

You can see the difference.

2 ml Ampul

**AGGREGAL  
LUNGAL**

venous injection  
nded Adult Dose

ge Insert for

teral (1/10  
ore

# Lungaggregate™ Reagent [Aggregated Albumin (Human)] has eight important advantages for pulmonary scintigraphy.

## The first one is obvious:

### 1. Particles Presuspended in Solution.

Lungaggregate Reagent is the only Tc 99m-labeled MAA agent containing albumin aggregate particles that are already suspended in an aqueous solution. There is less chance for radiation exposure to the user since no visual inspection is required after radioactive labeling.

### 2. Soft Particles for Rapid Lung Clearance.

The uniform-size particles in Lungaggregate Reagent have a biological half-time of 4.77 hours.

### 3. Quick, Easy Preparation.

No thawing, reconstitution of lyophilized particles, or ultrasonic agitation are required.

### 4. Conveniently Stable.

Lungaggregate Reagent, labeled with Tc 99m, may be used up to 24 hours after preparation when stored as directed. A supply of Tc 99m-Lungaggregate Reagent is therefore available when emergency studies are required.

### 5. Multi-Dose Economy.

Each vial can be used to give several patient doses since Lungaggregate Reagent contains a preservative.

### 6. Imaging Excellence.

Tc 99m is the radionuclide of choice for scintigraphy. With a 4 mCi dose of Tc 99m-Lungaggregate Reagent, up to 500,000 counts can be

obtained in two to three minutes on a gamma camera.

### 7. High Lung/Liver Activity Ratio.

The ratio of lung to liver-and-spleen activity is over 10/1.

### 8. Patient Safety.

No adverse reactions have been reported. See the brief summary section below.

For a monograph summarizing clinical experience with Lungaggregate Reagent, or for additional information, call Medi-Physics toll free: (800) 772-2446 in California or (800) 227-0483 outside California.

## Brief Summary

(For full product information including method of preparation and administration procedure, see package insert.)

**Description:** Lungaggregate™ Reagent is a sterile, apyrogenic, buffered, preserved, aqueous preparation of aggregated albumin from human plasma.

**Indications:** For imaging regional pulmonary perfusion in the presence of clinically suspected regional ischemia.

**Contraindications:** This agent is contraindicated (1) in the presence of large right-to-left cardiovascular shunts which could allow direct entry of macroaggregates into systemic circulation; (2) in patients with cyanosis or evidence of severely restricted pulmonary blood flow, as in pulmonary hypertension; (3) in pregnant or lactating women and in patients

under 18 years, unless expected benefits outweigh risks involved.

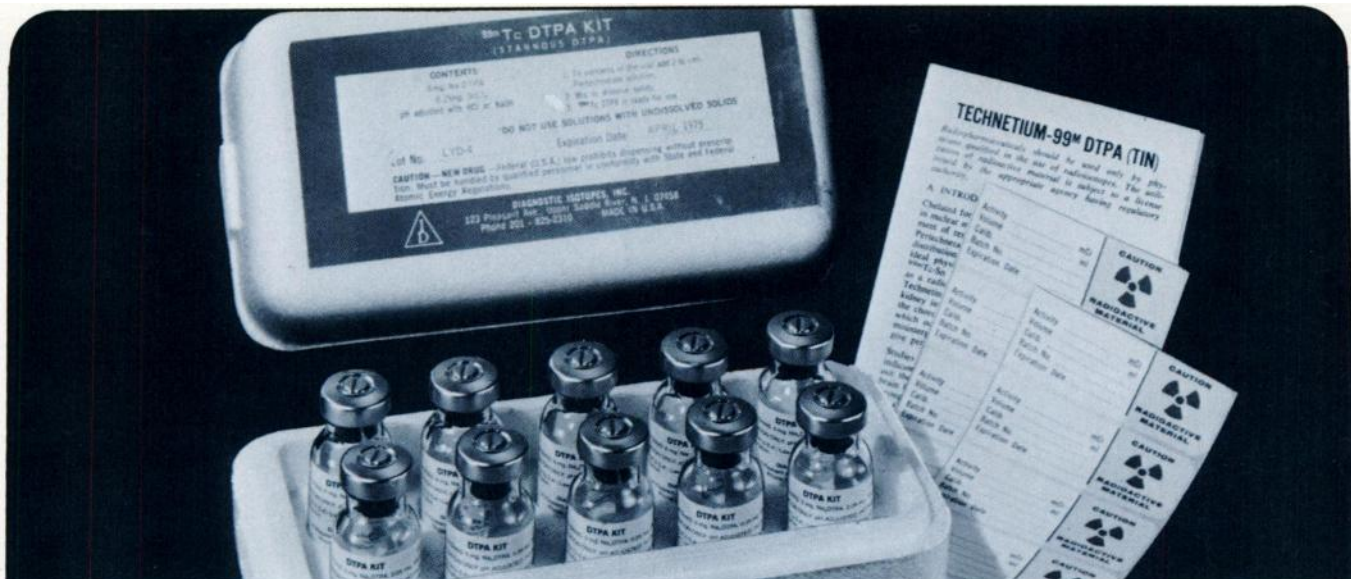
**Warnings:** Whenever protein-containing materials such as Tc 99m-labeled Lungaggregate Reagent are used in man, hypersensitivity reactions are possible. Have epinephrine, antihistamines, and corticosteroid agents available.

**Precautions:** Note—Follow aseptic techniques in preparing this agent to minimize the possibility of contamination with microorganisms. Take steps to minimize exposure to patient and attending personnel, including use of minimum dosage to achieve useful diagnostic data. Make injection slowly. Use an 18-21 gauge needle. After withdrawal from the vial the material should be administered promptly; also avoid aspirating blood and tissue fluids into the syringe.

**Adverse reactions:** None reported in over 4,000 patient studies.



medi+physics™



# Radiopharmaceuticals, need **not be** expensive.

The radiopharmaceuticals you depend on must be predictable and consistently pure, as well as efficacious. But radiopharmaceuticals need not be expensive.

Many of our kits and ready-to-use radiopharmaceuticals actually cost less than products of comparable quality and consistency.

Our kits which come in 10cc vials,

are easy to prepare, require no refrigeration, and have long shelf life. As an independent, pioneering company in the industry, we've managed to keep our standards up and our costs down.

Find out for yourself. Call us and speak directly with our President or Marketing Manager. Either one will be happy to discuss your needs.

## KITS:

- 99m Diphosphonate-Tin  
5mg Diphosphonate and 0.5mg Stannous Chloride
- 99m Tc Polyphosphate-Tin  
100mg Polyphosphate and 2mg Stannous Chloride
- 99m Tc DTPA-Tin  
5mg DTPA and 0.25mg Stannous Chloride

## Ready-to-use:

- Xenon-133 in Gas Phase  
10 or 20 mCi/Vial
- Xenon-133 in Saline  
10 or 20 mCi/Vial
- Selenomethionine (Se-75)  
0.250 mCi/Vial



**diagnostic isotopes incorporated**

123 Pleasant Avenue, Upper Saddle River, New Jersey 07458  
Telex 134408 • Phone: (201) 825-2310  
Call Toll Free — 800-631-7020

# Photographic Memory

You have the medical image in your head, but you can't hold your head up to the viewbox . . . or file it in the patient's records. You need a consistent photographic record of the display . . . hard copy. And its quality is critical, not underexposed, not overexposed.

That's where we come in . . . Dunn Instruments. We're the photographic memory for all the diagnostic equipment that forgot to provide high quality

hard copy cameras. Whatever the images in your head . . . radio-isotopic, ultrasonic, thermographic, or computerized axial tomographic . . . there's a Multi-format Dunn camera to give you their pictures. In our 5 camera family there's one to suit your special needs and budget.

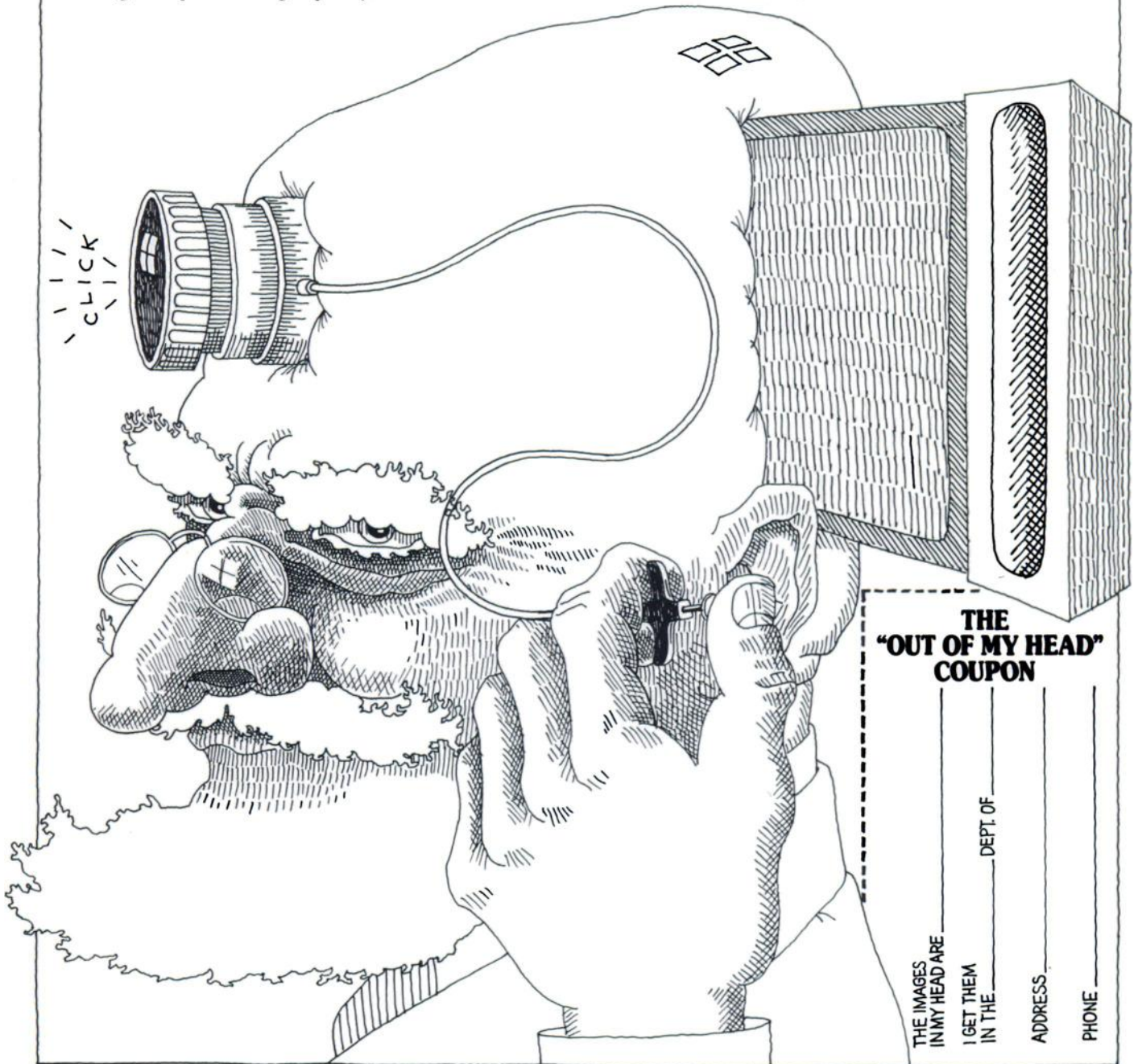
Put simply, we're hard copy specialists. We give you total recall of the elusive display with all the benefits of 8 x 10

x-ray film. Its availability in a wide range of contrast and grey scale. Its transparent nature and multi-format capacity. Its handy storage and group viewing virtues. And its economy.

Afterall, cameras are our business. So who would know more about putting what's in your head on film.

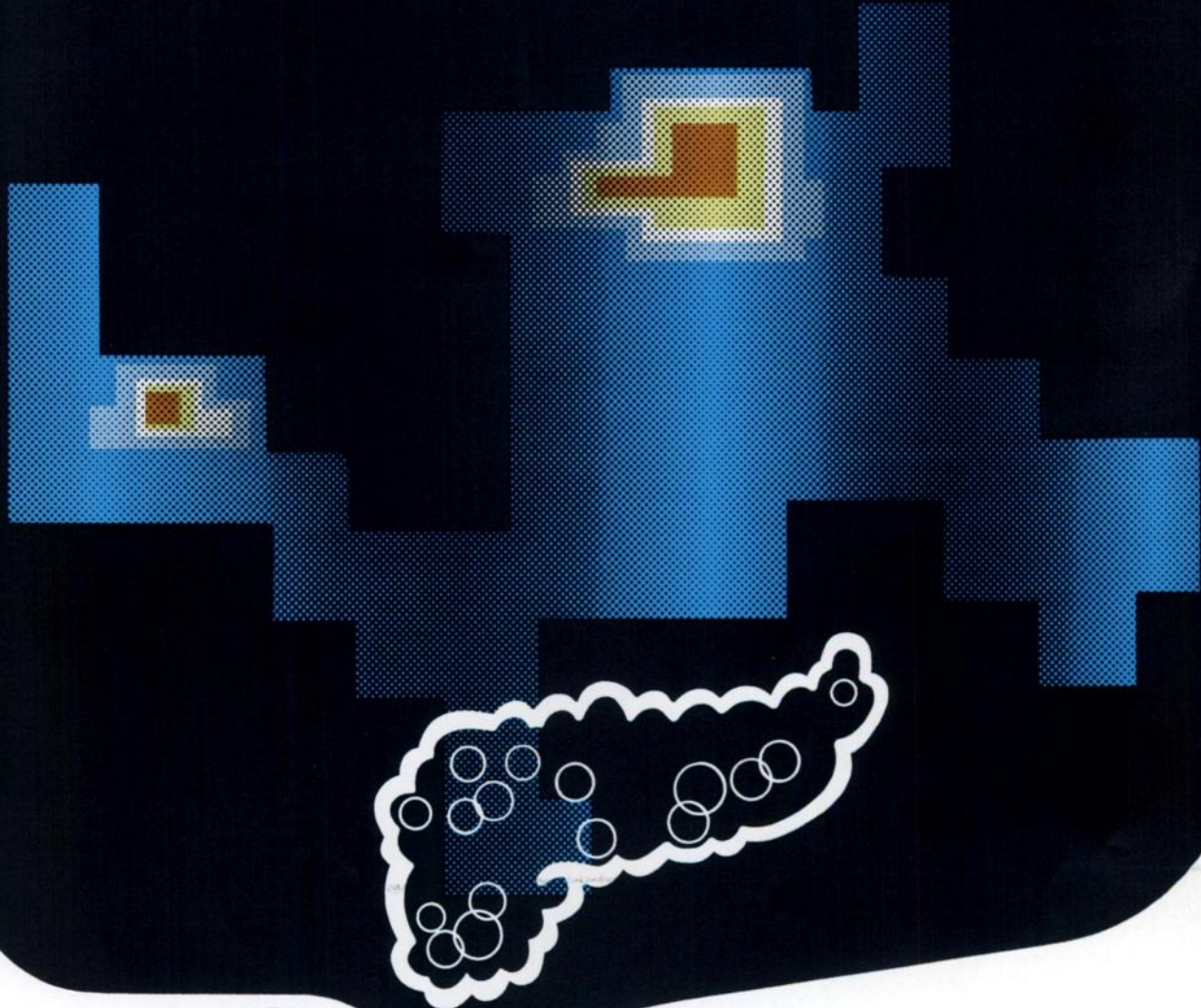
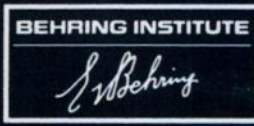
## Dunn Instruments, Inc.

52 Colin P. Kelly, Jr. Street  
San Francisco, Ca 94107  
(415) 957-1600



### THE "OUT OF MY HEAD" COUPON

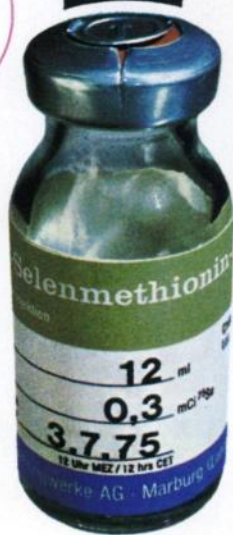
THE IMAGES  
IN MY HEAD ARE \_\_\_\_\_  
I GET THEM  
IN THE \_\_\_\_\_ DEPT. OF \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
PHONE \_\_\_\_\_



According to our own new method

# L-Selenomethionine (Se-75)

For pancreas scintigraphy as a simple detection method for space occupying lesions like tumors or cysts and alterations of parenchyme.



Already after 10 min maximum count rate  
At least 75% of the initial activity after 60 min

Low radiation dose for 100µCe in liver, pancreas and kidneys  
Whole body dose: 0.8rd  
High radiochemical purity (98%) at calibration date  
Recommended dose: 300µCi

### Specification

L-Selenomethionine-(Se-75)  
Less than 5% D-Selenomethionine.  
Concentration of activity:  
0.2 mCi Se-75/ml  
Specific activity:  
5-10 mCi Se-75/mg Selenomethionine

### Pack

L-Selenomethionine-(Se-75)

in physiological saline for injection (12ml beaded rim vial)

Order No.: SE-515

Calibration day: 1st of the month

Dispatch: daily from the 1st of the previous month on

Shelf life: 3 months from the day of first dispatch

### Contraindications

Radioactive material should be handled with special care to insure minimum radiation exposure to personnel and patients.  
Unless strictly indicated, radiopharmaceuticals should not be administered to pregnant or nursing women or to juvenile patients.

Ln 71185

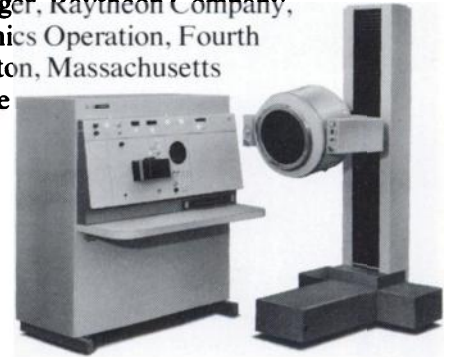
# Film Star.

With Cameray II, the new 37-tube scintillation camera from Raytheon, you get what you'd expect from a star: Performance. Total System Performance. TSP.

Any scintillation camera that's a top performer has to put a lot of good operating characteristics together. System and energy resolution. Uniformity. Linearity. Count rate. Price. Consider all these together and you'll find Cameray II at the top. There are other reasons too. Choice of 8 x 10 or 14 x 17 film size. Whole body capability. Full range of accessories. Together they add up

to TSP. And TSP is what makes Cameray II a film star.

See for yourself how Cameray II measures up. Let your Raytheon representative show you a TSP comparison chart. Then, if you choose the star, we'll give you a director's chair. For more information contact Jay Cone, Marketing Manager, Raytheon Company, Medical Electronics Operation, Fourth Avenue, Burlington, Massachusetts 01803. Telephone (617) 272-7270.



A large blue hexagonal graphic with a white border, centered on the page. Inside the hexagon, the text "New England Nuclear Radiopharmaceuticals" is written in white, bold, sans-serif font.

# **New England Nuclear Radiopharmaceuticals**

Call (617) 667-9531 for technical consultation or product information.

# 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

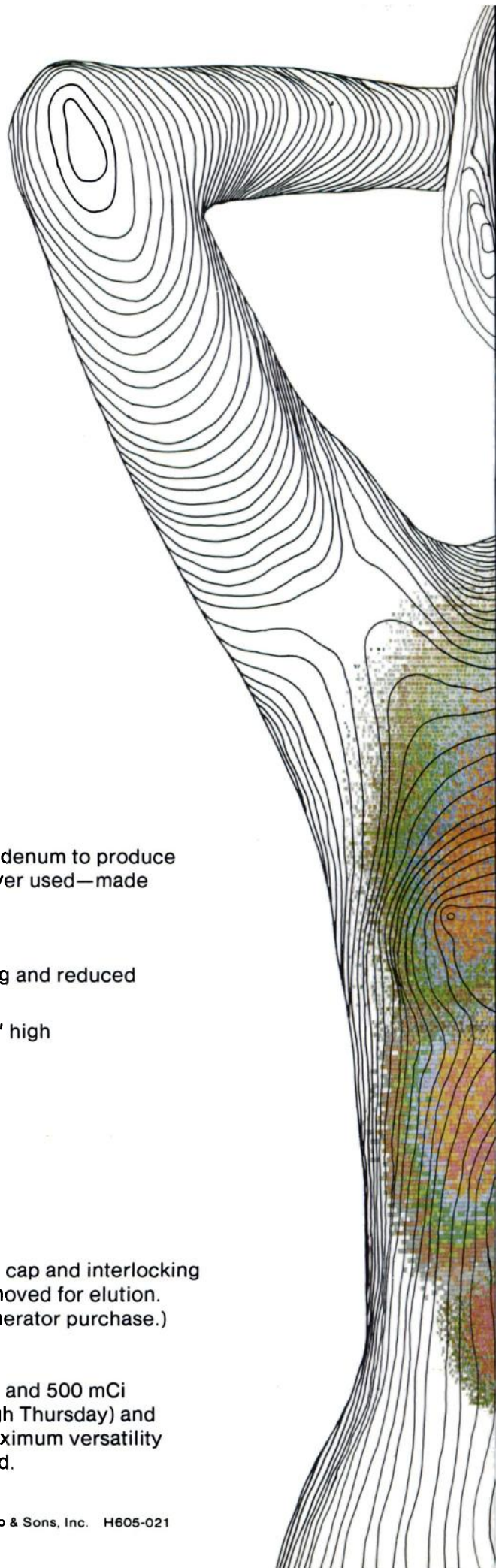
- Sets up in seconds
- Elutes in only 3 minutes after eluent vial has emptied

### Designed for safety

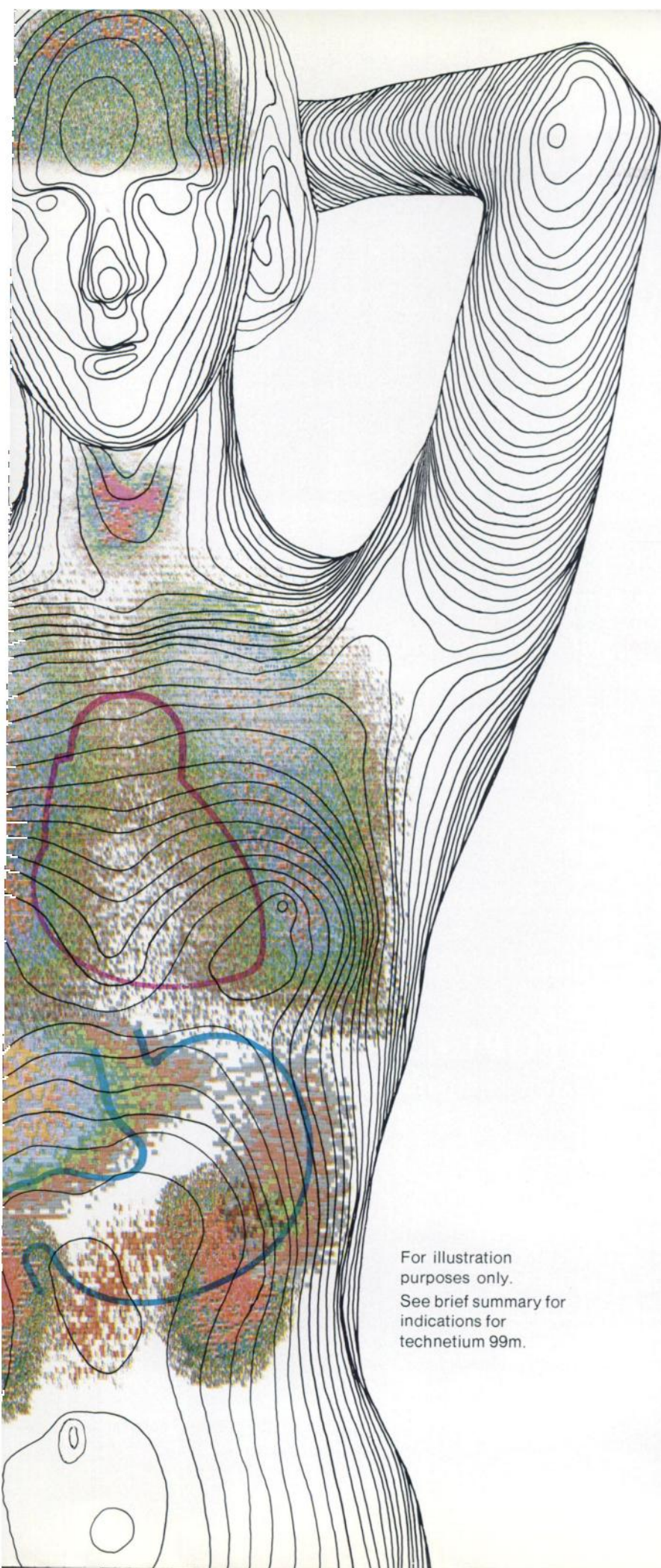
- No exposed tubing when eluting
- 1⅝" lead surrounds the MINITEC column
- 1½" of extra lead protection from MAXI-SHIELD™. Base, cap and interlocking half rings easily assembled on site . . . only the cap is removed for elution. (You get MAXI-SHIELD free with your first MINITEC Generator purchase.)

### 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**  
E. R. Squibb & Sons, Inc.  
Princeton, N.J. 08540

# varicam. . . . .

## PICTURES OF PEOPLE

**Monochrome display:** of multicycle grey scale with matrix blocks interpolated out.

Real labelled contours.

Line drawn isometrics with multiple perspective and far-side blanking.

Curves displayed as continuous lines with labelled axes positive and negative, linear or log scale.

**Paper hardcopy:** life size (or other scaling) of all except isometric display. Formatted reports, including billing if required, may be generated cheaply.

**Color display:** for viewing of successive dynamic frames, etc.

## PICTURES BY PEOPLE

**Easy use:** full plain text dialogue separated from display enables sophisticated use under *people* control without the usual secret code of computers.

**Protocols:** routine procedures may be chained into a protocol, with comment, for full automatic *machine* control.

**Identification:** it is impossible to have unidentified displays or to mix patient records in these systems.

## PICTURES FOR PEOPLE

**Dynamic:** flexible visualization and quantification of physiological processes promotes positive diagnoses.

**Static:** finally available, static images significantly better than the raw camera output promote earlier more effective clinical diagnoses.

## PICTURES FOR MORE PEOPLE

**Dual Cameras:** systems for two cameras with simultaneous dynamic capability without interference or record confusion.

**Multi-tasking:** the BETA executive automates the computer functions for clinical use, or permits the computer-orientated to access FORTRAN or ASSEMBLER and to multi-task up to 7 functions (memory size option permitting) simultaneously.

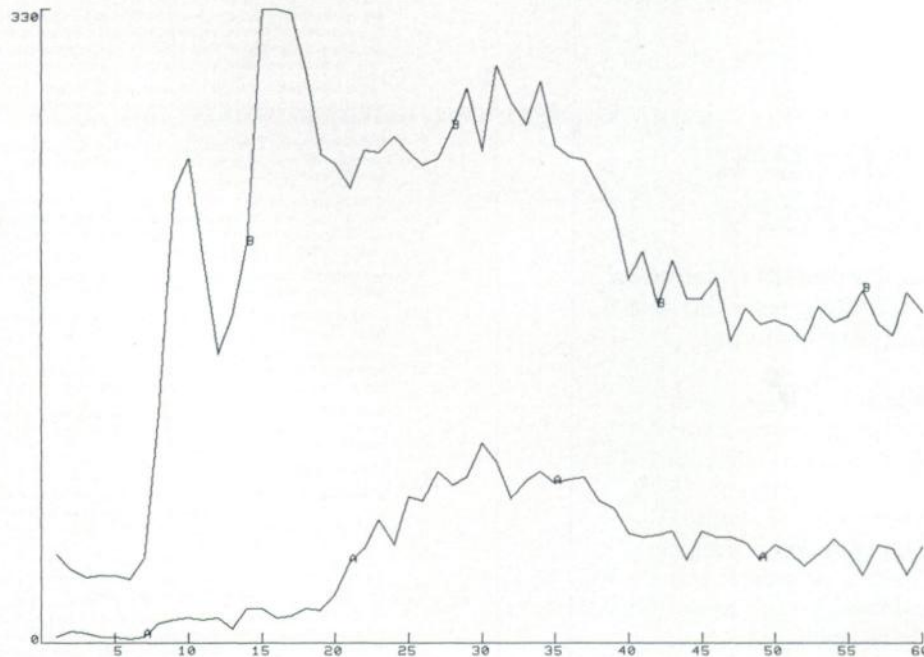
**Multi-accessing:** background tasks may be run such as radio immunoassay, E.K.G., radiotherapy planning, etc., simultaneously with gamma camera use (which has, of course, priority).

**System Growth:** a start may be made with a low-cost budget system. Large comprehensive systems may be built from standard modules.

## VOTE VARICAM

For clinical utility, ease of use, and computing power for your people.

# People Pictures for Clinical Clarity



STUDY NO. 1382/75      ,VIEW: 1  
ROBINSON-CRUSOE D  
1234567

BRAIN  
B: DYNAMIC CURVE OF ROI 4, OVER 60.0 SECS  
A: DYNAMIC CURVE OF ROI 3, OVER 60.0 SECS

Reproduction of hardcopy on Varian Statos® Printer/Plotter showing a Dynamic Brain Curve (Scale 1 : 2 )

At last! varicam,  
a sophisticated  
gamma camera  
computing system  
which not only  
provides a dynamic

capability but  
more significant  
static images  
without requiring  
computer  
expertise.



**varian associates**

Molesey Rd, Walton-on-Thames, England.  
Telephone: (093 22) 28971 Telex: 261351

611 Hansen Way, Palo Alto, California  
94303, USA. Telephone: (415) 493-4000



## Precautions plus for nuclear safety

A single dependable source for all radiation warning and detection requirements.

Portable survey instruments, including side and end window G-M tubes, scintillation survey monitors, and personal beta-gamma alarms. Signs and protective devices, such as pressure-sensitive and gummed labels, cardboard and metal posters, warning ropes, kits, gloves, boots, coveralls, lead bricks and containers. Dosimeters that meet all ranges, requirements and ANSI specifications — direct reading X-ray and gamma, and neutron. Hundreds of other items, all competitively priced, available immediately. Send for our complete catalog.

