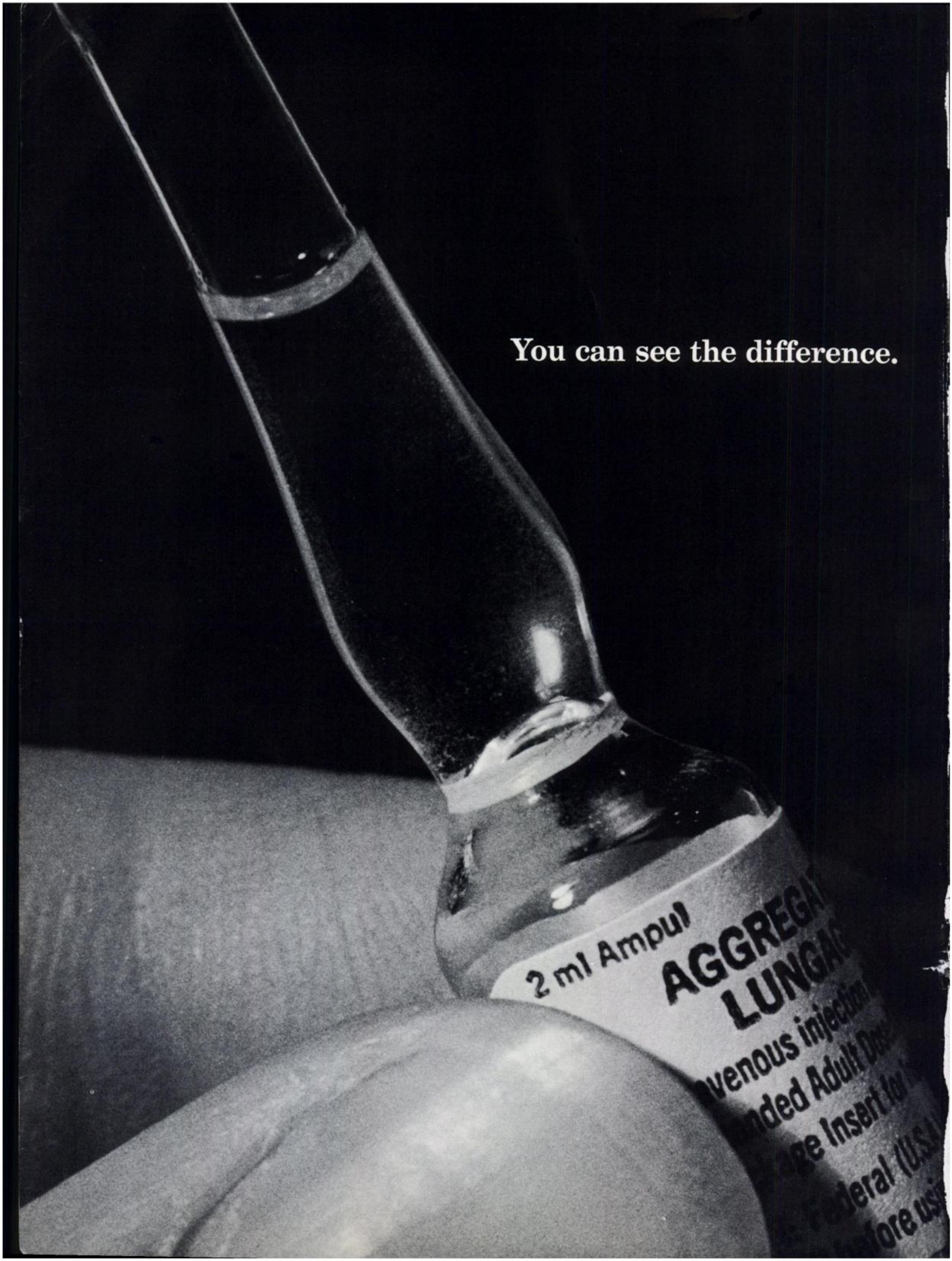

You can see the difference.
2 ml Ampul

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

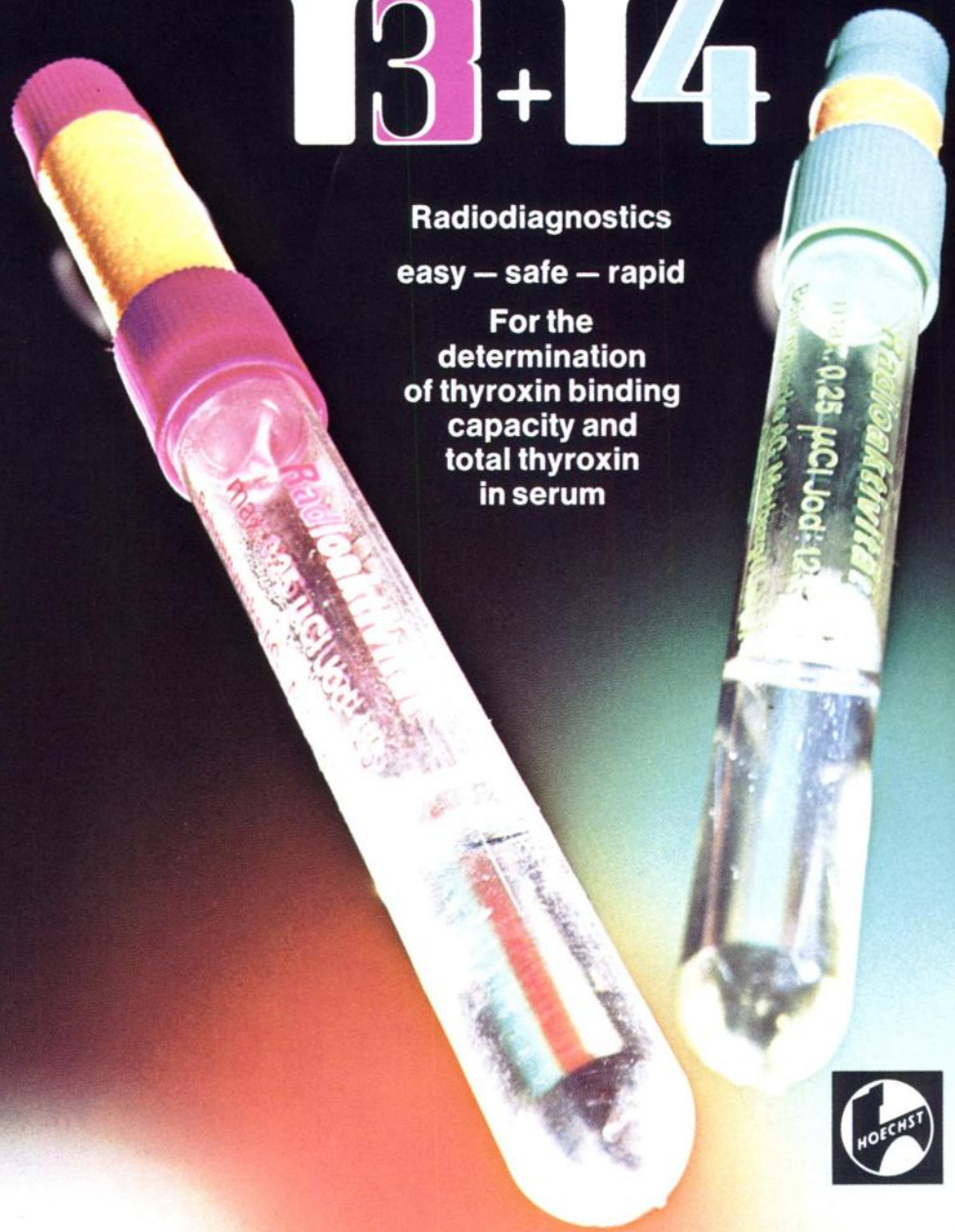
Ultragnost®

T3+T4

Radiodiagnostics

easy – safe – rapid

For the determination of thyroxin binding capacity and total thyroxin in serum



HOECHST

Two time-saving tests for your lab.: pipette once, incubate for one hour, automatic phase separation, measure.

Contents T 3 kit: 12 calibrating tubes with 3.5 ml thybon® (J-125)-solution each • total activity: 3 µCi J-125 • preservative: 0,02 % sodium azide • 12 adsorption tubes • 1 ml standard serum of defined TBG capacity •

Contents T 4 kit: 12 calibrating tubes with 3.3 ml TBG-T 4-(J-125)- solution each • total activity: 1 µCi J-125 • preservative: 0,02 % sodium azide • 12 adsorption tubes • 1 standard serum of defined T 4-concentration •

Storage: store protected from light in the refrigerator at +4° to +6° C
Stability: 8 weeks at proper storage. The expiry date is indicated on the package.

Order No.:	J 5113	Order No.:	J 5114
for T 3	1 package 12 tests	for T 4	1 package 12 tests

Ln 82159

HOECHST AG · 6230 Frankfurt (Main) 80 · Behring Department

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.

RAYTHEON

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

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 ± 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.

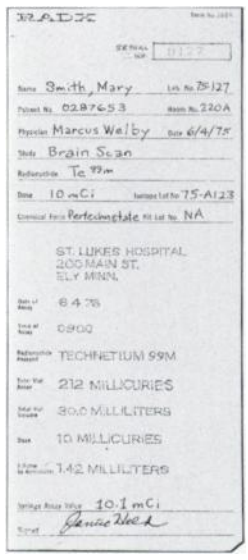
You get hard copy in triplicate. Saves time. Prevents errors. Makes NRC (AEC) accountability far easier.

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 accesible when you need them for any reason.

