Series Meter**

# WHY BUY TWO WHEN ONE WILL DO?

Need an area monitor *and* a survey meter? Consider the versatile Log Series Meter from Searle. Rugged and easy to use, these meters do double duty, saving you the cost of an additional instrument. Fitted with rechargeable Nickel-Cadmium batteries for long life, the meter stands in a charging base and functions as a highly accurate area monitor. When you need a survey meter, simply remove it from the base and take it to the site. Fully-charged NiCad batteries will provide at least 25 hours of continuous operation. (The meter will also accept standard "D" size flashlight batteries.)

Available in 3 sensitivity ranges (0.02 to 200, 0.2 to 2,000 and 2 to 20,000 mR/hr), these instruments are designed for ease of operation and reliability. The 4-decade meter is always on-scale, so you never need search for the right range. The only controls are an on-off switch

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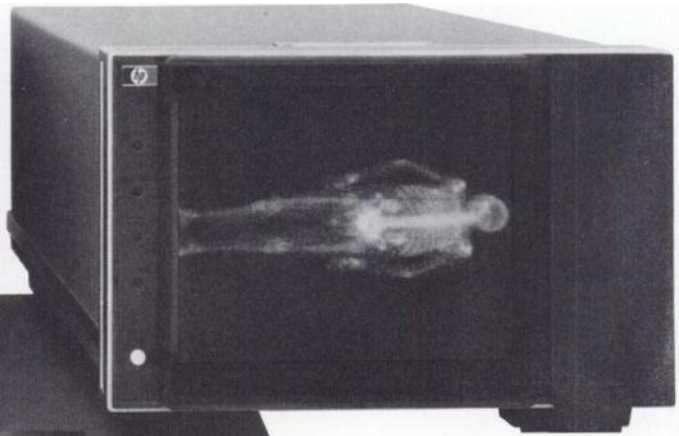


# When a life depends on the display you choose...

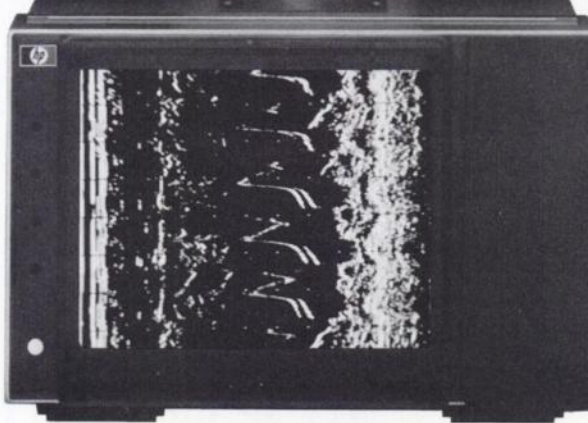
depend on HP's new 1332A. This improved display gives you the superior picture quality you must have when life is in the balance. It answers your need for higher resolution, better stability, more uniform light-output. And it meets the stringent UL Listing for electronic equipment used in patient care. The 1332A provides a combination of high performance and easy system integration to give OEMs a better display solution for demanding medical-instrument applications. For example:



Thermographic breast scan for cancer. Courtesy of Dorex Inc., Los Angeles, CA.



Gamma camera provides full body bone scan for early detection of cancer. Courtesy of Penrose Cancer Hospital, Colorado Springs, CO.



Ultrasound determines dynamic blood flow through the heart. Courtesy of Metrix, Denver, CO.

**In Thermography Equipment,** HP's 1332A delivers the stable light-output required for making long scans or taking display photographs. Regulated CRT filaments prevent power-line surges from interfering with picture quality. And the 22.5 kV CRT allows more grey shades and assures a bright picture, even at low refresh rates typical in this application.

**For Radioisotope Cameras,** the 1332A provides superior light-output uniformity for more accurate analysis. Exceptional CRT design maintains the unit's extremely high resolution regardless of intensity level or beam deflection. This, combined with a fast z-axis rise-time means you get sharp pictures that reflect your system's true performance capability.

**In Medical Ultrasound Units,** where crisp, clear pictures are essential, the 1332A gives sharp focus at all

intensity levels, with any degree of beam deflection. As a result, you get the sharp, high-resolution pictures you need — at high or low intensity, over the entire viewing area. With this display, you get the picture quality needed for accurate diagnoses.

In addition to high performance, the 1332A offers easy system integration. Over 40 standard options, such as phosphor selection, digital blanking, gamma correction, choice of

z-axis rise-time, x- and y-axis deflection factor, control location and more, let you tailor the display to your system's needs. You also get the quality, product safety and after-sales support you expect from a leader in CRT technology. To get more information about the new 1332A Display, just contact your local HP field engineer. Or, write to Hewlett-Packard.

084/7



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Actual photos taken from these systems in use.

Clinical Assays introduces the first digoxin specific antibody-coated tube assay system. This assay, in conjunction with the well established GammaCoat  $^{125}\text{I}$  Digoxin Kit, permits the identification and quantitation of both glycosides. The use of the antibody-coated tube and  $^{125}\text{I}$  derivative tracer shortens each RIA procedure to five simple steps.

1. Add buffer.
2. Add serum. Incubate.
3. Add tracer. Incubate.
4. Aspirate and wash.
5. Count the coated tubes.

This important development lowers overall costs and assay time significantly. The simplicity of the methodology minimizes variations from technician to technician and from laboratory to laboratory.

The use of a special additive, unique in the GammaCoat Systems, substantially eliminates the errors associated with variable serum proteins (1,2), resulting in a highly accurate assay. The GammaCoat assays for digoxin and digitoxin are the first such  $^{125}\text{I}$  assays to consistently correlate with the established  $^3\text{H}$  methodologies.

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Cortisol ( $^3\text{H}$ )  
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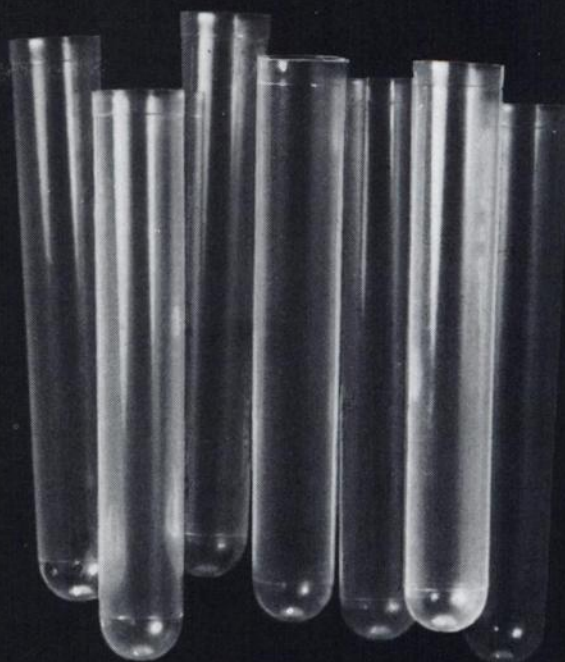
For Full Details Contact:



**Clinical  
Assays, Inc.**

237 Binney Street • Cambridge,  
Massachusetts 02142 • (617) 492-2526

References: 1) Burnett, G. H.; Conklin, R. L.; Wasson, G. W.; MacKinney, A. A.; Clin. Chem. 19 No. 7 725, 1973. 2) Holtzman, J. L.; Shafer, R. B.; Erickson, R. R.; Clin. Chem. 20 No. 9 1194, 1974.