**BAIRD-ATOMIC**

NUCLEAR DIVISION  
125 Middlesex Turnpike  
Bedford, Mass. 01730  
(617) 276-6208

## Aggregated Albumin (Human) Kit

**DESCRIPTION** - The kit contains 6 sterile vials containing 9-11 mg. of pyrogen-free aggregated albumin (human), 0.67 - 0.83 mg. stannous chloride, and 18 mg. sodium chloride. When sterile, pyrogen-free sodium pertechnetate Tc99m is added to the vial, technetium-labelled macroaggregated human serum albumin (Technetium MAA Tc 99m Technetium Macroaggregates) is formed. The particles of aggregated albumin in the kit are formed by the denaturation of Normal Serum Albumin (Human) USP through heat and pH adjustment. Sodium hydroxide of hydrochloric acid may be present in variable amounts. At least 95% of the macroaggregated particles are between 10 and 100 microns in size, the great bulk, (as seen on a microscope slide) being an average of 10 to 70 microns. None are larger than 150 microns. Vial counts indicate that each vial contains  $6.8 \pm 0.8$  million particles per mg. The labeling efficiency is essentially quantitative and the bound Tc-MAA remains stable *in vitro* throughout the useful period after preparation.

Application has been filed with the U. S. Nuclear Regulatory Commission for distribution of this reagent kit to persons licensed pursuant to §35.14 and §35.100, Group III of CFR Part 35, or under equivalent licenses of agreement states; and is still pending.

**ACTIONS** - Following intravenous injection, Technetium MAA Tc 99m is rapidly transported by the blood stream to the lungs. The aggregates do not enter the tissues of the lungs, but remain in the pulmonary vasculature. When pulmonary blood flow is normal, the material is carried throughout the entire lung field, when pulmonary blood flow is diminished or obstructed by a disease process, the particles are correspondingly prevented in part or in whole from passage through the affected portion of the pulmonary vasculature.

Technetium Macroaggregates remain in the lungs for variable amounts of time depending on particle size. The particles disappear from the lungs in exponential fashion with the larger-sized aggregates having the longer half-life; particles ranging from 10 to 90 microns in diameter usually have a half-life of 2 to 8 hours. Apparently, the aggregates are temporarily trapped by the narrow pulmonary capillaries where the particles are broken down until they are small enough to pass. In rats 4.3% of the Tc 99m remains in the lungs after 24 hours.

Although the particles of macroaggregates remain for a time in the pulmonary capillaries, they do not appear to interfere even temporarily with pulmonary blood flow or ventilation in the dosage required for lung scanning. This is evidenced by the fact that these doses do not produce any respiratory distress nor any tachycardia, even in patients severely ill with pulmonary and/or cardiac disorders.

Once the albumin particles leave the lungs, they are carried to the liver, where they are removed from the blood stream primarily by the Kupfer cells. There, the particles are phagocytized and rapidly metabolized.

**INDICATIONS** - Scintillation scanning of the lungs with Technetium Macroaggregates is indicated as an adjunct to other diagnostic procedures whenever information about pulmonary vasculature is desired. The most useful clinical applications of lung scanning have been outlined by one investigator: 1) The diagnosis of pulmonary embolism; 2) differentiation of local conditions such as bullae or cysts from diffuse pulmonary disorders; 3) determination of the degree of pulmonary vascular obliteration in parenchymal disease; and 4) evaluation of the patient's ability to withstand pulmonary surgery.

Perhaps the most frequently useful indication for the lung scan has been the early detection of pulmonary emboli. The lung scan is uniquely able to demonstrate the existence of an embolism before radiological signs become apparent. Although an area of increased radiolucency on the chest film may suggest an embolism, X-ray findings do not usually become apparent until the embolism has produced signs of ischemia or infarction. Once an embolism has been diagnosed, information obtained from the scan is of value in determining the desirability of surgical embolectomy, while subsequent scans provide information on the effectiveness of surgical or anticoagulant therapy.

Lung scanning is similarly helpful in the diagnosis of various types of malignancies affecting the lungs. Again, scanning is of value in locating the affected areas, in determining the need for and probable effectiveness of surgery or of radiation therapy, and in following up the benefits of treatment.

Useful information is also provided by the scan in the diagnosis or evaluation of other pulmonary problems, such as pneumonia, atelectasis pleural effusion, pulmonary tuberculosis, parenchymal disease, emphysema and chronic asthmatic bronchitis.

**CONTRAINDICATIONS** - The presence of right to left shunts which would allow Technetium MAA Tc 99m injected in a systemic vein to reach a systemic artery is a contraindication to the use of this material. Particulate material such as Technetium MAA Tc99m should not be administered to patients with evidence of severe restriction to pulmonary blood flow such as may be present in pulmonary hypertension.

**WARNINGS** - Technetium MAA Tc99m 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 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.

**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 staff and occupational workers.

To insure the integrity of this product use needles in gauge sizes 18 to 21.

**ADVERSE REACTIONS** - No adverse reactions have been observed with this product. However Vincent et al (3) have recorded the only immediate and fatal reaction following infusion of Tc 99m macroaggregates (technetium labelled macroaggregates). This was in a seven-year-old child who had severe pulmonary vascular disease. The exact size of the particles used was not disclosed, and in the summary of the publication "it is suggested that this type of reaction will continue to be rare and that it will probably be somewhat predictable on the basis of clinical and laboratory evidence of severe pulmonary hypertension. Such a patient might be scanned safely by strict control of macroaggregates dose, size range and mean particle size".

The literature has recorded two adverse reactions to lung scanning with I-131 labelled macroaggregates. Wagner et al (4) observed that urticaria developed in a young girl several hours after lung-scanning procedure with Iodine-131 macroaggregates where Lugol's solution was administered to block the thyroid gland. The subject had a history of angio-edema. The reaction may have been caused by either material. Dworkin et al (5, 6) reported "I-131-labelled macroaggregated albumin highly suspect as the causative agent" in the death of a woman who was scanned for the possibility of demonstrating pulmonary embolism. With a 2 1/2-year history of adenocarcinoma of the breast she had severe and rapidly progressive edema. Prior to scanning, the nasal administration of oxygen was interrupted. "Within 1 or 2 minutes after injection of 300 uCi of I-131 labelled macroaggregates albumin (11 mg. of albumin or 0.219 mg. per kilogram of body weight) she complained of faintness and became cyanotic, diaphoretic, and agitated with distended neck veins. The initial pulse rate of 50 rose to 140 with a fall in blood pressure to 100/30. Oxygen therapy relieved the profound dyspnea and cyanosis. An electrocardiogram 40 minutes later was compatible with acute cor pulmonale. Within several hours she had returned to her pre-scan status, but on the next day the temperature rose, dyspnea increased and she died 26 hours after the lung scan. We have continued lung scanning but limit the albumin to 0.020 mg. per kilogram, reject lots with more than 15 percent of particles over 40 microns and require two minutes for injection".

More recently, Williams (7) has reported a severe reaction immediately after injection of macroaggregated albumin (MAA) particles followed by death six hours later (while the patient was undergoing right-heart catheterization). Like those previously reported, it occurred in a patient with severe chronic pulmonary hypertension due to disease of the pulmonary vascular bed. The patient died in right heart failure. Post-mortem examination revealed "severe atrophy and thickening of all the pulmonary arteries but no macroscopic evidence of emboli. The right heart was hypertrophied and dilated".

Transient neurological complications following intra-arterial injection of I-131 labelled macroaggregates have been reported (3).

### REFERENCES

1. Surprenant E. L., Webber M. M., Bennett L. R., *International Journal of Applied Radiation and Isotopes*, 20, 77-79 (1969).
2. De Paoli T., Hager A., Micolini J., *International Journal of Applied Radiation and Isotopes*, 17, 551-556 (1966).
3. Vincent, W. R., Goldberg, S. J. and Disilets, D., *Radiology* 91, 1181-1184 (1968).
4. Wagner, H. N., Jr., et al., *N. Engl. J. Med.* 271, 377-384 (1964).
5. Dworkin, J. J., Smith, J. R. and Bull, F. E., *N. Engl. J. Med.* 275, 376 (1966).
6. Dworkin, J. J., Smith, J. R. and Bull, F. E., *Am. J. Roentgenol. Ther. Nucl. Med.* 98, 427-433 (1966).
7. Williams, J. O., *Brit. J. Radiol.* 47, 61-63 (1974).

CIS Radiopharmaceuticals, Inc.



## There goes our MAA reputation again.

That's the way we feel about every shipment that leaves our plant. Every time we ship your order our reputation for safety and high quality is on the line — and we recognize it.

Check our reputation on our MAA 6-pack Kit

- Freeze dried
- No freezing necessary
- Long, six month shelf life from date of manufacture
- Easy to prepare
- Short tagging time
- Use up to 100mCi of Tc99m
- Use as much as 5ml Tc99m Pertechnetate solution
- May be used for 8 hours after preparation
- 99% plus labelling efficiency
- Same-day service for increased orders
- Toll-free number 800-225-1145 for orders and service



**CIS Radiopharmaceuticals, Inc.**

5 DeAngelo Drive, Bedford, Ma. 01730

Telephone: (617) 275-7120; outside Massachusetts (800) 225-1145

TELEX 94-9465

Use our toll-free number to order our MAA kit, any of our radiopharmaceutical kits or our new imaging kit brochure. We will ship to you promptly.

Send complete information on:

- Technetium Sulfur Colloid Kit
- Technetium DTPA(Sn) Kit
- Technetium Pyrophosphate(Sn) Kit
- Aggregated Albumin (Human) MAA Kit

Please ship me \_\_\_\_\_ Kits. My order number is \_\_\_\_\_.

NAME \_\_\_\_\_

DEPT. \_\_\_\_\_ TEL ( ) \_\_\_\_\_

ORGANIZATION \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

# New England Nuclear Radiopharmaceuticals

**INDICATIONS:** Pertechnetate Sodium Tc 99m is used for brain imaging, thyroid imaging, salivary gland imaging, placental localization and blood pool imaging.

**CONTRAINDICATIONS:** To date, there are no contraindications to the use of Pertechnetate Sodium Tc 99m.

**WARNINGS:** This radiopharmaceutical should not be administered to pregnant or lactating women 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 the 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 governmental agency authorized to license the use of radionuclides.

**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.

**IMPORTANT:** Refer to Operating Instructions on the proper use of the New England Nuclear Generator. These instructions are enclosed with each generator.

**ADVERSE REACTIONS:** To date, no adverse reactions based on the use of this agent have been reported.

**DOSAGE AND ADMINISTRATION:** Pertechnetate Sodium Tc 99m is usually administered by intravenous injection but can be given orally. The dosage employed varies with each diagnostic procedure.

The suggested dose range employed for various diagnostic indications in the average patient (70 kg) is:

Brain Imaging:	10-20mCi
Thyroid Imaging:	1-10mCi
Salivary Gland Imaging:	1-5mCi
Placental Localization:	1-3mCi
Blood Pool Imaging:	10-20mCi

Note: Up to 1 gram of reagent grade potassium perchlorate in a suitable base or capsule may be given orally prior to administration of Pertechnetate Sodium Tc 99m injection for brain imaging, placental localization and blood pool imaging.

The patient dose should be measured by a suitable radioactivity calibration system immediately prior to administration.



## Have a good M,T,W,Th,F&S.

M begins with a handy lifting handle and a quick peel-off top. No pre-assembly. From then on you simply charge and elute. Any day you can get extra high concentrations with fractional elutions (useful on Th, F, and S to compensate for radioactive decay since M).

Every generator is tested for sterility, non-pyrogenicity, Mo 99 breakthrough, alumina breakthrough, and functionality.



### **New England Nuclear Radiopharmaceutical Division**

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

Canada: NEN Canada Ltd, Dorval, Quebec. Tel: 514-636-4971  
Europe: NEN Chemicals GmbH, D6072 Dreieichenhain, W. Germany,  
Siemensstrasse 1. Tel: Langen 06103-85035

# FRONTIERS

were meant to be explored



## SEE FOR YOURSELF:

### *New Volume II*

## **CURRENT CONCEPTS ON RADIOLOGY**

This is the 2nd volume in a biennial series which draws together the widely scattered experiences of authorities in this dynamic specialty. Twenty well-known radiologists, each with special expertise, explore topics on the frontiers of clinical diagnostic radiology. Extremely practical, these discussions encompass: new concepts in diagnostic efficacy and operations management in radiology; electronic imaging; x-ray interpretation, its limits and prospects; the role of emergency nuclear medicine procedures; and more. You'll find chapters on optimizing chest x-ray technique by Dr. Bob Gayler; studies on the use of IVP by Drs. John Thornbury, Dennis Fryback, and Ward Edwards; and the role of radiology in asbestos-related disease by Drs. Heber MacMahon and John Forrest. Discover the most recent research, techniques, and concepts in diagnostic radiology with this exciting new volume.

Edited by E. James Potchen, M.D.; with 20 contributors. February, 1975. 328 pages plus FM I-XIV, 6 $\frac{3}{4}$ "  $\times$  9 $\frac{3}{4}$ ", 354 illustrations. Price, \$35.00.

New 2nd Edition! **TECHNOLOGY AND INTERPRETATION OF NUCLEAR MEDICINE PROCEDURES.** By D. Bruce Sodee, M.D., F.A.C.P., F.A.C.G., A.B.N.M. and Paul J. Early, B.S. October, 1975. Approx. 544 pages, 7"  $\times$  10", 828 illustrations in 187 figs. About \$26.50.

New 2nd Edition! **TEXTBOOK OF NUCLEAR MEDICINE TECHNOLOGY.** By Paul J. Early, B.S.; Muhammad Abdel Razzak, M.B.B.Ch., D.M., M.D. (Cairo), F.A.C.P. (U.S.A.); and D. Bruce Sodee, M.D., F.A.C.P. August, 1975. 496 pages plus FM I-VIII, 7"  $\times$  10", 412 illustrations. Price, \$18.95.

**MOSBY**  
TIMES MIRROR

THE C V MOSBY COMPANY • 11830 WESTLINE INDUSTRIAL DRIVE • ST. LOUIS, MISSOURI 63141



# Rheumatic diseases: a diagnostic problem?



Diagnosis of individual rheumatic diseases can present problems. Our simple test, the anti-DNA Kit, can give vital information to aid that diagnosis.

The kit provides the first standardized assay to consistently and reliably measure anti-DNA antibodies. High circulating levels of these antibodies are closely linked with systemic lupus erythematosus (SLE). In doubtful cases, the kit offers excellent discrimination

between SLE and rheumatoid arthritis and is particularly valuable as a follow-up to ANF tests. Results show that the kit is also useful as a means of monitoring disease activity, providing the physician with guidance on drug therapy.

The kit is a simple radioassay – a matter of routine for any clinical laboratory with a gamma counter. Please write or 'phone for further information.



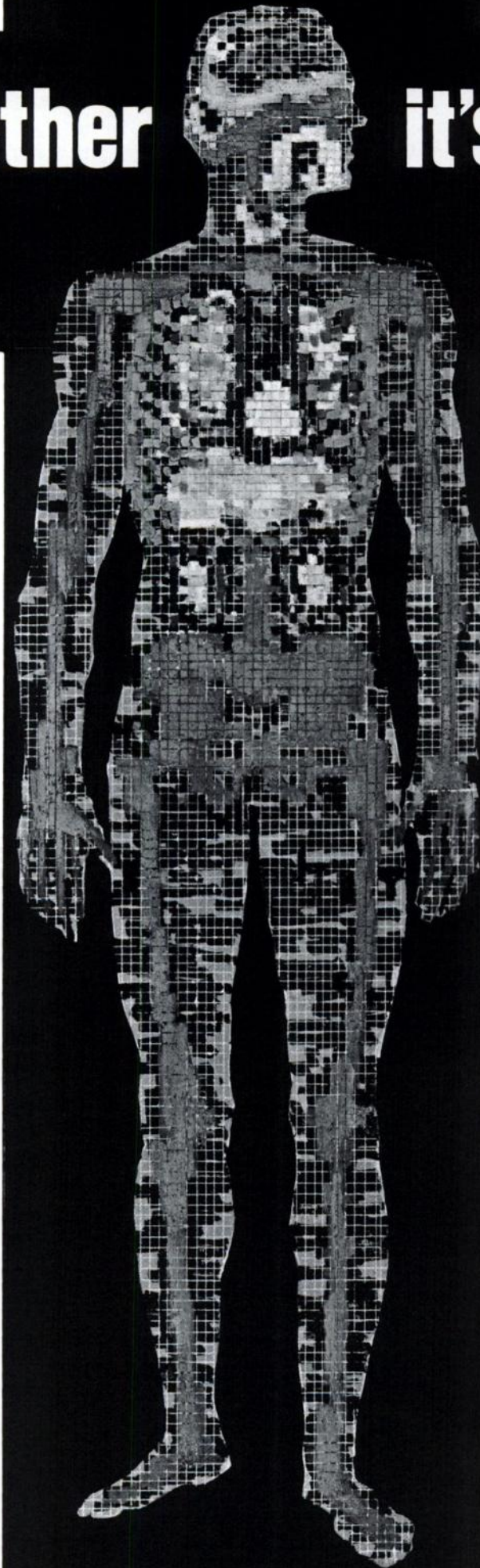
**The Radiochemical Centre  
Amersham**

## Anti-DNA kit

The Radiochemical Centre Limited, Amersham, England. Tel: 024-04 444.  
In the Americas: Amersham/Searle Corp. Illinois 60005. Tel: 312-593-6300.  
In W. Germany: Amersham Buchler GmbH & Co., KG, Braunschweig. Tel: 05307-4693-97.

0395

# Whether it's *in-vivo* or



### **Automatic RIA Gamma Counter**

180-1260 sample capacity. Accepts most standard sized test tubes. Rack/tray based to save handling time. Built-in calculator-printer. Optional teletype printout/punchout.



### **NEW Gamma Cameras**

Two gamma cameras to choose from: one designed to give you exceptional image resolution — the second, an economy model. The short dead time of both give you high information density even with short frame times. Maximum count rates up to 200,000 cps.



### **Whole Body Imaging Accessory**

Space saving imaging accessory greatly extends the camera's usefulness.

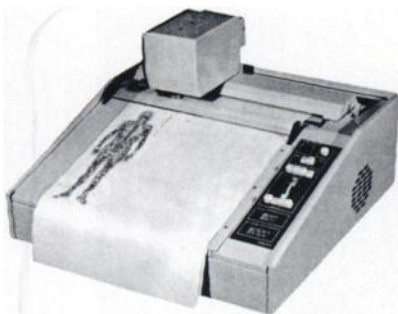
# *in-vitro*.. Elscint gives maximum performance at minimum price.

## IMAGING ACCESSORIES



### NEW LOW COST Videodisplay Processor

Full 16 color or 32 gray shades, and on-line or off-line display of camera or scanner images facilitates accurate patient diagnosis. Includes memory for data study or manipulation, photography and printout on Elscint color printer. Easy to use. Interfaces to rectilinear scanners and gamma cameras.



### Color Dot Printer

Provides full color hard copies of images, printed on regular paper, either minified or at actual body size.

## DATA PROCESSING



### Dynamic Image/Function Processor

Advanced version of Elscint's Videodisplay Processor. Adds large dual disc memory for extensive non-destructive data processing. Displays time functions in real time; provides up to 8 regions of interest; eliminates artifacts and non-uniformities. Upgradable to Analyzing Image Processor.

### Analyzing Image Processor

Most sophisticated image processing system available today. Offers all capabilities of our Dynamic Image Processor plus many other features needed for in-depth study of renal functions, regional cerebral blood flow, cardiac and many other studies. Simultaneous acquisition and processing is a standard feature.

## Whole Body Scanner

Scan the whole body or any part of the body with pushbutton ease. Every desirable performance feature is built into these scanners. You'll get long dependable service at an unbelievably low price. A full range of options meets every need.



# elscint inc.

470 Commercial Ave., (P.O. Box 297), Palisades Park, NJ 07650; Telephone (201) 461-5406. Midwest office: P.O. Box 128, Matteson, IL 60443. Telephone (312) 747-0850.

In United Kingdom: Elscint GB, 5 Priestley Way, Crawley Sussex RH102DW. Telephone: Crawley (0293) 21285/6/7. In France: Elscint S.A.R.L., 11 Rue Edouard-Lefebvre 78000 Versailles, Telephone: 950-2767. In Germany: Elscint GMBH, Freudenbergstrasse 27, 62 Wiesbaden-Schierstein, Telephone: (06121)2786. In other countries: Write to Elscint Ltd., P.O. Box 5258, Haifa, Israel for the office in your country.

**Our Coast-to-Coast service organization provides rapid maintenance on all instruments whenever required.**

# INTRODUCING THE FINEST <sup>125</sup>I FOLATE KIT

## FEATURING

- No serum blanks
- Range 0.1 - 32 ng/ml
- Will measure Folate concentration in whole blood
- ½ hour incubation

*Diagnostic Products Corporation, the prime producer of the <sup>3</sup>H Folate Assay Kit, has developed an <sup>125</sup>I Folate Kit with all the characteristics that have enabled us to maintain our leadership in the Folate RIA market. The unexcelled simplicity, accuracy and reproducibility of our tritiated products is characteristic of our <sup>125</sup>I Folate, T-3 RIA, T-4 RIA.*

### T-4 RIA

- No extraction
- Range 0.3 - 32 µg/100ml
- 30 minute incubation
- Cross-reactivity with T-3 - 0.015%

### T-3 RIA

- No extraction
- Range 10 - 800 ng/100ml
- 30 minute incubation
- Cross-reactivity with T-4 - 0.002%

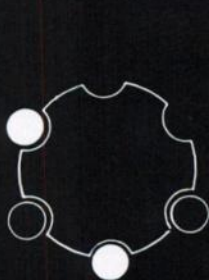
### Also Available:

- [<sup>3</sup>H] Aldosterone  
(No Chromatography)
- [<sup>3</sup>H] Cortisol RIA
- [<sup>57</sup>CO] Vitamin B-12
- [<sup>3</sup>H] Digoxin
- [<sup>3</sup>H] Cyclic AMP
- [<sup>3</sup>H] Cyclic GMP

**Diagnostic Products**  
CORPORATION

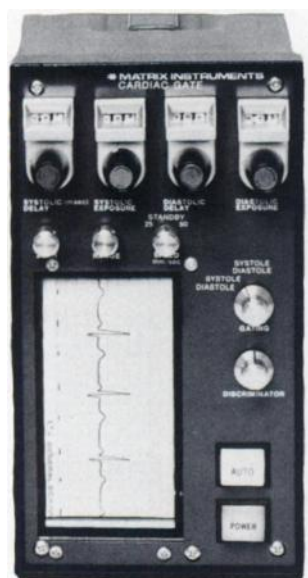
12306 Exposition Blvd., Los Angeles, Calif. 90064

(213) 837-1219 - 837-2331

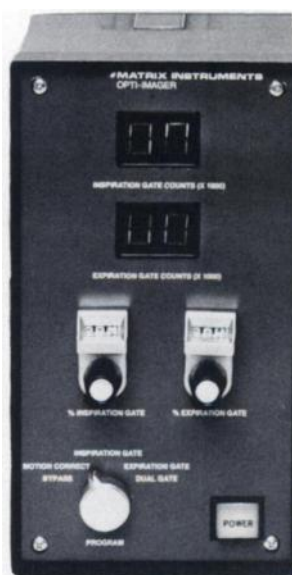


# State of the art in cardiac and respiratory synchronization.

**Cardiac Gate**



**Opti Imager**



Cardiac Gate is designed to synchronize the cardiac image exposure with predetermined phases of the cardiac cycle.

The Cardiac Gate has two modes of operation: manual and automatic. In the manual mode, delay and exposure time parameters are set manually, using the R wave of the electrocardiogram as a reference. In the automatic mode, microprocessor circuitry automatically tracks the cardiac cycle and computes the position of end-systole and end-diastole. In the automatic mode, end-systole and end-diastole exposures are made without any calibration settings.

The dual gating operation mode allows recording of both end-systole and end-diastole simultaneously in a split screen two image format.

The cardiac cycle can even be divided into nine equal time segments and the image corresponding to each displayed simultaneously in a nine image format.

The Cardiac Gate includes a complete electrocardiograph module. The built in heated stylus strip chart recorder records both the ECG trace and the gating intervals.

The Cardiac Gate provides both ECG and gating outputs for computer interface.

Opti-Imager is designed to provide an organ image with effects due to respiratory motion minimized. Opti-Imager has two distinct modes of operation: continuous motion correction and respiratory gating. In the continuous motion correction mode, the motion of the organ is tracked and corrected electronically without the need to attach any sensors to the patient. The distribution of counts within the organ image is monitored and corrections are applied to continuously shift the image before it is displayed to compensate for organ motion. Correction is made for motion in both the X and Y direction. Thus, the gamma camera is not gated and all the counts provided by the detector are recorded. The time required to attain a statistically satisfactory image is the same for both a motion corrected and an uncorrected image. In the gating mode, inspiration plateau and expiration plateau images are recorded. The dual gating operation mode allows recording of both inspiration and expiration plateau images simultaneously in a split screen two frame format. Dual scalers record the number of counts in each image.

The Cardiac Gate and Opti-Imager can be synchronized to yield a combination of both cardiac and respiratory gating. Mail coupon to receive detailed information and sample clinical studies.

## #MATRIX INSTRUMENTS

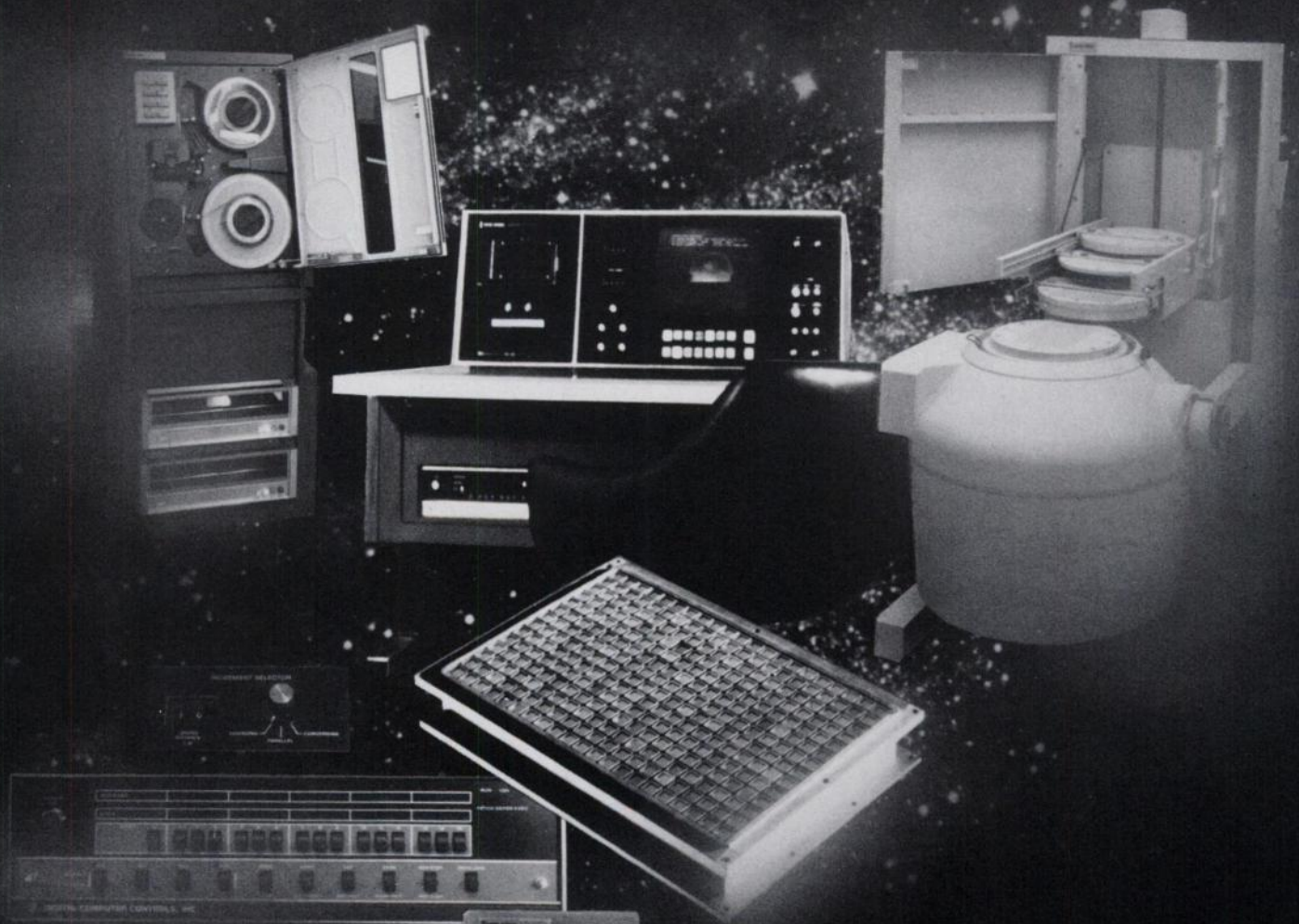
1 Ruckman Rd.  
Closter, N.J. 07624  
(201) 767-1750

**Mail coupon to receive sample clinical studies.**

Matrix Instruments Inc. 1 Ruckman Rd. Closter, N.J. 07624  
Please send Cardiac Gate and Opti-Imager literature and sample studies

Name \_\_\_\_\_ Title \_\_\_\_\_  
Hospital \_\_\_\_\_ Dept. \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_  
State \_\_\_\_\_ Zip \_\_\_\_\_  
Phone \_\_\_\_\_

# The Quiet Evolution of a Unique Gamma Camera



## The New SYSTEM SEVENTY SEVEN from Baird-Atomic

For the past forty years, Baird-Atomic has set the pace in high-technology instrumentation for a wide variety of applications, and especially for nuclear medicine. The accent has always been on innovation — taking a fresh look at each problem and devising an original way to solve it. Our original scanning gamma camera, System Seventy, was an ideal example.

*In the earliest stages of the system's design we realized that existing mono-crystal systems had inherent disadvantages which would inhibit their use as clinical studies became more sophisticated and higher count rates became necessary for statistical accuracy and integrity. The answer was a multi-crystal detector. The decision to design and build it — a long, difficult, and expensive process — became the critical step in the evolution of a unique gamma camera system versatile enough to accommodate every future change in clinical procedures.*

That was only the first step, however. So many refinements and improvements have since been made that we've given it a new name. *System Seventy Seven.*

Briefly noted, some of the new features: A fully comprehensive program of nuclear medicine software, eliminating the time consuming work of converting data to clinically useful formats. An image processing console that analyzes 200,000 observed counts per second, at any energy level, with a minicomputer as its storage and data manipulation base. Computer controlled bed motion, virtually eliminating collimator dead space and optimizing resolution for uniform, always reproducible imaging. A computer console with pushbutton simplicity, one that backlights only legitimate subsequent operations.