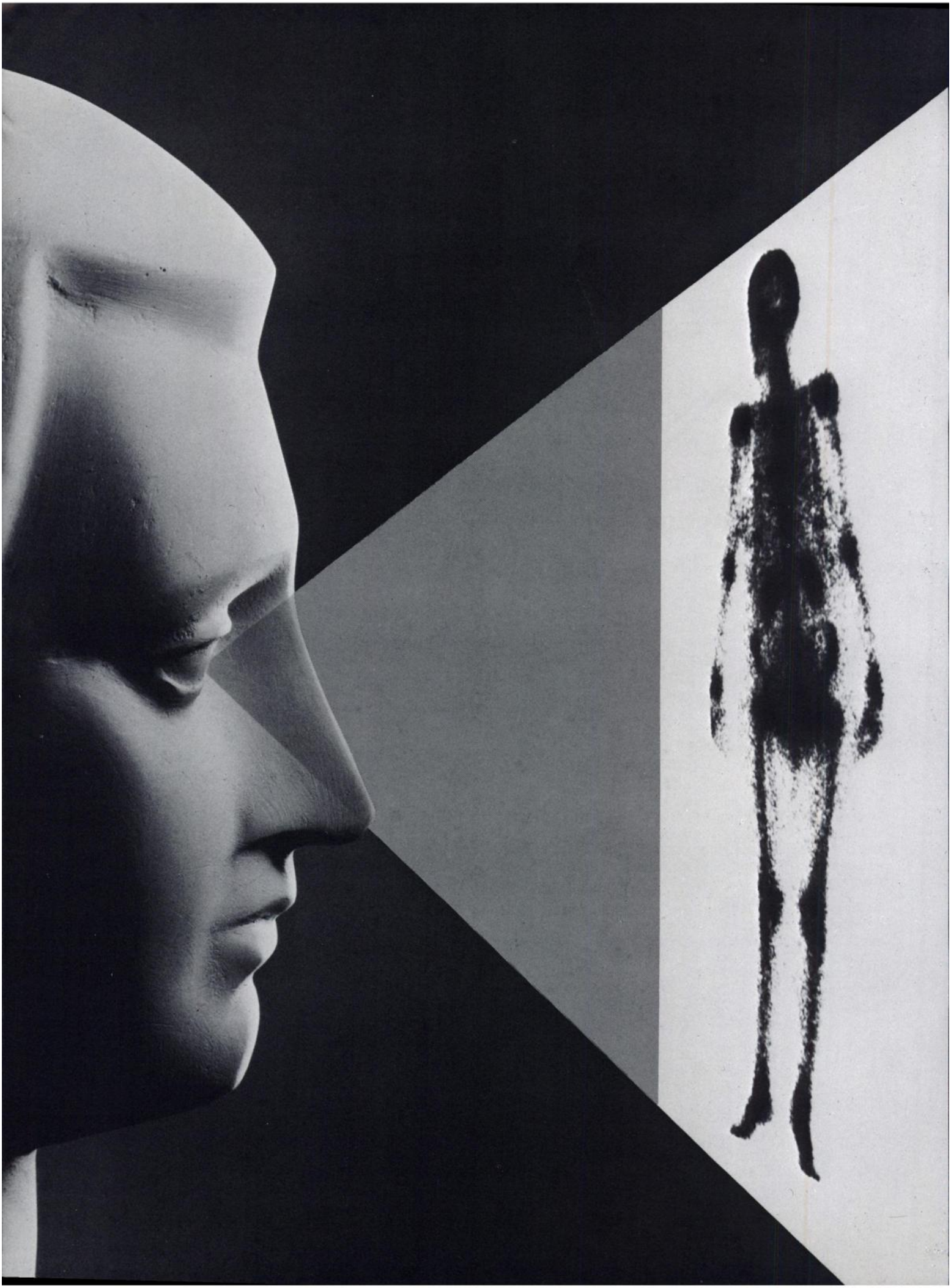
To find out how easy it is to solve your dosecalibration and record-keeping problems, call RADX — the innovators in nuclear medicine.



The Melécord data card — permanent documentation of all pertinent information

RADX

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



Kodak products can help sharpen the probing eyes of nuclear medicine.

Flexible options and fast answers count when it comes to making diagnostic decisions...and Kodak offers help with a broad background in imaging technology, a selection of products and a representative who is ready to serve you.

With continuing improvement in both equipment and radionuclides, you have a need for films with longer linear slopes and improved contrast characteristics. Kodak provides a choice of films, including our new Kodak film for nuclear medicine SO-179 to meet your current diagnostic imaging requirements.

Because time is just as important, the Kodak *RP* X-Omat processor, model M7A, can help provide answers to your questions with ready-to-read images in 2½ minutes. You can cut water heating costs, too, because it uses water from 40 to 85° F.

You have specific needs, and we're ready to help. If you'd like to know more, contact your Kodak Technical Sales Representative or your x-ray products dealer. Or...

Write Today: Eastman Kodak Company, Department 740, Rochester, New York 14650.

A commitment to quality

Kodak

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 indentification 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
Phone
Title
Dept.
City
Zip

OMEGA 1

Portable Multichannel Analyzer

The OMEGA-ONE is a complete analysis system; everything you need for complete spectrographic analysis – from Amplifier to CRT – in one compact portable package. There's even an optional HVPS for detector bias. And it's all available at a price competitive with many single channel counting systems.

SIGNAL PROCESSING
Internal Spectroscopy Amplifier and SCA
50MHz, 2048 Channel ADC with
Digital Offset and Coincidence Gate
Optional Detector Bias HVPS

MEMORY
256, 512, or 1024 Channel
Semiconductor Memory
10^6-1 Counts full scale
Add, Subtract, and Non-Alter Modes

- **DISPLAY**
- 4-1/2 inch rectangular CRT
- Internal X-Y Plotter Interface
- Optional Character Generator
- LIVE or DYNAMIC data display

- **DATA ANALYSIS**
- Variable Ratio Analog COMPARE
- Visual Spectrum STRIPPING
- Optional Dual Cursors for ROI Selection
- Optional Digital INTEGRATOR

CANBERRA INDUSTRIES, INC. / 45 Gracey Avenue / Meriden, Connecticut 06450 / Tel.: (203) 238-2351
CANBERRA ELEKTRONIK GmbH / 8102 Ottobrunn / Putzbrunner Strasse 12 / Munich, Germany
CANBERRA INSTRUMENTS LTD. / 223 Kings Road / Reading, Berkshire, England

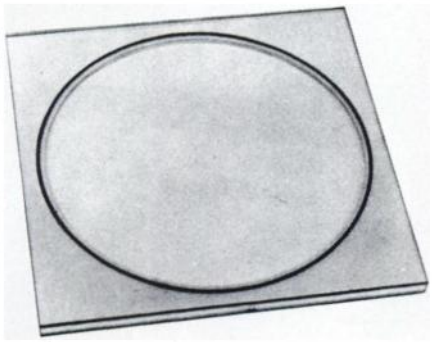
CANBERRA

PHANTOMS FOR CAMERAS AND SCANNERS

LARGE AREA FLOOD PHANTOM

Model CP-806

- **16 inch cavity is large enough to evaluate any camera currently available.**
- **Evaluate uniformity of response of scintillation cameras.**
- **Use as transmission source with phantoms.**
- **Use for transmission imaging of patients.**



CP 806 Large Area Flood Phantom (16″ diam.) .. **$100.00**
CP 805 Standard Flood Phantom (14.5″ diam.) ...**$ 90.00**

STRAIGHT BAR PHANTOM

Model CP-708, 716

- **Available with 1/8″ or 3/16″ wide straight bars.**
- **Used to check linearity, field size and uniformity of spatial resolution.**
- **15.5 inch bar long enough to evaluate any scintillation camera currently available.**

CP-708 1/8″ Straight Bar Phantom **$265.00**
CP-716 3/16″ Straight Bar Phantom **$245.00**

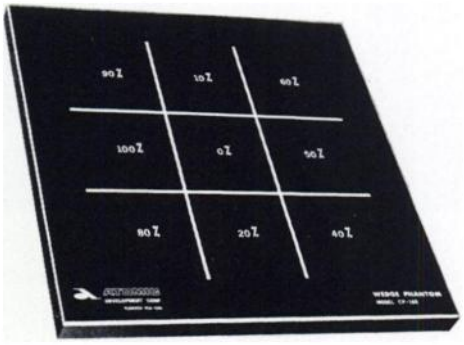
Write for Atomic's
PRODUCT DATA SHEETS
describing our complete line of phantoms for cameras and scanners.