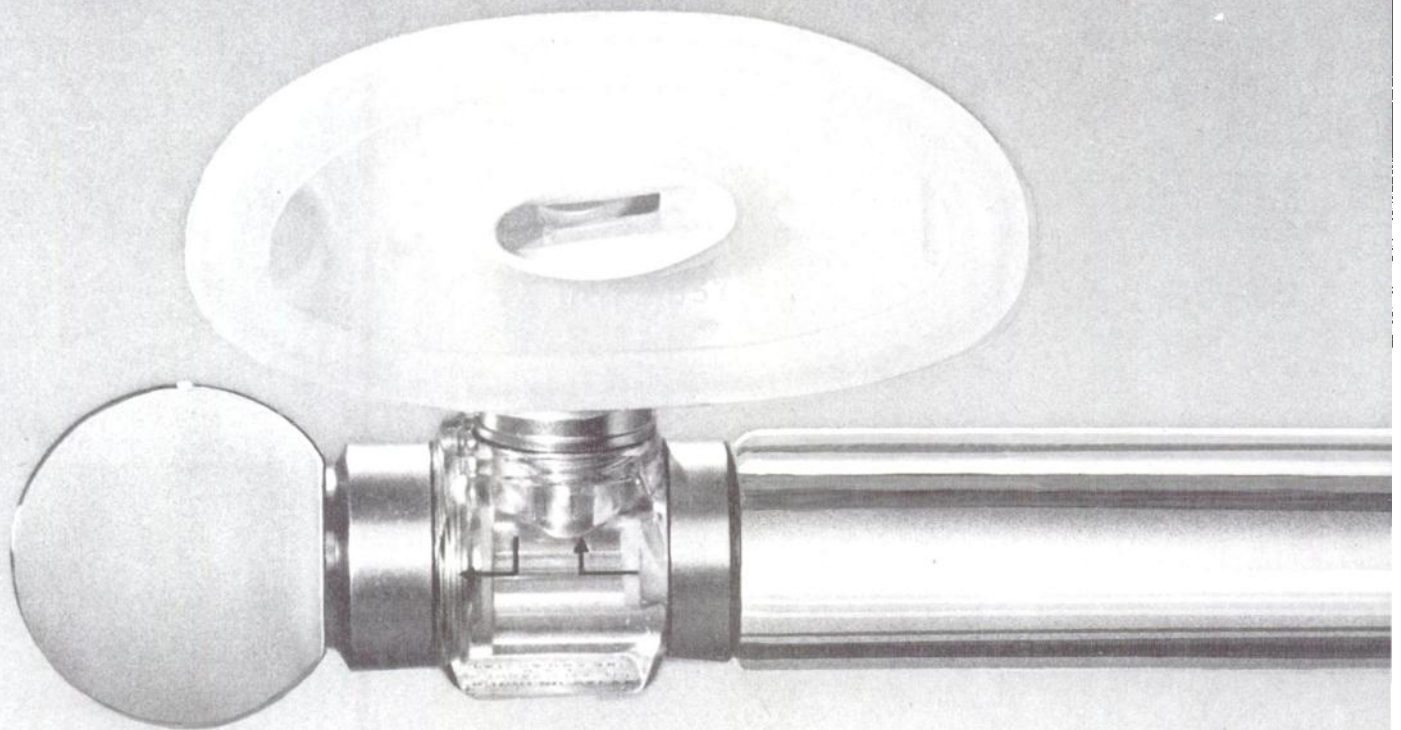


# GammaCoat<sup>TM</sup> $^{125}\text{I}$ Digoxin & $^{125}\text{I}$ Digitoxin RIA Kits



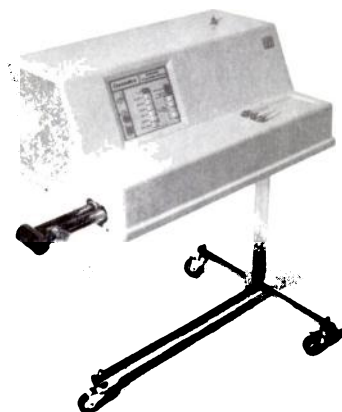


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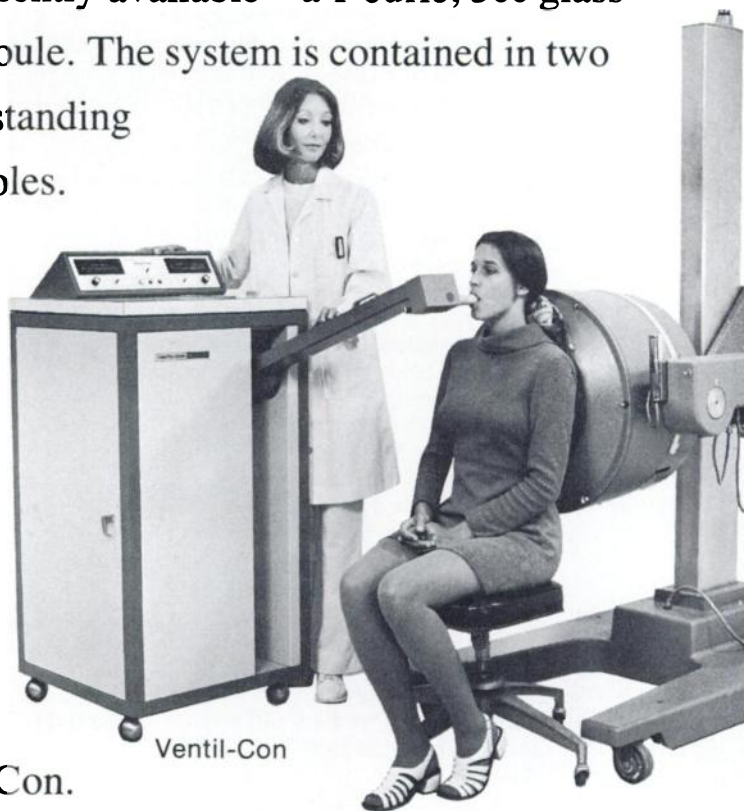


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## POSITIONS OPEN

**NUCLEAR MEDICINE RESIDENCY.** Approved two-year residency program in nuclear medicine at State University of New York at Buffalo. Salaries competitive and positions available July 1, 1975. Contact Merrill A. Bender, M.D., Program Director, Chief, Dept. of Nuclear Medicine, Roswell Park Memorial Institute, 666 Elm Street, Buffalo, N.Y.

**NUCLEAR MEDICINE RESIDENCY:** Two-year program, available July 1975. Active clinical and research program in 1,684-bed GM&S teaching hospital, integrated with University of California, Irvine. Contact K. P. Lyons, M.D., Chief, Nuclear Medicine Service, VA Hospital, Long Beach, CA 90801. An equal opportunity employer.

**NUCLEAR MEDICINE TECHNOLOGIST** for 600-bed teaching hospital providing excellent experience and opportunity for continued learning. Excellent fringe benefits. Graduate of AMA-approved program in nuclear medicine or registered. Equal opportunity employer. Send resume to: Personnel Dept., U. of I. Med. Center, P.O. Box 6998, Chicago, Ill. 60680.

**NUCLEAR MEDICINE TECHNOLOGIST.** Immediate opening in an active, progressive Division of Nuclear Medicine in 800-bed hospital and teaching institution. Acceptable training, capability of performing broad range of nuclear medicine in vitro procedures, registered ASCP, ARRT, NMT or registry-eligible. Good salary and benefits. Contact Jack K. Goodrich, M.D., Director, Division of Nuclear Medicine, Duke University Medical Center, Box 3949, Durham, North Carolina 27710. Tel. (919) 684-5454/5636.

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**NUCLEAR PHYSICIAN REQUIRED** for British Columbia's major medical teaching and referral center. Candidate should be knowledgeable and competent in both in vitro and in vivo aspects of the broad practice of nuclear medicine. Please apply in confidence containing particulars of education, experience, present salary and names of three referees to W. L. Dunn, M.D., Ph.D., Director, Laboratory Medicine, Vancouver General Hospital, Vancouver, B.C. V5Z 1M9.

**SUPERVISORY NUCLEAR MEDICINE Technologist,** VA Wadsworth Hospital Center, Los Angeles, a 600-bed UCLA-affiliated teaching hospital. AMA-approved nuclear medicine residency training and technologist training programs. Opportunity to obtain advanced training and participate in research. Bachelor's degree in nuclear medicine technology, chemistry, or physics, plus nuclear medicine technology courses, and three years' experience. Doctorate may be substituted in part for experience. Beginning salary \$15,481 per year plus generous Federal benefits. Position available now. Contact William H. Bland, M.D., Chief, Nuclear Medicine Service, VA Wadsworth Hospital Center, Los Angeles, CA 90073.

Phone: (213) 478-3711, ext. 2217. Equal Opportunity Employer.

**NUCLEAR MEDICINE TECHNOLOGIST.** Staff position for experienced, registered nuclear medicine technologist. College degree in sciences desirable but not mandatory. Starting salary \$12,000-\$13,000 yr. depending on experience and qualifications. Many fringe benefits and scheduled salary increases. Contact: Personnel Office, Southern California Permanente Medical Group, 4900 Sunset Blvd., Los Angeles, Calif. 90027. Tel. (213) 667-4193.

**NUCLEAR MED. TECH—THE UNIVERSITY** of Chicago Hospitals and Clinics has an opening for a registered nuclear med. tech certified in nuclear medicine. Excellent fringe benefits include three weeks PAID vacation and FREE Blue Cross/Blue Shield. Send resume to: Mr. Louis J. Rose, The University of Chicago, 956 E. 58th St., Chicago, Ill. 60637. An Equal Opportunity Employer M/F.

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**NUCLEAR MEDICINE TECHNICIAN.** Qualified technician needed for immediate opening in 530-bed general and surgical hospital. Salary commensurate with experience. Liberal fringe benefits plus Federal Career Status. VA Research Hospital, 333 East Huron Street, Chicago, Illinois 60611. Area Code 312-943-6600, Ext. 442. An Equal Opportunity Employer.

**NUCLEAR MEDICINE TECHNICIANS.** Two positions open in fully accredited 370-bed community and university affiliated hospital situated in scenic northcentral Pennsylvania. The nuclear medicine department is fully equipped for imaging and dynamic studies with two qualified nuclear medicine physicians in attendance. Good salary and full benefits. Contact Mr. Jack D. Cain, Director of Personnel, The Williamsport Hospital, 777 Rural Avenue, Williamsport, Pa. 17701. Phone (717) 322-7861.

**NUCLEAR MEDICINE TECHNOLOGIST.** An expanding nuclear medicine department in this Ottawa hospital with approximately 1,000 beds invites applications from registered nuclear medicine technologist. Excellent salary and fringe benefits. Please send resume to: Mrs. A. Fox, Personnel Administration, Ottawa Civic Hospital, 1053 Carling Ave., Ottawa, K1Y 4E9.

**EXPERIENCED CHIEF NUCLEAR medicine technologist** for modern 750-bed progressive hospital with a rapidly expanding nuclear medicine program. Liberal employee benefit program. Contact: Evelyn W. Hamilton, Employment Coordinator, Community Hospital, 1500 N. Ritter, Indianapolis, Ind. 46219. (Area Code 317-353-5483). An Equal Opportunity Employer.

**ASSISTANT PROFESSOR OF Nuclear medicine.** Applicants must have M.D. and nuclear medicine certification, with an interest in both teaching and research. Duties consist of clinical service, teaching and research in the department and par-

ticipating in the research programs of the nuclear medicine division. Starting salary commensurate with training and background. Send inquiries, C.V. and names of three references to F. H. DeLand, M.D., Chief, Nuclear Medicine Division, University of Kentucky Medical Center, 800 Rose Street, Lexington, Ky. 40506, telephone (606) 258-4017. The University of Kentucky is an affirmative action/equal opportunity employer and encourages applications from members of minority groups and women.

**NUCLEAR MEDICINE RESIDENCY.** Approved two-year program offering clinical, basic and research experience in all areas of nuclear medicine. Address inquiries to: Dr. David Lilién, Division of Nuclear Medicine, Arizona Medical Center, Tucson, Ariz. 85724. An equal opportunity employer.

## POSITIONS WANTED

**NUCLEAR RADIOLOGIST, CERTIFIED** in both radiology and nuclear medicine, desires full-time position in nuclear medicine or one with part-time duties in radiology. Reply to Box 401, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.