There are more. And more details about these. They're all described in our new brochure about the new System Seventy Seven. You can join the evolution simply by sending or calling for it.



**Home Office:** Baird-Atomic, Inc.,  
125 Middlesex Turnpike, Bedford, Mass. 01730  
Tel. (617) 276-6000 — Telex: 923491 —  
Cable: BAIRD COBFRD

**International Sales and Service:**

**BAIRD-ATOMIC** (Europe) B.V. Veenkade 26-27-28a, The Hague, Holland

Telephone: (070) 603807. Telex: 32324. Cable: BAIRD CO HAGUE

**BAIRD-ATOMIC, LIMITED**, East Street, Braintree, Essex, England

Telephone: Braintree 628. Telex: 987885. Cable: BAIRTOMIC

**BAIRD-ATOMIC**, Ind. E Com., Ltda., Av. Paulista, 2073-14 c/1412, 01311 Sao Paulo, SP, Brazil

Telephone: (011) 289-1948. Telex: 01122401. Cable: BAIRDATOMIC SPAULO

Photo insert: Wall motion of the left ventricle, a typical example of the kind of selective imaging possible with System Seventy Seven's unique data processing capabilities. Zones of interest and histograms of selectively specific target areas can be routinely obtained, and as many as four can be simultaneously manipulated. The operator has total control in determining the shape and size of the region examined, as well as the time/count scale of the histogram. From 10 to 20 cycles of systole and diastole, recorded during the first passage of the radionuclide, may be reformatted into a single representative cardiac cycle of maximum retrievable depth, detail, and accuracy. Study courtesy of Dr. Robert H. Jones, Duke University.

# GAMMA CAMERA CALIBRATION KIT

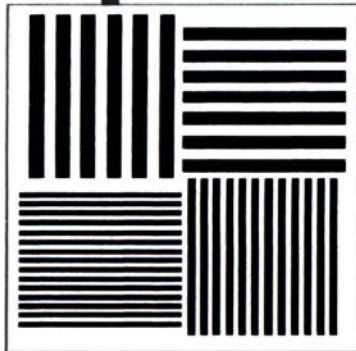
The radioactive sources and phantom of the AECL Gamma Camera Calibration Kit provide an effective means of routinely checking the vital characteristics of your camera system.

Sources are safe, light and easy to carry in the attractive carrying case provided.

Sources are approved for licensing in U.S.A. and Canada.

## FLOOD FIELD SOURCE

A rapid and convenient way of making the daily check of your camera response. It is a flat plastic disc 12 inches in diameter containing 3 mCi of Gadolinium-153 (100 KeV photopeak, 242 day half life) dispersed uniformly to give an output better than  $\pm 5\%$  over the whole surface.

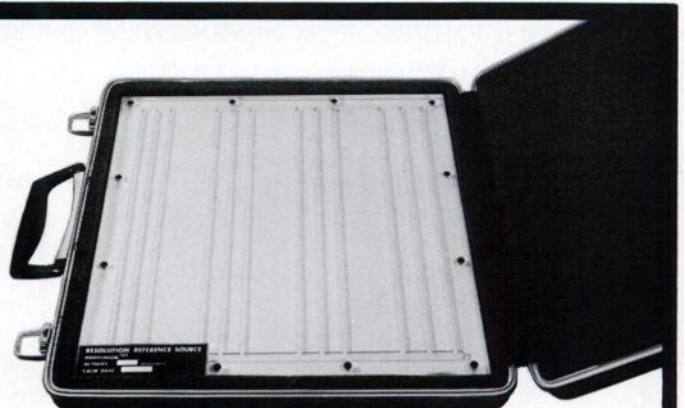


**BAR PHANTOM** Used with a Flood Field Source to provide an efficient check of the inherent and system resolution of your camera system. It can also be used to check image size and linearity.

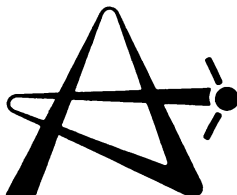
The Bar Phantom consists of four groups of lead bars embedded in a plastic holder 13.5 inches square and 0.37 inches thick. The bars are 0.125 inches thick and 0.500, 0.375, 0.250 and 0.187 inches wide respectively. The spacing between the bars is equal to the width of the bars for each group.

## RESOLUTION REFERENCE SOURCE

A convenient way of checking the resolution of your gamma camera and scanner. The source contains a grid of radioactive lines which vary in spacing. Most cameras should be able to resolve the finest part of the grid. By adjusting the distance of the source from the collimator, the depth resolution of your camera can also be measured. Total activity of the source is 3 mCi of Gadolinium-153.



74-1



Atomic Energy of Canada Limited • Commercial Products

P.O. Box 6300, Station J, Ottawa, Canada, -K2A 3W3 • Tel. 613/592-2790 • Cable Nemota • Telex 053-4162



# the practical dispensors for practically everything at half the price.

12 fixed volumes, 0.2 to 10 ml.

**\$32 each**

3 adjustable ranges. Recommended:

**\$36 each**

0.2 to 0.8 ml

0.8 to 3 ml

3 to 10 ml

Need a special size? We'll make it for you.

## Oxford® Dispensors

Dispense enzyme, RIA and practically all reagents. Conserve them, too: bottles are only as large as volumes require, and they're easy to prime with small amounts. Reproducibility:  $\pm 0.5\%$ , from 0.2 to 10 ml. Laboratory-proven Oxford quality.\*

At these prices you can afford one for each reagent — and eliminate mouth pipetting.

Contact your Oxford dealer.

**OXFORD**  
LABORATORIES

Subsidiary of G. D. Searle & Co.

1149 Chess Drive

Foster City, California 94404

800-227-0276

From California and Canada:

(415) 573-1343

\*COVERED BY U.S. PATENT NO. 3,729,022.



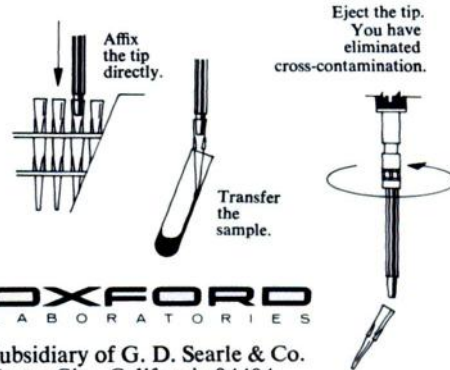
# New and Improved Oxford® SAMPLER® System

1,200 Oxford® Tips - ready to use.

## THE NEW 810Q!

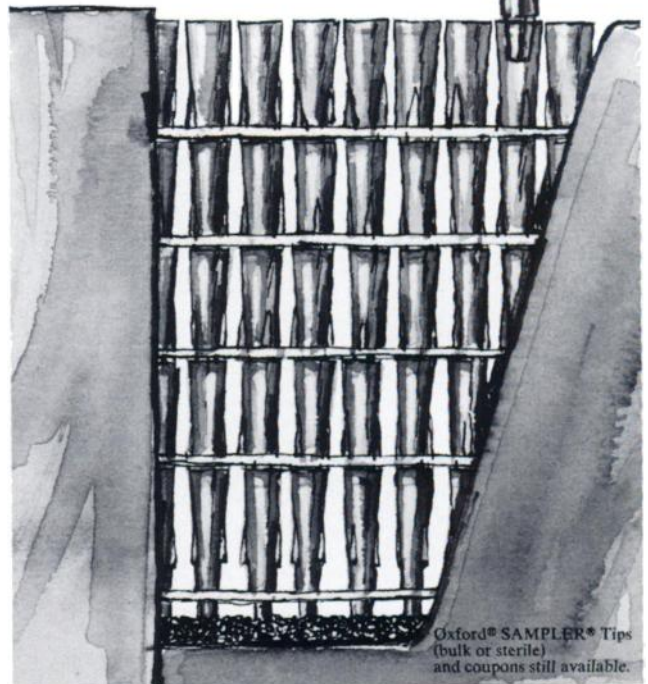
- Faster, Cleaner, Safer micropipetting.
- 20% more tips in a space-saving package.
- 5 trays organized for your convenience.

## Eliminate cross-contamination.



**OXFORD**  
LABORATORIES

Subsidiary of G. D. Searle & Co.  
Foster City, California 94404



# CARDIONUCLEAR ANALYSIS:

## *Heart Attack...*

... is the nation's number one killer. In 1972, it claimed 683,100 lives. An estimated 3,940,000 Americans have a history of heart attack and/or angina pectoris.<sup>1</sup>

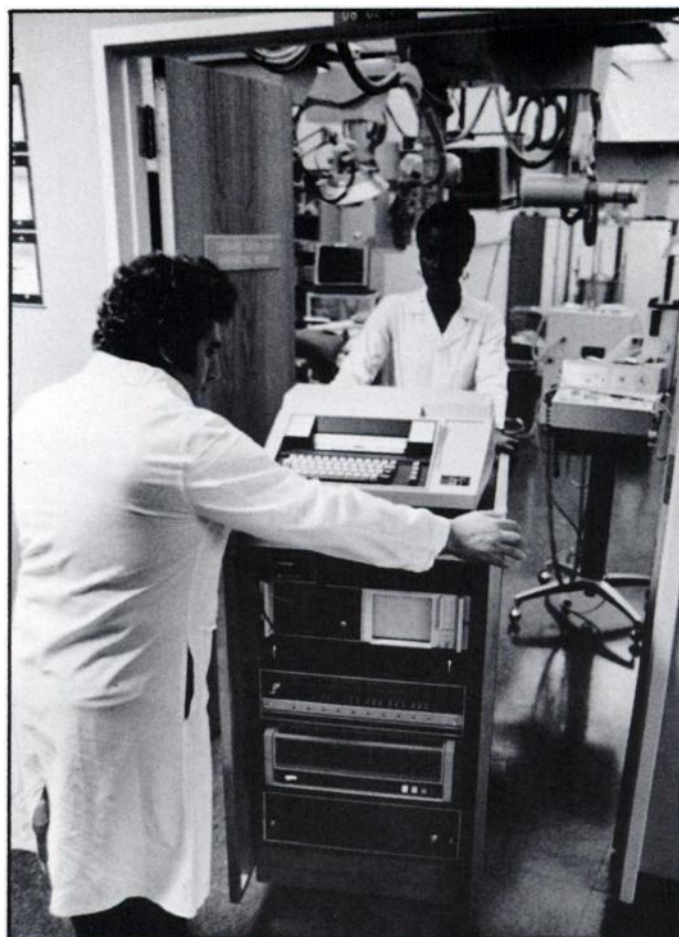
This year, approximately 350,000 myocardial infarct patients will die before they can reach medical help.

Cardiac catheterization, an invasive procedure with attendant morbidity and occasional mortality<sup>2</sup>, does not fulfill all the diagnostic requirements of patients with heart disease. The cardiologist therefore requires aid in determining the status of patients both upon admission and during the course of therapy.

Cardionuclear Analysis serves as a cardiac catheterization screen to determine the probability of cardiac disease non-invasively. Additionally, it can provide indications of pre and post surgical cardiac function, and enhance hot and cold spot scanning of myocardial ischemia. Cardionuclear Analysis allows convenient review of study data as many times as desired.

10 analyses of cardiovascular functions can be determined from only one bolus injection. Because of sophisticated programming, the total time involved can be as little as ten minutes using simple keyboard commands.

And because of the mobility of the MODUMED PAD<sup>tm</sup>, image processing can now take place in the ICU, CCU, Recovery Room, Cath Lab, ER or anywhere you take your scintillation camera.



*The mobile MODUMED PAD<sup>tm</sup> provides immediate diagnostic support in the ICU, CCU, Recovery Room, ER, Cath Lab, and other special care facilities.*

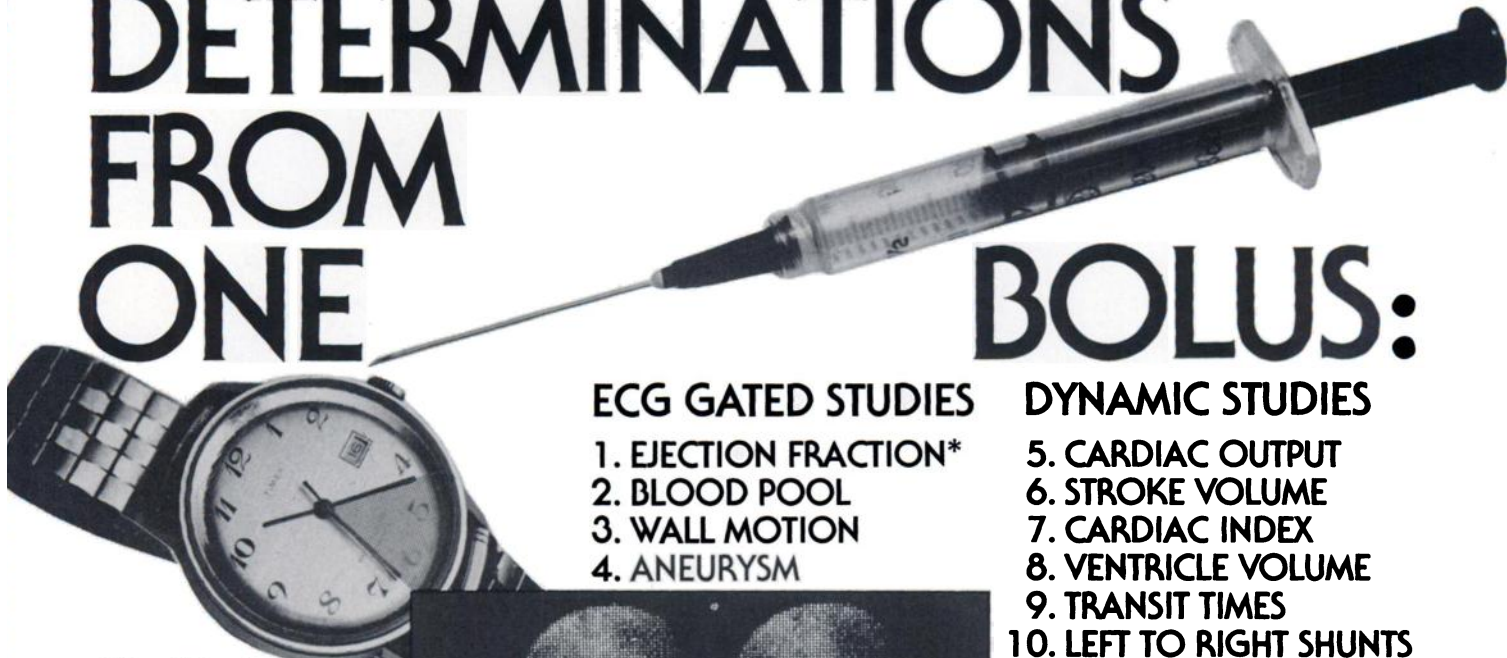
Medical Data Systems Corporation, a subsidiary of Warner-Lambert, has been developing diagnostic imaging products for several years. As the leading company in Digital Nuclear Medicine, our commitment is to support the growth of Nuclear Medicine as both an art and a science.

1. Source: American Heart Association. *Heart Facts 1975*
2. Hamilton, Glen, M.D.; Kennedy, J. Ward, M.D.: Assessment of Left Ventricular Function: Current Methods and Clinical Significance. Presented at the Symposium on Cardiovascular Investigation with Radionuclides at the University of Miami School of Medicine, Mt. Sinai Medical Center, Miami, March 12-16, 1975.
3. Hamilton, Kennedy, As Above.



MEDICAL DATA SYSTEMS  
CORPORATION  
A WARNER-LAMBERT SUBSIDIARY

# TEN DETERMINATIONS FROM ONE BOLUS:



## ECG GATED STUDIES

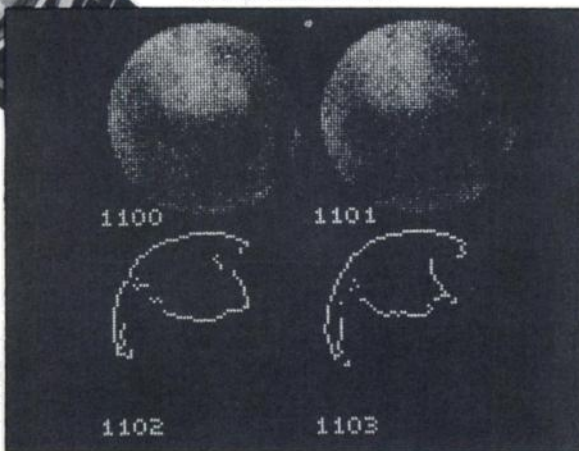
1. EJECTION FRACTION\*
2. BLOOD POOL
3. WALL MOTION
4. ANEURYSM

## DYNAMIC STUDIES

5. CARDIAC OUTPUT
  6. STROKE VOLUME
  7. CARDIAC INDEX
  8. VENTRICLE VOLUME
  9. TRANSIT TIMES
  10. LEFT TO RIGHT SHUNTS
- \*EJECTION FRACTION can also be determined in dynamic studies.

### Cine Display:

The complete flow of a radio-tracer can be dynamically reproduced on the system display scope in a cine display without flicker. Even the dynamics of an individual heartbeat can be analyzed in patients with dyskinesia, aneurysm, and shunt.



Additionally, static studies of Myocardial Infarct can be evaluated through hot spot imaging with phosphates and cold spot imaging with thallium. The MODUMED™ System is used for image enhancement, area quantification, background suppression and wall definition.

Because radionuclide angiography will very likely become one of the most common Nuclear Medicine procedures<sup>3</sup>, it would be to the practitioner's advantage to have data that is quantified in a variety of parameters, repeatable, and readily available.

Please send me the following:

- Case study report of Cardionuclear Analysis
- Bibliography of documented use of Cardionuclear Analysis techniques.
- Information on the Mobile MODUMED PAD™ Image Processing Unit.
- Information on the complete series of MODUMED™ Image Processing Units.
- A dictionary of Computer Terms used in Digital Nuclear Medicine.

Name \_\_\_\_\_ Title \_\_\_\_\_  
 Institution \_\_\_\_\_  
 Street \_\_\_\_\_  
 City, State, Zip \_\_\_\_\_ Phone \_\_\_\_\_

Address requests to: Marketing Dept.

c/o Medical Data Systems Corporation  
 3920 Varsity Drive; Ann Arbor, Mi. 48104



3920 VARSITY DRIVE; ANN ARBOR, MI 48104 (313) 973-2200

# NIH/TANTALUM SYRINGE SHIELD®

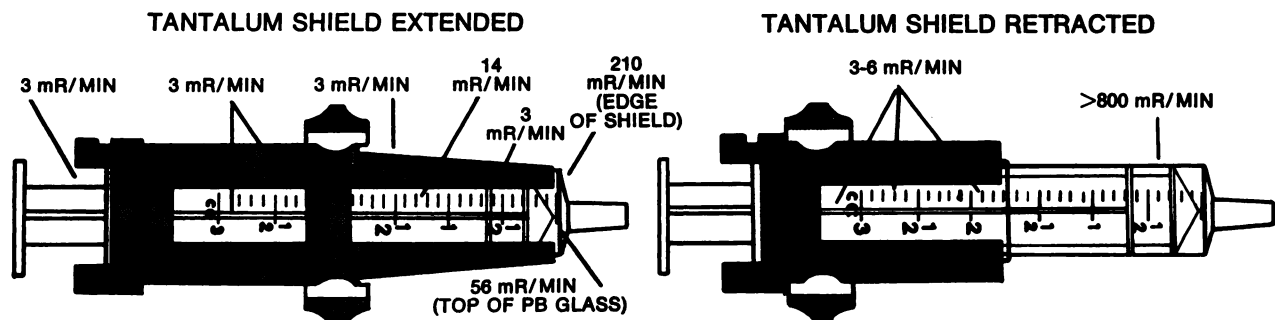
## Optimum Shielding Minimum Weight



### The NIH/Tantalum Syringe Shield:

- Reduces exposure  $^{99m}\text{Tc}$  by a factor exceeding 200.
- Weighs less than 3-ounces — good balance.
- Retracts for dose calibration.
- Virtually unbreakable.
- Accepts most disposable syringes.

### FILM EXPOSURE AT THE SURFACE 29.2 mCi for $^{99m}\text{Tc}$ in 1cc of a 3cc PLASTIC SYRINGE



U.S. Patents Pending

\*CONCEIVED and DESIGNED BY: J. Howley, H. Tipton, A. Jones, M. Dickinson, M. Green, and G. Johnston. National Institutes of Health, Bethesda, Md.  
SHIELDING PERFORMANCE CHART COMPLIMENTS OF: J. Howley, Radiation Safety Services, National Institutes of Health, Bethesda, Md.

## Atomic Products Corporation

Center Moriches, L.I., New York 11934, U.S.A.  
(516) 878-1074

# MALLINCKRODT'S ATTACK:

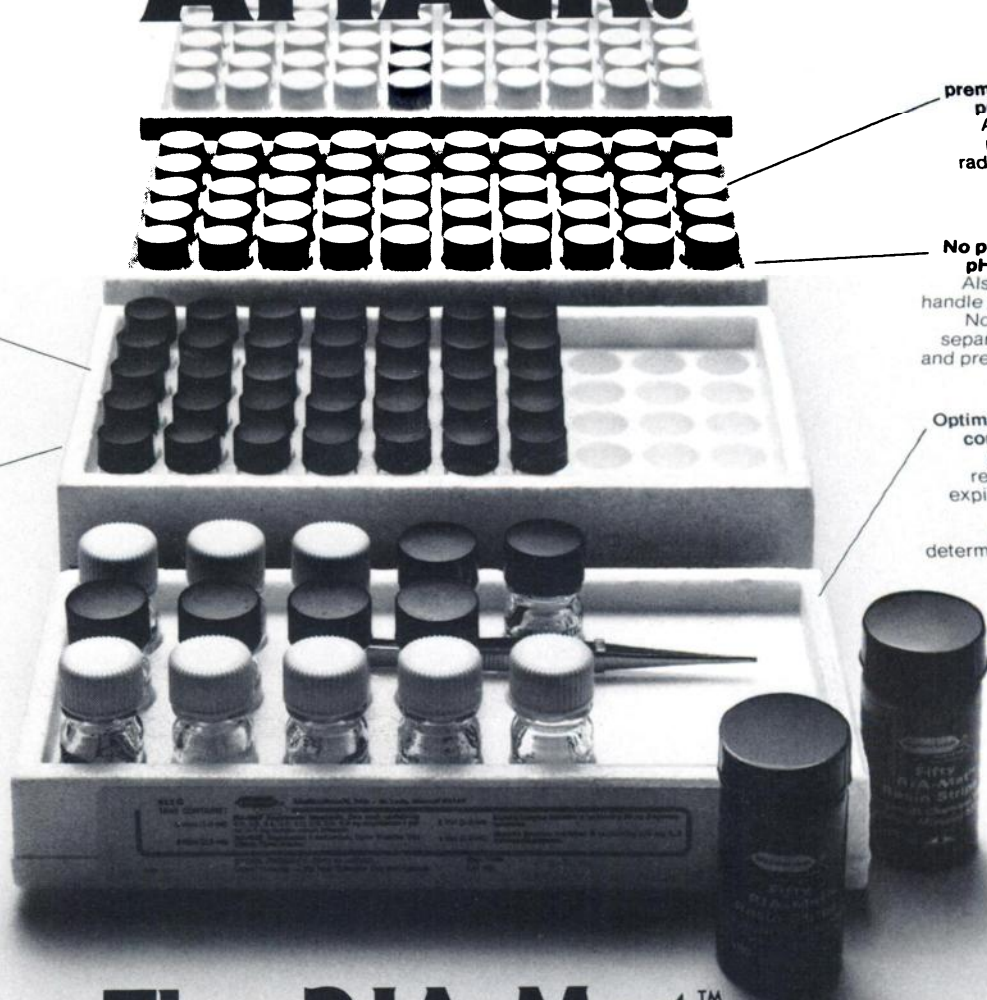
**One hour at 37°C.**  
That's the incubation time for the antigen-antibody. This gives you same-day capability for test completions.

**0.1 ml, the only pipetting volume of critical reagents.**  
You deal with only one volume, not lots of different volumes which other tests demand.

**Completely premeasured and predispensed.**  
All standards, reagents and radioactivity are ready to use.

**No preparation or pH adjustment.**  
Also no need to handle radioactivity. No obtaining of separate reagents and preparing them.

**Optimal generation conditions.** Plus stability of all reagents to the expiration date of the kit and reproducible determinations from run to run.



## The RIA-Mat™ Angiotensin I | 125 Test.

It attacks the complexity surrounding radioassays for plasma renin activity. And it wins.

The radioassay answer hasn't caused a problem. It's the procedural maze you struggle through to get the answers for hypertension evaluation that has been the stumbling block. Mallinckrodt's test irons out the obstacles. (Like no more overnight incubation at 4°C.) Every aspect of the test has been simplified. So here's the simple solution. If you'd like to know more about it, call your

Mallinckrodt representative or write Mallinckrodt. Another of our new ideas to change your ideas about RIA testing.

Mallinckrodt, Inc.  
675 Brown Road  
Hazelwood, Missouri 63042

**Mallinckrodt**®  
NUCLEAR  
RADIOPHARMACEUTICALS

**a quiet revolution in**  
**WHOLE BODY and ORGAN imaging.**

---

The Cleon Imager fills basic needs in the busy nuclear medicine department. In "WHOLE BODY MODE," it handles patient caseloads three to five times as rapidly as a conventional *rectilinear scanner*, providing dual anterior and posterior skeletal images of such clarity and sharpness that repeat small-area scans to confirm diagnoses rarely are needed. Yet it can provide, in "ORGAN MODE," small-area organ images with speed comparable to (and in-depth resolution better than) a *gamma camera*.

Large crystal area (109 square inches in each detector head) gives high information density with reproducible results for given scan times. Interchangeable focused collimators permit use with various nuclides for skeletal and organ imaging, as well as tumor-screening. (The Imager has proved successful in detecting abnormalities in soft tissue when used with Ga-labelled agents.)

The Imager's display and recording options, enhancement of photo-images, and the capability to playback stored data greatly increase its clinical usefulness. Reliability, rapidity of operation, and high patient turnover mean increased utilization and economy, along with improved diagnostic efficiency.



BONE IMAGE OF 58-YEAR-OLD MALE.  
Imaging agent: 15 mCi Tc-99m Pyrophosphate.  
Time-to-scan (2 views) 24.8 minutes.

Image courtesy of  
Cedars of Lebanon Hospital, Los Angeles.

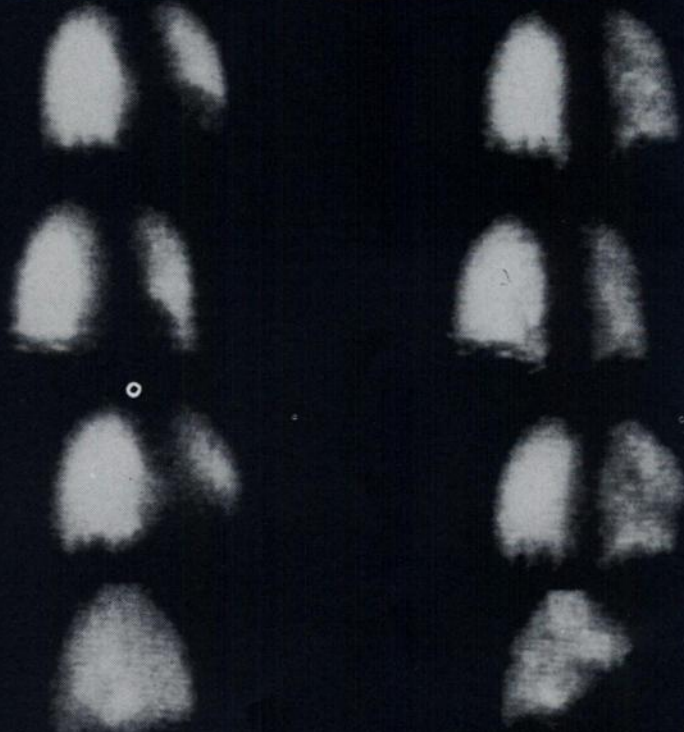


**BRAIN IMAGE.**

Imaging agent: 15 mCi Tc-99m Pertechnetate.  
Time-to-scan (4 views): 13.7 minutes.

Image courtesy of Cedars of Lebanon Hospital, Los Angeles.

---



**LUNG IMAGE SERIES.**

Imaging agent: 1.5 mCi Tc-99m MAA.  
Time-to-scan (8 views): 16 minutes.

Image courtesy of Leonard Morse Hospital, Natick, MA.

---



**LIVER AND SPLEEN IMAGE OF PATIENT SHOWING  
SPLENOMEGALY AND CIRRHOTIC LIVER.**

Imaging agent: 1.5 mCi TC-99m Sulfur Colloid.  
Time-to-scan (4 views) 14 minutes.

Image courtesy of Cedars of Lebanon Hospital, Los Angeles.

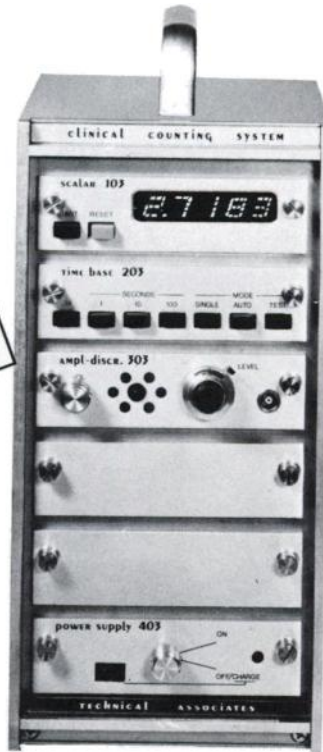
---

**cleon**  
CORPORATION

150 Gould Street, Needham, Massachusetts 02192/Telephone 617-444-2494

# the proven clinical counting system

**NEW**  
**Thrombus Detectors**  
write for details



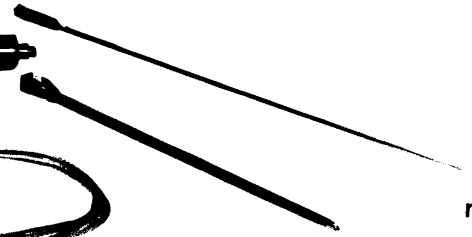
eye



catheter



implantable



needle

straight

## Solid State Probes

- Operating room design
- In vivo use
- Single, dual and multiple or matrix detectors
- Intracavitary, intraorgan, or surface
- Real time information
- Chart, printer, and computer compatible



G.I.



Scintillator



**TECHNICAL ASSOCIATES**

7051 ETON AVE., CANOGA PARK, CA. 91303  
(213) 883-7043



# Ian Falvey found that doing our new Ab-TRAC\* digoxin test was easy. Getting his mom's permission was tough.

Ian is ten years old. His mom is a senior medical technologist who knows that tests like our new Ab-TRAC RIA [<sup>125</sup>I] kit for digoxin should only be performed by trained professional technologists.