LARGE AREA HIGH RESOLUTION BAR PHANTOM

Model CP-812

- **Check field size and linearity.**
- **Bar pattern covers 16″ x 16″ or 14¼″ x 14¼″ area.**
- **Evaluate intrinsic resolution of scintillation cameras.**
- **Check collimator spatial resolution of cameras and scanners.**
- **Bar widths available in 3/8″, 1/4″, 3/16″ and 3/32″ or 1/2″, 3/8″, 1/4″ and 3/16″.**

CP-812 High Resolution Large Area Bar Phantom **$245.00**
CP-810 High Resolution Bar Phantom **$245.00**
CP-808 Standard Bar Phantom **$210.00**



TRANSMISSION WEDGE PHANTOM

Model CP-103

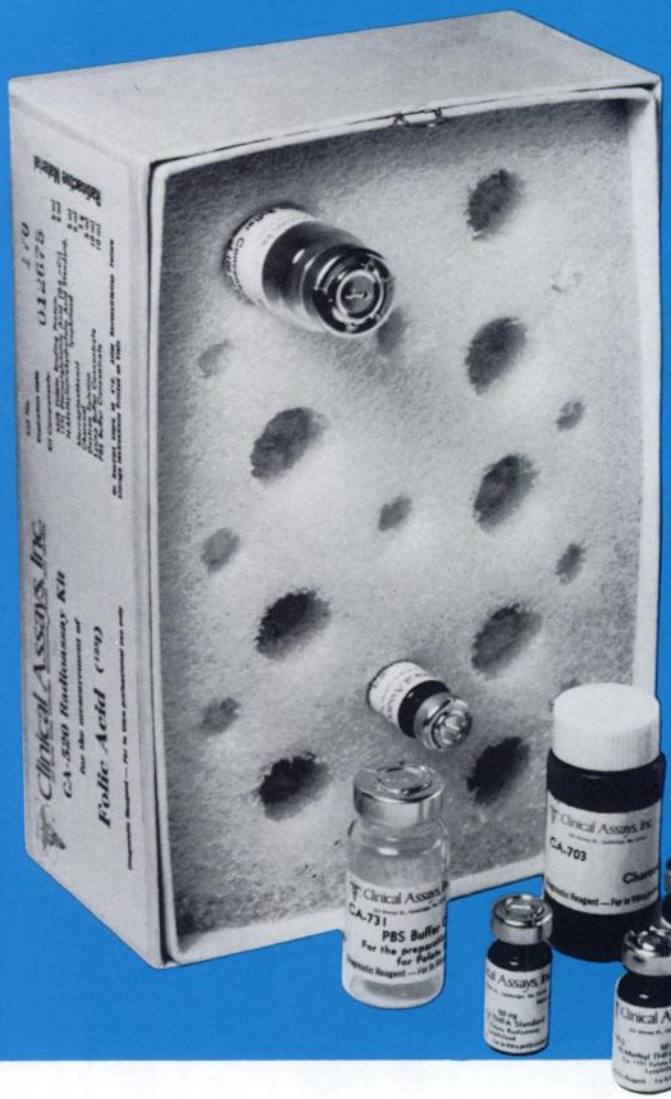
- **No pulse generator required.**
- **Easy to use. Same set-up as routine imaging procedure.**
- **Evaluate characteristics of film used with imaging system.**
- **Calibrate grey scale, background suppression, contrast enhancement and other image parameters.**

CP-103 Transmission Wedge Phantom **$295.00**

phantoms to monitor image system performance is our business . . .

ATOMIC DEVELOPMENT CORP. • 7 FAIRCHILD COURT, PLAINVIEW, N.Y. 11803 / (516) 433-8010

• All prices F.O.B. Plainview, N.Y. • Terms: Net 30 days • Prices and specifications subject to change without notice • Printed in U.S.A. 10/75



^{125}I Folate Radioassay Kit

^{57}Co Vitamin B_{12} Radioassay Kit

Introducing another first — Clinical Assays GAMMA LABELED FOLATE and VITAMIN B_{12} radioassay kits for the determination of the etiologic diagnosis of megaloblastic anemia and nutritional deficiencies.

Fast — Accurate — Reproducible —

Maximum sensitivity in the diagnostic range below 6ng/ml for Folate and 400 pg/ml for Vitamin B_{12}.

Denaturation of the buffered samples at 100°C prior to assay eliminates the need for running individual patient "blanks"(1). Pipettings, counting time and calculations are cut in half.

A new, improved ^{3}H Folate radioassay kit which utilizes the buffered sample denaturation step is also available. Once again, pipettings, counting time and calculations are halved.

Other kits available:

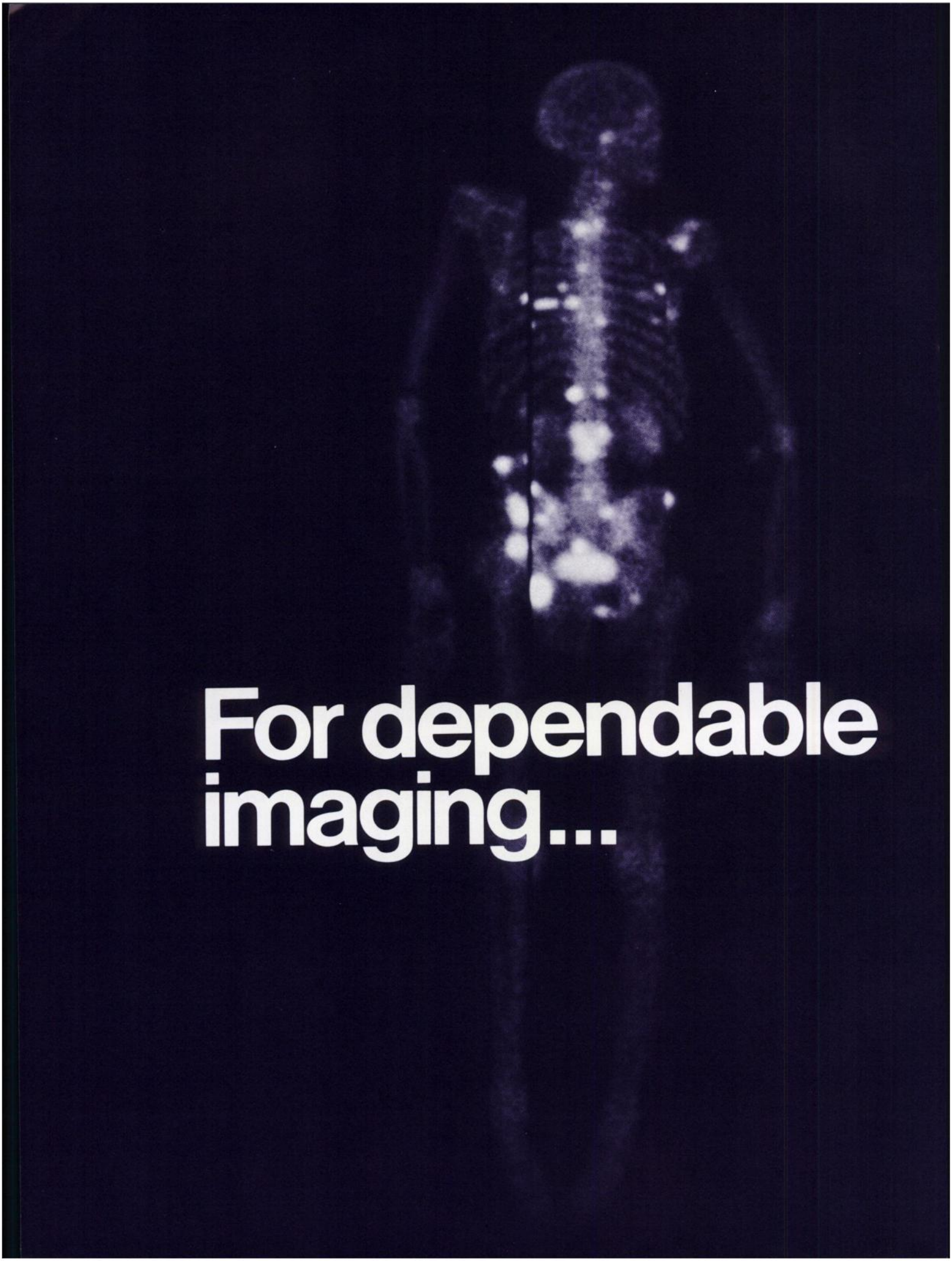
GammaCoat Digoxin (^{125}I)	Digoxin (^{3}H)
GammaCoat Digitoxin (^{125}I)	Digitoxin (^{3}H)
GammaCoat Cortisol (^{125}I)	Cortisol (^{3}H)
GammaCoat Renin Activity (^{125}I)	Prostaglandins (^{3}H)

For Full Details Contact:

Clinical Assays, Inc.

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

References: 1) Dunn, R. T.; Foster, L. B.; Clin. Chem. 19, No. 10,1101, 1973.


For dependable
imaging...

Dependable imaging of skeletal lesions —that's what bone scanning is all about. And that's what the unique, dry-mix formulation and stable PCP bond of Osteoscan assure. Osteoscan's diphosphonate formulation, when labeled with ^{99m}Tc, provides:

- ☐ dependably high tagging efficiency
- ☐ rapid blood and soft tissue clearance to assure high target-to-nontarget ratio
- ☐ excellent in vivo stability
- ☐ low tin level—to minimize the potential for liver uptake and interference with subsequent brain scans

For further information about Osteoscan, please contact: Arnold Austin, Technical Manager, Professional Services Division, Procter & Gamble (513) 977-8547.

the dependable diphosphonate

PROCTER & GAMBLE

OSTEOSCAN®

(5.9 MG DISODIUM ETIDRONATE, 0.16 MG STANNOUS CHLORIDE)

SKELETAL IMAGING AGENT

In Europe, contact: Philips-Duphar B.V.,
Cyclotron and Isotope Laboratories, Petten, Holland.

See following page for a brief summary of package insert.

PROCTER & GAMBLE

OSTEOSCAN®

(5.9 MG DISODIUM ETIDRONATE, 0.16 MG STANNOUS CHLORIDE)

SKELETAL IMAGING AGENT

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

DESCRIPTION

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

ACTIONS (CLINICAL PHARMACOLOGY)

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

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

INDICATIONS

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

CONTRAINDICATIONS

None.

WARNINGS

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

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

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

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

PRECAUTIONS

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

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

ADVERSE REACTIONS

None.

DOSAGE AND ADMINISTRATION

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

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

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 ± 0.8 million particles per mg. The labelling 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 equivalant 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 of 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 Kupffer 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 focal 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 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 2½-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 atheroma and thickening of all the pulmonary arteries but no macroscopic evidence of emboli. The right heart was hypertrouphied 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. Roetgenol. 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®

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 _____.