**NUCLEAR MEDICINE TECHNOLOGIST** desires to relocate. Graduate of prestige university with many years field experience. Versed in opening and managing nuclear departments. Reply to Box 402, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.

**NUCLEAR MEDICINE PHYSICIAN** completing two-year fellowship from a university, seeks position for July '75. Reply to Box 403, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.

**RADIOPHYSICIST, PhD 1975,** IN nuclear medicine instrumentation and radiation therapy physics, seeks position with research, teaching and service. Wei Chang, Nuclear Medicine Dept., Roswell Park Mem. Inst., Buffalo, N.Y. 14263.

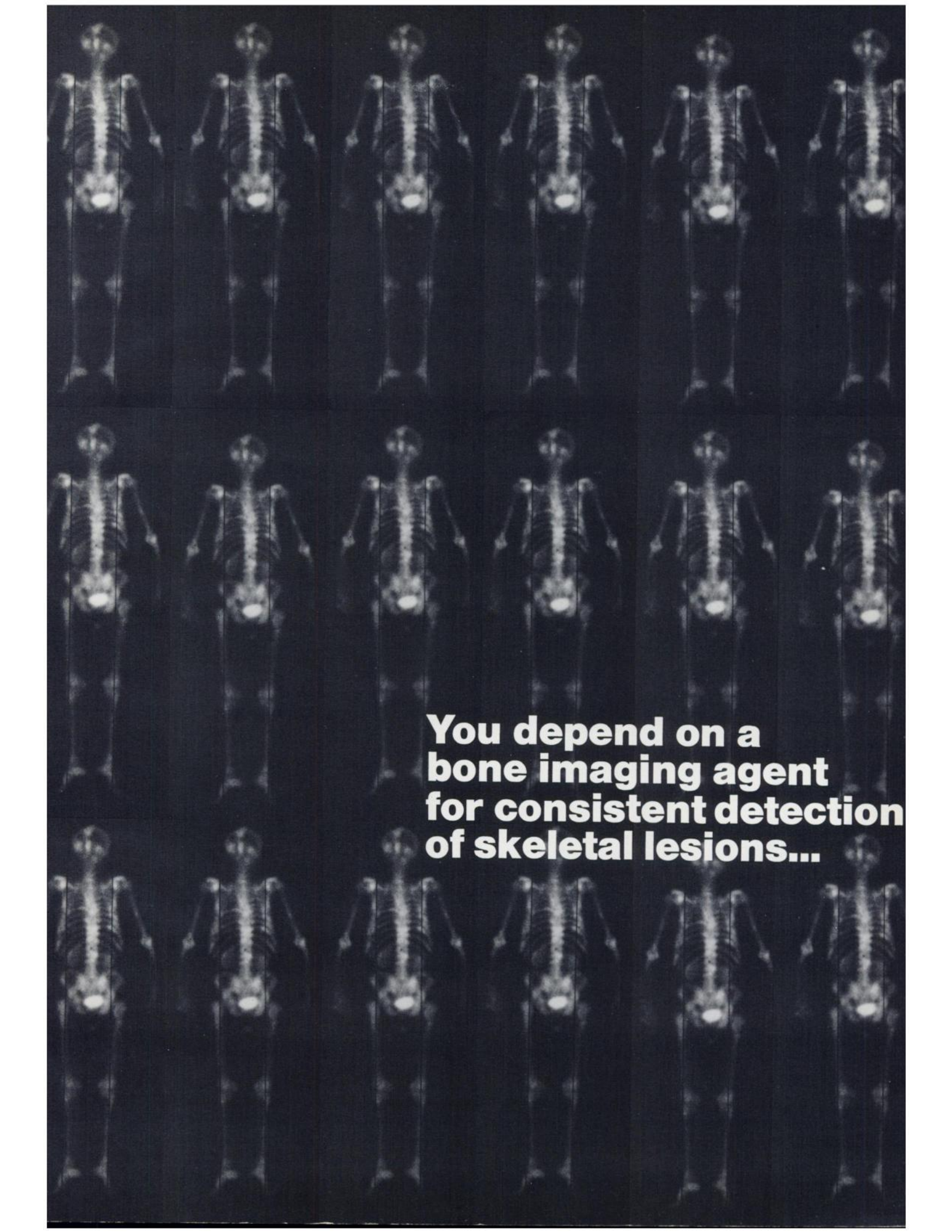
**NUCLEAR MEDICINE PHYSICIAN** with board certification and 12 yrs. experience in anatomic and clinical pathology. Completing training for board eligibility by ABNM July 1, 1975. Interested in diagnostic imaging, in vitro procedures and therapy services with a group of physicians. Please reply to Box 404, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.

**STAFF POSITION SOUGHT:** Nuclear Medicine Technologist; B.S.-N.M.T. May 1975, University of Wisconsin. Special in vitro interests. Dennis Dvorak, Riceville, Ia. 50466 (515) 985-2998.

**NUCLEAR MEDICINE PHYSICIST** with supervisory experience seeks a position in nuclear medicine department immediately. Please reply to Box 405, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.

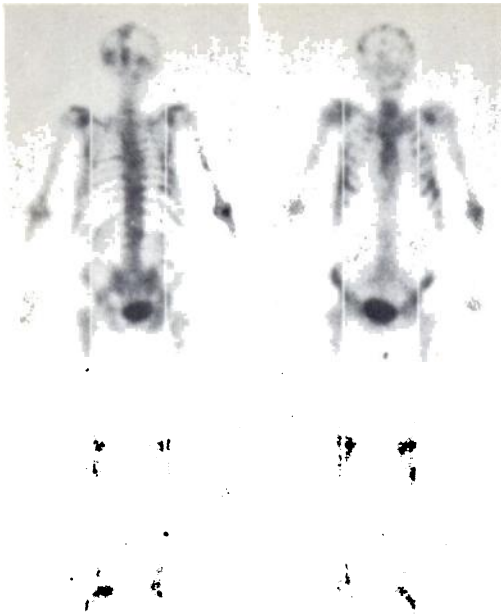
**NUCLEAR MEDICINE PHYSICIAN** desires relocation. ABR and ABNM certified. Extensive experience in all aspects of Nuclear Medicine. Reply to Box 406, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.

**NUCLEAR PHYSICIAN DESIRES** challenging opportunity in clinical nuclear medicine. Board certified (ABNM and ABIM) with endocrinology background, experience in clinical practice, teaching and administration. Please reply to Box 407, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.



**You depend on a  
bone imaging agent  
for consistent detection  
of skeletal lesions...**





A 65-year-old patient with known carcinoma of the prostate. Note pelvic, skull, rib, sternum and vertebral lesions.

Imaging Agent:  
15 mCi  
<sup>99m</sup>Tc-OSTEOSCAN  
Anterior Count per Time:  
> 1,000,000/30 min  
Posterior Count per Time:  
> 1,000,000/30 min  
Instrument:  
Searle Pho/Gamma®  
HP camera with whole body table, Microdot Imager® and high-sensitivity collimator  
Scanned:  
3 hours postinjection

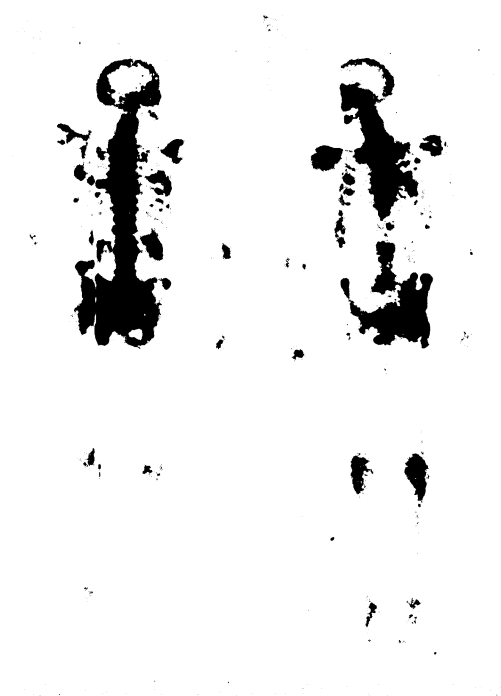
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When selecting a bone scanning agent for your department, there is a single overriding concern: Which will most consistently image the patient's detectable bone lesions?

When labeled with <sup>99m</sup>Tc, the physical and chemical properties of Osteoscan's diphosphonate formula deliver the excellent lesion imaging you need . . . scan after scan, day after day.

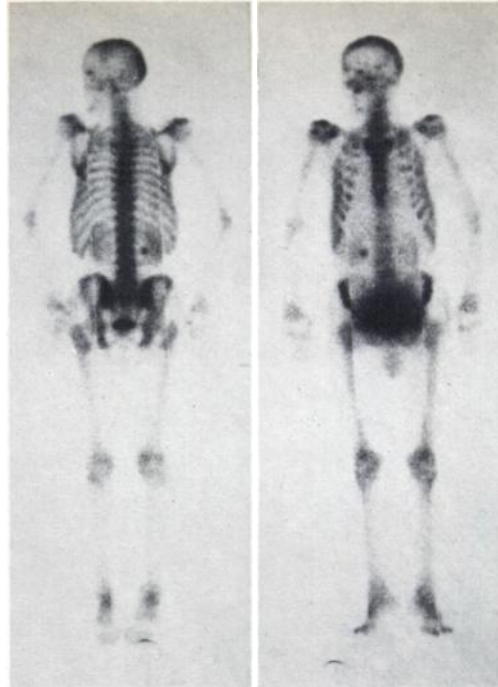
- P-C-P molecular bonding assures excellent in vivo stability—to minimize soft tissue uptake.
- Dry mix diphosphonate formulation reduces potential for hydrolysis.
- Formulated to produce consistently high tagging efficiency.

L POSTERIOR R R ANTERIOR L



An 82-year-old patient with extensive metastatic bone disease secondary to known carcinoma of the prostate.