We agreed. But we also wanted to illustrate how easy the new Ab-TRAC solid phase digoxin [<sup>125</sup>I] kit was to use. Its solid phase design combines 3 steps into 1 (the color coded anti-body and tracer are contained within the Ab-TRAC tubes). New "wet" serum standards require no reconstitution and there is only one incubation. All designed for accuracy and reproducibility, resulting in time saving for the technologist.

Shelley Falvey MT (ASCP) finally consented. Providing she could supervise ("but no coaching, Mom").


How did Ian do? Just great. His chart was on a par with his mom's when she did the test. Here are Ian's comments: "It's easy. It turns colors so you know where to put the stuff."

And here's what Mrs. Falvey said: "This new kit is so easy, even my ten year old boy can do it."


The Falveys' conclusion? The new Schwarz/Mann RIA Ab-TRAC digoxin kit is going to make things a lot easier for technologists all over the country.

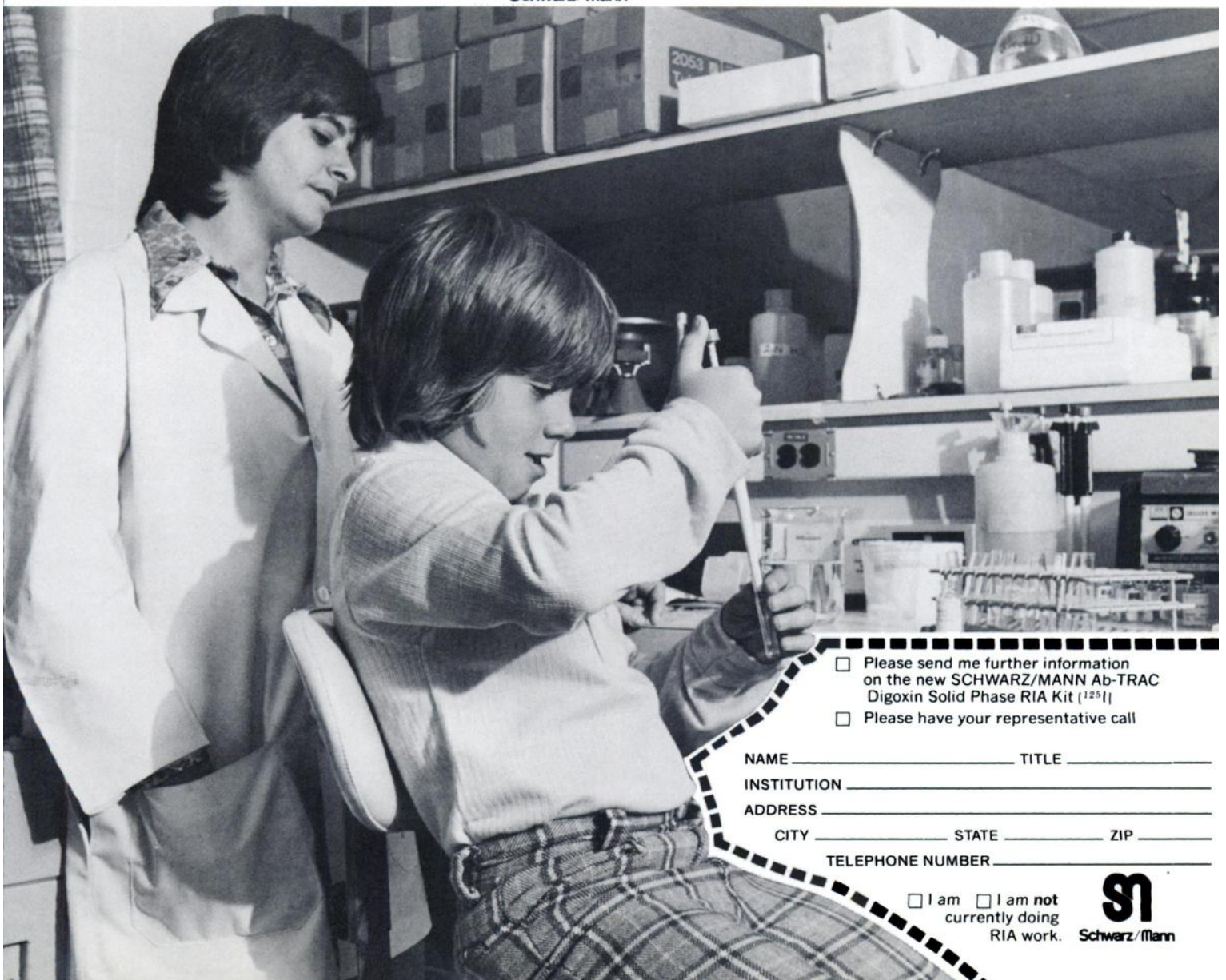
And they don't even have to get their mom's permission.

\*Ab-TRAC stands for anti-body and tracer contained in tubes. This saves technologists time and eliminates a source of potential pipetting error.

Ab-TRAC, , Schwarz/Mann and B-D are trademarks of Becton, Dickinson and Company  
© 1975, Becton, Dickinson and Company



Schwarz/Mann, Division of Becton, Dickinson and Company   
Mountain View Avenue, Orangeburg, NY 10962  
(914) 359-2700



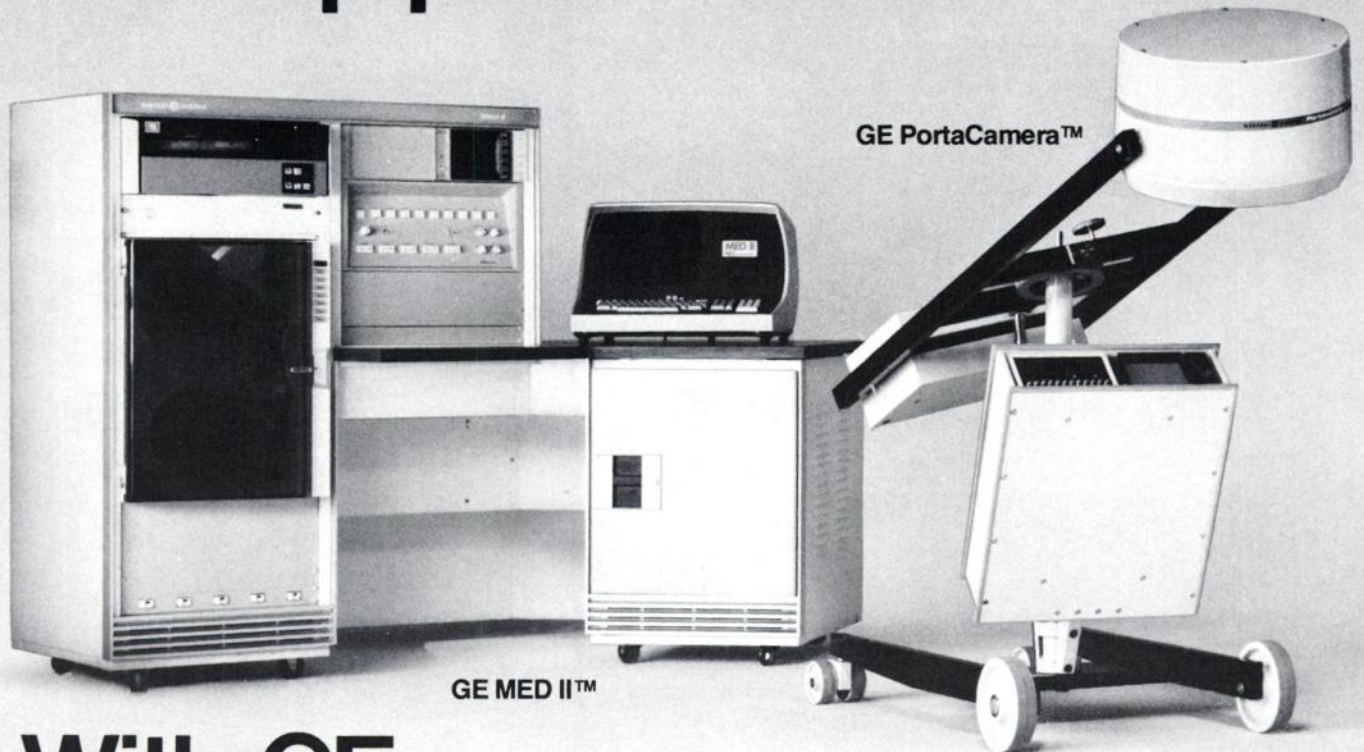
- Please send me further information on the new SCHWARZ/MANN Ab-TRAC Digoxin Solid Phase RIA Kit [<sup>125</sup>I]
- Please have your representative call

NAME \_\_\_\_\_ TITLE \_\_\_\_\_  
 INSTITUTION \_\_\_\_\_  
 ADDRESS \_\_\_\_\_  
 CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
 TELEPHONE NUMBER \_\_\_\_\_

I am  I am not currently doing RIA work.



# Some may say a full nuclear capability ends with equipment like this.



## With GE, equipment is just the start.

After we match equipment performance with your technical requirements, we go two important steps beyond. To a realistic means of getting that equipment for you. And to a dependable means of keeping it on the job, with minimum downtime.

First, consider the performance capability GE offers you:

**GE MED II™** disc-based data acquisition and processing system, complete with library of nuclear medicine software, combines second-generation sophistication with easy pushbutton operation. Programs are configured as clinical protocols, to eliminate much of the time required for the physician's interaction with the system's controls.

**GE PortaCamera™** brings nuclear medicine to the bedridden patient. Detector and electronics, mounted on a mobile cart, weigh less than half that of other units. Counterbalanced design

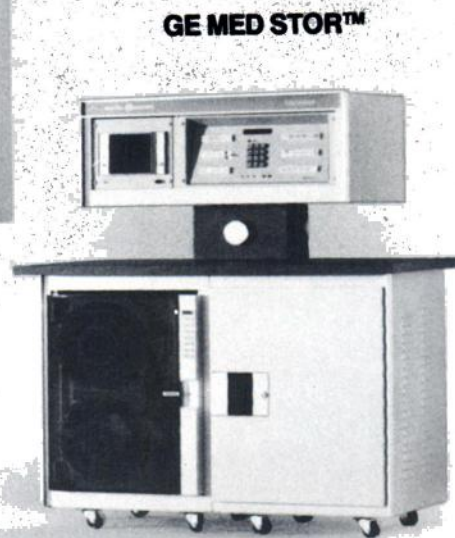
permits precise, motorless positioning by hand. Performs all Technetium 99m studies with high performance results.

**GE RadiCamera II™** conducts full range isotope studies with performance characteristics unmatched by larger, more costly units. Features counter-balanced motorless detector positioning. Operator console includes basic electronics, display and persistence oscilloscopes, Polaroid or 70 mm camera, anatomical marker and tomographic imaging. System is available on an integral mobile cart.

**GE MED STOR™** is a modestly-priced image storage and processing system which can be used with any scintillation camera. Provides computer controlled acquisition of static and dynamic function data, selection of up to 4 regions of interest and simultaneous generation of up to 4 time/activity histograms.



**GE RadiCamera II™**



Now, consider our means to your ends:  
General Electric leasing programs and  
ubiquitous service.

The former can make nuclear equipment  
acquisition a reality, without a major capital  
investment. The latter will keep that equipment  
operating at peak performance, under the  
trained eyes of GE servicemen. Large in number.  
Always nearby when needed.

Both the leasing and service programs are totally  
GE in design and implementation. And strong  
adjuncts to an expanded nuclear capability  
second to none in the industry. Which means a  
visit with your GE representative can bring all the  
answers you need ... from beginning to end.

Look for the commitment behind the equipment.  
Get in touch for the complete picture.

General Electric Medical Systems,  
Milwaukee, Toronto, Madrid



**GE Maxiscan™** 2-probe whole body  
scanner delivers 2 coincident views in  
a single pass. Skeletal surveys cover a  
full 24 x 80 inches, minified on 14 x 17  
inch film. Scans can be viewed using  
standard film photo-recording, or with  
GE Videodisplay processing unit.

**GENERAL  ELECTRIC**



**World-Wide Acceptance  
... Global Availability**

# **ISOCLEAN CONCENTRATE**

## **Radio-Labware Cleaner**

**ISOLAB**<sup>inc.</sup>  
INNOVATIVE  
PRODUCTS  
FOR RESEARCH  
Drawer 4350 Akron Ohio USA 44321

Phone: 216/825-4528  
Cables: ISOLAB AKRON  
Telex: 98-6475

The most effective solution anywhere offered for cleansing hot-lab apparatus of adherent radioactivity. Safe and easy-to-use. Proves itself thousands of times daily in research and clinical laboratories throughout the world.

Now available at reasonable cost, internationally, through licensed manufacture to Isolab's exacting specifications, plus national distribution from local stocks.

*Contact your nearest Isoclean licensee or distributor for complete information.*

**WESTERN EUROPE**  
BIOLAB S. A.  
Ave. Michel-Ange 8  
1040 Brussels, Belgium

**IBERIAN PENINSULA**  
ATOM  
Paseo del Monte, 34  
Barcelona-12, Spain

**SOUTH AFRICA**  
CHEMLAB Pty. Ltd.  
P.O. Box 56218  
Pinegowrie, Transvaal, RSA

**AUSTRALASIA**  
S.R.E. Pty. Ltd.  
P.O. Box 69  
Pennant Hills, N.S.W. 2120

*In the U.S. and Canada: Order from any office of Amersham-Searle, Nuclear Associates, Picker and other distributors—or call Isolab collect.*

Now you can have a  
**COMPUTING  
 DOSE  
 CALIBRATOR**  
 for only **\$1390**



Imagine the versatility, convenience and economy, just in <sup>99m</sup>Tc alone. Milk your generator, enter the time of day and the activity to be injected. The HP-25 INSTANTLY tells you the patient's dose in cc's.

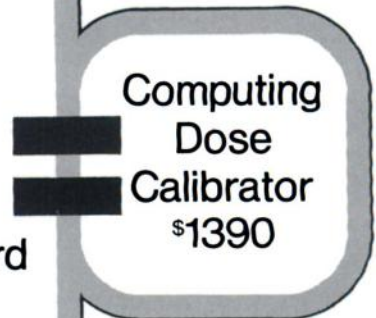
Calculate for yourself

**RAD/CAL**  
**Digital Isotope**  
**Calibrator**  
**\$1195**

- 4-digit, solid state readout.
- Automatic ranging from 10  $\mu$ Ci to 400 mCi (1 Ci—optional).
- Fully-shielded chamber.
- Factory-calibrated for 6 isotopes (additional ones may be added).
- Molybdenum breakthrough shield.



Hewlett Packard  
 HP-25  
 Pre-Programmed  
 Calculator  
 \$195



Computing  
 Dose  
 Calibrator  
 \$1390

**PRICE + PERFORMANCE...**  
**you won't beat this anywhere.**

For full information,  
 ask for Bulletin 170-1B



**NUCLEAR ASSOCIATES, INC.**  
 Subsidiary of  
**RADIATION-MEDICAL PRODUCTS CORP.**  
 35 URBAN AVE. • WESTBURY, N.Y. 11590 • (516) 333-9344

# GammaCoat™

## <sup>125</sup>I Cortisol

Introducing the next generation of cortisol determinations — GammaCoat by Clinical Assays — the first solid phase Cortisol RIA. The greatly simplified extraction procedure, a test tube coated with cortisol — specific antibody and a <sup>125</sup>I cortisol derivative tracer brings accurate RIA cortisol determinations within reach of every clinical laboratory. A special additive is used to minimize the effects of variable serum proteins on the assay.

**The entire RIA procedure is carried out in 6 easy steps:**

1. Denature the patient plasma by heating in a borate buffer.
2. Add geltris buffer into coated tubes.
3. Add plasma extract or standard.  
Incubate 10 minutes.
4. Add tracer.  
Incubate 45 minutes.
5. Aspirate and wash.
6. Count the coated tubes.

The whole procedure takes less than two hours. Centrifugation and decanting are completely eliminated.

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

**Also available are:**

GammaCoat Digoxin <sup>125</sup>I  
GammaCoat Renin Activity <sup>125</sup>I  
GammaCoat Digitoxin <sup>125</sup>I  
Vitamin B<sub>12</sub> <sup>57</sup>Co  
Folate <sup>125</sup>I  
Folate <sup>3</sup>H  
Digoxin <sup>3</sup>H  
Digitoxin <sup>3</sup>H

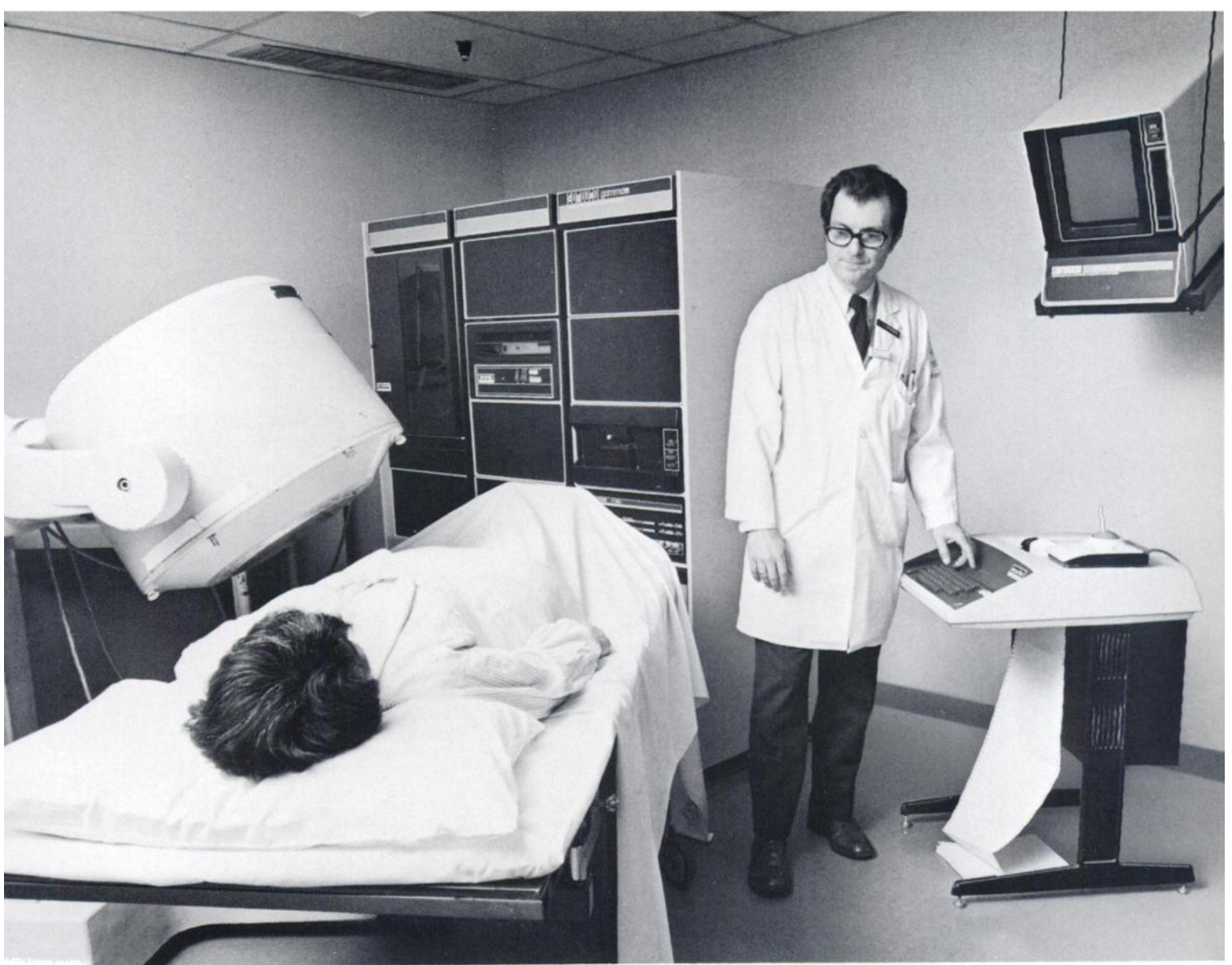
For full details contact:



**Clinical  
Assays, Inc.**

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

**NEW**  
**100**  
MIN



# Picture yourself using Digital's new Gamma-11.

**For simultaneous data acquisition and analysis from single or multiple gamma cameras.**

Now one powerful, dual processor system provides simultaneous data acquisition and analysis from any two gamma cameras. And displays the data in black and white. Or color.

It's the new Gamma-11 from Digital. For better diagnoses. More easily. More productively. Whether you're using one gamma camera or several. Stored patient studies can be displayed rapidly with automatic separation and identification. Regions of interest for each patient study are clearly identified on the display. Isometric and

multiple images can be viewed and rotated. Positive patient identification and count rate information appears on every frame. And built-in protection is provided for all data and systems programs.

The range of Digital's nuclear medicine systems offer expandability when needed. And continuing high performance is assured, as Gamma-11 is manufactured and serviced completely by Digital. Worldwide.

So if you have one or more gamma cameras, get the complete picture on Digital's new

Gamma-11 system. Write for our new brochure. Or call (617) 481-9511, Ext. 6858. Digital Equipment Corporation, 200 Forest St., Marlboro, Mass. 01752. European headquarters: 81 route de l'Aire, 1211 Geneva 26. Tel: 42 79 50. Digital Equipment of Canada Ltd.

**digital**

Photo of Gamma-11 installation at  
The Miriam Hospital, Prov., R.I.

# MODEL 145 LOCALIZATION MONITOR

## Detection of Deep Vein Thrombosis

and other in vivo applications



- CPS & PERCENTAGE READOUT
- COMPACT & PORTABLE
- BATTERY OPERATED (3 D cells)
- FULLY TRANSISTORISED
- LINEAR SCALE & WIDE RANGE
- RECORDER OUTPUT
- VARIABLE DEPTH COLLIMATOR
- UNLIMITED CHANNEL SELECTION
- MANUFACTURED & SERVICED IN THE U. S. A.
- CLINICALLY PROVEN FOR OVER ONE YEAR

### CONTROLS

High voltage  
Threshold  
Window  
Battery test  
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  
of handle).

WEIGHT: 6.5 lbs total

DETECTOR: 1mm x 1 inch NaI (TL) mounted  
on PMT and 7 mg/cm<sup>2</sup> aluminum  
window. Optional - 1 inch x 1 inch  
NaI (TL) detector with thin window  
at extra cost.



**jasins & sayles associates**

892 Worcester Street - Wellesley, Massachusetts 02181

telephone (617) 235-6691



## <sup>125</sup>I Folate

100 tube kit  
200 tube kit

\$ 70.00  
\$100.00

First to introduce <sup>125</sup>I Folate procedure.

This procedure requires only 10 $\mu$ l of serum. Incubation Time: 45 minutes.

## Vitamin B<sub>12</sub> (<sup>57</sup>Co)

components for 200 tubes

\$100.00

## <sup>125</sup>I Digoxin Kit

100 tube kit  
200 tube kit

\$ 55.00  
\$ 75.00

Sample Size: 50 $\mu$ l serum – Incubation Time: 30 minutes  
Separation: Charcoal – Sensitivity: 50 pg

## T<sub>4</sub>-RIA KIT

100 tube kit  
200 tube kit

\$ 70.00  
\$100.00

Specific T<sub>4</sub> Antiserum – No Extraction/No Evaporation  
Patient Sample: 5 $\mu$ l of serum – Incubation Time: 1 hour

## T<sub>3</sub>-UPTAKE KIT

100 tube kit  
200 tube kit

\$ 21.00  
\$ 35.00

Patient Sample: 100 $\mu$ l – Incubation Time: 30 minutes

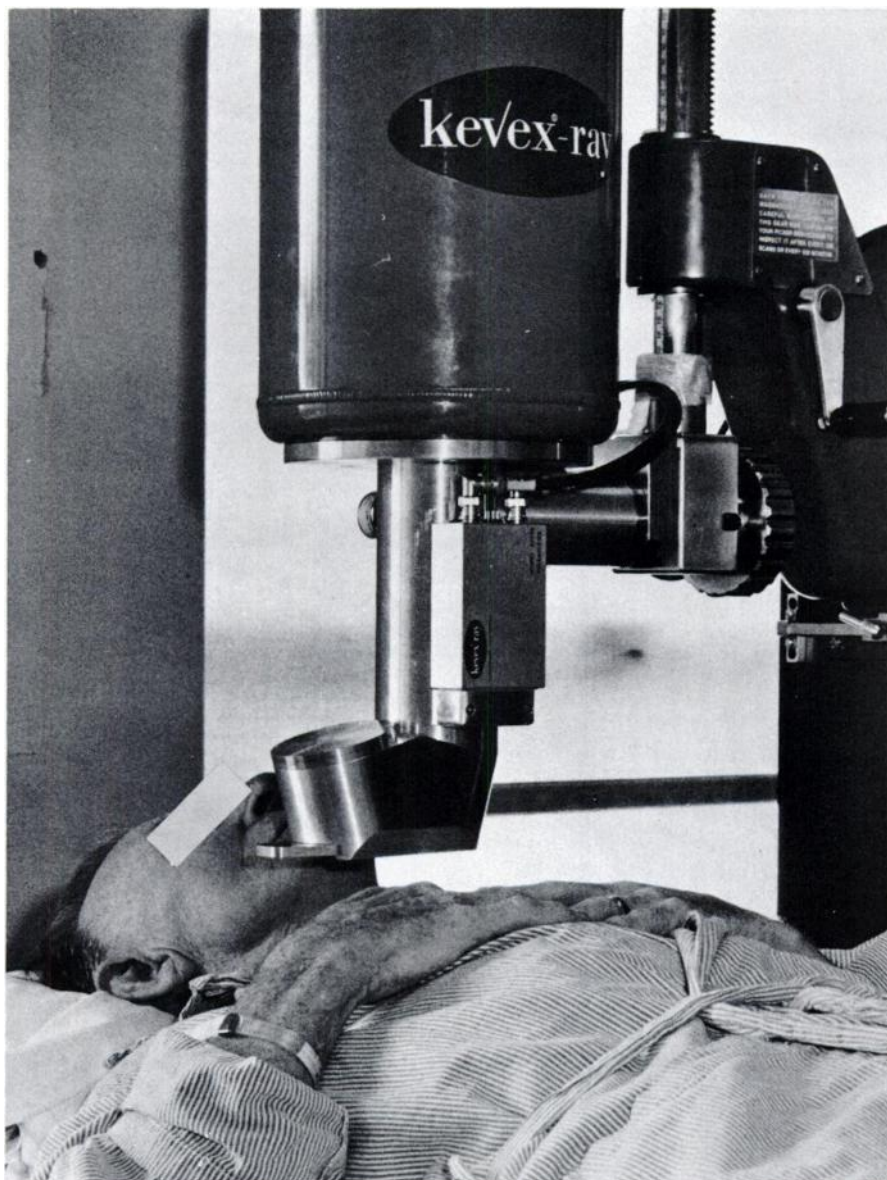
## T.S.H. KIT

components for 100 tubes

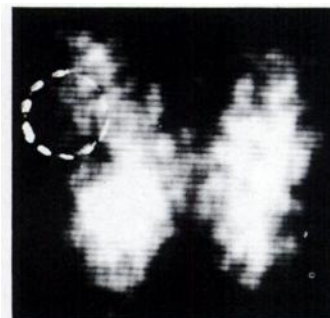
\$100.00

Diagnostic  
Biochemistry  
Inc.

10457-H ROSELLE STREET • SAN DIEGO, CALIFORNIA 92121 • (714) 452-0950



# Thyroid scanning without injection.



Representative 10 Min.  
X-Ray Fluorescence  
Scan of Thyroid Gland  
with Palpable Cold Nodule

## KEVEX-SCAN III

### THE THIRD GENERATION X-RAY FLUORESCENCE THYROID ANALYZER

- Thyroid mapping *without* radioactive tracer
- Quantitative total iodine information with calibration
- Very low local radiation dose - zero whole body dose
- Complementary and unique information of thyroid disease state via the endogenous iodine distribution
- Adaptable to most conventional rectilinear scanner systems (Picker, Ohio Nuclear, Nuclear Chicago, Baird-Atomic, etc.)
- Adaptable for dedicated operation, or in parallel with Na(I) uptake detector

For information, write or call:

KeveX Corporation  
Medical Systems Division  
898 Mahler Road  
Burlingame, CA. 94010  
Phone: (415) 697-6901

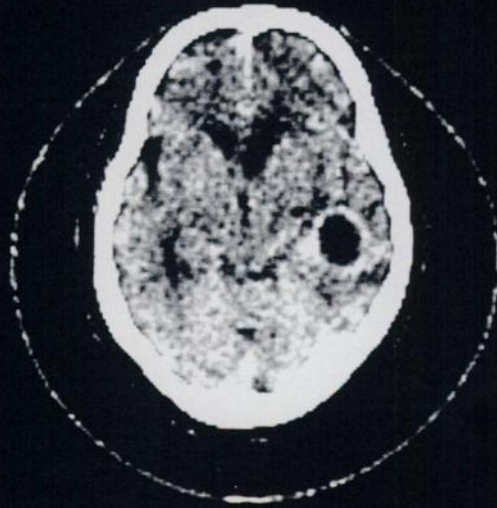


# COMPUTED TOMOGRAPHY OF THE BRAIN AND ORBIT: EMI SCANNING

By Paul F. J. New, M.D., F.A.C.R.,  
and William R. Scott, M.D.

1975 / 500 pages / approximately  
1,000 illustrations \$39.50

This volume is the first to be published  
on EMI Scanning: a thorough and  
definitive reference work for  
Computed Tomography.