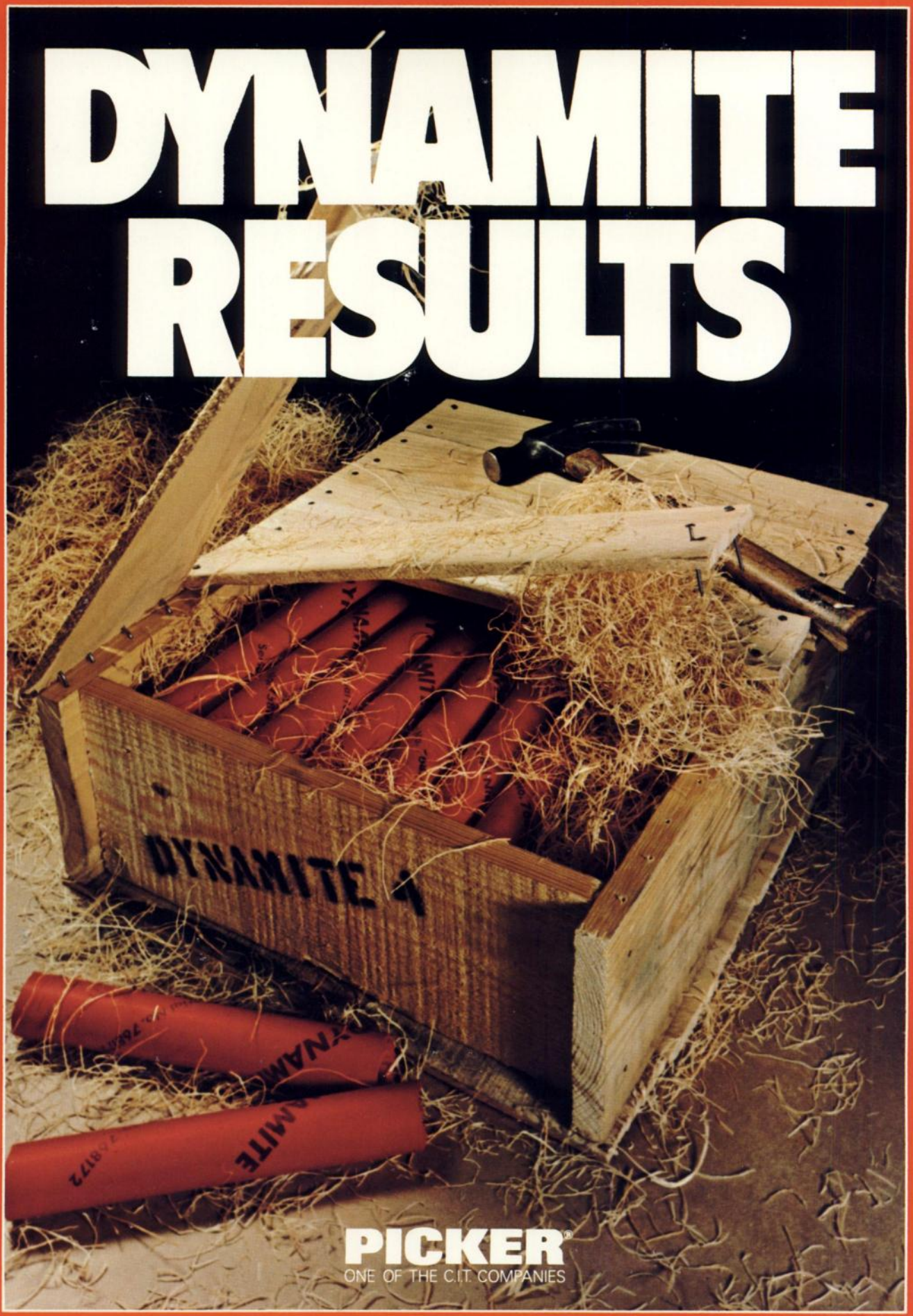
NAME _____

DEPT. _____ TEL ( ) _____

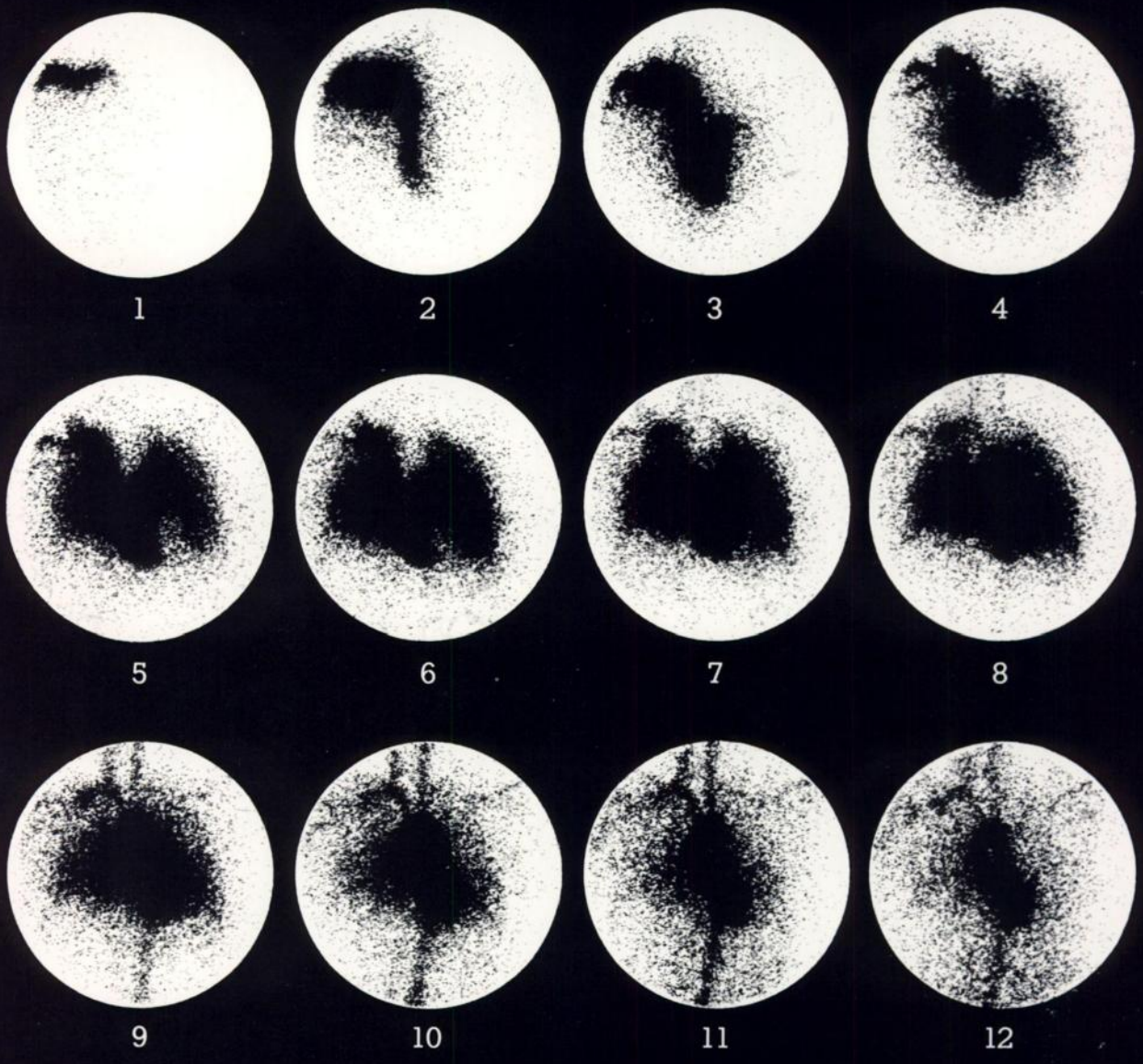
ORGANIZATION _____

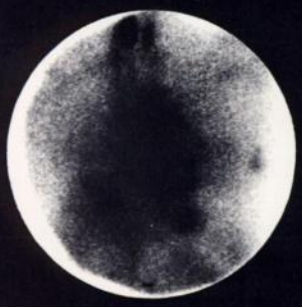
ADDRESS _____

CITY _____ STATE _____ ZIP _____


DYNAMITE RESULTS
DYNAMITE
PICKER
ONE OF THE C.I.T. COMPANIES

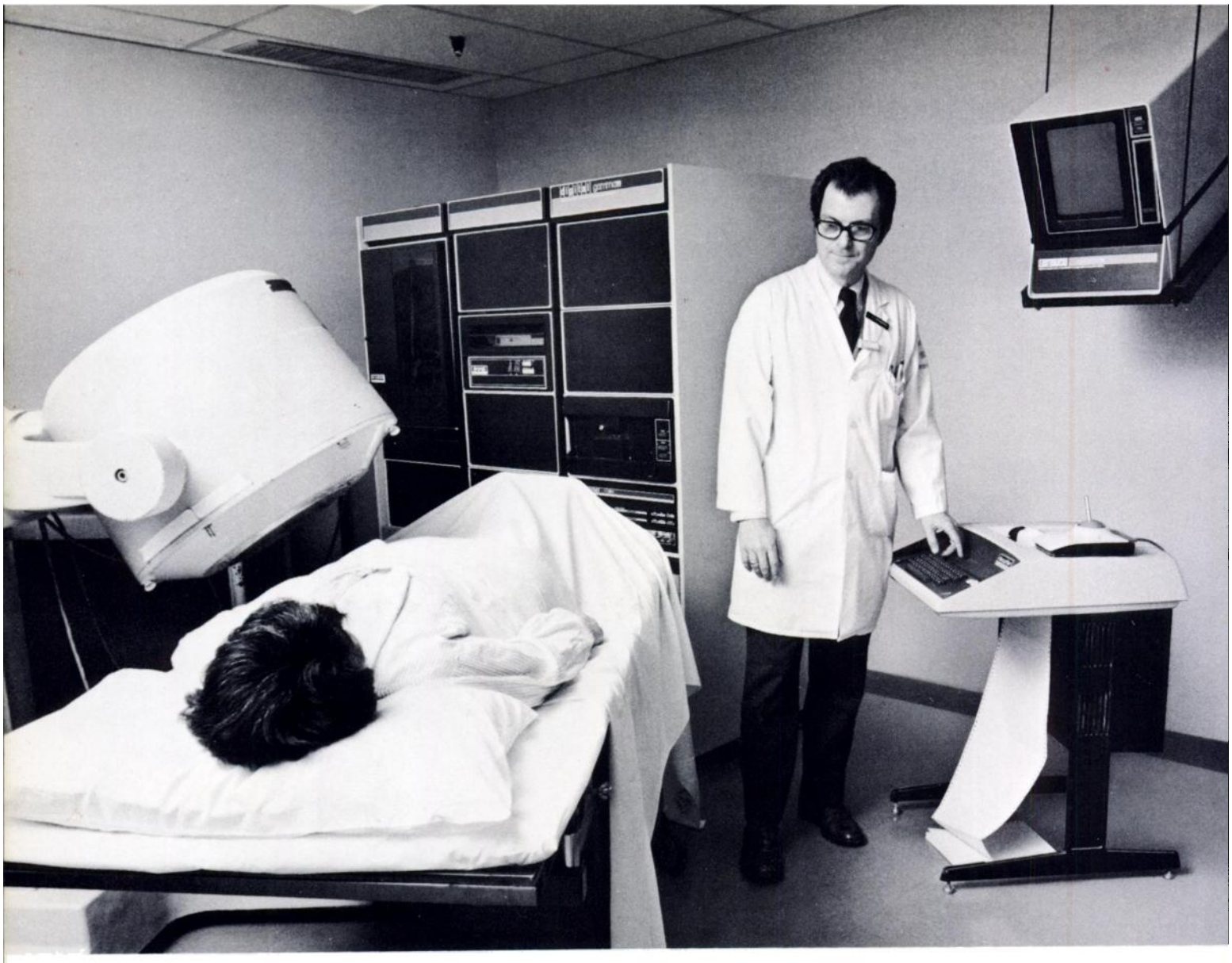
Cardiac Flow Study
Picker Large Field (15″ diameter) Detector
10mCi 99^{m}Tc Sodium Pertechnetate





BLOOD POOL

For dynamite clinical results, rely on the Dyna™Camera 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.



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.

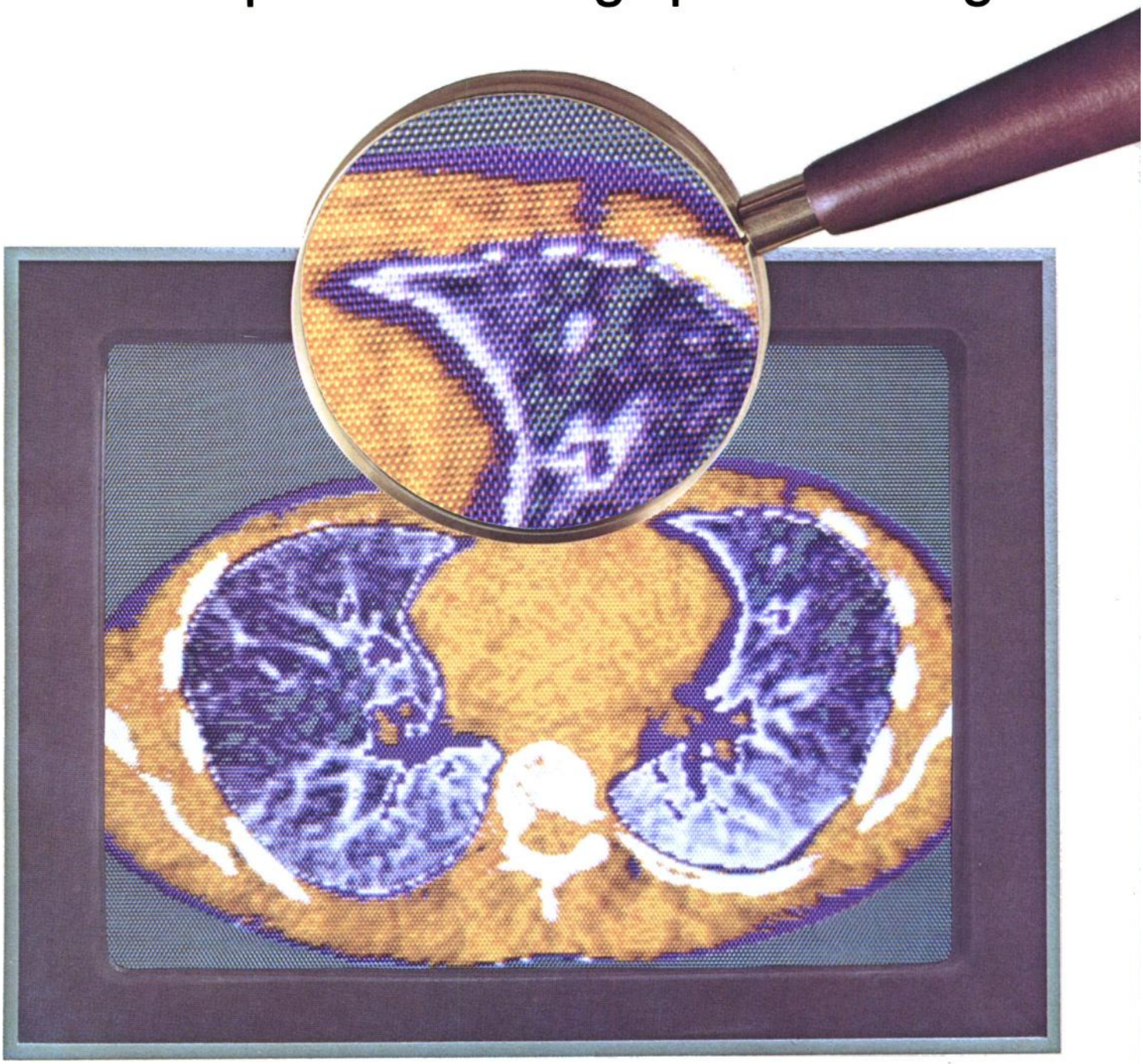
So if you have one or more gamma cameras, get the complete picture on Digital's new Gamma-11 system. Write for our new brochure. Or call (617) 481-9511, Ext. 6858. Digital Equipment Corporation, 200 Forest St., Marlboro, Mass. 01752. European headquarters: 81 route de l'Aire, 1211 Geneva 26. Tel: 42 79 50. Digital Equipment of Canada Ltd.

digital

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

Pfizer Medical Systems, Inc. announces 57,600 reasons why the ®

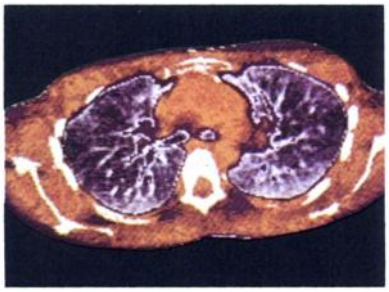
provides superior resolution and image clarity in whole body computerized tomographic scanning