Imaging Agent:  
15 mCi  
<sup>99m</sup>Tc-OSTEOSCAN  
Anterior Count per Time:  
561,220/30 min  
Posterior Count per Time:  
631,388/30 min  
Instrument:  
Picker Dynacamera®  
2C with Omniview® table and ultrafine collimator  
Scanned:  
4 hours postinjection



A 66-year-old male with prostatic carcinoma and no conclusive evidence of metastasis to bone.

Imaging Agent:  
15 mCi  
<sup>99m</sup>Tc-OSTEOSCAN  
Posterior Count per Time:  
636,690/35 min  
Anterior Count per Time:  
613,007/35 min  
Instrument:  
Picker Dynacamera®  
2C with Omniview® table and ultrafine collimator  
Scanned:  
4 hours postinjection

L POSTERIOR R R ANTERIOR L

The result:

- Rapid blood clearance
- High target/non-target ratios
- Clear imaging of detectable bone lesions

If you would like further information about Osteoscan's performance benefits or would like to prove Osteoscan's consistent lesion imaging for yourself—please call Arnold Austin, Technical Manager, Professional Services Division, Procter & Gamble, (513) 977-8547.

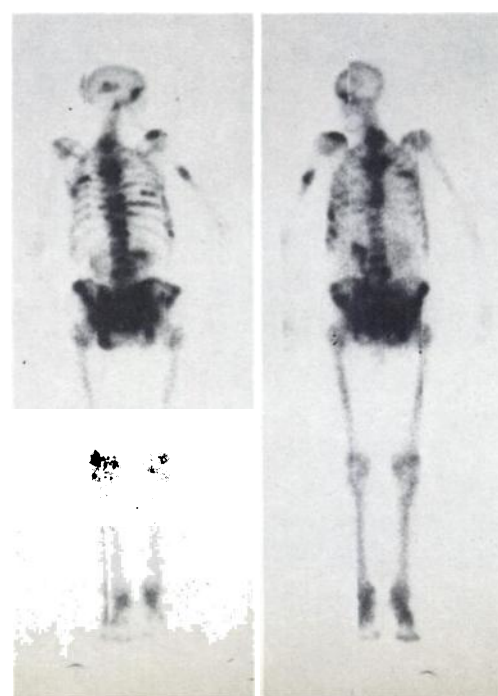
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**OSTEOSCAN®**

(5.9 mg disodium etidronate  
0.16 mg stannous chloride)

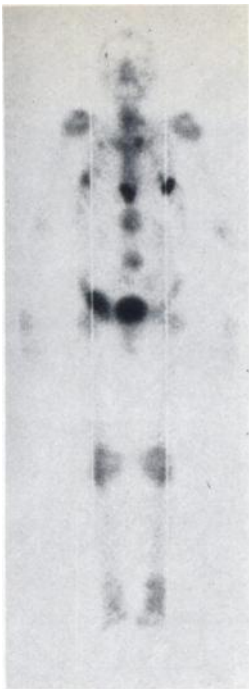
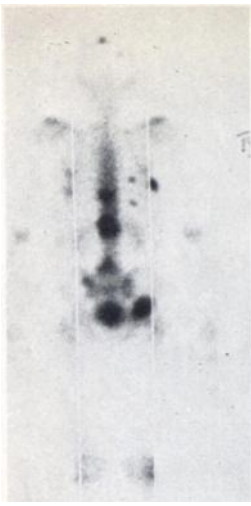
SKELETAL IMAGING AGENT

L POSTERIOR R R ANTERIOR L



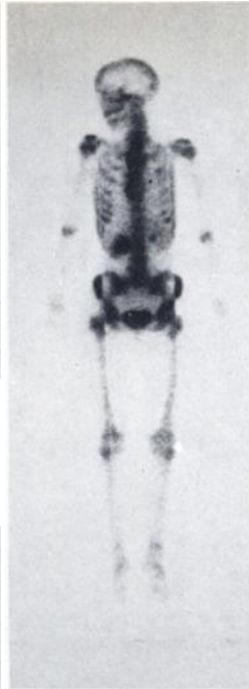
A 79-year-old male with known prostatic carcinoma metastatic to bone. Multiple lesions are seen throughout skeletal system.

Imaging Agent:  
15 mCi  
<sup>99m</sup>Tc-OSTEOSCAN  
Posterior Count per Time:  
621,153/26 min  
Anterior Count per Time:  
649,702/31 min  
Instrument:  
Picker Dynacamera®  
2C with Omniview® table and ultrafine collimator  
Scanned:  
4 hours postinjection



A 58-year-old male with a 41-year history of smoking displays extensive metastatic disease in ribs, vertebral bodies, pelvis, sternum and skull, secondary to known carcinoma of the lung.

Imaging Agent:  
15 mCi  
<sup>99m</sup>Tc-OSTEOSCAN  
Anterior Count per Time:  
> 1,000,000/30 min  
Posterior Count per Time:  
> 1,000,000/30 min  
Instrument:  
Searle Pho/Gamma®  
HP camera with whole body table, Microdot Imager® and high-sensitivity collimator  
Scanned:  
3 hours postinjection



A 49-year-old female with previous right radical mastectomy for malignancy, having rib pain. Increased uptake in ribs suggests metastatic disease.

Imaging Agent:  
15 mCi  
<sup>99m</sup>Tc-OSTEOSCAN  
Posterior Count per Time:  
500,361/28 min  
Anterior Count per Time:  
508,462/27 min  
Instrument:  
Picker Dynacamera®  
2C with Omniview® table and ultrafine collimator  
Scanned:  
4 hours postinjection

L POSTERIOR R

R ANTERIOR L

L POSTERIOR R

R ANTERIOR L

# OSTEOSCAN® consistently delivers:

- Clear, sharp images
- High-quality lesion detection

See following page for brief summary of package insert.

L POSTERIOR R

R ANTERIOR L

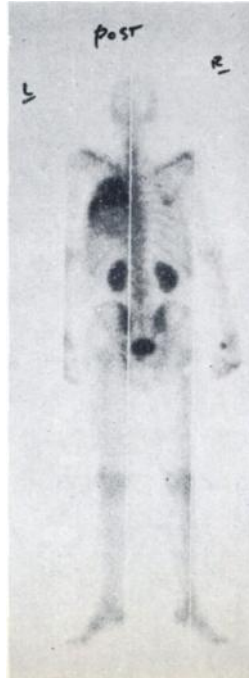


A 43-year-old female with known metastatic disease secondary to carcinoma of the left breast. Swollen left arm is secondary to lymphedema, a result of radical mastectomy. (Note negative defect in region of left breast as a result of prosthesis.) Metastatic disease clearly visualized in vertebral bodies and ribs. Uptake at elbow is extravasation at injection site.

Imaging Agent:  
15 mCi  
<sup>99m</sup>Tc-OSTEOSCAN  
Anterior Count per Time:  
> 1,000,000/30 min  
Posterior Count per Time:  
> 1,000,000/30 min  
Instrument:  
Searle Pho/Gamma®  
HP camera with whole body table, Microdot Imager® and high-sensitivity collimator  
Scanned:  
3 hours postinjection

L POSTERIOR R

R ANTERIOR L



A 61-year-old male following thoracotomy for carcinoma of the left lung. Two rib fractures (anterior view) of unknown etiology. Right thumb uptake (posterior view) secondary to arthritic changes.

Imaging Agent:  
15 mCi  
<sup>99m</sup>Tc-OSTEOSCAN  
Anterior Count per Time:  
> 1,000,000/30 min  
Posterior Count per Time:  
> 1,000,000/30 min  
Instrument:  
Searle Pho/Gamma®  
HP camera with whole body table, Microdot Imager® and high-sensitivity collimator  
Scanned:  
5 hours postinjection



# OSTEOSCAN... Clear, sharp images for high-quality lesion detection... consistently

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  $^{99m}\text{Tc}$ -pertechnetate, these ingredients combine with  $^{99m}\text{Tc}$  to form a stable soluble complex.

## ACTIONS (CLINICAL PHARMACOLOGY)

When injected intravenously,  $^{99m}\text{Tc}$ -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  $^{99m}\text{Tc}$ -labeled OSTEOSCAN.

Three hours after intravenous injection of 1 ml  $^{99m}\text{Tc}$ -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  $^{99m}\text{Tc}$ -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  $^{99m}\text{Tc}$ -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  $^{99m}\text{Tc}$ -labeled OSTEOSCAN administration, patients should be encouraged to drink fluids. Patients should void as often as possible after the  $^{99m}\text{Tc}$ -labeled OSTEOSCAN injection to minimize background interference from accumulation in the bladder and unnecessary exposure to radiation.

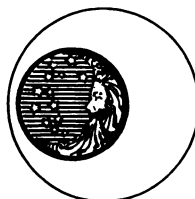
As in the use of any other radioactive material, care should be taken to insure minimum radiation exposure to the patient, consistent with proper patient management, and to insure minimum radiation exposure to occupational workers.

## ADVERSE REACTIONS

None.

## DOSAGE AND ADMINISTRATION

The recommended adult dose of  $^{99m}\text{Tc}$ -labeled OSTEOSCAN is 1 ml with a total activity range of 10-15 mCi.  $^{99m}\text{Tc}$ -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.



PROCTER & GAMBLE  
**OSTEOSCAN<sup>®</sup>**

(5.9 mg disodium etidronate  
0.16 mg stannous chloride)  
SKELETAL IMAGING AGENT



# Digital's Gamma 11. When you need something special from a nuclear medicine system.

A lot of nuclear medicine computers can give you the standard operations. Thresholding. Image smoothing. Crystal non-uniformity correction. Profile slices. Dynamic function curves. But that's just routine with Gamma-11.

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commonly used as a "beginners" language. But now it's been tailored especially for nuclear medicine. It's highly interactive. You can step up to the scope and mark off the areas you want to work on. It can handle large matrices (128 x 128). Yet it lets you work on individual elements so that you can do things like functional imaging.

And FOCAL-PLUS has many special functions to make programming go faster, like single-command references to collected images or curves.