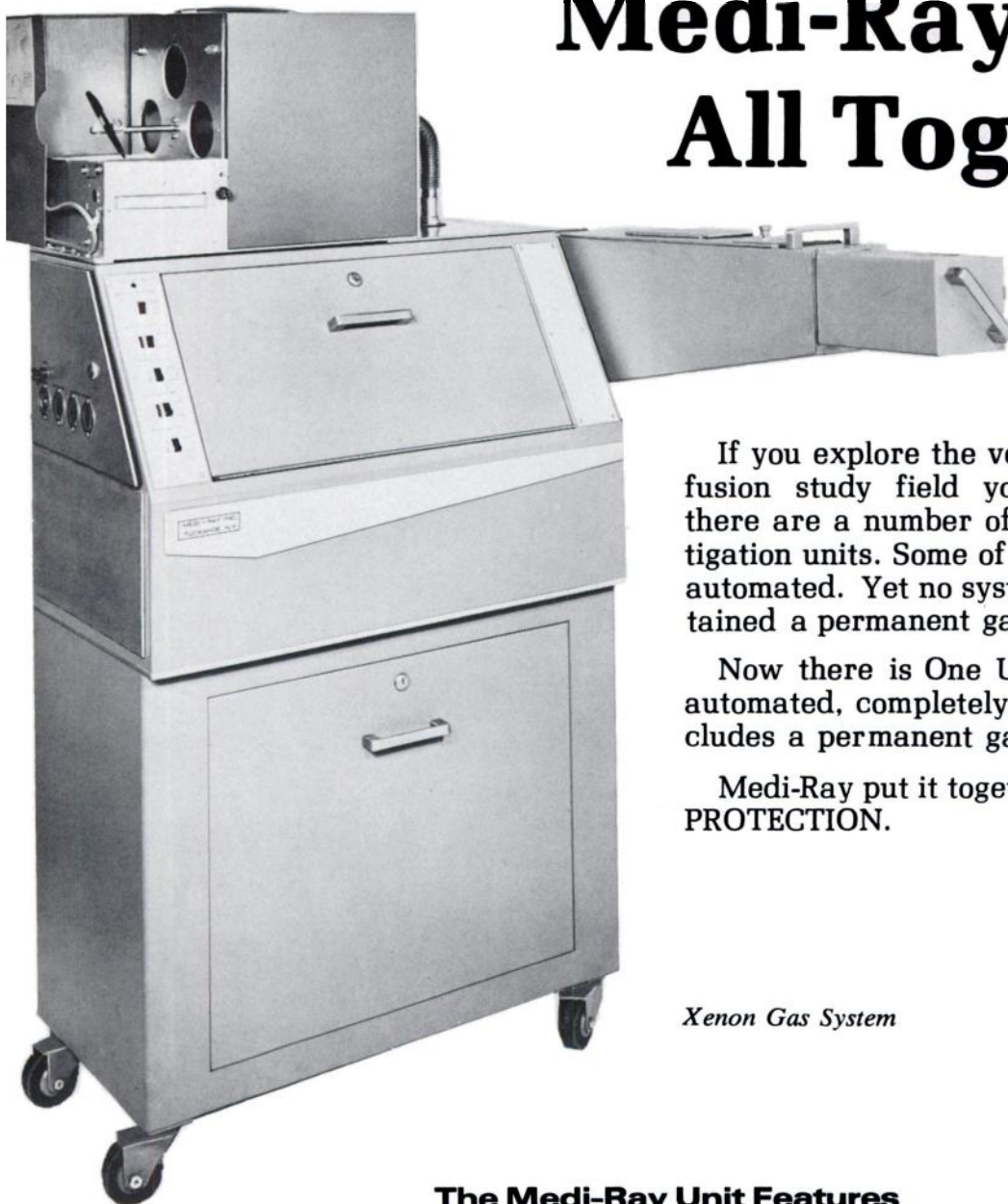


"The introduction of computed tomography must be compared in significance with the introduction of cerebral pneumography, . . . and cerebral angiography, . . . but its importance surpasses those vital contributions to neuroradiological diagnostic methods to the extent that its employment will not result in the morbidity (and still occasional mortality) associated with those traditional methods. An attempt has been made to provide evidence of the value, limitations and present state of the art of computed tomographic scanning in cranial neuroradiological diagnosis. The future is rich with promise . . ."  
*From the preface*

WILLIAMS & WILKINS

428 E. PRESTON STREET  
BALTIMORE, MARYLAND 21202

# Medi-Ray Puts It All Together



If you explore the ventilation and perfusion study field you will find that there are a number of pulmonary investigation units. Some of these systems are automated. Yet no system has ever contained a permanent gas trap.

Now there is One Unit which is fully automated, completely enclosed, and includes a permanent gas trap.

Medi-Ray put it together to insure your PROTECTION.

*Xenon Gas System*

## The Medi-Ray Unit Features

- Permanent Trap — Does not have to be replaced or refilled
- Complete Enclosure — Both the Xenon delivery and removal system are fully enclosed in one unit.
- Large Air Bag Capacity — Facilitates extended equilibrium and washout time. (100 litre bag)
- Compatible with Xenon 133 and Xenon 127.
- No Oxygen is Required
- Accomodates Any Loading System — Unit dose — Syringe — Tank.
- Camera Oriented for Simultaneous Operation — Xenon release button starts machine and camera simultaneously.
- Facilitates AP, PA, and Supine Studies
- Disposable Bacteria Filter
- Optional Spirometer — Provides measurement of vital capacity and minute ventilation.

For more information Write or Call Collect

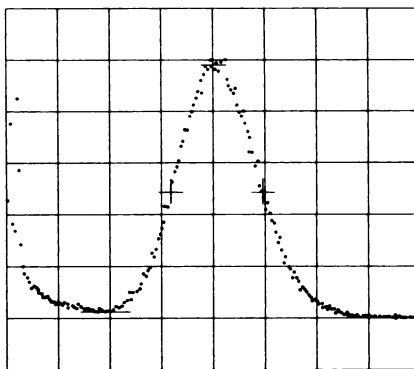
# Medi-Ray, Inc.

150 Marbledale Road, Tuckahoe, New York 10707 • (914) 961-8484

# RCA-4855 makes the big difference in PMTs for soft X-ray detection.

RCA-4855 (formerly C31061) gives you a performance/dollar ratio that's hard to beat. Not only does this remarkable phototube outperform its nearest competitor in the most important parameters required in soft X-ray spectrometry, but 4855 is a direct plug-in replacement for brand XP1010. The cost - \$120\*. As a result, practically all equipments using that brand can be simply switched to RCA.

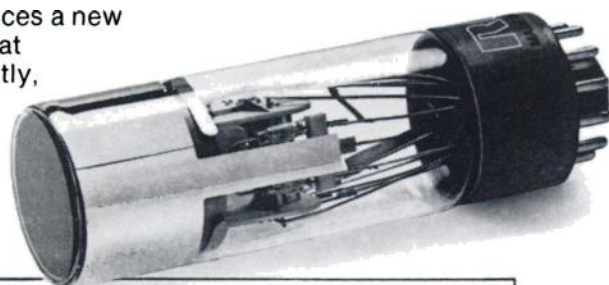
Behind the dramatic performance achievements of the 4855 is one of today's significant advances in phototube technology: a unique electron-optics approach that results in improved cathode efficiency due to greater collection efficiency. It produces a new level of performance that can improve, significantly, a wide variety of X-ray



Pulse height distribution of Fe55 X-rays using RCA-4855

and clinical instrumentation.

So make the big difference in your equipment now. The RCA-4855 is available through



your RCA Representative or RCA Industrial Tube Distributor. Or complete and return the coupon.

**RCA Lancaster — where people and technology make the difference.**

\*U.S. Distributor optional resale price

Manager, Phototube Marketing  
RCA, New Holland Avenue, Bldg. 100  
Lancaster, Pa. 17604

Please send me more information on the big difference in PMTs . . . RCA-4855.

Section 189-K

This is your mailing label. Please print.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Typical Parameters	RCA-4855
Pulse Height Resolution (with Fe55 — 5.9 KeV.)	47%
Peak-to-valley ratio	30:1
Dark Noise 32 pe Σ 1/4 pe	200 cps

# RCA Photo Tubes

← Thyroid

Insulin →

← HPL

ACTH →

Cyclic AMP →

Cortisol →



## Six ways of saying quality

Every one of our radioassays is developed to give the highest standards of precision, accuracy and reliability. We also concentrate on making them simple to use and interpret, leaving you free to concentrate on the other important aspects of your work.

We have six radioassays (Cortipac, Cortisol-CPB is the new one). They all have certain things in common. They're good, they're consistent and you can depend on them. Always.

**Thyopac\* - 3, 4 and 5**  
**HPL**  
**Insulin**  
**ACTH**  
**Cyclic AMP**  
**New Cortipac,\* Cortisol-CPB**

### The sign of quality in Radioassays



**The Radiochemical Centre**  
**Amersham**

Further information is available on request.  
The Radiochemical Centre Amersham, England  
In the Americas: Amersham/Searle Corp, Illinois 60005. Tel: 312-593-6300  
In W. Germany: Amersham Buchler GmbH & Co, KG, Braunschweig

\*Trade Mark.



## **PICKER PACE-1 puts us into Clinical Instrumentation with both feet, and we're here to stay.**

Picker's commitment is cast in concrete and we mean to make a permanent impression on you the only way it counts—with clinical instrumentation that meets your clinical applications.

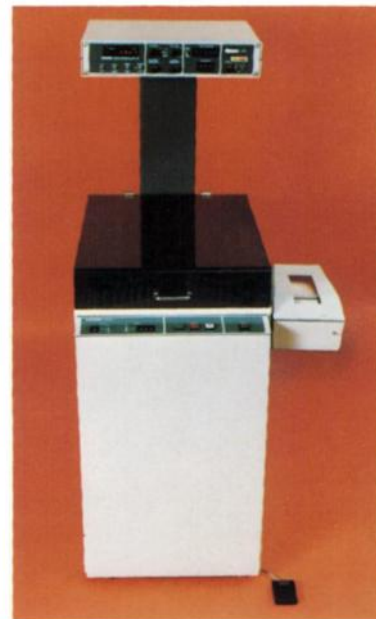
PICKER PACE-1 is our new, high-speed automatic gamma counter. It's accurate, fast, rock-bottom tough and a far cry from the days when RIA was confined strictly to research.

PACE lives up to the day-to-day rigors of the clinical pathology lab. It is not an "amazing breakthrough" or a "revolutionary development." It simply does the job reliably, precisely

and with predictable efficiency. And PACE does it at a lower cost than other counters that have to be "optioned up" to match PACE's capabilities.

PACE and Picker's commitment to serve the clinical pathology lab are part of what we call Picker's synergy — the complete interfacing of systems and services for better diagnostic results.

Read all about the PICKER PACE-1 on the reverse side. Then talk to your Picker representative, or write Picker Corporation, 12 Clintonville Road, Northford, CT 06472.



**PICKER®**  
ONE OF THE C.I.T. COMPANIES

**Picker's synergy**

# PICKER PACE-1 specifications meet your clinical applications.

Fast (5 sec.) sample changer with a 200 position sample chain, simple to upgrade to 400.

Sample chain composed of rugged, interlocking links which easily disassemble for thorough cleaning.

Function regulators define standards, samples, replicates, isotopes and start/stop modes.

Thermal alphanumeric printer prints headings and data.

Teletype compatibility.

Foot switch advances sample changer while loading.

Low-background, high-efficiency NaI (TI) crystal detector.

Time-tested Spectroscaler, 3-mode analyzer with preset  $^{125}\text{I}$  window.

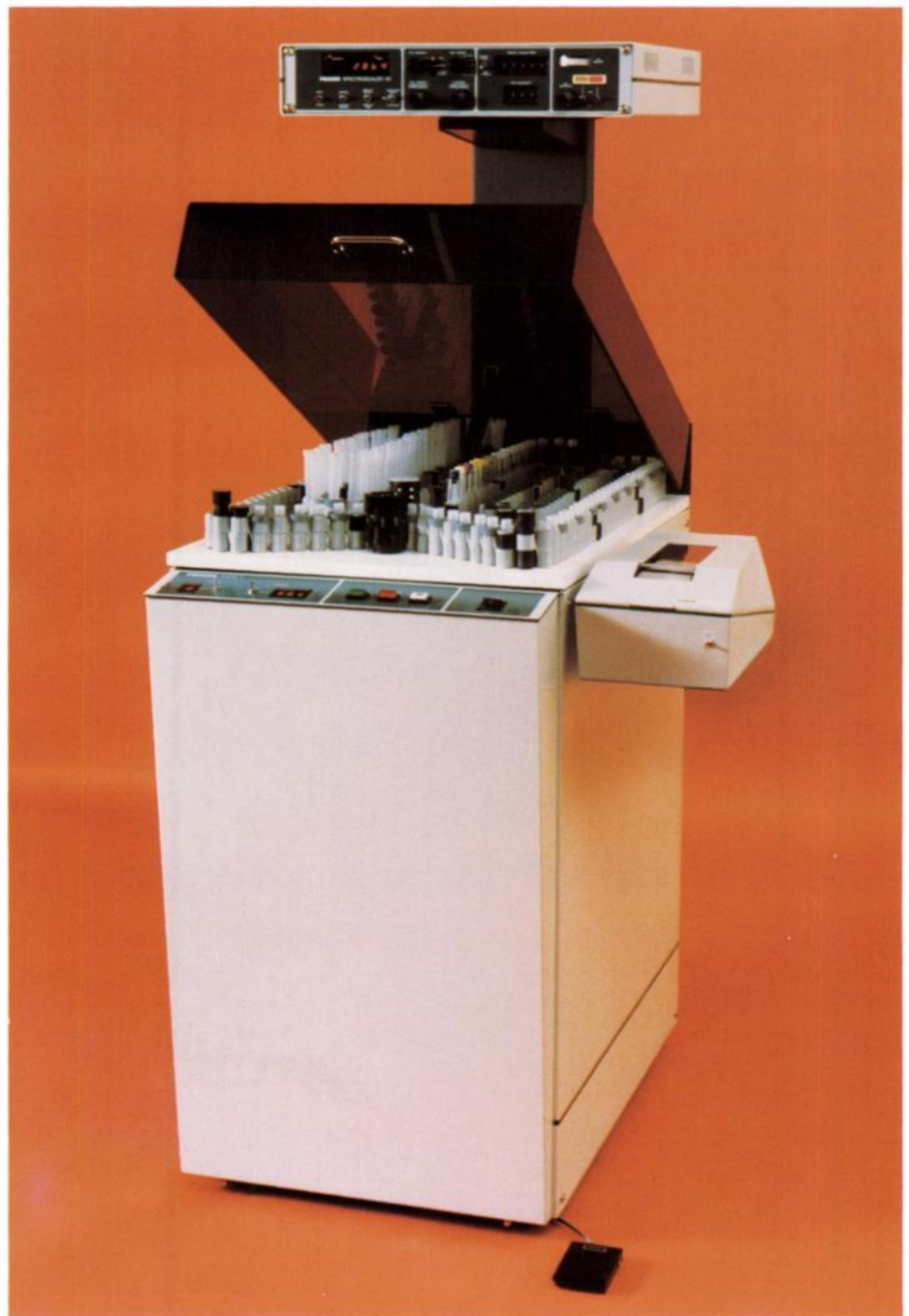
Automatic switching capabilities to second isotopes.

Available with the programmable automatic calculator (PAC) system to meet radioassay data reduction needs.

Samples can be loaded and counted in repeat or manual mode.

A 6-decade scaler/timer with solid state display permits count totals to 999,999 and elapsed times to 99.999 mins.

Ultra-stable, temperature-compensated electronics minimize short and long term drift.



Automatic background subtraction by thumbwheel selector.

A transparent cover with safety interlock allows

observation of samples in the changer and protection from contamination.

Compact base design, only 20 inches wide.



# Professional Education Associates

Joseph F. Iacovo, Director

Quality and Perfection in the development  
and implementation of

## SYMPOSIA — WORKSHOPS — SEMINARS

### What P.E.A. does for you:

- Development of program
  - Objectives
  - Content
  - Schedule
- Speaker contacts
  - All correspondence
  - Abstracts and follow up
- Facility arrangements
  - Site selection and/or inspection
  - Registration
- Detailed budget
- Financial management
- Press releases
- One hundred one details

P. O. BOX 123, DES PLAINES, IL 60017 TELEPHONE (312) 298 - 3948



## NUCLEAR MEDICINE FOR RESIDENTS

AN AUDIO VISUAL BASED ON  
THE ANNUAL INDIANA UNIVERSITY  
MEDICAL CENTER LECTURE SERIES

### Volume I - 5 LECTURES

"Basic Radiation Physics In Nuclear Medicine"  
by Robert T. Anger, M.S., Asst. Professor of Radiology.

"Daily Techniques of Radiopharmaceutical Preparation"  
by Michael P. Kavula, Jr., Pharm. D., Asst. Professor  
of Radiology.

"Elementary Aspects of Radiation Detection In Imaging"  
by Robert T. Anger, M.S., Asst. Professor of Radiology.

"Clinical Techniques And Practical Applications of Stationary  
Imaging Devices"  
by Henry N. Wellman, M.D., Professor of Radiology and Medicine.

"Clinical Techniques and Practical Applications of Rectilinear  
Imaging Devices"  
by Robert W. Burt, M.D., Asst. Professor of Radiology.

The complete first semester course consists of  
33 lectures in 6 volumes. Volume I is an in-  
troduutory overview of nuclear medicine  
establishing the foundation from which the  
subsequent lectures build.

## ARTIFACTS?

WHAT TO LOOK FOR —  
HOW TO CORRECT  
OR PREVENT —

- Setup errors
- Equipment failure
- Decay curves
- Floods
- Bar patterns



### "Quality Assurance in the Nuclear Medicine Lab"

by Michael L. Cianci, B.S., R.T.  
& James K. Langan, R.T.

This four part audio visual lecture  
presents the many problems & pitfalls  
that occur in the daily operation of equip-  
ment and patient handling in a nuclear  
medicine facility. Standard procedures  
for checking equipment & materials are  
discussed and many examples of er-  
roneous results are demonstrated.

PRODUCED BY: **Professional Education Associates**

For more information contact: JOSEPH F. IACOVO, DIRECTOR, P. O. BOX 123, DES PLAINES, IL 60017

# mobility and dependability

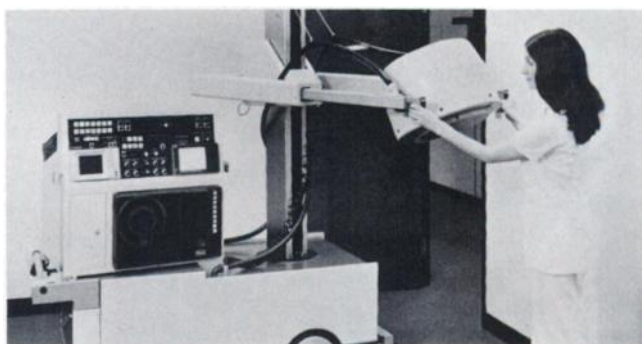


# with no loss in resolution

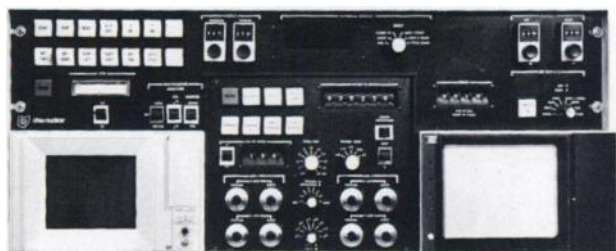
Wherever the need arises, in ICU, CCU, the Emergency Room, or within the NM Department, the Series 120 Mobile Camera is immediately available to generate high quality diagnostic information. And like all Ohio-Nuclear equipment, it is simple to operate.



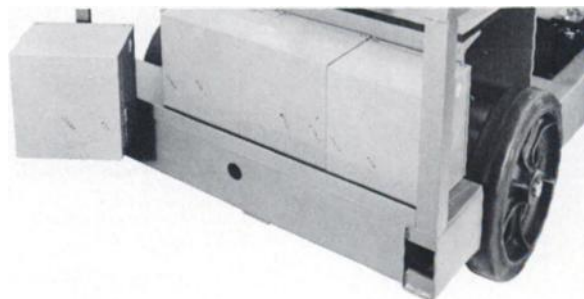
**Mobility.** The self-propelled Series 120 will travel at about 150' per minute, and negotiate a 10% incline under its own power, or it will creep for accurate patient positioning, all while maintaining full HV power to its photomultiplier tubes. This permits operation as soon as the unit is in place.



**Positioning.** Column, yoke, and head rotation movements are all performed manually. Yoke extension is also manual, to a maximum "reach over bed" distance of 22" (to center of collimator). Vertical yoke movement is motor driven, two speed, and controlled by the hand grips on the hand control.



**Capabilities.** The Series 120 is virtually identical to our well-known Series 100 Camera. And the 120 may be equipped with an optional Series 75M storage and retrieval system. This combination permits later re-evaluation, manipulation, and diagnosis of data sometimes captured under critical conditions.



**Battery Power.** Spill Proof Gel Cell Batteries, with negligible production of hydrogen, are automatically maintained by the system, charging whenever needed, as long as the AC line is plugged in. The batteries, DC, constantly maintain HV supply to the PM tubes, independently of the AC power.



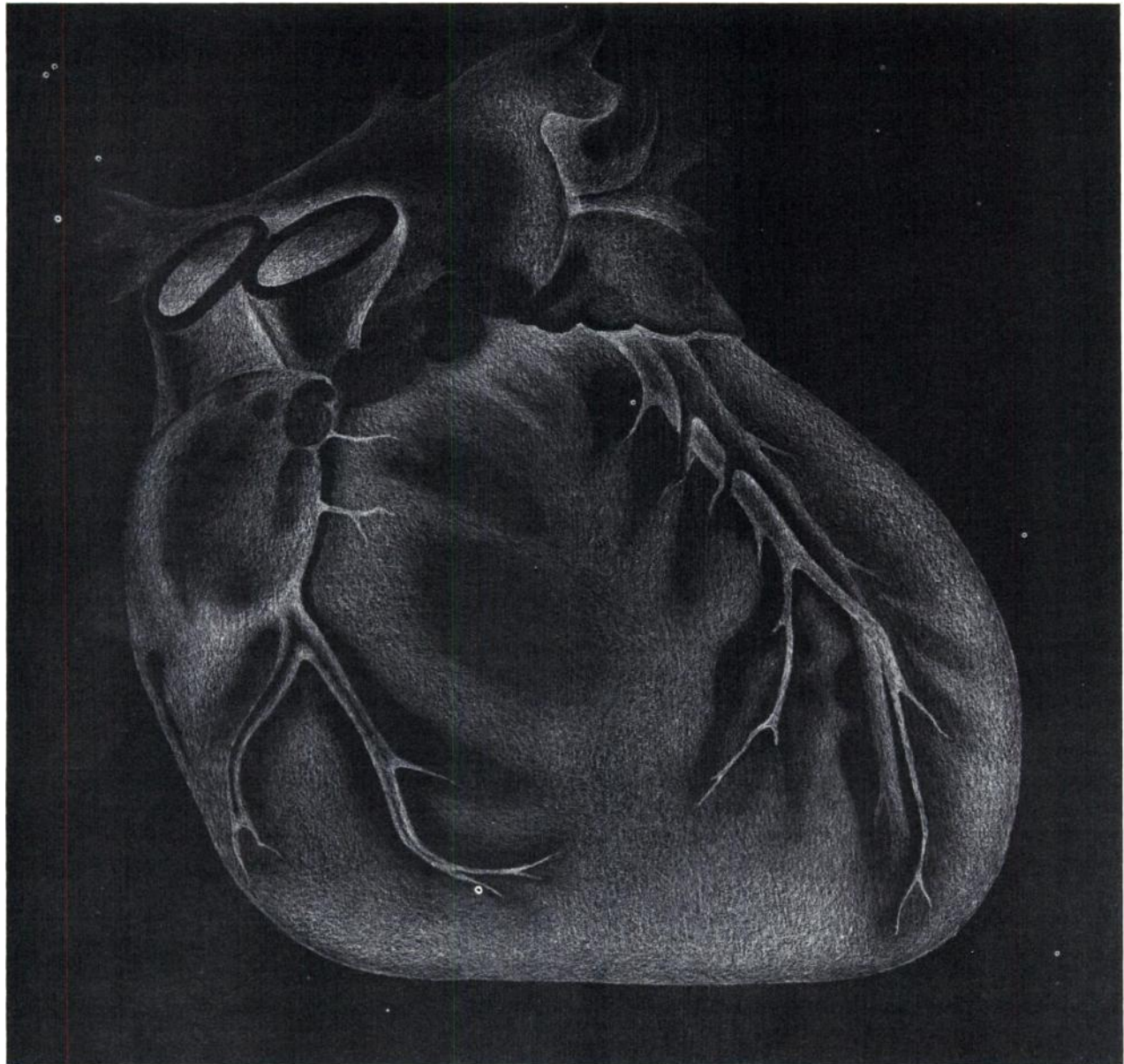
**Collimators.** All collimators are insert type and weigh approximately 23 pounds each. A variety of collimators is available. They may be easily and quickly changed by your technologist.



**ohio-nuclear, inc.**

6000 COCHRAN ROAD • SOLON, OHIO 44139  
PHONE (216) 248-8500 • TWX NO. 810-427-2896

(U.K.), Radix House, Central Trading Estate, Staines, Middlesex, England • Phone Staines 51444

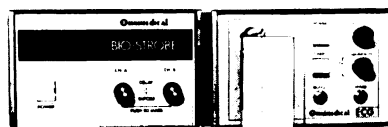


# Bio-Strobe: Cardiac Dual Gating

The immediate benefit to Cardiovascular Nuclear Medicine is simultaneous dual gating: ejection fraction calculations in one examination. Secondly, with no movement artifact, the Bio-Strobe achieves superior left ventricular function studies. And, in monitoring ventricular activities, it will isolate the T & P waves. More-

over, being a physiological gate, the Strobe has phonocardiogram capability, especially useful in cases like Bundle Branch Block. Modularity permits the use of the Strobe to gate any physiological parameter and the independent

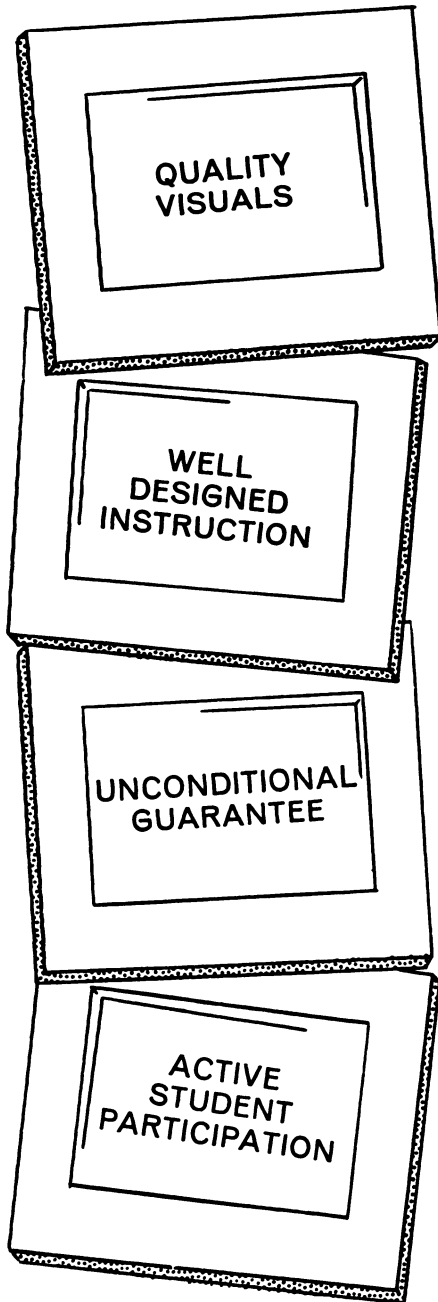
utilization of the newly designed ECG. The Bio-Strobe is advanced electronics, a growth system, priced for today, modular for tomorrow. The introductory price for the Strobe is \$1,485; for the ECG, \$1,295. Write or phone Omnimedical, P.O. Box 1277, Paramount, Ca., 90723, (213) 633-6660.



## OMNIMEDICAL

# THE SOCIETY OF NUCLEAR MEDICINE

presents . . . .



## **NEW** **AUDIOVISUAL** Self-Instructional Programs in Nuclear Medicine

*SNM presents a new series of high-quality self-instructional audiovisuals. Color slides are supported by clear narration on standard audio cassettes. These units offer active student participation to re-inforce the most important concepts in nuclear medicine.*

- S I-1. Radioimmunoassay and Other Saturation Analysis Techniques**  
*Richard Holmes*
- S I-2. Static Brain Imaging**  
*Alexander Gottschalk, Paul Hoffer, and James L. Quinn, III*
- S I-3. Dynamic Brain Imaging**  
*Paul Hoffer, Alexander Gottschalk, James L. Quinn, III, and Robert Henkin*
- S I-4. Dynamic Renal Studies**  
*Robert Polcyn*
- S I-5. Lung Imaging**  
*Naomi Alazraki*
- S I-6. Thyroid Scanning**  
*Samuel Halpern*
- S I-7. Radionuclides and the Heart**  
*William Kaplan, B. Leonard Holman, Salvador Treves, and S. James Adelstein*
- S I-8. Skeletal Imaging**  
*Robert O'Mara*
- S I-9. Thyroid Uptake Testing**  
*David Charkes*
- S I-10. Radionuclide Cisternography in Adult Hydrocephalus**  
*John Harbert*

---

Order now from: Society of Nuclear Medicine, 475 Park Ave. South, New York 10016

Please send me:

\_\_\_\_\_ S I-1  
\_\_\_\_\_ S I-2  
\_\_\_\_\_ S I-3  
\_\_\_\_\_ S I-4  
\_\_\_\_\_ S I-5

\_\_\_\_\_ S I-6  
\_\_\_\_\_ S I-7  
\_\_\_\_\_ S I-8  
\_\_\_\_\_ S I-9  
\_\_\_\_\_ S I-10

Each unit consists of  
from 30 to 80 slides with  
a standard audio cassette.

**PRICE:** \$40.00 each  
plus \$1.00 for postage

Send to: \_\_\_\_\_

# CAPINTEC...



## The Largest and Most Reliable



## Family of



# Radioisotope Calibrators!



Proved by thousands  
of hours of  
trouble-free service  
in more than 1,000  
nuclear medicine  
departments  
throughout the world!



### CRC-10<sup>o</sup>

- Push-button isotope selection
- Automatic ranging
- Automatic background adjust
- Highest sensitivity (0.1 uCi resolution)
- 12 atm Argon ionization chamber
- More than 40 isotope calibrations
- Largest sample size (up to a 200 cc vial)

- Geometry independence
- Moly-assay capability
- 40 page owners manual

Maintenance contract program (optional) . . . can provide loan equipment during period of service.

Precise reference standards (optional) . . . certified calibration stand-

ards available for routine quality control testing.

Choose from 6 additional members of the Capintec Family featuring — Activity range to 200 curies . . . dose computation . . . Tc-99m concentration recall . . . remote detector operation.

Complete local servicing available in most areas.