The new matrix improves image quality

Up to 57,600 absorption values are now actually measured for translation into the finished ACTA-scan with the recently developed 320 matrix.

This means a large, high-resolution display (1.5 mm) with greater clarity and true detail—important in extracranial scanning.



Thoracic 320 Scan. (Normal Chest)

Abdominal 320 Scan. "Porcelain" Gallbladder

Multiple windows let you see more

With the Pfizer ACTA-Scanner, multiple windows can be imposed upon the image, allowing tissues with great density differences to be viewed at the same time in a single ACTA-scan.

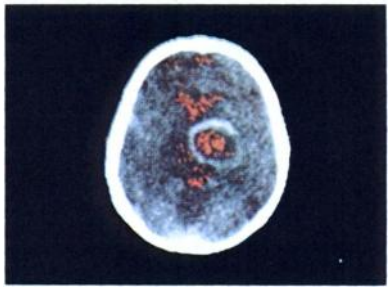
This capability greatly facilitates interpretation of scans in the thoracic and abdominal areas.

Thoracic scan with multiple windows. Mass in right lung.

Same area as scanned at left, without imposition of the multiple window capability.

And you can enlarge selected areas

A special cursor—or movable dot—allows the operator of the ACTA-Scanner to enlarge selected areas of interest by a factor of 2 in diameter (4 in area).

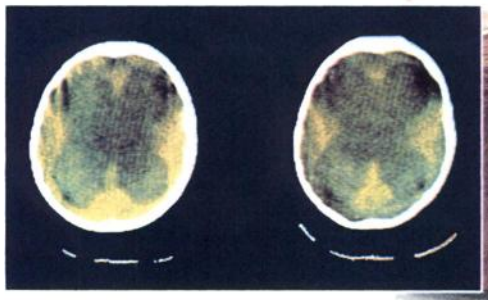


Pituitary Adenoma

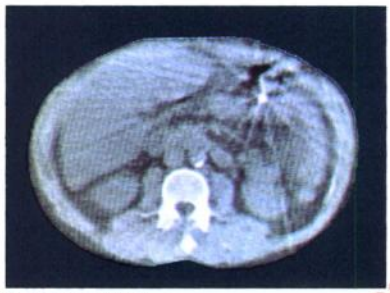
Pituitary Adenoma. Instantaneous enlargement of pathologic area.