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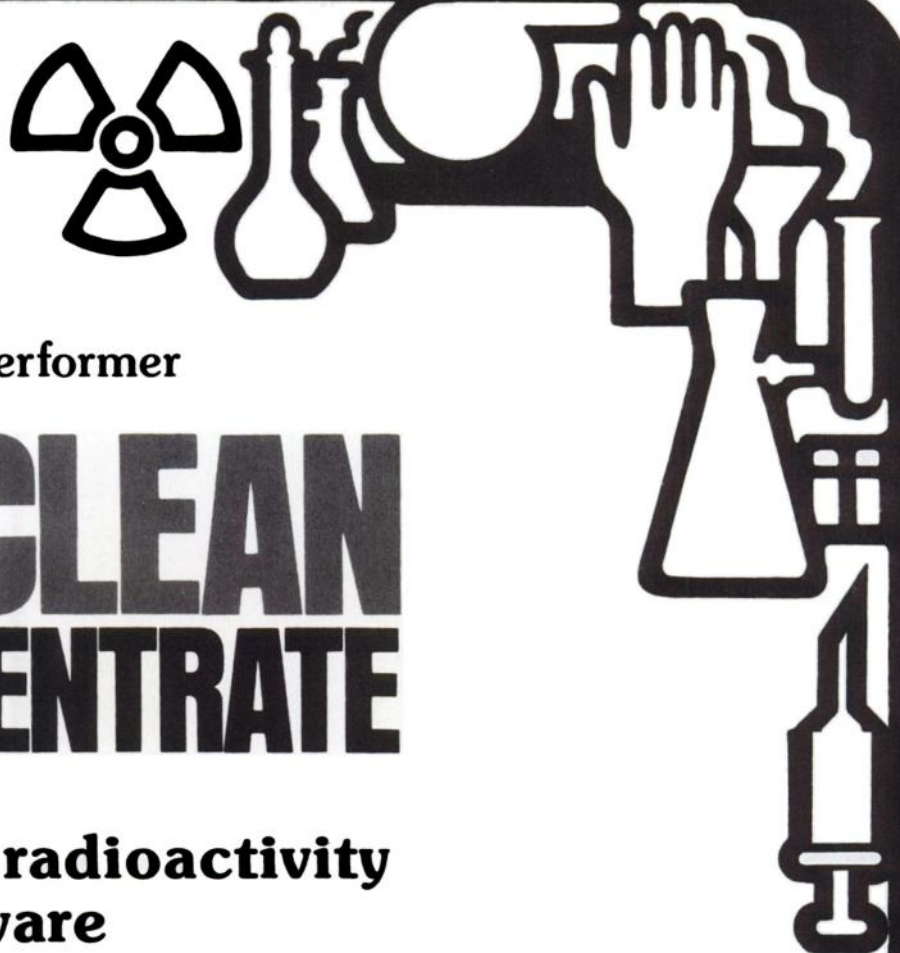
And, of course, you get Digital Equipment Corporation. And Digital's huge service organization.

More people have opted for Digital than for any other nuclear medicine computer supplier... and Digital has produced more than half the minicomputers across the world.

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position so that the entire organ of interest could be encompassed within the limited field of view of the detector. Result: The DI 800 Triaxial Table. The DI 800 offers continuous height adjustment. Hence, easy patient transfer (whatever the height of the conveyance vehicle) onto either side of our table because of its flush edges. All four wheels lock from two controls. For final precise positioning the DI 800 has long axis adjustment of 18 inches in the horizontal plane. Most important, the top is tiltable, head up or head down. This

means greater patient comfort. More, it will permit oblique imaging. With its open under carriage, overhanging adjustable head rest and 1/4 inch lucite top, the DI 800 offers an unobstructed view of the patient . . . above, below, either side and vertex. For specifications, pricing and a list of hospitals now using the DI-800, call collect (415) 957-1600

## Dunn Instruments Inc.

52 Colin P. Kelly Jr. Street  
San Francisco, Ca. 94107

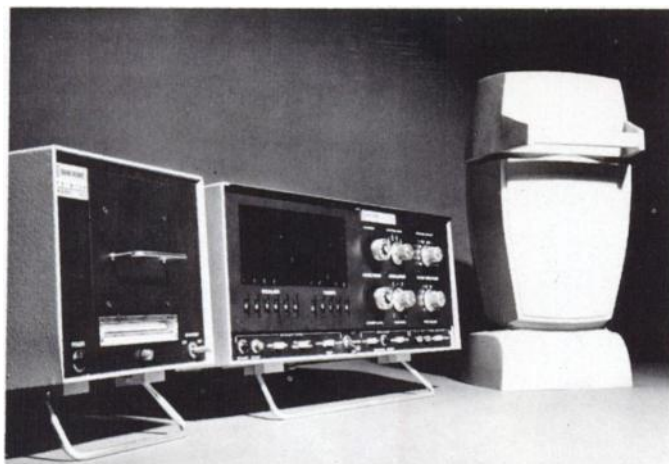


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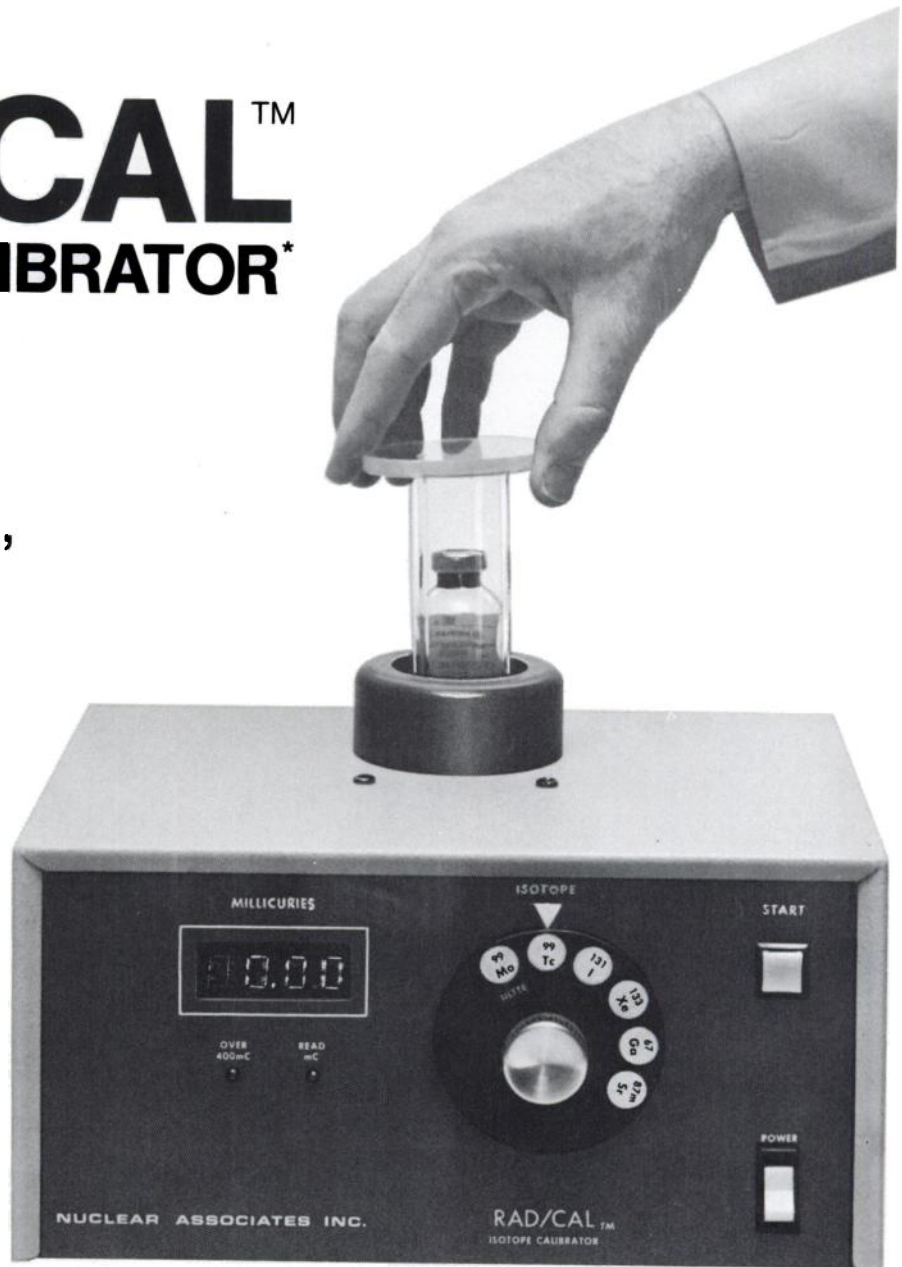
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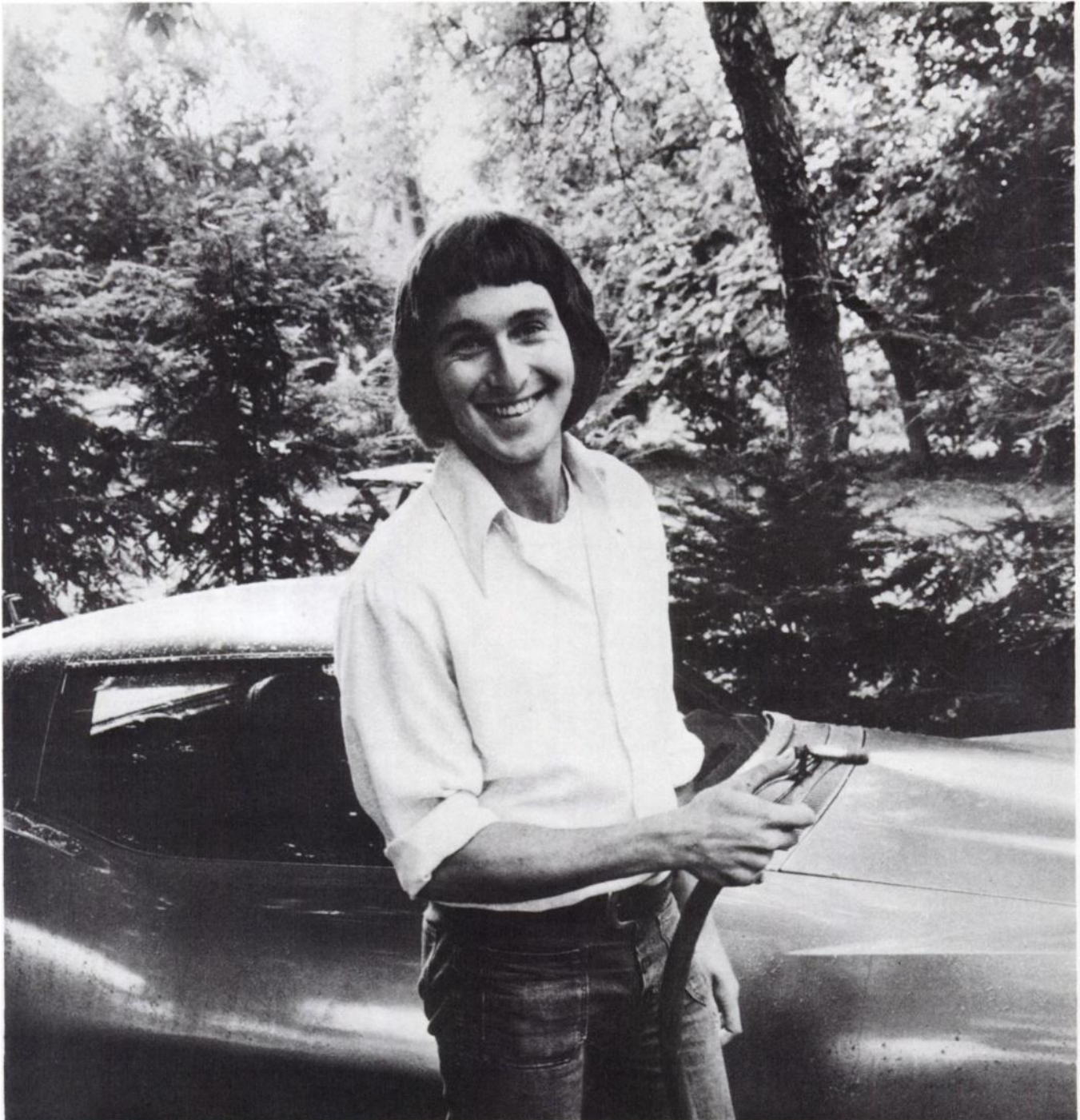
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Reference  
Serum