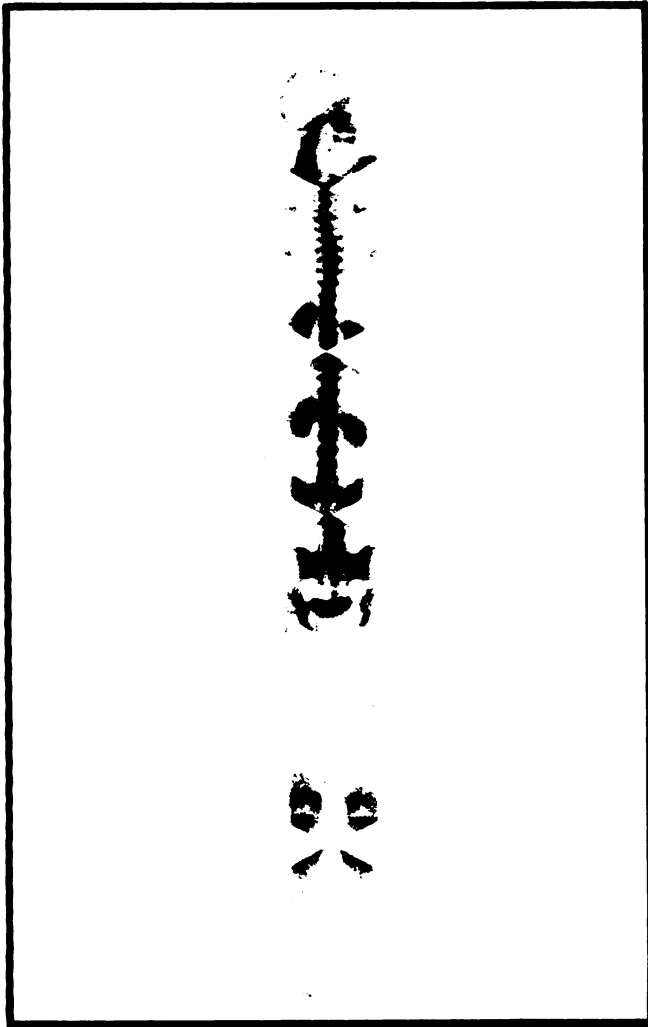


Write for information

**CAPINTEC, INC.**

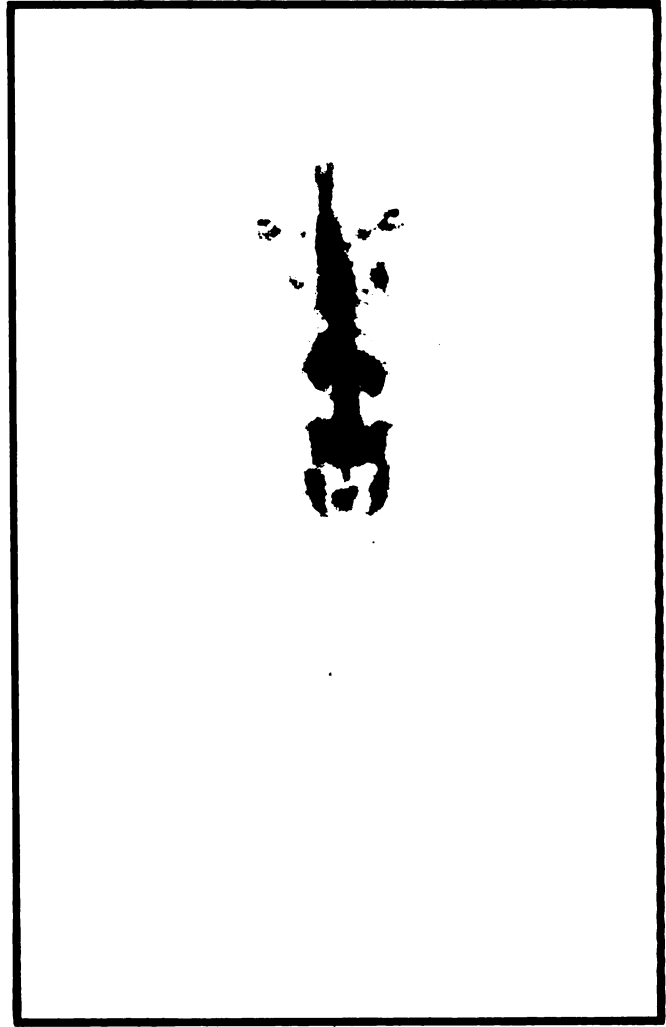
63 East Sandford Blvd., Mt. Vernon, N.Y. 10550 • 914-664-6600 • Telex. 131445 (Capintec MTV)

# An Unbiased Comparison



***Our Wide Field***

Study performed with Ohio-Nuclear Series 110 Wide Field Radioisotope Camera.



***Our Wide Field***

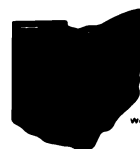
Study performed with Ohio-Nuclear Series 110 Wide Field Radioisotope Camera equipped with Series 110-8 AreaScan.

35 year old female: normal scan  
Study was performed in supine position with posterior view taken from beneath the table  
Collimator: medium resolution (Model 14W11013)  
Centerline: 140 keV  
Window: 20%  
Isotope: 20mCi <sup>99m</sup>Tc Pyrophosphate  
Time Begun: 4 hours post dose

Composite View  
700,000 counts per view except legs were 100,000 counts per view  
Total Scan Time: 30 minutes (included positioning)

AreaScan

Total Scan Time: 12.2 minutes



**ohio-nuclear, inc.**  
A subsidiary of Technicare Corporation

U.S. - 6000 Cochran Road • Solon, Ohio 44139

U.K. - Ohio-Nuclear U.K. • Radin House • Central

Trading Estate • Staines • Middlesex, England

Worldwide - Siemens A.G. Medical Division • D8530 Erlangen •

Hornstrasse 127 • West Germany

Telephone (216) 348-6999

Telex 876 457 2688

Telephone Staines 51444

Telephone 09131 86-1

Telex 861 888 847

First we planted an idea:

Design one simple  
uniform procedure for all our RIA tests.



1. Incubate sample with enzyme denaturant.\*
2. Boil and cool.
3. Add  $^{125}\text{I}$  reagent and antibody complex, and incubate.
4. Add buffer, and centrifuge.
5. Decant and count.

\*Patent Pending





Now the idea is bearing fruit.

Introducing the new  
**Cortisol <sup>125</sup>I RIA Kit.**



The beauty of this test is that it combines accuracy with a simple, uniform procedure—just five steps from start to finish.

Our Cortisol test is the first. Soon it will be joined by others in this series of RIA tests, all using the same simple, standard five-step procedure.

*This means simplified RIA analyses plus savings in technologists' time, fewer procedural errors, and greater lab efficiency.*

Exceptional standards of precision and accuracy have been built into this Cortisol Reagent Kit to give you a sensitive, reliable diagnostic tool. For example, its high antibody specificity makes chromatography of the specimen unnecessary.

Cross-reactivity at 50% binding	
Cortisol .....	1.000
Deoxycorticosterone .....	.0029
Corticosterone .....	.017
Cortisone .....	.0029

And of course our Cortisol <sup>125</sup>I reagents meet current government standards for both manual and automated procedures. For more information, please write to us or call (215) 674-8500.



SUBSIDIARY OF ROHM AND HAAS COMPANY

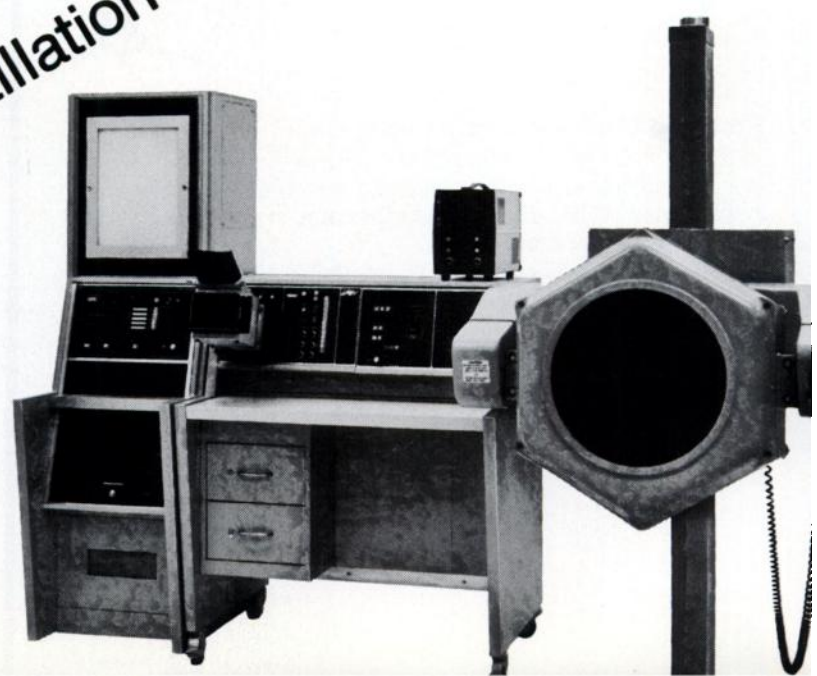
75-1426

The large  
field of view  
camera  
that provides  
superior diagnostic  
clarity

Pho/Gamma<sup>®</sup>



Large Field of View Scintillation Camera



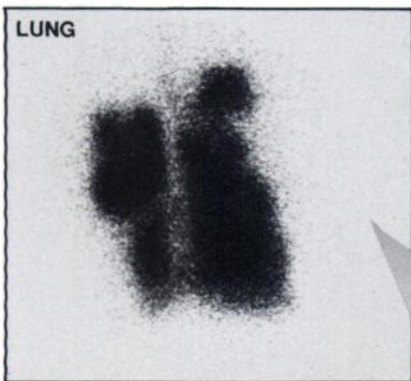
T.M.

- 15¼ inch (390 mm) field of view
- Hexagonal detector head design for ease of positioning
- Superior resolution at depth
- Totally new electronic design
- Large selection of parallel hole and converging collimators
- Backed by the world's largest and most experienced nuclear service facilities

#### LUNG VENTILATION STUDY

Important LFOV applications include functional and anatomical studies of the lungs using Xenon 133. The images are of such quality that the physician is able to define more anatomical detail than previously possible. Images obtained during breath holding intervals eliminate motion artifact and still can contain over 300K counts because of the unique design of the LFOV and its parallel hole collimators.

Pulmonary studies demonstrate quality in the ventilatory image which is near that obtained in perfusion images. In



many cases, segmental and even sub-segmental defects have been observed.

#### Posterior Ventilation

0-20 second frame • Approx., 300,000 counts  
20mCi in Spirometer • 133Xe

300,000 counts in this posterior ventilation image provide enough photon sufficiency to visualize small ventilatory defects. The patient, a 21 yr. old female, has cystic fibrosis.

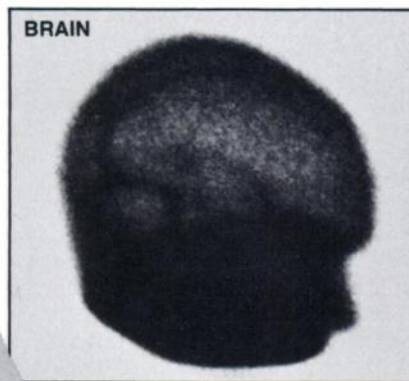
#### BRAIN STUDY

Large diameter crystal cameras require well designed converging collimation in order to image the brain adequately... studies of the brain obtained with the LFOV provide a remarkable level of image quality as observed in over 2000 clinical comparative studies. The vascular structures are clearly seen, both spatially and temporally. Even in the lateral view, the deep veins leading to the jugular systems are readily seen.

#### Lateral Brain Study

400,000 counts • 19mCi • 99mTc • 185 seconds

The improved resolution with depth allows clear separation of the sagittal sinus from the lower activity in the skull, and the scalp activity which is somewhat greater than that within the skull. In addition, the sinus is defined in its entirety as it proceeds downward from the torcular through the sigmoid sinus into the jugular bulb. Other midline structures including the floor of the anterior and middle cranial fossa, as well as the region of the pituitary, are clearly demarcated. There is a zone of activity extending superiorly and posteriorly from the region of the pituitary in line with the sphenoid ridge which is more likely the inferior sagittal sinus.



For additional sample studies performed on the LFOV and associated collimator information, ask your Searle representative for our latest Large Field of View Scintillation Camera brochure; or write:

SEARLE

#### Searle Radiographics Inc.

Subsidiary of G. D. Searle & Co.  
2000 Nuclear Drive  
Des Plaines, Illinois 60018 U.S.A.

Offices in Principal Cities  
throughout the World

SR511



**The first nuclear medicine  
computer system that is both  
AFFORDABLE and CLINICALLY USEFUL.**

## **ADAC Clinical Data System**

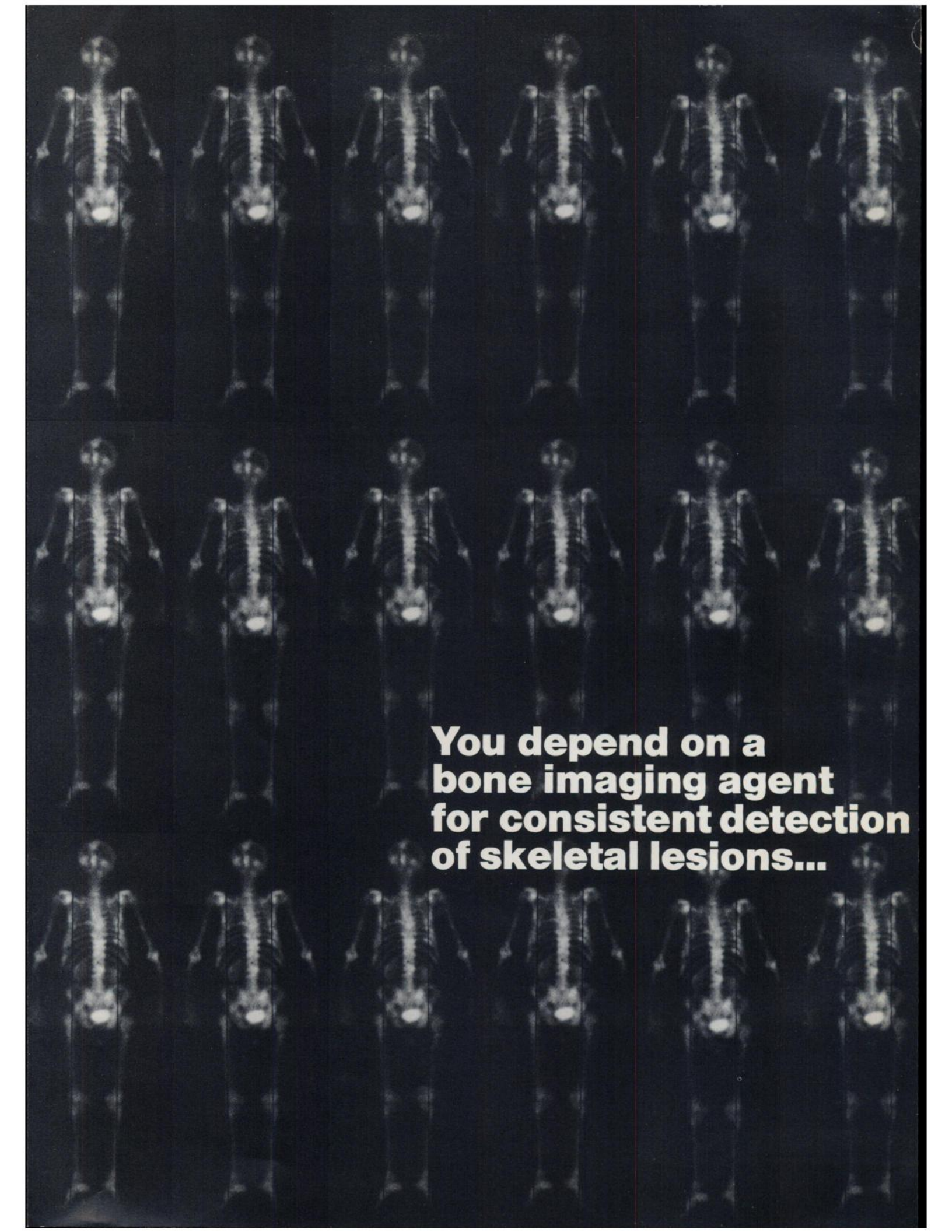


The immediate benefit to you is mini-computer capability (or better) at 50% to 75% savings. We're talking under \$30,000 for our new ADAC Clinical Data System. Much less than you planned to spend for direct storage and picture accessories. With our System you get image processing and storage. And a programmable 32K memory micro-computer (quite sensational, however you compare it). And Clinical software from ADAC, not just any group of computer technicians. We've been providing Clinical software to Nuclear Medicine for 4 years. For under \$30,000 you can have image processing for better diagnostic capability and a 32K memory

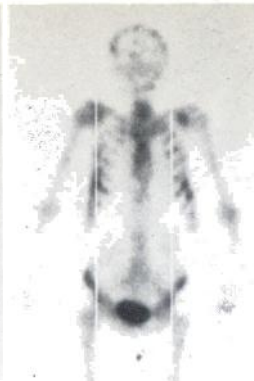
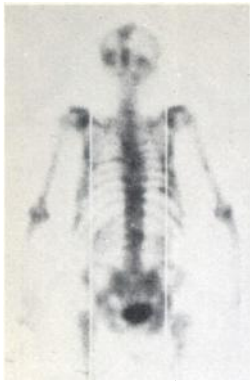
micro-computer for greater software flexibility. Our system utilizes floppy discs, one for data storage, one for data manipulation. The discs are inexpensive and permit ADAC to offer you software upgrade through the mails, free. The two disc feature also allows the unique capacity of image processing and quantitative organ function studies. To image processing, micro-computer, ADAC software, dual discs, now add the Mednet connection to our big computer, ready for the big problems if you need it. That's quite a package for under \$30,000. For more information, write or call collect to ADAC, 10300 Bubb Road, Cupertino, California 95014, 408/255-6353.



**ADAC, the Mednet Company**

The image consists of a 3x6 grid of 18 identical bone scan images. Each image shows a full-body skeletal scan with a bright, circular area of high radiotracer uptake in the lower abdominal region, indicating a skeletal lesion. The text is overlaid on the right side of the grid.

**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  
99mTc-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

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.

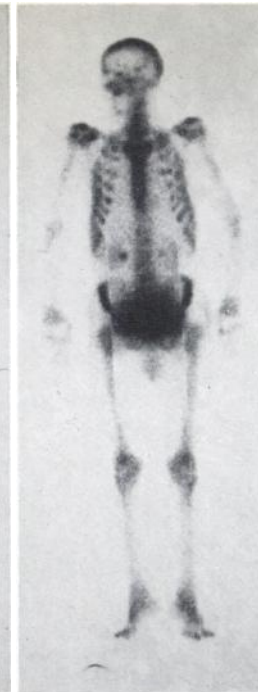
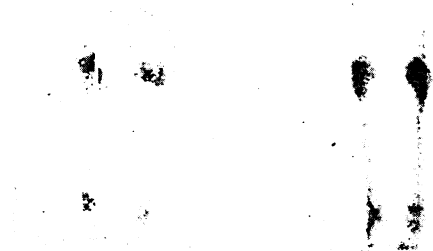
- P-C-P molecular bonding assures excellent in vivo stability—to minimize soft tissue uptake.
- Dry mix diphosphonate formulation reduces potential for hydrolysis.
- Formulated to produce consistently high tagging efficiency.

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  
99mTc-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  
99mTc-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 yours—please call Arnold Austin, Technical Manager, Professional Services Division, Procter & Gamble (513) 977-8547.

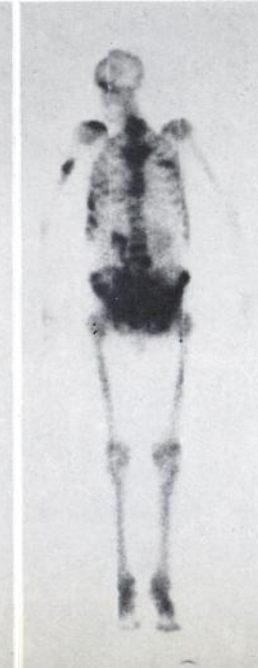
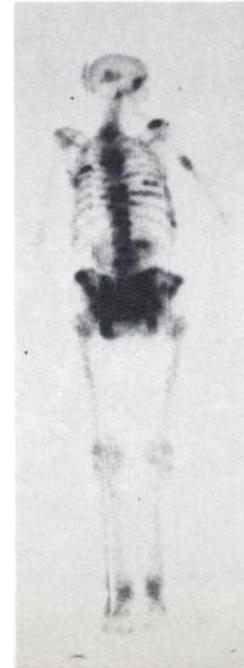
PROCTER & GAMBLE

**OSTEOSCAN®**

(5.9 mg disodium etidronate  
0.16 mg stannous chloride)

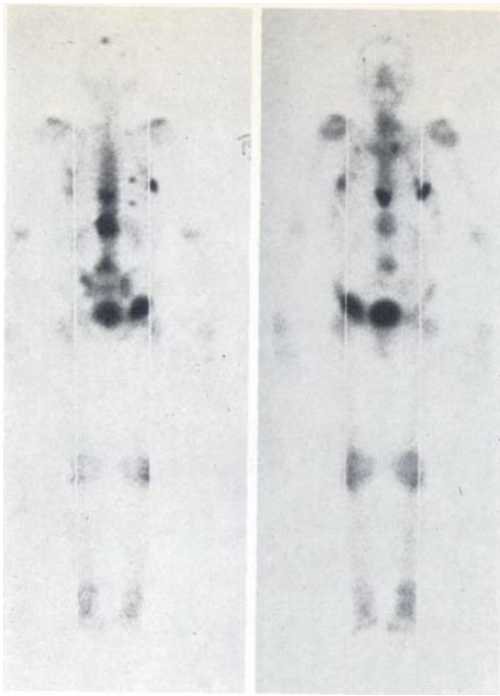
SKELETAL IMAGING AGENT

L POSTERIOR R R ANTERIOR L



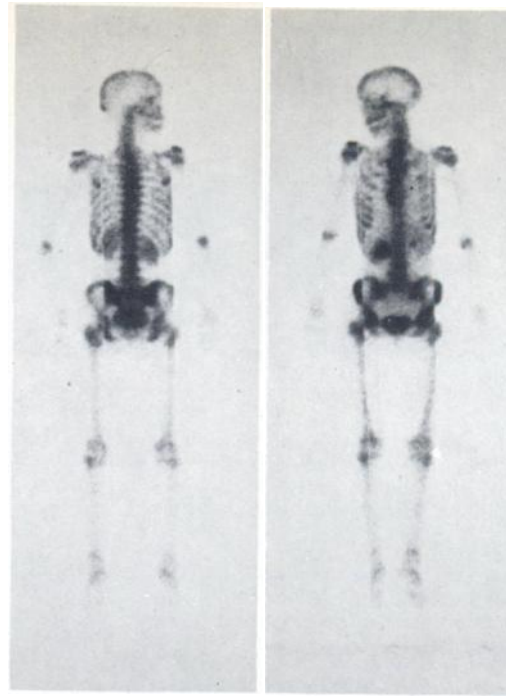
A 79-year-old male with known prostatic carcinoma metastatic to bone. Multiple lesions are seen throughout skeletal system.

Imaging Agent:  
15 mCi  
99mTc-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

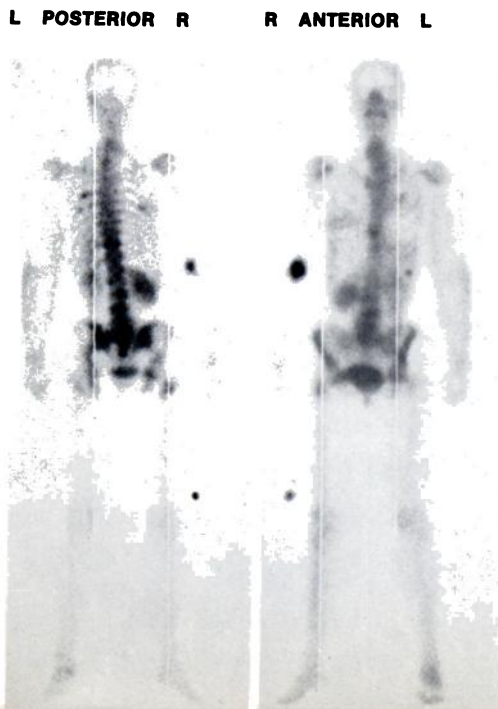
L POSTERIOR R R ANTERIOR L

L POSTERIOR R R ANTERIOR L

# OSTEOSCAN® consistently delivers:

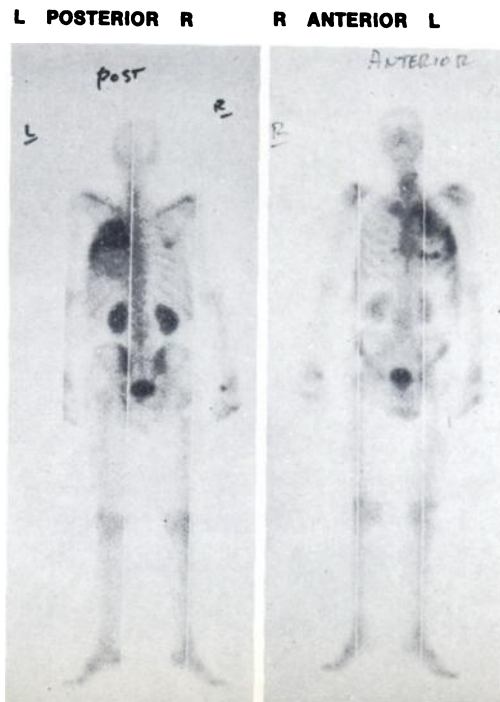
- Clear, sharp images
- High-quality lesion detection

See following page for brief summary of package insert.



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



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

L POSTERIOR R R ANTERIOR L

L POSTERIOR R R ANTERIOR L

# 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.

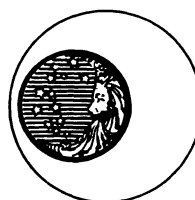
## ADVERSE REACTIONS

None.

## DOSE 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

(5.9 mg disodium etidronate  
0.16 mg stannous chloride)

SKELETAL IMAGING AGENT



## POSITIONS OPEN

**THE SEATTLE VA HOSPITAL AND the Division of Nuclear Medicine, University of Washington are seeking qualified applicants for a full-time academic position at the Assistant or Associate Professor level. Board eligibility or certification in Nuclear Medicine is required. Candidates with demonstrated clinical, teaching, and research ability are requested to C. V. and reprints to Glen W. Hamilton, M.D., Veterans Administration Hospital, 4435 Beacon Avenue South, Seattle, Washington 98108. Phone: (206) 762-1010, Ext. 459. Non-discrimination in employment.**

**STANFORD UNIVERSITY—FULLTIME position in Nuclear Medicine now available at Assistant or Associate Professor level. University teaching hospital, Nuclear Medicine facilities expanding. Desired qualifications: Proven excellence in teaching and in all aspects of clinical Nuclear Medicine, plus research experience. Excellent opportunity for advancement. Stanford University is an equal opportunity through affirmative action employer. Interested persons please send complete curriculum vitae and names and addresses of references to: Joseph P. Kriss, M.D., Division of Nuclear Medicine, Stanford University Medical Center, Stanford, Calif. 94305.**

**STAFF NUCLEAR MEDICINE TECHNOLOGIST needed for expanding imaging section in large multispecialty clinic and hospital in Big Ten University town. Must have registry now or in near future and have excellent references. Contact: R. A. Baylor, M.D., Department of Radiology, Carle Clinic, Urbana, Ill. 61801. Phone 217-837-3270.**

**RESEARCH MEDICAL OFFICER. Career Federal service. Conduct studies Human Nutrition Research Laboratory, Agricultural Research Service, Grand Forks, North Dakota. Including measurements body composition using a whole body gamma scintillation counter located in a steel room. This organization has neutron activation facilities and other support, and well-equipped nuclear medicine laboratory. Applicants must have completed training in nuclear medicine and metabolism. Salary range \$31,552 to \$36,000. Equal opportunity employer. Mary Dickson, USDA, ARS, 2000 W. Pioneer Parkway, Peoria, Ill. 61614, AC 809-678-9061, Ext. 532.**

**CLINICAL COORDINATOR, SANTA FE Community College, Gainesville, Florida. Position available immediately coordinating clinical involvement in a 2-year nuclear medicine technology program with 4 teaching hospitals in a university setting. Must be registered and experienced in all aspects of nuclear medicine. Good salary proportional to qualifications and excellent fringe benefit package is included. Contact: Robert A. Short, Radiologic Technology Programs, Santa Fe Community College, P.O. Box 1530, Gainesville, Fla. 32601, Phone: (904) 377-5161.**

**NUCLEAR MEDICINE TECHNOLOGIST. Immediate opening in our 1200 plus**

**bed, centrally located, Indiana teaching hospital. Registry required. Good benefits, salary commensurate with experience. Contact: Personnel Department, Methodist Hospital of Indiana, Inc., 1604 North Capitol Avenue, Indianapolis, Ind. 46202 or call collect 317-924-8931.**

**NUCLEAR MEDICINE TECHNICIAN. Registered ARRT or ASCP or eligible to registry. Will be cross trained in EMI Scanner use. Competitive salary and benefits. Interested candidates should reply to Director of Personnel, St. Bernardine Hospital, 2101 N. Waterman, San Bernardino, Calif. 92404. Phone 714-883-8711.**

**NUCLEAR MEDICINE RESIDENCY. Two-year program affiliated with University of CA/Irvine. Opening available July '76. Active clinical and research program in 1691 bed GM&S teaching hospital. Contact K. P. Lyons, M.D., Chief, Nuclear Medicine Service, V.A. Hospital, Long Beach, Calif. 90801. An equal opportunity employer.**

**EDUCATIONAL COORDINATOR POSITION available. Methodist Hospital of Indiana, at Indianapolis, a 1200-bed progressive medical center in the heart of the mid-west, has a recently approved Nuclear Medicine Program. We are looking for an Educational Coordinator with teaching experience to coordinate the program. The salary is commensurate with education (degree preferred) and experience, and we offer excellent benefits. If you are interested, we invite you to call collect (317) 924-8931 or send your resume to Mrs. Mary M. Shaw, Assistant Director of Employee Relations, Methodist Hospital of Indiana, 1604 North Capitol Avenue, Indianapolis, Ind. 46202.**

**REQUIRED: RADIOCHEMIST FOR ACTIVE Division of Isotopes in University of Alberta Hospital, involved in service research development and teaching. Ph.D. in related field preferred. Salary dependent on experience. Apply to: Dr. H. E. Bell, Chairman, Dept. of Laboratory Medicine, University of Alberta Hospital, Edmonton, Alberta, T6G 2B7, Canada.**

**POSITIONS FOR RESEARCH PHYSICIANS with training in nuclear medicine, endocrinology, or hematology, at Donner Laboratory, Lawrence Berkeley Laboratory, University of California. California medical license needed. Clinical responsibility and medical school or hospital affiliations optional. Send resume to James L. Born, M.D. or Thomas F. Budinger, M.D., Ph.D., 467 Donner Laboratory, Lawrence Berkeley Laboratory, University of California, Berkeley, Calif. 94720. An equal opportunity employer.**

**NUCLEAR MEDICINE TECHNOLOGIST. Staff Technologist for new 363-bed hospital located in community of 35,000, unlimited recreation, educational and cultural opportunities, in Southeastern Ohio. Excellent fringe benefits. Salary open; call collect: William B. Montgomery, Assistant Administrator (614) 454-4601. Bethesda Hospital, 2951 North Maple Ave., Zanesville, Ohio.**

## POSITION WANTED

**NUCLEAR AND DIAGNOSTIC RADIOLOGIST: 33, certified ABNM and ABR. University trained including fellowship in nuclear medicine, seeks position in radiology and/or nuclear medicine, near large metropolitan area. Full capabilities including angiography and ultrasound. Reply to: Box 1200, 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: Box 1201, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.**

**NUCLEAR MEDICINE PHYSICIAN, ABNM (Radiology background), well trained and experienced in all aspects of Nuclear Medicine, administrative experience, desires full-time position in clinical Nuclear Medicine, prefers Southwest or Pacific Coast, reply with job description and potential, available 7/1/76. Box 1202, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.**

**NUCLEAR MEDICINE DEPARTMENTAL administrator and technical director of education, university affiliated medical center technologists course. Sixteen years experience, B.S. degree, certification N.M.T. (ASCP-ARRT). Desires position in comprehensive nuclear medicine department. West coast area or south west but will consider relocating elsewhere. Curriculum vitae upon request. Box 1203, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.**

**NUCLEAR MEDICINE PHYSICIAN, completed two-year fellowship with university affiliated hospital, with medical background, seeks full-time position with clinical and research responsibilities. Reply to Box 1204, Society of Nuclear Medicine, 475 Park Avenue South, New York, N.Y. 10016.**

**M.D., NUCLEAR MEDICINE BOARD certified, experienced in university teaching, desires full-time position in clinical and academic nuclear medicine. Box 1205, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.**

**M.S., ASCP/AART NUCLEAR MEDICINE Technologist desires a position as Chief Technologist. Four years field experience. Reply Box 1206, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.**

**CHIEF NUCLEAR MEDICINE TECHNOLOGIST, ARRT registered. Eight years experience. Capabilities include in vivo and in vitro applications. Expert with most equipment and procedures. Interested in planning, organizing and managing established or new facilities. Prefer to relocate north west or north east U.S. Reply to Box 1207, Society of Nuclear Medicine, 475 Park Avenue South, New York, N.Y. 10016.**

### NUCLEAR MEDICINE RESIDENCY

Two-year approved program offering broad clinical and basic science experience including pediatrics, oncology, radiation safety, radiopharmacy management and research. An integrated program at State University of New York at Buffalo School of Medicine.