Pathology in virtually any part of the body can be visualized and evaluated.

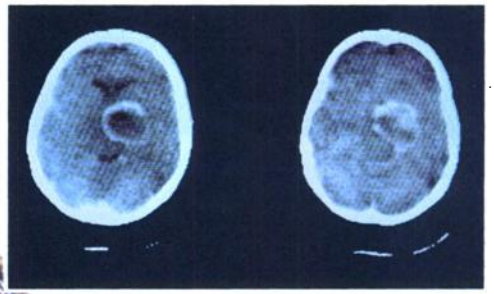
Thoracic 320 Scan.
(Normal Chest)



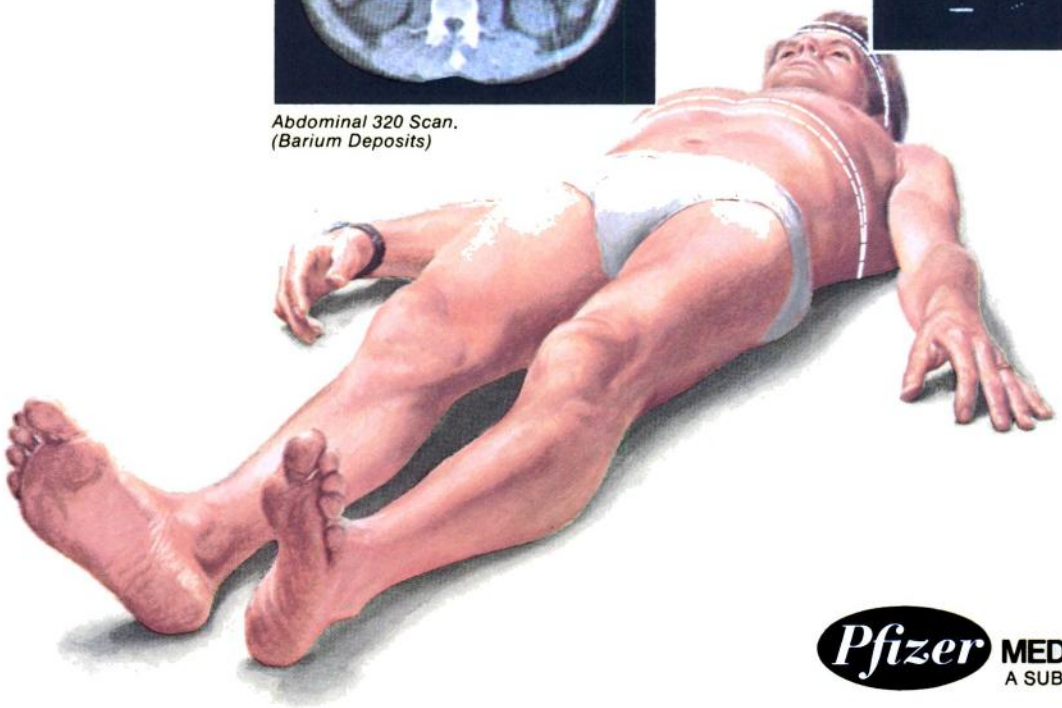
Marked Hydrocephalus



Abdominal 320 Scan.
(Barium Deposits)



Pituitary Adenoma



Pfizer MEDICAL SYSTEMS, INC.
A SUBSIDIARY OF PFIZER INC.

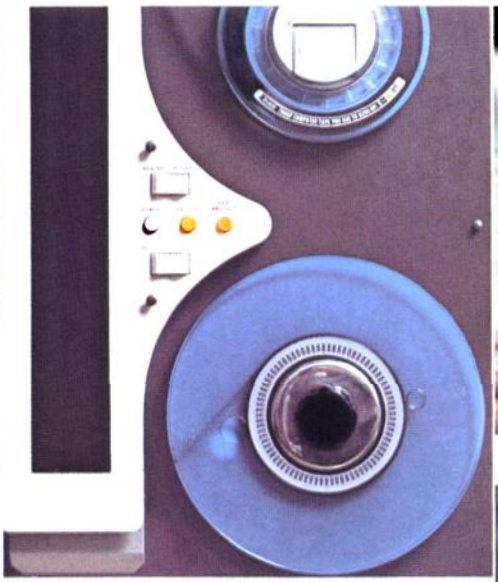
®

WHOLE BODY COMPUTERIZED TOMOGRAPHIC SCANNER

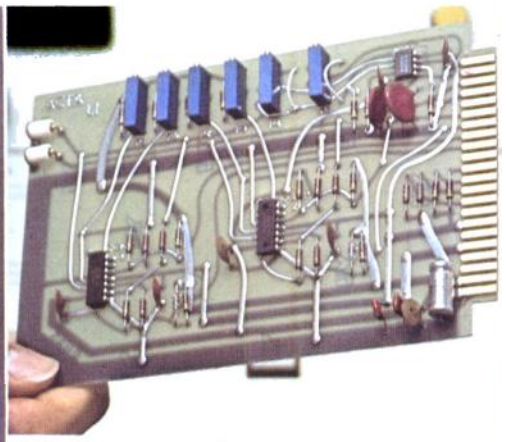
A revolutionary innovation in diagnostic radiology maintained by an original concept of service...and backed by the full resources of a great medical organization

Field engineer readily available

The Pfizer Medical Systems Field Engineer is an integral component of the ACTA-Scanner Service Program.

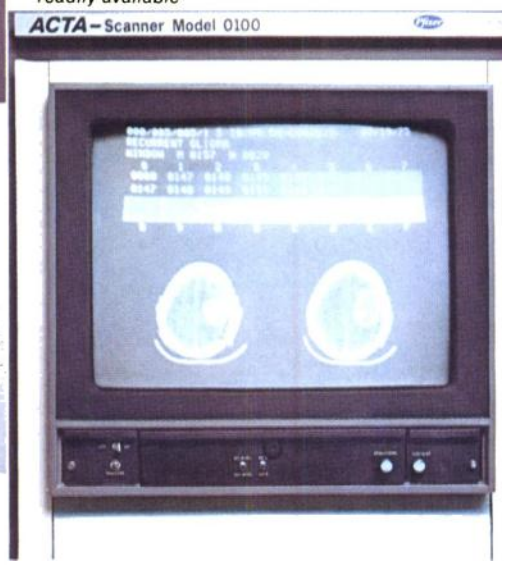


All data stored on magnetic tape for future recall

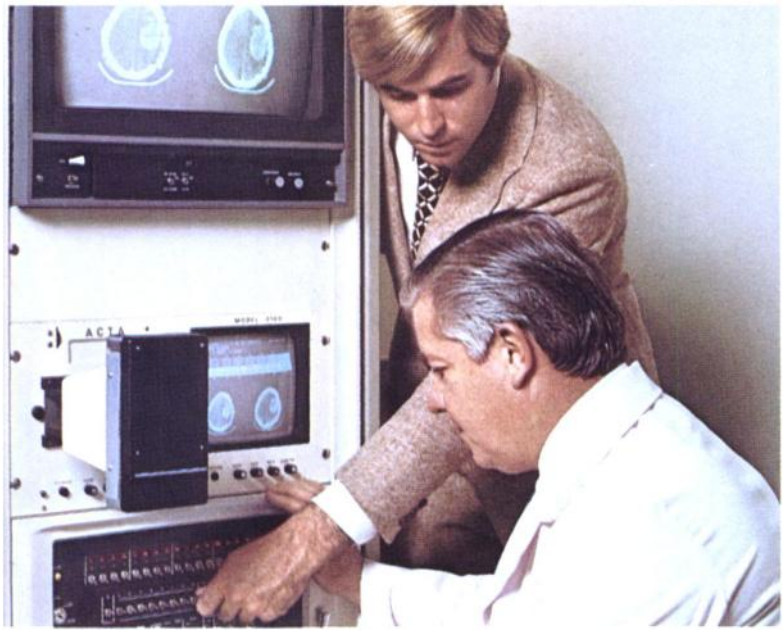


Replacement parts, if needed, are readily available

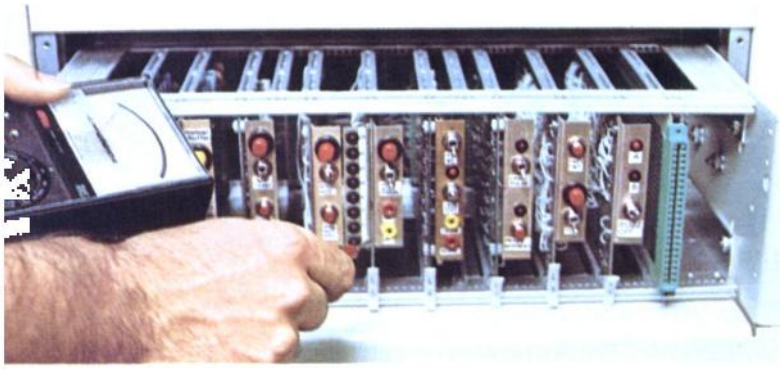
Minimal patient preparation before scan



Instant display following completion of scan



Field engineer provides continued updating on capabilities



Frequent visits by field engineer keep ACTA-Scanner at peak performance

Automation with Representation

A team of highly qualified field engineers is on standby duty to respond to your needs within two hours, if necessary.

Warranty: Any necessary maintenance can be done at night or during nonpeak hours, as designated. No charges for all parts and service support during normal working hours.

Continuous inspection: Frequent visits, at your convenience, will be made to assure optimum performance.