ONE SERUM HAS VALUES FOR


Hi & Lo

Vitamin B-12 Testosterone Aldosterone  
Estradiol Estrone TBG TSH T<sub>4</sub> T<sub>3</sub>  
Cortisol Digoxin Gastrin Progesterone  
Prolactin Gentamicin Insulin  
HGH Folate LH  
CEA FSH



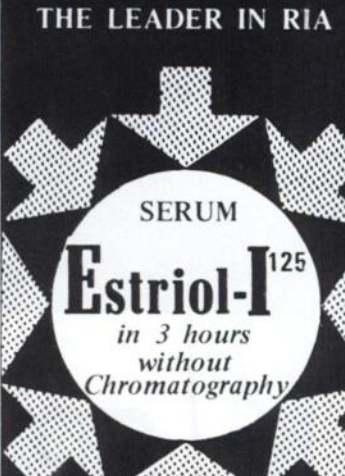
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**TETRA-RIA**      T<sub>4</sub> RIA SYSTEM      NMS-1002

CONTENTS: (for 100 Assay Tubes)

1. One bottle of ANTIGEN I<sup>125</sup> (20 ml)
2. One bottle of rabbit ANTI T<sub>4</sub> SERUM (20 ml)
3. One bottle of SECOND ANTIBODY (20 ml)
4. Five vials containing 250ul each of T<sub>4</sub> STANDARD SERUM (0, 5, 10, 15, 25 ug/dl)
5. Three vials containing 250ul each of T<sub>4</sub> REFERENCE SERUM (low, medium, high)

Each reagent contains 0.1% SODIUM AZIDE by volume as preservative

CAUTION: RADIOACTIVE MATERIAL  
Contains less than 2.0 uCi I<sup>125</sup>

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Expires:

Unlike other kits (CPB or uptake) it does not confuse low normals with hypo values.

This kit according to users in eminent clinical organizations (references may be supplied upon request) is the BEST on the market today for accuracy, reproducibility, consistency and speed. It may be used by both low and high volume T-4 (RIA) users. Other (RIA) kits for COMPLETE thyroid function evaluation: T-3, TBG and TSH together with RIA reference serum are also provided by NMS.



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RADIOIMMUNOASSAY KITS

Kits	Isotope	Tube
T-3	(RIA)	I <sup>125</sup> 100
T-4	(RIA)	I <sup>125</sup> 100
TBG	(CPB)	I <sup>125</sup> 50
Cortisol	(RIA)	H <sup>3</sup> 100
Estradiol	(RIA)	H <sup>3</sup> 100
Gentamicin	(RIA)	H <sup>3</sup> 100
Estrone	(RIA)	H <sup>3</sup> 100
Estradiol/Estrone	(RIA)	H <sup>3</sup> 100
Estriol	(RIA)	I <sup>125</sup> 100
Estriol	(RIA)	H <sup>3</sup> 100
TSH	(RIA)	I <sup>125</sup> 100

ACTIVERA

Aldosterone	Prolactin
Cortisol	LM
Digoxin	Progesterone
Estradiol	Testosterone
Estrone	TBG
FSH	TSH
Gastrin	T-3 (rabbit)
Gentamicin	T-4 (rabbit)
HGH	Anti-rabbit IgG
	Normal rabbit serum


RADIOIMMUNO REAGENTS CHEMICALS

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RIA TESTING SERVICES

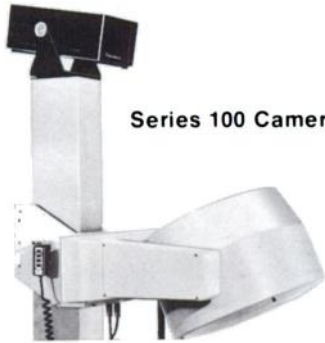
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Series 100 Camera.

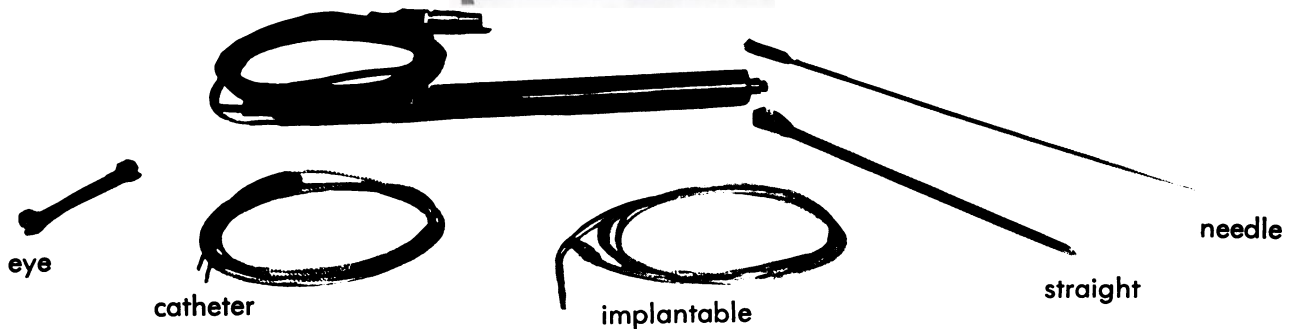
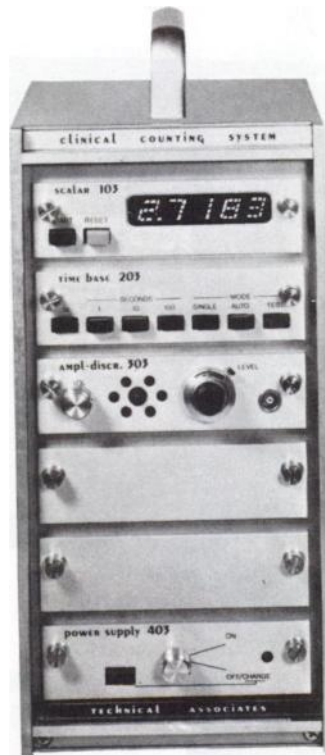
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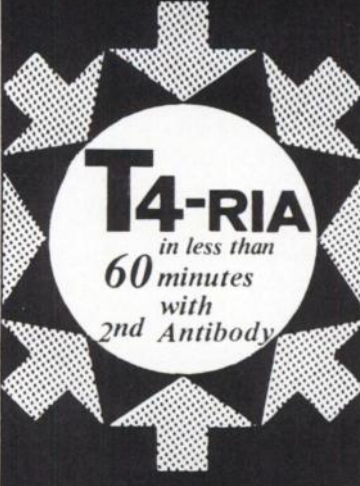
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- Operating room design
- In vivo use
- Single, dual and multiple or matrix detectors



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Provided with 5 standards  
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Reference  
Serum

ONE SERUM HAS VALUES FOR

Hi & Lo

Vitamin B-12 Testosterone Aldosterone  
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Cortisol Digoxin Gastrin Progesterone  
Prolactin Gentamicin  
HGH Folate  
CEA FSH LH  
Insulin

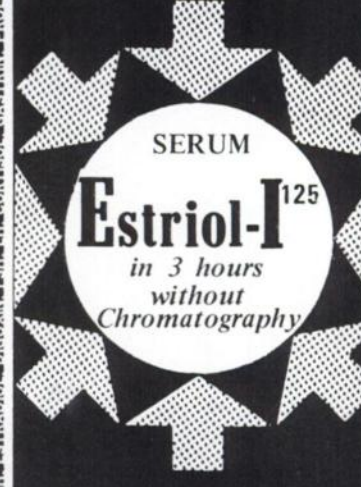


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4. Five vials containing 250ul each of **T<sub>4</sub> STANDARD SERUM** (0, 5, 10, 15, 25 ug/dl)
5. Three vials containing 250ul each of **T<sub>4</sub> REFERENCE SERUM** (low, medium, high)  
Each reagent contains 0.1% SODIUM AZIDE by volume as preservative.