Contact: **Merrill A. Bender, M.D.**  
Program Director  
or **Monte Blau, Ph.D.**  
Chairman  
Dept. of Nuclear Medicine  
666 Elm Street  
Buffalo, New York 14263

### RESIDENCY AND FELLOWSHIPS IN NUCLEAR MEDICINE NOW AVAILABLE

For information contact:

**John A. Burdine, M.D.**  
Chief, Nuclear Medicine Section  
Department of Radiology  
Baylor College of Medicine  
Texas Medical Center  
Houston, Texas 77025  
Phone (713) 521-2272

**VETERANS ADMINISTRATION HOSPITAL  
UNIVERSITY OF MINNESOTA  
NUCLEAR MEDICINE  
RESIDENCY PROGRAM**

Resident positions are available in an AMA-approved two-year training program beginning January 1, 1976. A combined University of Minnesota VA Hospital program with active clinical and research opportunities. Minimum stipend \$13,100.

**AN EQUAL OPPORTUNITY EMPLOYER**

For further information, contact:

Merle K. Loken, M.D., Ph.D.  
Director, Division of Nuclear Medicine  
University of Minnesota Hospitals  
Box 382, Mayo Memorial Building  
Minneapolis, Minn. 55455

OR

Rex B. Shafer, M.D.  
Chief, Nuclear Medicine Service (172)  
Veterans Administration Hospital  
54th Street & 48th Avenue South  
Minneapolis, Minn. 55417

**EXPERIENCED NUCLEAR PHYSICIAN**

**Massachusetts General Hospital  
Harvard Medical School  
Nuclear Medicine Division  
Department of Radiology**  
ABNM Certification Required  
Clinical and Research Competency  
Emphasized

**CONTACT**

Juan M. Taveras, M.D.  
Radiologist-in-Chief  
or  
Majic S. Potsaid, M.D.  
Director, Nuclear Medicine Division  
Department of Radiology  
Massachusetts General Hospital  
Boston, Massachusetts 02114

*Equal Opportunity Employer*

**INTRODUCTORY ONE WEEK  
PHYSICIAN COURSE IN  
NUCLEAR MEDICINE  
Cleveland, Ohio**

**Contact:**

**D. Bruce Sodee, M.D., Director  
Nuclear Medicine Institute  
6780 Mayfield Road  
Cleveland, Ohio 44124**

**1976**

**January 12-16, 1976**

**March 8-12, 1976**

**May 10-14, 1976**

**July 12-16, 1976**

**November 8-12, 1976**

**ASSOCIATE DIRECTOR  
NUCLEAR MEDICINE**

**450 Bed Teaching Hospital  
Northern New Jersey**  
Internal Medicine Background Preferred  
Must be Board Eligible or Certified

Send resume and salary  
requirements to Box 1209

**Society of Nuclear Medicine  
475 Park Ave. South  
New York, N.Y. 10016**

**JNM CLASSIFIED PLACEMENT SERVICE SECTION**

This section in the Journal of Nuclear Medicine contains "Positions Open", "Positions Wanted", and "For Sale" listings. Nondisplay "Positions Wanted" ads by members of the Society are billed at 30¢ per word for each insertion with no minimum rate. Nondisplay "Positions Wanted" ads by nonmembers and all nondisplay "Positions Open" and "For Sale" ads by members and nonmembers are charged at 65¢ per word, with a minimum of \$15. Display advertisements are accepted at \$50 for 1/8 page, \$90 for 1/4 page, \$165 for 1/2 page, and \$295 for a full page. Closing date for each issue is the 15th of the second month preceding publication. Agency commissions and cash discounts are allowed on display ads only. Box numbers are available for those who wish them. All ads must be prepaid. Please note our new address.

**JOURNAL OF NUCLEAR MEDICINE  
475 Park Ave. South, New York, N.Y. 10016**

Immediate opening, Assistant Chief Technologist, ARRT or ASCP registered to aid in supervising an expanding imaging laboratory of a 300-bed teaching hospital. Overtime and standby pay, with paging device provided. Emergency call once every six weeks. Excellent growth opportunity. Outstanding recreational area. Competitive salary and benefits. An equal opportunity employer. Contact

**PAUL CHRISTIAN,**  
 Division of Nuclear Medicine,  
 University of Utah Medical Center,  
 Salt Lake City, Utah 84132.  
 Telephone: (801) 581-2716.

### NUCLEAR MEDICINE CHIEF TECHNOLOGIST

ASRT or ARRT registered, B.A. or B.S. in Nuclear Medicine, 3 years experience minimum; must have working knowledge of Rectilinear and camera scanning, and complete "wet lab" procedures, including RIA. Managerial experience helpful. Must perform not only test procedures, but handle ordering, budgeting, radiation safety program and personnel items.

Send resumes to Box 1208, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.

### Western Regional Registry Review and Continuing Education Meeting

Sponsored by

The Technologist Section of the Northern California Chapter, Society of Nuclear Medicine

Harrah's Convention Center

Reno, Nevada

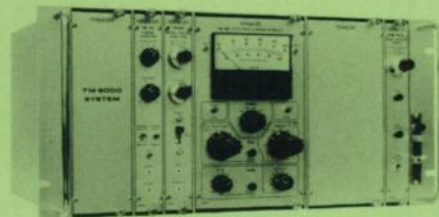
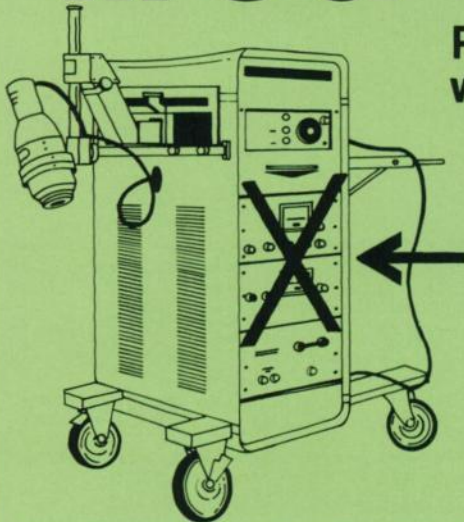
February 19-21, 1976

The Western Regional Registry Review and Continuing Education Meeting will offer points of interest for those students who will be taking the registry examination, for the physician who will be taking the ABNM exam and a well rounded continuing education program for the technologist. Topics will include the Quality Assurance of Scintillation Camera Programs developed by William R. Hendee (Bureau of Radiological Health, Food and Drug Administration, DHEW,) RIA Program, Radiopharmacology, Radiation Safety, Physiology and Anatomy, and Administration. Registration will open on Thursday evening Feb. 19th; exhibits will be open at that time and there will be a no-host cocktail party.

Contact: Jean Lynch, Exec. Secy., P.O. Box 40279, San Francisco, Calif. 94140

# Tired Scanner?

Put that old workhorse back in harness with a TENNELEC Update System.



TENNELEC TM 9000  
 Scanner Update System

**NIM** NUCLEAR  
 INSTRUMENT MODULES  
 A standard of excellence

- Space age LED light source
- Simplified controls (shorter set up time)
- Modern-as-tomorrow electronics (fewer service calls)
- Dual or triple channel options
- Full year warranty

**AND THAT'S NOT ALL!**

Ask about our full line of nuclear medicine systems.

**TENNELEC** Inc.

Quality you can depend on.

601 Turnpike Oak Ridge, TN 37830, Tel. (615) 483-8405 TWX 810-572-1018

# New England Nuclear Radiopharmaceuticals

**INDICATIONS.** Technetium Tc 99m MAA is indicated as a lung imaging agent to be used as an adjunct in the evaluation of pulmonary perfusion.

Specifically, the distribution of the agent reflects regional pulmonary perfusion and may be helpful in the evaluation of such clinical conditions as pulmonary embolus, chronic obstructive lung disease, congenital anatomic abnormalities, and pulmonary abscess. It can also be used in conjunction with a suitable liver imaging agent for the performance of lung-liver scans to detect subphrenic abscesses.

**CONTRAINDICATIONS.** The safety of aggregated albumin in patients with right-to-left cardiac shunts has not been demonstrated, and its use in such patients is contraindicated. The use of Tc 99m macroaggregated albumin is contraindicated in persons with a history of hypersensitivity reactions to products containing human serum albumin.

**WARNINGS.** Although not reported to date, the possibility of allergic reactions should be considered in patients who receive multiple doses. This radiopharmaceutical preparation should not be administered to pregnant or lactating women, or persons under 18 years of age unless the benefits to be gained outweigh 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.

Theoretically, the intravenous administration of any colloid material such as aggregated albumin imposes a temporary small mechanical impediment to blood flow. While this effect is probably physiologically insignificant in most patients, the administration of aggregated albumin is possibly hazardous in acute cor pulmonale and other states of severely impaired pulmonary blood flow. Although not reported with NEN's Tc 99m Aggregated Albumin, the literature contains four reports of deaths occurring after the administration of aggregated albumin to patients with pre-existing severe pulmonary hypertension.

*The contents of the vial before preparation are not radioactive. However, after the Per technetate Sodium Tc 99m is added, adequate shielding of the final preparation must be maintained.*

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

The labeling reactions involved in preparing the agent depend on maintaining the tin in reduced state. Any oxidant present in the Per technetate Sodium Tc 99m supply may thus adversely affect the quality of the prepared agent. Hence, Per technetate Sodium Tc 99m containing oxidants, or other additives, should not be employed without first demonstrating that it is without adverse effect on the properties of the resulting agent.

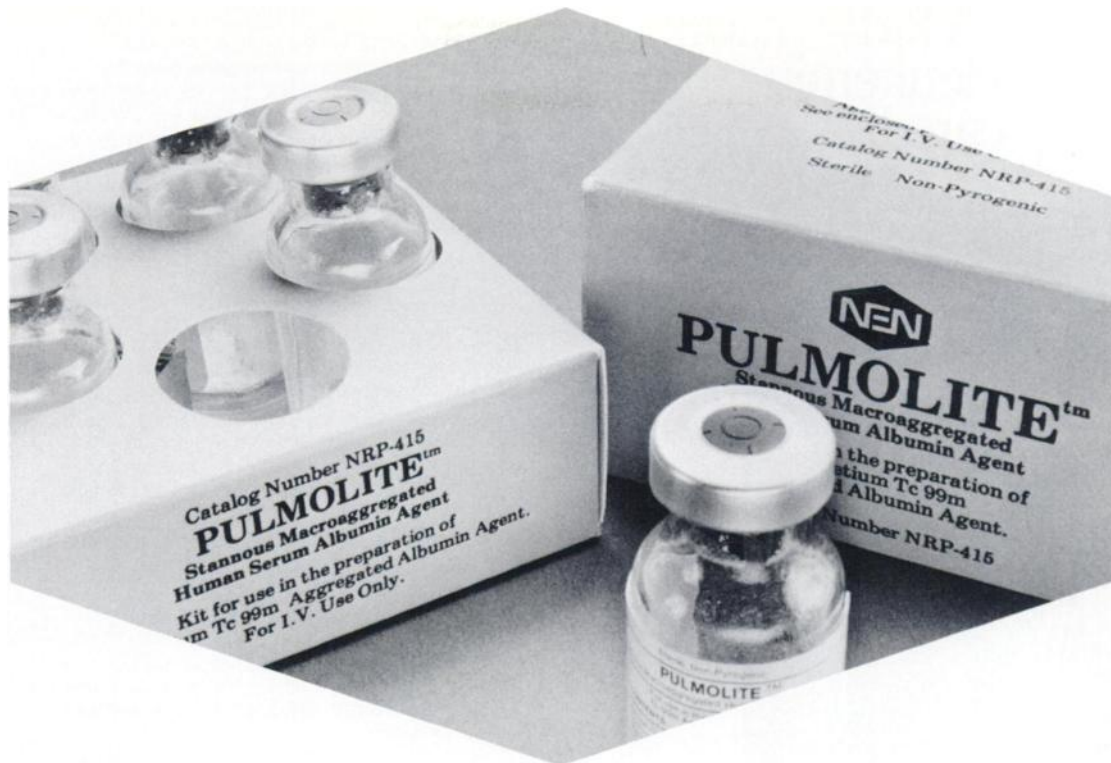
**PRECAUTIONS.** The contents of the vial are sterile and non-pyrogenic. It is essential that the user follows the directions carefully and adheres to strict aseptic procedures during preparation of the product.

PULMOLITE Agent should be used within 8 hours after reconstitution with Per technetate Sodium Tc 99m. Refrigerate after reconstitution.

If blood is withdrawn into syringe, unnecessary delay prior to injection may result in clot formation in situ.

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

**ADVERSE REACTIONS.** Although no adverse reactions have been reported using NEN Technetium Tc 99m Aggregated Albumin, rare instances of hemodynamic or idiosyncratic reactions to other preparations of Tc 99m labeled macroaggregated albumin have been recorded.



# Stat lung scan

**Just add Tc 99m, shake, inject, and do your scan.**

**Convenient** – No special storage conditions or equipment required

**Flexible** – You can reconstitute with 2-8ml containing 15-80mCi of TcO<sub>4</sub>

**Economical** – Lyophilized preparation may be stored at room temperature for up to one year, allowing large quantity purchases at a savings

**Labeling efficiency** – Typical efficiency is over 95% to give you high quality imaging

**Uniform particle size** – Typically 90% of the aggregates are well within the range of 5-75 $\mu$ m, and none larger than 150 $\mu$ m

Contact your NEN Representative or Customer Service for further details



## **New England Nuclear Radiopharmaceutical Division**

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

Los Angeles: 213-321-3311 Miami: 305-592-0702

Canada: NEN Canada Ltd, Lachine, Quebec. Tel: 514-636-4971  
Europe: NEN Chemicals GmbH, D6072 Dreieichenhain,  
W. Germany, Siemensstrasse 1. Tel: Langen 06103-85035

# A kid with leukemia can die from a cold.



Leukemia is a disease of the blood-forming tissues. It keeps the body from producing the necessary amounts of normal white blood cells to fight infection.

An infection that means a day in bed for a normal child is a threat to the life of a child with leukemia.

Today research has made enormous progress. At one time, leukemia victims lived only a few months.

Now, in some cases, we can prolong their lives a few years. That's good. But not good enough.

Even though we're closer to a cure, leukemia is still the major cause of disease and death in kids between the ages of 3 and 14.

We want to save the life of every leukemia victim.

We can't do it without a healthy contribution from you.

**We want to wipe out cancer in your lifetime. Give to the American Cancer Society.**



This space contributed by the publisher

## PHOSPHOTEC®

### Technetium 99m-Stannous Pyrophosphate Kit

Phosphotec provides all the nonradioactive components required to prepare  $^{99m}\text{Tc}$ -stannous pyrophosphate complex. Each vial contains a sterile, nonpyrogenic lyophilized powder prepared from 40 mg. tetrasodium pyrophosphate decahydrate (equivalent to 23.9 mg. tetrasodium pyrophosphate) and 1.0 mg. stannous fluoride; pH is adjusted with sodium hydroxide or hydrochloric acid. The product does not contain a preservative. At the time of manufacture, the air in the vials is replaced by nitrogen.

Reconstitution of Phosphotec with sterile sodium pertechnetate- $^{99m}\text{Tc}$  results in an aqueous solution of Technetium 99m-Stannous Pyrophosphate Complex.

**INDICATIONS:** Technetium 99m-Stannous Pyrophosphate Complex is indicated for use as a bone imaging agent to define areas of altered blood flow in osseous tissues.

**CONTRAINDICATIONS:** At present, there are no known contraindications to the use of  $^{99m}\text{Tc}$ -stannous pyrophosphate complex.

**WARNINGS:** The contents of the Phosphotec (Technetium 99m-Stannous Pyrophosphate Kit) vial are intended only for use in the preparation of  $^{99m}\text{Tc}$ -stannous pyrophosphate complex and **are NOT to be directly injected into a patient prior to labeling.**

Phosphotec (Technetium 99m-Stannous Pyrophosphate Kit) is not radioactive. However, after  $^{99m}\text{Tc}$ -sodium pertechnetate is added, adequate shielding of the resulting preparation must be maintained.

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 patients who are pregnant or during lactation unless the information to be gained 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.

**PRECAUTIONS:** It is essential that the user follow the directions carefully and adhere to strict aseptic procedures during preparation of the product.

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.

To minimize visualization of the bladder, the patient should be encouraged to void immediately prior to the examination; prior hydration of the patient may be useful.

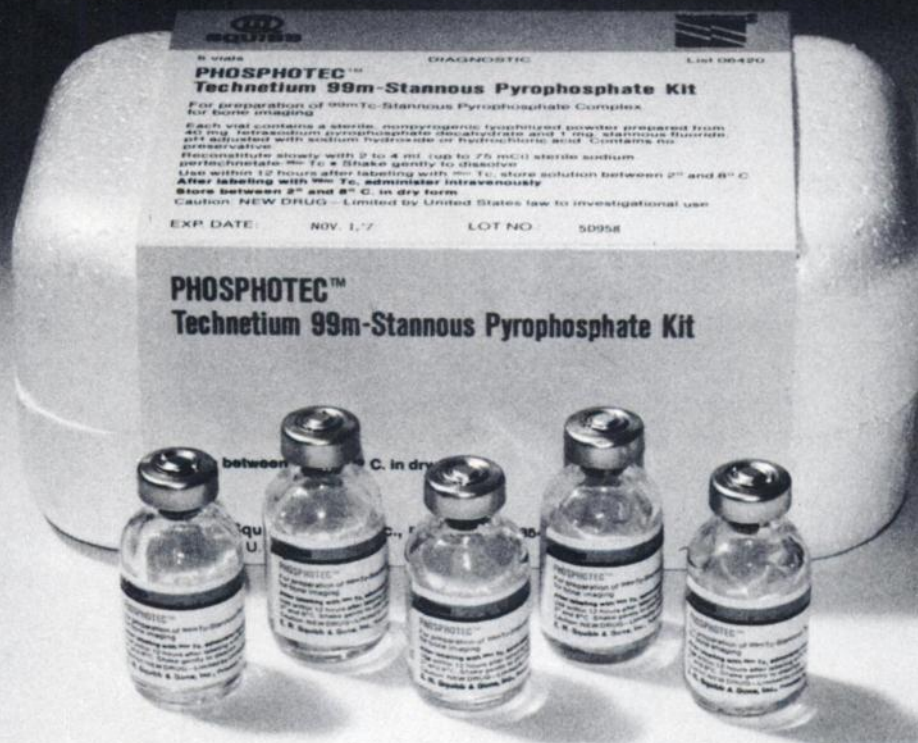
Use the preparation within 12 hours after labeling with  $^{99m}\text{Tc}$ .

**ADVERSE REACTIONS:** At present, adverse reactions have not been reported following the administration of  $^{99m}\text{Tc}$ -stannous pyrophosphate complex.

**HOW SUPPLIED:** Phosphotec (Technetium 99m-Stannous Pyrophosphate Kit) is supplied in a kit containing five vials.

**SQUIBB®** The Priceless Ingredient of every product is the honor and integrity of its maker.™

**Now available for skeletal imaging**



# PHOSPHOTEC<sup>®</sup>

## Technetium 99m-Stannous Pyrophosphate Kit

# 20.5

(ratio of Pyrophosphate  
to Stannous Tin)

### **SQUIBB QUALITY—THE PRICELESS INGREDIENT**

Unlike many companies involved in nuclear medicine, Squibb is also a broad line pharmaceutical house . . . and has been for over a century. So when it comes to formulation and quality control procedures, we wrote the book. Consider that before you purchase any radiopharmaceutical. At Squibb, quality is a way of life.

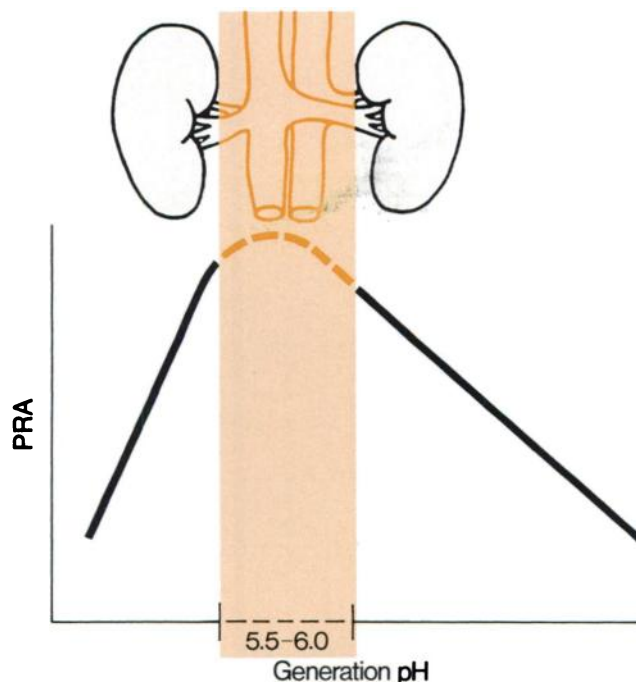
### **SQUIBB HOSPITAL DIVISION**

E.R. Squibb & Sons, Inc.  
P.O. Box 4000  
Princeton, N.J. 08540

©1975 E R Squibb & Sons, Inc H605-505



# The Angiotensin I [<sup>125</sup>I] Kit For Plasma Renin Activity



**The original Angiotensin I RIA kit  
with a buffered generation system**

**The original Angiotensin I RIA kit  
utilizing an optimized pH for generation of Angiotensin I**

**The original Angiotensin I RIA kit  
employing a mono-iodinated, highly immunoreactive, stabilized tracer**

**Now the first commercial Angiotensin I RIA kit  
with time-saving, individual, pre-calibrated, lyophilized standards**

Send for clinical validation and technical data.

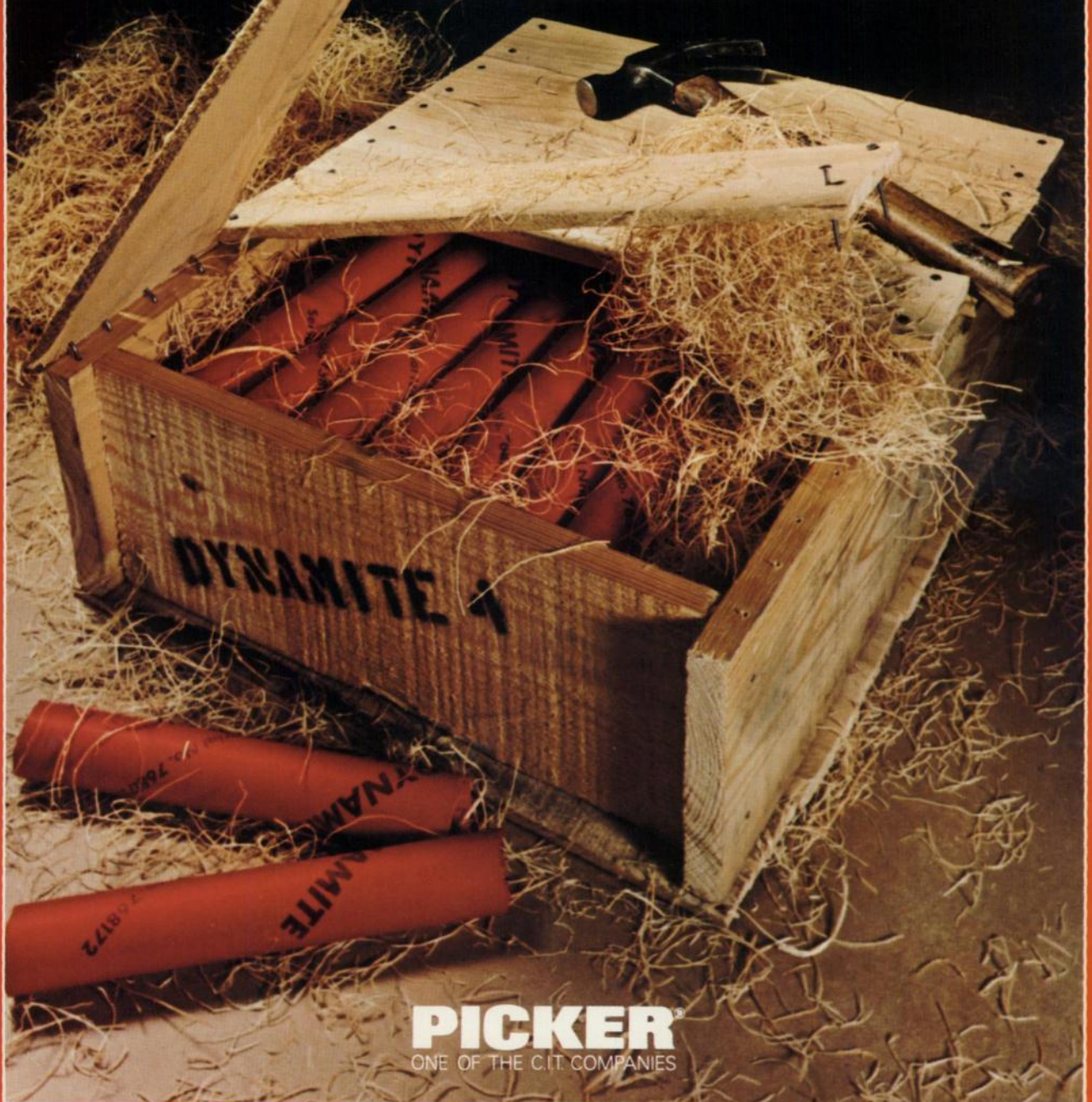
**NEN** **New England Nuclear**

549 Albany Street, Boston, Massachusetts 02118  
Customer Service 617-482-9595

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



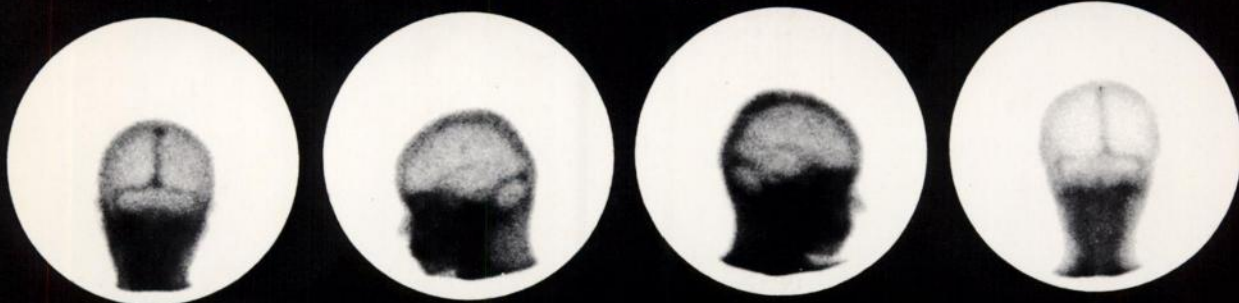
# DYNAMAMITE RESULTS



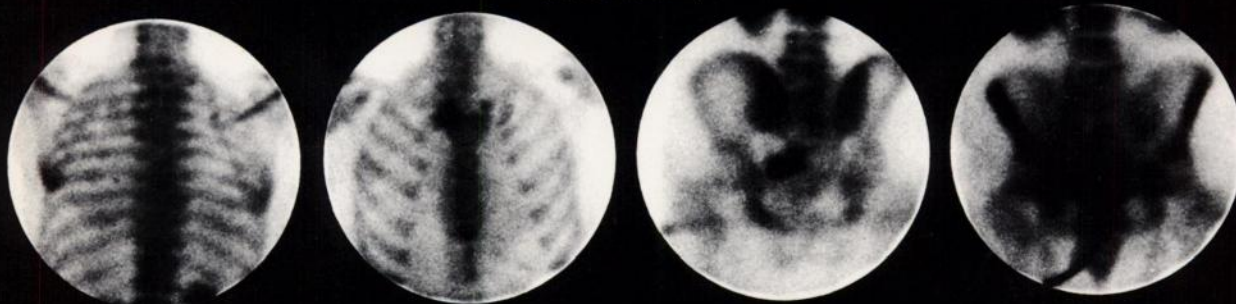
**PICKER**  
ONE OF THE C.I.T. COMPANIES

Clinical Results Dyna™ Camera 4/15  
Picker Large Field (15" diameter) Detector

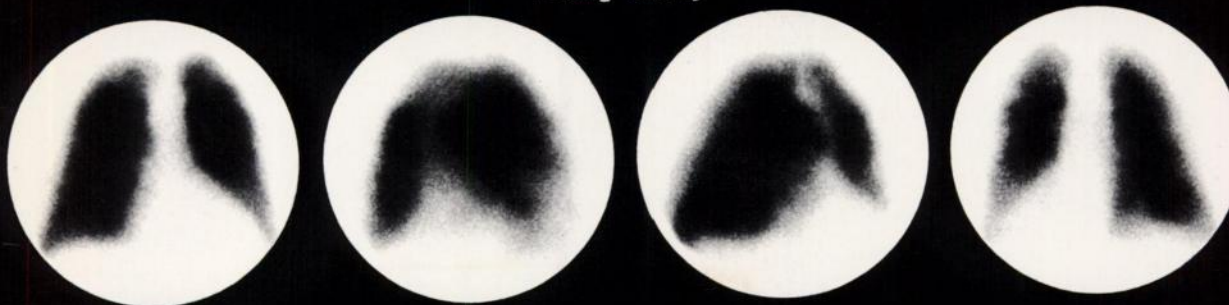
Brain Study



Bone Study



Lung Study



For dynamite clinical results, rely on the DynaCamera 4 System, presently the only system with choice of three detector sizes: 10", 12" or 15". Contact your Picker representative or write: Picker Corporation, 12 Clintonville Road, Northford, CT 06472.