Direct link to research and development: Your representative will keep you apprised of the activities of the Pfizer physicists and x-ray and computer experts who are dedicated to providing ever greater performance and more features on your ACTA-Scanner.

Pfizer MEDICAL SYSTEMS, INC.
A SUBSIDIARY OF PFIZER INC.

OUR 'KOW, AND YOUR

The lung scan at 1:28 am... at 4:30 am... at 2:10 pm...10:30 pm... is now a practical emergency procedure.

With a Mallinckrodt *Ultra-TechneKow*® Generator and *TechneScan*® *MAA* [Aggregated Albumin (Human)] Lung Scan Kit . . . and with your technologist you've got a complete emergency "team." Always just minutes away from furnishing you with a 24-hour capability in lung imaging.

The saline supply of Mallinckrodt's *'Kows* allows you as many as 15 to 16 elutions per week. You can actually increase efficiency by milking twice a day.

The second member of the "team," the *TechneScan MAA* Kit, offers high tagging efficiency and excellent particle size range. It's also remarkably consistent. Always provides 90% or greater tagging efficiency of pertechnetate to labeled MAA. Since no heating, sonication, centrifugation, cleanup or transfer is required, preparation time of *TechneScan MAA* Tc 99m is less than 20 minutes.

Our *'Kow* and our kit. A capability that makes the lung scan a practical emergency procedure—anytime.

OUR KIT EMERGENCIES.

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

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

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

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

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

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

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

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

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

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

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

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

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

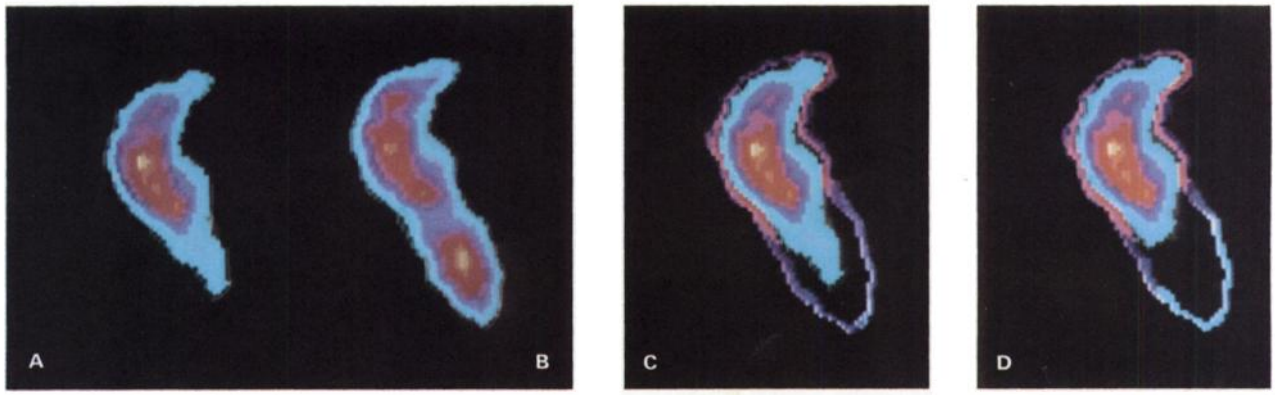
Mallinckrodt® NUCLEAR

RADIOPHARMACEUTICALS

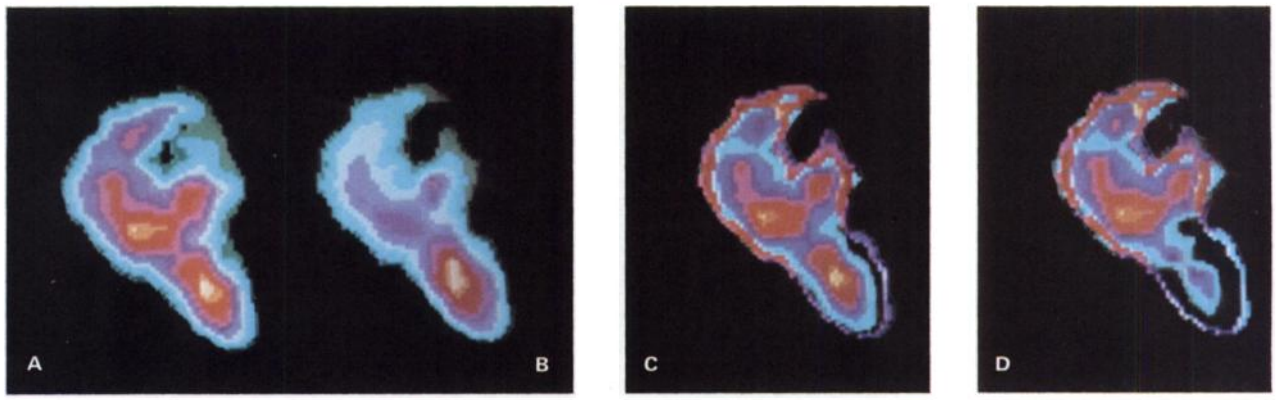
Mallinckrodt, Inc.
675 Brown Road
Hazelwood, Missouri 63042

SEVENTY SEVEN REASONS:

1. Comprehensive, first-pass dynamics of cardiac wall motion



NORMAL PATIENT. Anterior View. Ejection Fraction 63%. (A) Image at End Systole shows volume displacement flow is maximum in the aorta and volume is minimum in the ventricle. (B) Image shows that volume displacement flow is minimum in the aorta and volume is maximum in the ventricle at End Diastole. (C) ES, with perimeter at ED superimposed, shows normal volume displacements and symmetric wall motion band due to motion of the septal and lateral walls. (D) Subtraction of stroke volume from ES, with ED perimeter superimposed, shows that all volume displacements in the stroke volume exceed volume components in residual distribution at ES.



ABNORMAL PATIENT. Anterior View. Ejection Fraction 34%. (A) ES, showing spatial distribution of volume components. Abnormally high residual volume at ES in the ventricle compared to volume flow components in the aorta. (B) ED, showing distribution of left heart volume components. Comparison with ES suggests relative lack of ventricular volume displacement during systole. (C) Lack of wall motion is indicated by very narrow wall motion band between ED perimeter and the ES distribution along the septal wall to the apex. Wall motion of the lateral wall is closer to normal. (D) Volume component in ES distribution exceeds stroke volume displacement because of reduced anterior or posterior wall motion proximal to the septal wall.

Shown here are stop-action data extracted from the representative cycle of first-pass images showing hemodynamics of the left heart, including volume distribution of end systole, end diastole, end systole with the end diastolic perimeter superimposed, stroke volume subtracted from end systole with end diastolic perimeter superimposed. These images provide the basis for the clinical diagnosis of ventricular wall motion, in addition to providing data for a closer examination of specific areas for evidence of hypokinesia, akinesia, or dyskinesia.

Because of the high count rate of System Seventy Seven's multicrystal matrix detector, no ECG gating was required. These studies are therefore unique in nuclear medicine and, because of the computer built into the system, remarkably fast and easy to perform. There is simply no other gamma camera that can do all that you see here.

BA **BAIRD-ATOMIC**

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

International Sales and Service:
BAIRD-ATOMIC (Europe) B.V. Veenkade 26-27-28a, The Hague, Holland.
Telephone: (070) 603807. Telex: 32324. Cable: BAIRDCO 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

THE MODUMATIC™ 600-SAMPLE AUTO-GAMMA® SYSTEM

SYSTEMS WITHIN A TOTAL SYSTEM

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

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

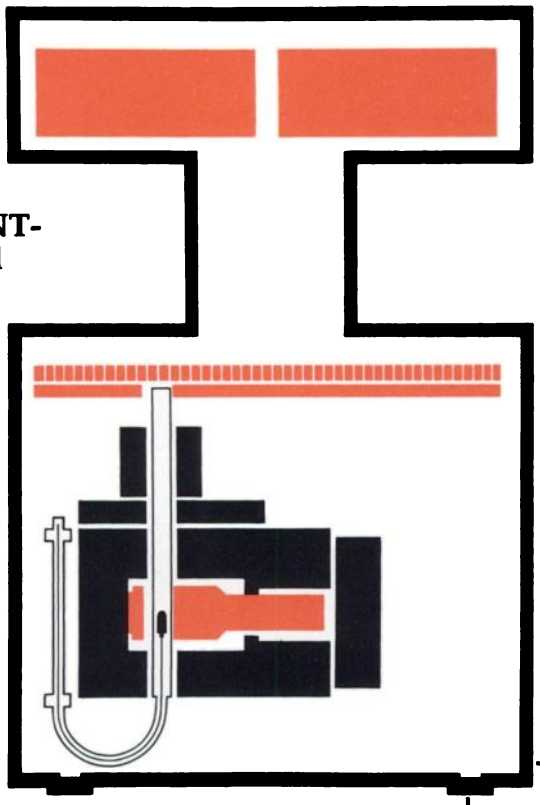
■ **A Pedestal-Type Sample Elevator System** with "anti-jam" protection... accommodates sample tubes of varying diameters, lengths and shapes, and positions such mixed samples in the detector aperture accurately and reproducibly;

■ **A High-Speed Reversible Sample Changer System** which accepts intermixed sample size containers without requiring any special carriers, caps or cups... and can handle over 1,000 samples per day;