CAUTION: RADIOACTIVE MATERIAL  
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RADIOIMMUNOASSAY KITS

Kits	Isotope	Tubes
T-3 (RIA)	<sup>125</sup> I	100
T-4 (RIA)	<sup>125</sup> I	100
TBG (CPB)	<sup>125</sup> I	50
Cortisol (RIA)	H <sup>3</sup>	100
Estradiol (RIA)	H <sup>3</sup>	100
Gentamicin (RIA)	H <sup>3</sup>	100
Estrone (RIA)	H <sup>3</sup>	100
Estradiol/Estrone (RIA)	H <sup>3</sup>	100
Estriol (RIA)	<sup>125</sup> I	100
Estriol (RIA)	H <sup>3</sup>	100
TSH (RIA)	<sup>125</sup> I	100

ACTISERBA


Aldosterone	Prolactin
Cortisol	LH
Digoxin	Progesterone
Estradiol	Testosterone
Estriol	TBG
Estrone	TSH
FSH	T-3 (rabbit)
Gastrin	T-4 (rabbit)
Gentamicin	Anti-rabbit IgG
HGH	Normal rabbit serum

RADIOIMMUNO REAGENTS IN CHEMICAL FORM

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Area Scan.

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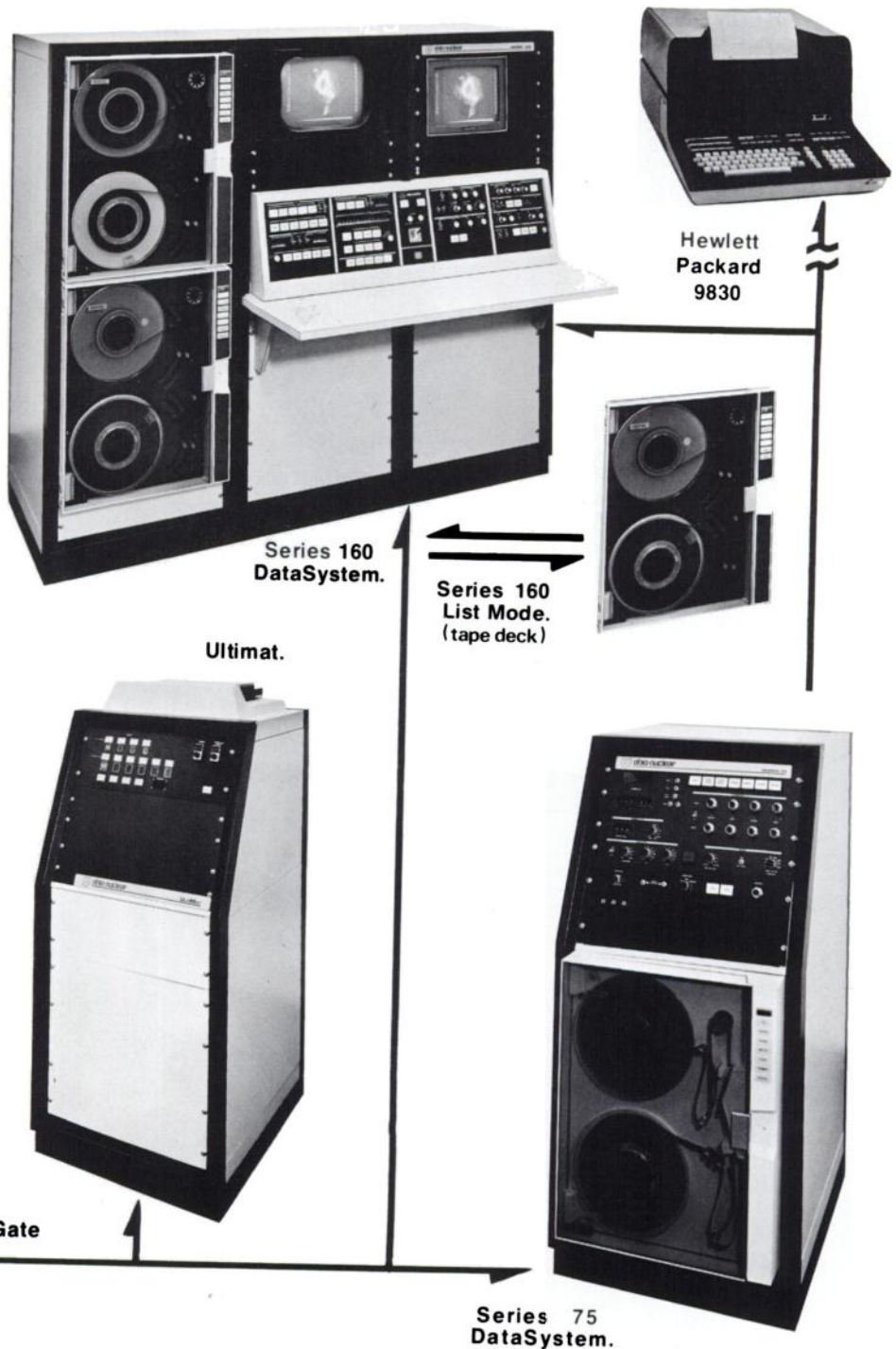
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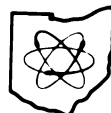
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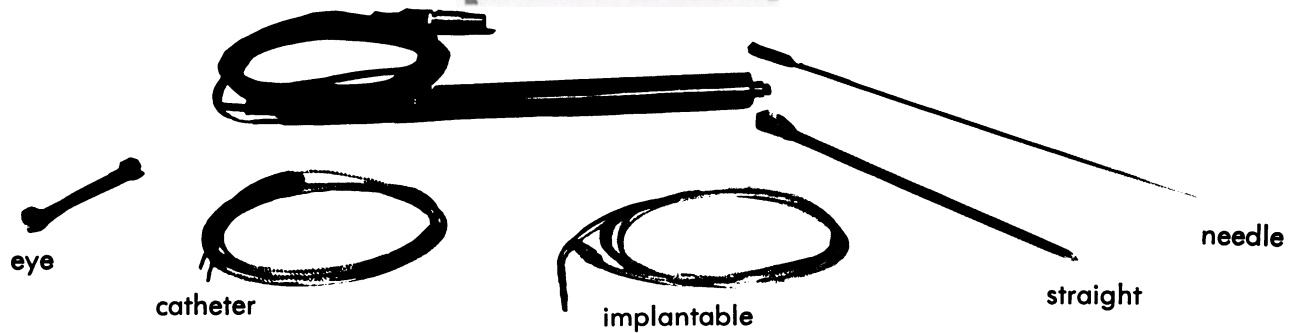
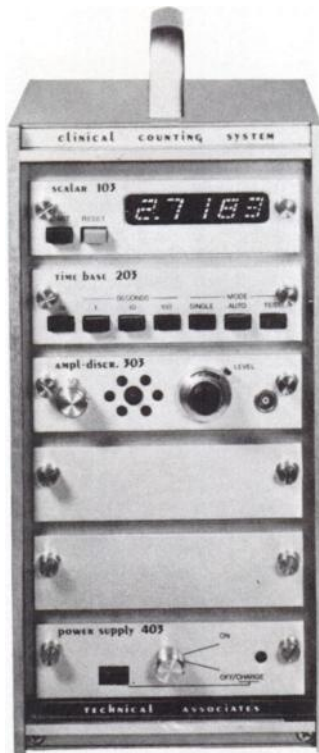
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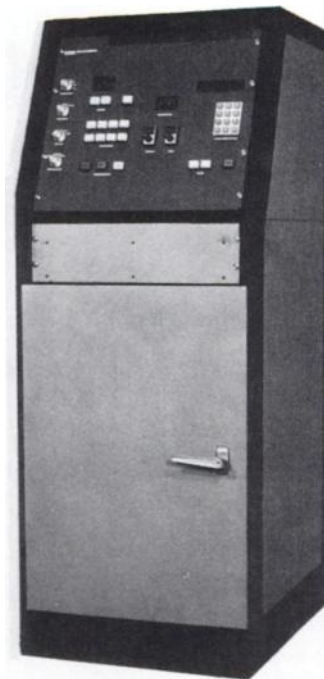
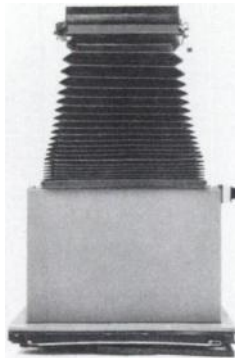
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- Cardiac and/or respiratory gating capability
- Compatibility with all gamma cameras

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Incubate 45 minutes.
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A <sup>3</sup>H Cortisol RIA with dextran coated charcoal separation is also available.

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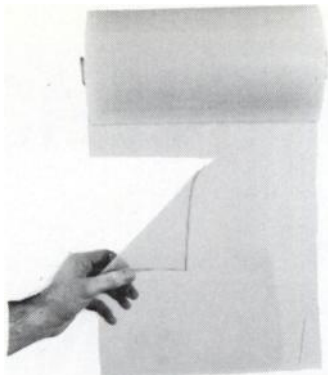
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This holder is for temporary storage or for transport of single syringes containing radiopharmaceuticals. Syringes from 2 cc. to 20 cc. capacity fit in the 7/8" i.d. holder. The lead wall is 3/8" thick, and the inside depth is 5 3/4".