**PICKER®**  
ONE OF THE C.I.T. COMPANIES



**nuclear  
endocrine  
laboratories**

*... in house*

**radioimmunoassay reference service specialists**

**We've added...**

# PTH!!~ PARATHYROID HORMONE and PROLACTIN!!

I. ENDOCRINOLOGY	Minimum Turn-Around Time (Days)
<b>THYROID</b>	
1. T <sub>2</sub>	1
2. T <sub>3</sub>	1
3. T <sub>4</sub> or FTI	1
4. PBI	1
5. TBI	1
6. Free Thyroxine ***	2
7. E.T.R. (Effective Thyroxine Ratio)	3
8. T <sub>4</sub> Radioimmunoassay	4
9. T <sub>4</sub> Radioimmunoassay	7
<b>ANTERIOR PITUITARY</b>	
10. T.S.H. (Thyroid Stimulating Hormone)	5
11. F.S.H. (Follicle Stimulating Hormone)	7
12. L.H. (Luteinizing Hormone)	7
13. H.G.H. (Human Growth Hormone)	7
14. A.C.T.H.	15
15. Prolactin	10
<b>PLACENTA</b>	
16. H.C.G. (Human Chorionic Gonadotropin) B/Sub Unit	10
17. H.C.S. (Human Chorionic Somatomammotropin)	7
<b>GONADS</b>	
18. Estrogens, Total	7
19. Estradiol	7
20. Estriol	7
21. Estrone	7
22. Progesterone	7
23. Testosterone	7
<b>ADRENAL CORTEX</b>	
24. Cortisol	3
25. Aldosterone	10
<b>PARATHYROID</b>	
26. Parathyroid Hormone	15
27. Calcitonin	15
<b>PANCREAS</b>	
28. Insulin	5

II. CARDIOVASCULAR	Minimum Turn-Around Time (Days)
<b>ASSAY</b>	
29. Digoxin	3 Hrs.
30. Digibain	2 Days
31. Angiotensin I (Plasma Renin Activity)	4

III. HEMATOPOIETIC	Minimum Turn-Around Time (Days)
32. Vitamin B <sub>12</sub>	5
33. Folic Acid	5
34. Serum Iron (Total & Unsaturated binding capacity)	5

IV. IMMUNE	Minimum Turn-Around Time (Days)
35. H.A.A. (Hepatitis Associated Antigen)	1
36. IgE	7
37. Carcinoembryonic Antigen	4

V. MISCELLANEOUS	Minimum Turn-Around Time (Days)
38. Morphine	3
39. Cyclic AMP	4
40. Gestrin	4
41. T.B.G. (Thyroid Binding Globulin)	3

VI. SPECIAL PACKAGES	Minimum Turn-Around Time (Days)
42. Allergy Assays (RAST) Over Fifty (50) Different Allergens —	—
43. OB and GYN Complete Package	—
44. Thyroid Package —	—

SHORT TURN-AROUND TIME • FREE MAILERS & PICK-UP SERVICE • CALL 1-216-231-5400 or MAIL REPLY CARD.



**nuclear endocrine laboratories**  
10623 Chester Ave., Cleveland, Ohio 44106

Gentlemen:

Yes, I'm interested in your specialized diagnostic services.

\_\_\_ Send more information and price list now.

\_\_\_ Send requisition form and mailing containers.

\_\_\_ Place my name on your mailing list.

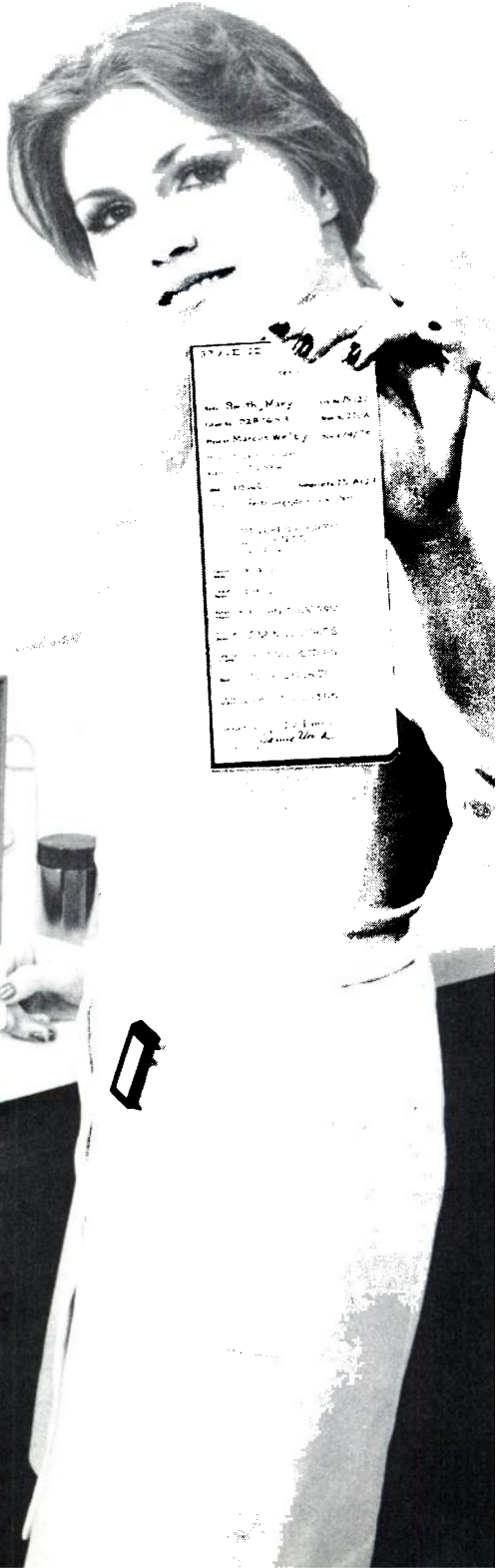
\_\_\_ Other: \_\_\_\_\_

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

ZIP \_\_\_\_\_ PHONE \_\_\_\_\_

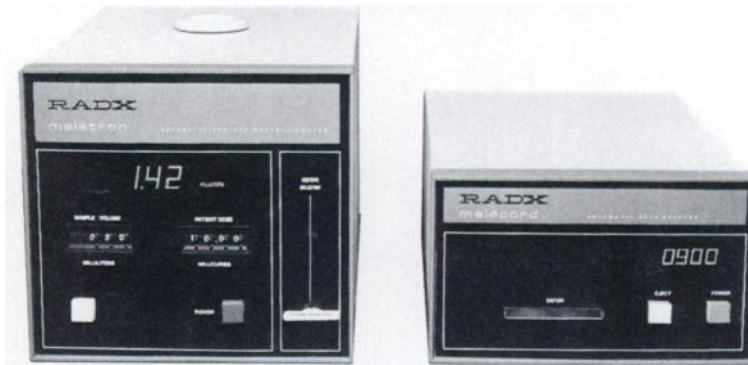


NAME NO.

Mr. Ruth, Mary	100000
Mr. Smith, John	100001
Mr. Brown, James	100002
Mr. White, Robert	100003
Mr. Green, William	100004
Mr. Black, Charles	100005
Mr. Gray, Thomas	100006
Mr. Red, Richard	100007
Mr. Blue, Joseph	100008
Mr. Yellow, Frank	100009
Mr. Purple, Edward	100010
Mr. Orange, George	100011
Mr. Silver, Martin	100012
Mr. Gold, Benjamin	100013
Mr. Bronze, Samuel	100014
Mr. Iron, Daniel	100015
Mr. Steel, Andrew	100016
Mr. Copper, Christopher	100017
Mr. Nickel, Steven	100018
Mr. Zinc, Paul	100019
Mr. Lead, Matthew	100020
Mr. Tin, Anthony	100021
Mr. Aluminum, Donald	100022
Mr. Magnesium, Kenneth	100023
Mr. Silicon, Ronald	100024
Mr. Phosphorus, Eric	100025
Mr. Sulfur, Jeffrey	100026
Mr. Chlorine, Ryan	100027
Mr. Fluorine, Nicholas	100028
Mr. Neon, Alexander	100029
Mr. Argon, Justin	100030
Mr. Krypton, Benjamin	100031
Mr. Xenon, Samuel	100032
Mr. Radon, Daniel	100033
Mr. Helium, Andrew	100034
Mr. Neon, Christopher	100035
Mr. Argon, Steven	100036
Mr. Krypton, Paul	100037
Mr. Xenon, Matthew	100038
Mr. Radon, Anthony	100039
Mr. Helium, Donald	100040
Mr. Neon, Kenneth	100041
Mr. Argon, Ronald	100042
Mr. Krypton, Eric	100043
Mr. Xenon, Jeffrey	100044
Mr. Radon, Ryan	100045
Mr. Helium, Nicholas	100046
Mr. Neon, Alexander	100047
Mr. Argon, Justin	100048
Mr. Krypton, Benjamin	100049
Mr. Xenon, Samuel	100050
Mr. Radon, Daniel	100051
Mr. Helium, Andrew	100052
Mr. Neon, Christopher	100053
Mr. Argon, Steven	100054
Mr. Krypton, Paul	100055
Mr. Xenon, Matthew	100056
Mr. Radon, Anthony	100057
Mr. Helium, Donald	100058
Mr. Neon, Kenneth	100059
Mr. Argon, Ronald	100060
Mr. Krypton, Eric	100061
Mr. Xenon, Jeffrey	100062
Mr. Radon, Ryan	100063
Mr. Helium, Nicholas	100064
Mr. Neon, Alexander	100065
Mr. Argon, Justin	100066
Mr. Krypton, Benjamin	100067
Mr. Xenon, Samuel	100068
Mr. Radon, Daniel	100069
Mr. Helium, Andrew	100070
Mr. Neon, Christopher	100071
Mr. Argon, Steven	100072
Mr. Krypton, Paul	100073
Mr. Xenon, Matthew	100074
Mr. Radon, Anthony	100075
Mr. Helium, Donald	100076
Mr. Neon, Kenneth	100077
Mr. Argon, Ronald	100078
Mr. Krypton, Eric	100079
Mr. Xenon, Jeffrey	100080
Mr. Radon, Ryan	100081
Mr. Helium, Nicholas	100082
Mr. Neon, Alexander	100083
Mr. Argon, Justin	100084
Mr. Krypton, Benjamin	100085
Mr. Xenon, Samuel	100086
Mr. Radon, Daniel	100087
Mr. Helium, Andrew	100088
Mr. Neon, Christopher	100089
Mr. Argon, Steven	100090
Mr. Krypton, Paul	100091
Mr. Xenon, Matthew	100092
Mr. Radon, Anthony	100093
Mr. Helium, Donald	100094
Mr. Neon, Kenneth	100095
Mr. Argon, Ronald	100096
Mr. Krypton, Eric	100097
Mr. Xenon, Jeffrey	100098
Mr. Radon, Ryan	100099
Mr. Helium, Nicholas	100100



# melétron & melécord



**your key to accurate  
dosecalibration  
and error-free records**



**Now you can assay, compute dose,  
and get an instrument-verified  
printout — in just 30 seconds.**

Programmed sequenced instruction eliminates operator errors. All you do to assay a radionuclide is insert the proper key — from the 33 isotope keys now available, with others to come as they are needed — your insurance against instrument obsolescence.

The melétron calculates the volume to administer (in 0.1 ml increments from 0.1 to 99.9) for all patient doses (in 10 uCi increments from 10 uCi to 99.99 mCi.) Accuracy is  $\pm 5\%$ , with calibrations traceable to the National Bureau of Standards.

Range capability is up to 10 curies. Lets you handle high-activity Mo 99/Tc 99m generators. Melétron's automatic ranging eliminates manual selection — and another chance for operator error. Background subtraction is also automatic, and design of the ionization chamber will allow a 3/16" lead shield. The large chamber accommodates all standard size vials and syringes, and even an entire generator eluate for checking Mo 99 breakthrough.

**Melétron Remote Chamber** is available as an accessory for use when the Melétron is located in a high radiation area, such as the "hot" lab. Allows for maximum shielding and ease of operation. When the remote chamber is connected, the melétron's internal chamber is deactivated.



**Melécord prints permanent copies of all functions — the vital part of your record keeping system.**

You get hard copy in triplicate. Saves time. Prevents errors. Makes NRC (AEC) accountability far easier.

Melécord also prints the exact time and date of each assay automatically, while it alternately displays them on a digital calendar/clock on the front panel, and Melécord can be factory programmed to generate three lines for printing institution identification on each data card.

**The Melefile permanent record storage system — instant NRC (AEC) accountability.**

Compact, filing cabinets hold tab cards, lot number cards to identify and account for radio pharmaceuticals, and patient data cards. Keeps records organized and readily accessible when you need them for any reason.

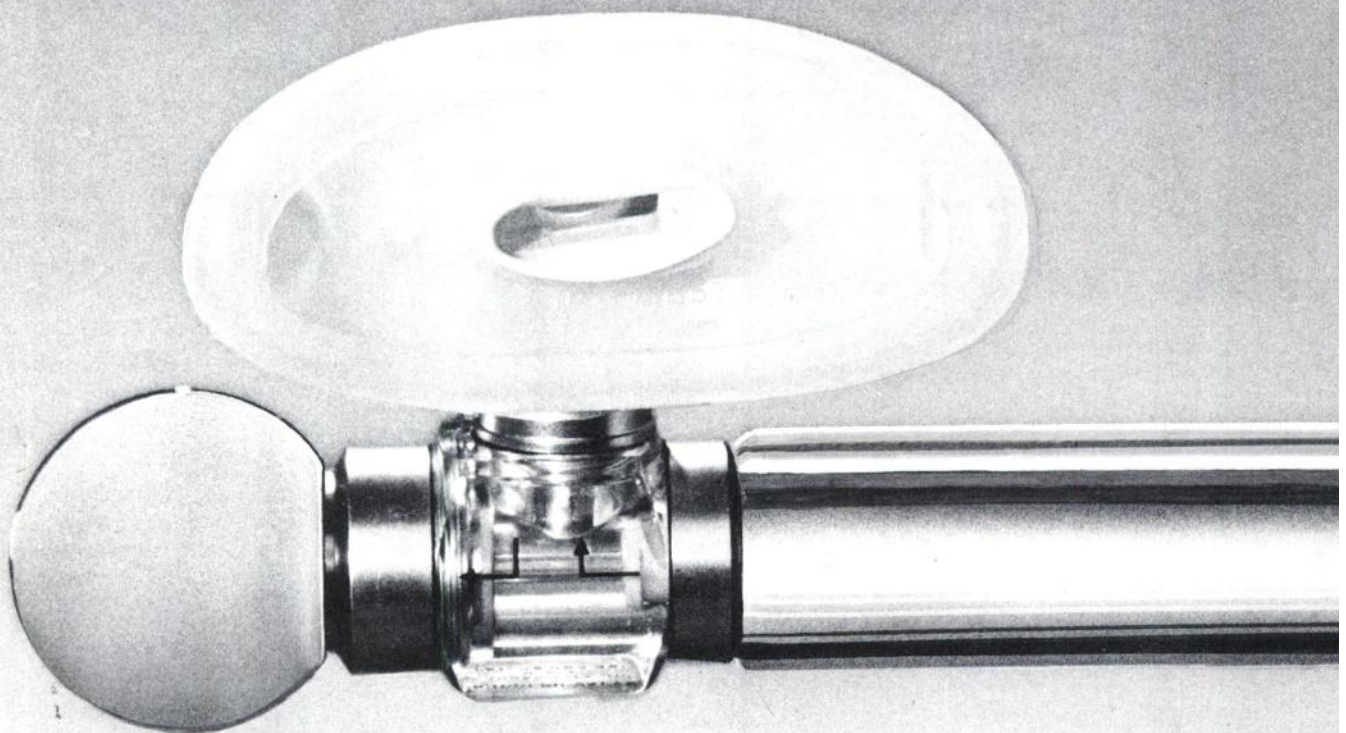
To find out how easy it is to solve your dosecalibration and record-keeping problems, call RADX — the innovators in nuclear medicine.

*The Melécord data card — permanent documentation of all pertinent information*

RADX		Form No. 1001
Serial No.	11111	
Name	Smith, Mary	Lot No. 75-127
Product No.	0287653	Batch No. 220A
Physician	Marcus Welby	Exp. 6/4/75
Study	Brain Scan	
Reference	Tc 99m	
Dose	10 uCi	Transfer to 75-A123
Operator	Portokostelate	to lot no. NA
ST. LUKE'S HOSPITAL 200 MAIN ST. ELY MINN.		
Date of Exam	6-4-75	
Time of Exam	0900	
Radionuclide	TECHNETIUM 99M	
Time of Day	212 MILLICURIES	
Time of Exam	30.0 MILLILITERS	
Dose	10 MILLICURIES	
Volume	142 MILLILITERS	
Source	10.1 mCi	
Operator	Janice Welch	

**RADX**

# Now Everybody Can Breathe Easier



Everybody benefits from comprehensive technological advances like the widely used Omnimedical AVM-3 Automated Ventilation Module. With the AVM-3 radioxenon ventilation studies are automated, simplified, reproducible one man operations. Patient cooperation is not needed. Interfaced with the gamma camera, the operator selects a study sequence—Single Breath (tidal volume or vital capacity) or Rebreathe, singly or in combination—and pushes the start

button. Scintiphotos are initiated automatically at precise predetermined intervals. The data is then collected. The entire



system is enclosed in a streamlined case mounted on an overbed table for use on patients in either sitting or supine positions. The AVM-3 is easy to position, easy to use, easy on the patient, even easy to store. And it's easy to buy. \$3,750. F.O.B. Los Angeles. Omnimedical guarantees 30 day delivery. Now, you can breathe easier, too! AVM-3 by Omnimedical, P.O. Box 1277, Paramount, Ca. 90723 (213) 633-6660.

**OMNIMEDICAL**

# From the makers of Thyopac\*..

... a T3RIA kit, with the performance, simplicity and reproducibility of the Thyopac range.

A good T3RIA is the most sensitive assay for hyperthyroidism and the only specific *in vitro* test for T3 thyrotoxicosis. It is also a valuable follow-up for treated patients, when T4 values may mislead.

Our T3RIA Kit has been acclaimed by some very critical users, and we're sure you'll appreciate it too.

Contact us for complete information on T3RIA, Thyopac-3, -4 and -5, and our latest monograph on thyroid function testing. With something as good as this, you don't want to miss it.

**Simple** direct serum assay on 50 $\mu$ l sample, pre-dispensed serum standards, no centrifugation step.

**Flexible** incubate for 1 hour at 37°C, or overnight at room temperature.

**Reproducible** 5-7% coefficient of variation.

**Specific** minimal T4 cross-reactivity.

**Versatile** use T3RIA with Thyopac-3 (binding capacity test), with Thyopac-4 (T4 CPB), or with Thyopac-5 (T4 CPB+NTR).

**Reliable** every batch of kits is tested to the highest standards of quality control before despatch.

# T3RIA



The Radiochemical Centre  
Amersham

The Radiochemical Centre Limited, Amersham, England. Telephone: 024-04-4444  
In the Americas: Amersham/Searle Corp., Illinois 60005. Telephone: 312-593-6300  
In W. Germany: Amersham Buchler GmbH & Co. KG, Braunschweig. Telephone: 05307-4693-97

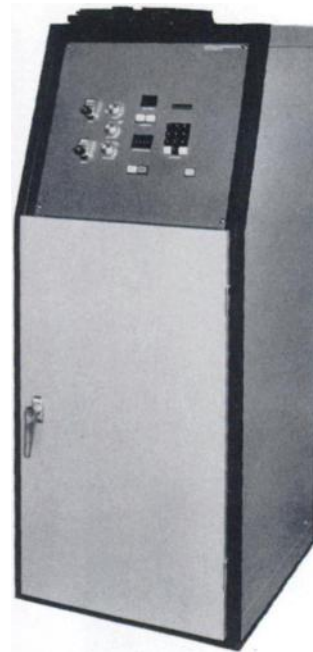
\*Trade Mark. 0243

# State of the art in gamma camera hard copy recording.



## Multi-Imager 1

Multi-Imager 1 employs the CRT of the gamma camera to record static, dynamic, and whole body imaging procedures on transparency format. The highly versatile Multi-Imager 1 offers film size formats of 5x7 and 8x10, yielding superior quality transparency scintiphotos recorded on a wide range of x-ray film processor compatible films. Up to 30 images can be recorded on a single sheet of film in ten different formats. In addition to the usual 1, 4, and 16 image formats, Multi-Imager 1 offers seven further choices to yield the exact diagnostic format required. For example, Multi-Imager 1 offers a 6 image format to allow recording of static studies that require a fifth and sixth view, and a 30 image format for dynamic studies that require more than sixteen frames. For whole body imaging, the 2 image format records side by side AP and PA views on the same sheet of film. Static, dynamic, and different size images can be mixed on the same sheet of film.



## Multi-Imager 4

Multi-Imager 4 yields unmatched performance in gamma camera hard copy recording. A built in high resolution CRT, state of the art microprocessor technology, and electronically synchronized multiple lens optics provide a very small dot size on 8x10 format without increasing the pulse pair resolution dead time of the gamma camera system. The fast lens system of Multi-Imager 4 is compatible with both conventional x-ray film and the slower single emulsion radiographic films that provide the best image quality. Up to 64 images can be recorded in ten different formats. The dual intensity recording mode allows simultaneous acquisition of whole body or static views at two different intensity levels. Positive patient identification is achieved through a nine digit keyboard LED system.

**Both Multi-Imager 1 and Multi-Imager 4 can provide thousands of dollars in annual film cost savings and are compatible with all gamma cameras. Mail coupon to receive detailed information and sample clinical studies.**

## # MATRIX INSTRUMENTS

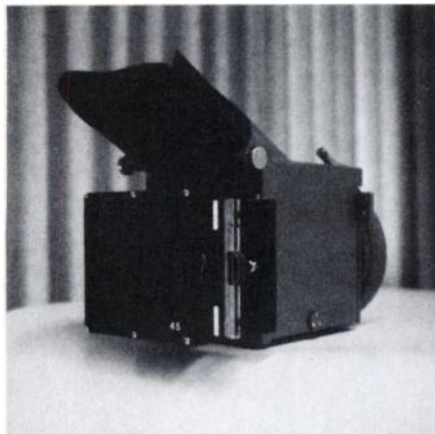
1 Ruckman Rd.  
Closter, N.J. 07624  
(201) 767-1750

**Mail coupon to receive sample clinical studies.**

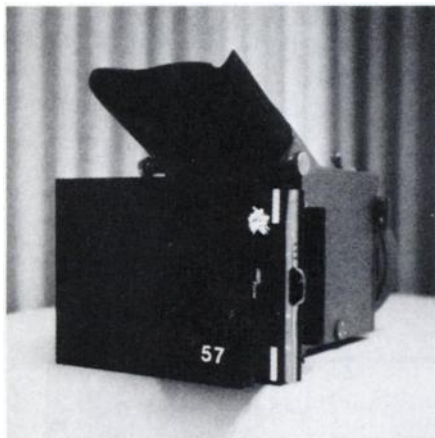
**Matrix Instruments, Inc., 1 Ruckman Rd., Closter, N.J. 07624**  
**Please send Multi-Imager System literature and sample studies.**

Name	_____
Hospital	_____
Address	_____
State	_____
City	_____
Zip	_____
Phone	_____
Title	_____
Dept.	_____

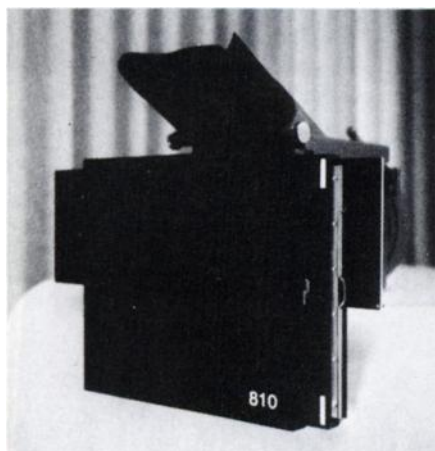




**MODEL "45" (4 x 5)**



**MODEL "57" (5 x 7)**



**MODEL "810" (8 x 10)**

## \*"NISE-FORMAT"<sup>TM</sup>

Since our first idea was born on February 18, 1972 to make a manual positioned, framed film cassette holder for multi-images on X-ray film, we have been able to improve our original design. The total size is now reduced to about the size of the cassette itself.

### FEATURES:

- Available in all sizes (11 x 14 not shown)
- Model No. 45 — Excellent for triple lens cameras
- Model No. 57 — For enlarged, single whole body studies or 2 normal size views (4 to 6 when minified)
- Model No. 810 — For 4 or 6 images (8 to 10 when minified)
- Model No. 1114 — For your "special" requirements (3 "Y" positions)
- Double-sided Cassette can be inserted from either side (left or right)
- No modification necessary, fits directly into existing Polaroid filmback holder (specify!)
- Will never need any service
- Works with triple or single lens cameras
- Economical, reduces film cost up to 60%

\*Patent Applied For

Further information available upon request.  
Please write or call

## **N.I.S.E., INC.**

**20018 STATE ROAD, CERRITOS, CALIFORNIA 90701**  
**TEL. (213) 860-6708**

\*As shown at the 22nd Annual Meeting of the S.N.M. in Philadelphia, PA.

# Help your cardiologist study heart kinetics non-invasively with Brattle-gated scintiphotos.



RAO, DIASTOLE<sup>o</sup>



RAO, SYSTOLE



LAO, DIASTOLE

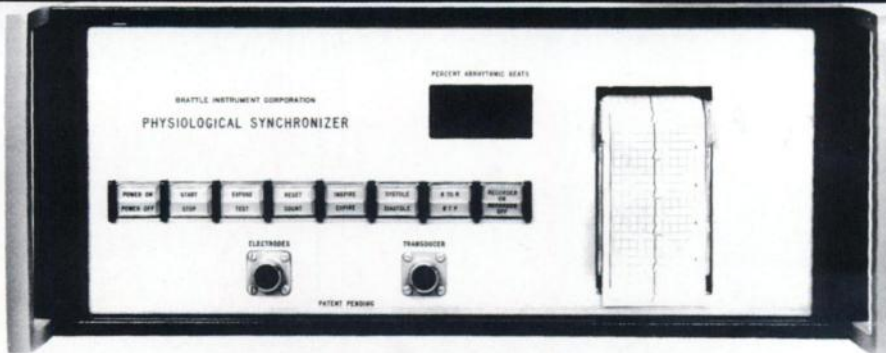


LAO, SYSTOLE

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. Patient was injected IV with 20mCi of <sup>99m</sup>Tc-labelled Human Serum Albumin. The agent was prepared using the New

England Nuclear Electrolysis Kit for labelling HSA. 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 collimator be-

cause 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 three years — in community and major hospitals**  
More than half of our instruments are in community hospitals and the list is growing rapidly. Upon request, we'll supply names of happy users in your area.

**What's the next step? Get in touch**  
Ask your NEN man about Brattles and HSA Kits. He can show you a portfolio of clinical pictures and arrange to have one of our people give you a demo. Or write or call us direct. We'll send you brochures on this and other models, and will give you your own set of clinical pictures and a bibliography on gated scintigraphy. If you wish, we'll even make you a Brattle owner. (This is the best part of our story.)

## Brattle Instrument Corporation

243 Vassar Street • Cambridge, Massachusetts 02139 • 617-661-0300

# DIMENSIONAL DIAGNOSIS



when diagnosis  
is in doubt  
**PHO/CON™ CONFIRMS**



PHO/CON — the first of a new generation of multi-plane imaging devices — gives you significant new dimensions, whether you are imaging the brain, whole-body organs, individual organs, or bone. It can quickly confirm lesions masked by normal anatomical structures and provide definitive visualizations when other methods fail.

Your facility gets up to six anterior and six posterior tomographic images from one PHO/CON scan, each readout being sharply focused on a different

plane in the subject. Lesions can be dramatically visualized with near-constant resolution regardless of depth or the organ being imaged.

PHO/CON utilizes two detector heads for simultaneous anterior-posterior imaging. It has a 26" x 70" scan field, suitable for any size study. Each detector head produces six simultaneous 2" x 2" tomographic images on 5" x 7" film, or three simultaneous 2" x 5½" whole body images on 8" x 10" film.

PHO/CON's tomographic capability provides significantly more data than is available from conventional dual-headed scanners. In addition, PHO/CON has 3 times the crystal area of a dual 5" scanner, with scanning speed up to 1000 cm/min. A full range of collimators is available.

PHO/CON is now proving its dimensional diagnostic value in teaching hospitals and cancer clinics worldwide. For complete information on this first of the new multi-plane imagers, write or phone.

**SEARLE**

**Searle Radiographics Inc.**

Subsidiary of G. D. Searle & Co.  
2000 Nuclear Drive  
Des Plaines, IL 60018, U.S.A.  
Telephone: 312-298-6600