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\$17.50**



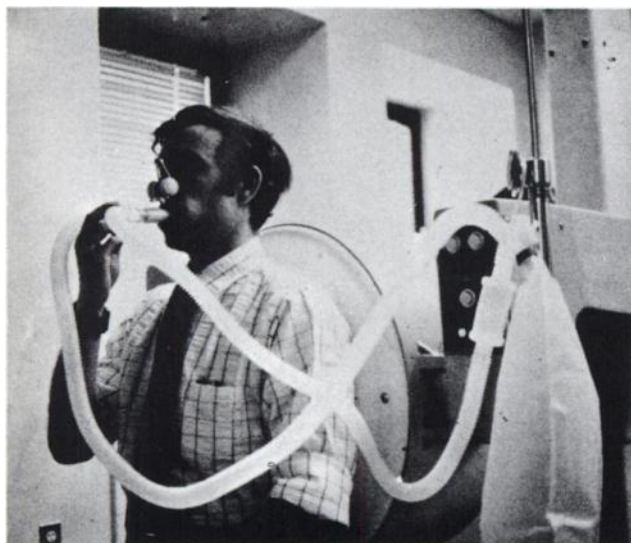
**SYRINGE CARRIER  
Model SC-722**

Syringes containing radiopharmaceuticals can be safely stored and transported in the **Model SC-722** lead lined steel Syringe Carrier. Several syringes can be held at one time, depending upon syringe size.

**Specifications**

Dimensions: Inside—7 1/2" long x 2 1/2" high x 2 1/4" deep. Wall Thickness: 1/8" lead all over. Finish: Gold invertex. Weight: 7 pounds.

**Model SC-722 \$42.00**



**DISPOSABLE XENON-133  
REBREATHING SYSTEM  
Model Xe-103**

- Disposable combination inhalation and trap system.
- Inexpensive, easy to use.
- No sterilization of mouthpiece required.

**Model DX-133 \$13.95**



**XENON-133  
GAS TRAP  
Model Xe-102**

- Eight charcoal chambers provide efficient xenon removal from expired air.
- Ideal Alternate to expensive exhaust systems
- Totally shielded
- Fifteen minute washout capacity per study
- Removes 98+% of all xenon exhaled

**SPECIFICATIONS:** 20" wide by 18" deep by 45" high. **Weight** — 150 pounds. **Number of chambers** — 8. **Power requirements** — 115V, 60 Hz, AC.

**Model XE-102** complete with water trap/adaptor plexiglass storage cover and hose — **PRICE: \$895.00.**

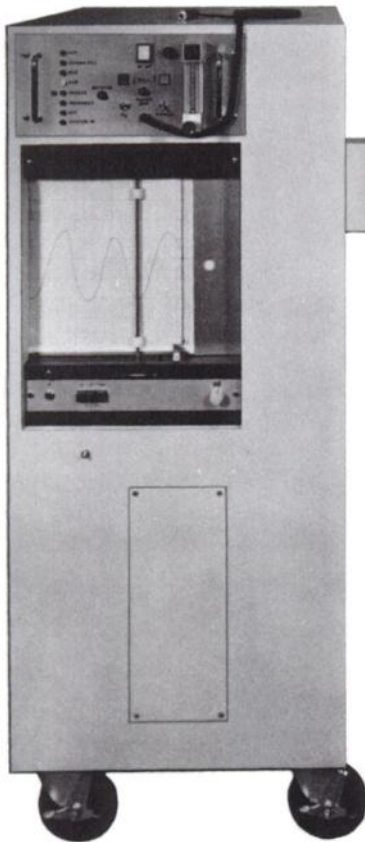


**ATOMIC DEVELOPMENT CORP.**

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# OUR XENON-133 LUNG FUNCTION UNIT *is the* **ONE and ONLY** **system that...**

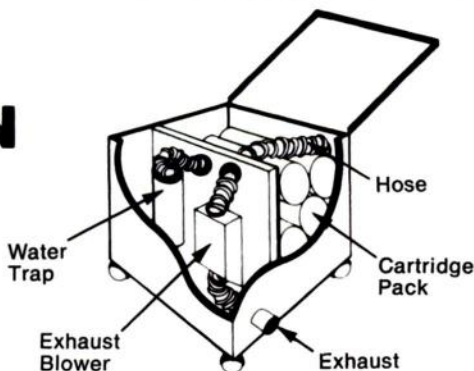
- Allows delivery of a direct bolus of radioactive gas.
- Permits re-use of xenon for the same patient study.
- Performs single breath, steady state and washout studies with any commercially-available form of xenon.

*These three features are built into our fully-automated, self-contained, mobile system.*

Before investing in a Xenon-133 Lung Function Unit, check out ours.

*Also available...an economical alternative to costly external vent systems.*

## "NONEX" XENON GAS TRAP



- Compatible with any Xenon-133 gas handling system.
- Disposable 5-cartridge tandem filter removes all radioactive xenon from exhaled air. Outlasts single-cartridge units.



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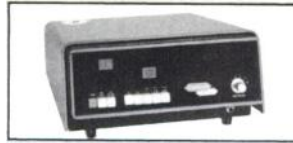
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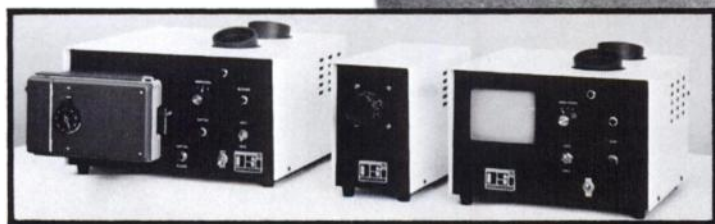




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<sup>1</sup> Hare, D.L., Hendee, W. R., Whitney, W.P., and Chaney, E. L.: Accuracy of Well Ionization Chamber Isotope Calibrators, *J. of Nucl Med* 15,1138-1141, 1974.

<sup>2</sup> Rosenblum, L. H., Bartky, W. S., and Shaifer, R. F., Jr., A technique for Measuring Extremely Low Ionization Chamber Currents Using MOS FET Circuitry. *IEEE Transactions On Nuclear Science*, NS-20, No. 1, Feb. 1973.

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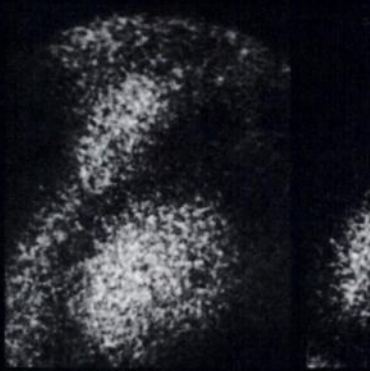
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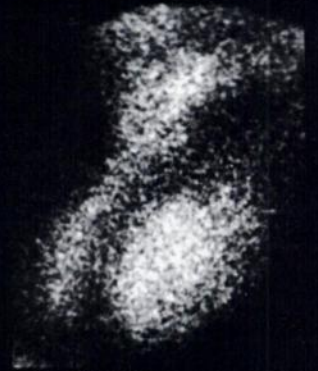
RAO, DIASTOLE



RAO, SYSTOLE



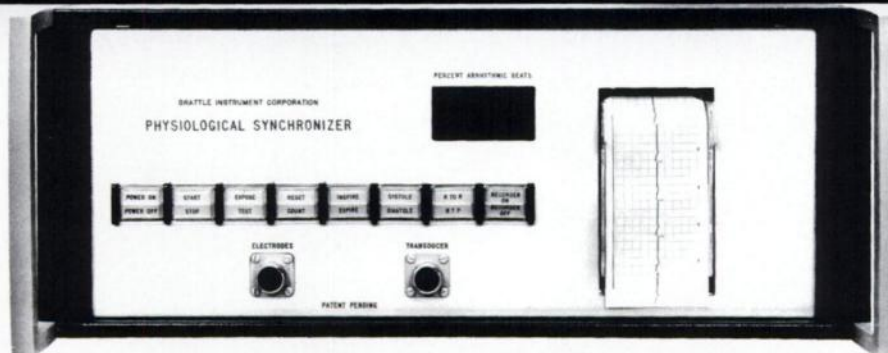
LAO, DIASTOLE



LAO, SYSTOLE

The RAO view shows akinesis of the lower antero-lateral wall and apex; and contraction of the inferior wall and high up the antero-lateral wall. The LAO view shows good contrac-

tion posteriorly and akinesis of the septal aspect of the chamber. Write or call for a portfolio of Brattle-gated lung, liver and heart studies.



## 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.

## Brattles lock onto patients — and stay locked on

It doesn't matter if the patient's heart rate and breathing depth change while he's under the colli-

mator because we stay right with him. Brattles contain an ECG to track heart, a plethysmograph to track respiration, and a tiny computer to deduce systole and diastole times from the heart signal. And because it's all built in, your operator need not be a physiologist.

## We don't cover our tracks — we print them

The panel lights flash whenever the patient reaches the selected phases; and pushing the RECORDER-ON button gets you an ECG tracing marked with breathing and camera-on times. You can verify function before, during and after exposure.

**A single pair of axillary electrodes captures both heart and breath**  
It's easy. And we supply disposable, pre-filled electrodes.

## Some Brattles have been in clinical use for over two years — very good hospitals have them

And we have lots of sample clinical pictures which we'll gladly show you. If you want the names of some users, we'll supply them, as well as references on effectiveness, reliability and safety, and a bibliography on ten years' worth of medical uses of synchronization.

## What's the next step? Write or call

Yes, write us. Or call. We'll send you data (on this and other models, applications) and the name and phone of our man in your area (39 states so far, and growing). He can show you samples, give you a demo and arrange for you to have a machine of your own. (This is the best part of our story.)

## Brattle Instrument Corporation

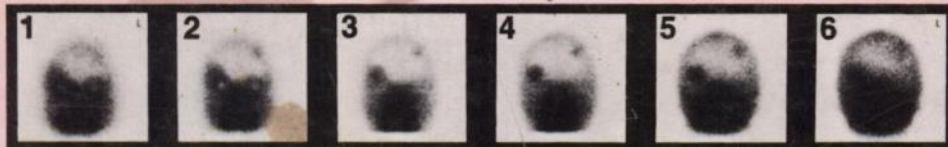
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