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

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

*Packard designation



Get the book on the MODUMATIC System

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

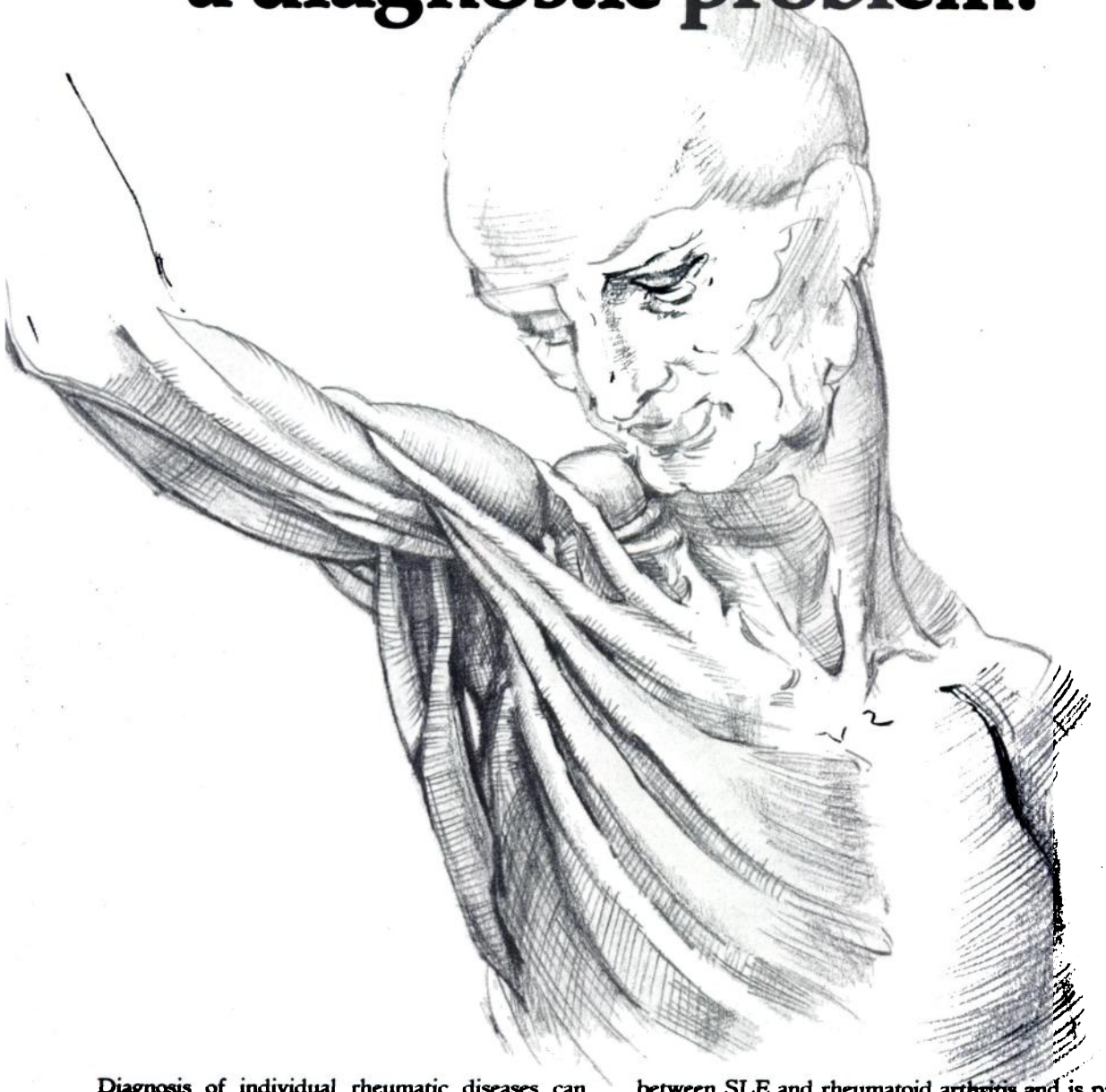
Name_____
Title_____
Institution_____
Address_____
City_____
State_____ Zip_____

Packard

PACKARD INSTRUMENT COMPANY, INC.
2200 WARRENVILLE RD • DOWNERS GROVE, ILL. 60515
PACKARD INSTRUMENT INTERNATIONAL S.A.
TALSTRASSE 39 • 8001 ZURICH, SWITZERLAND
SUBSIDIARIES OF AMSAC INDUSTRIES, INC.

Packard

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.

Anti-DNA kit

The Radiochemical Centre Amersham

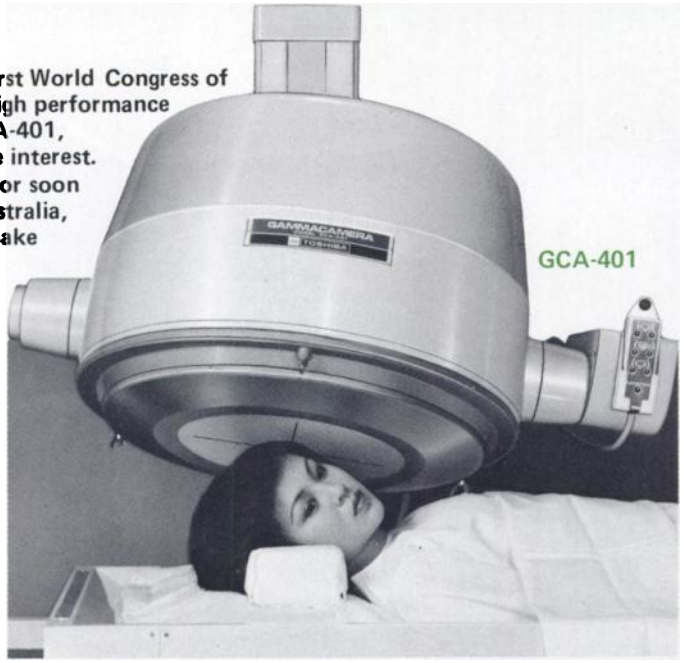
The Radiochemical Centre Limited, Amersham, England. Tel: 024-04 444.
In the Americas: Amersham/Searle Corp. Illinois 60005. Tel: 312-593-6300.
In W. Germany: Amersham Buchler GmbH & Co., KG, Braunschweig. Tel: 05307-4693-97.
0395

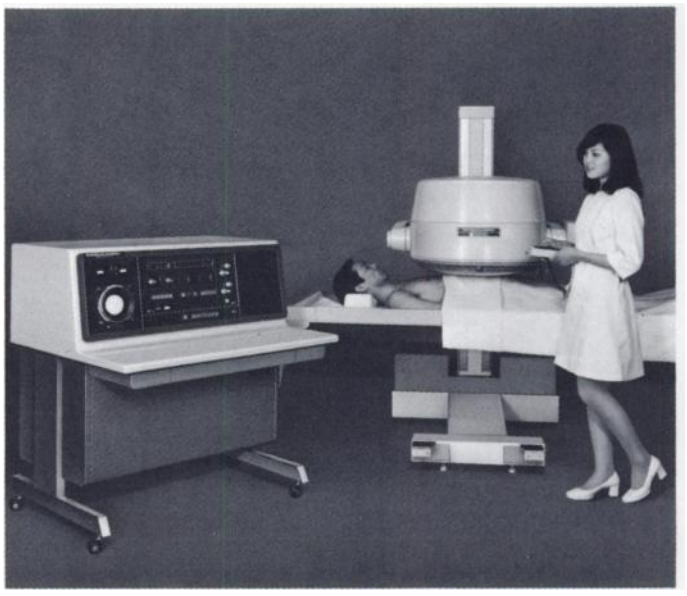
Why All the Interest in Toshiba's Newest Jumbo Gammacamera?

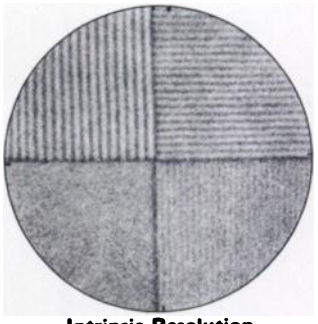
Since its introduction at the First World Congress of Nuclear Medicine, our newest high performance delay line Gammacamera, GCA-401, has been generating world-wide interest. In fact, several sets have been, or soon will be installed in Europe, Australia, and Japan. The features that make this unit so attractive include:

- High intrinsic resolving capability (3.2mm lead pattern using ^{99m}Tc.)
- 35cm usable field of view, large enough to image both lungs or a large organ.
- Programable setting of measuring conditions
- Compact, easy-to-operate control console
- Adaptable for whole-body-imaging
- Compatible with any data processing system
- Reliability assured through utilization of Toshiba's world renowned IC electronics

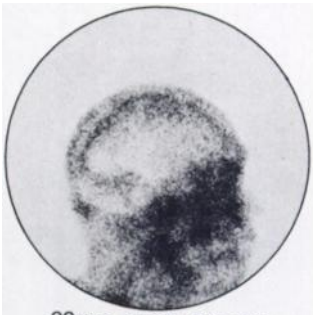
If we've caught your interest too, please write.
We'll be pleased to send you all the information you need on the GCA-401.



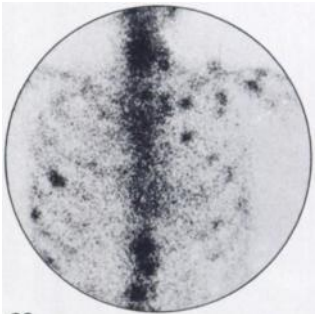




Intrinsic Resolution
^{57}Co 999 K-counts, Window; 20%
Pb-Bar pattern; 2.4, 3.2, 4.0, 4.8 mm



^{99m}Tc-DTPA, 24m Ci, 300 K-counts, Window; 20%
Collimator; High resolution.



^{99m}Tc-pyrophosphate, 13m Ci, 200 K-counts, Window: 20% Collimator; High resolution.

TOSHIBA
TOKYO SHIBAURA ELECTRIC CO., LTD.

Producer Goods Export Division
1-6, Uchisaiwaicho 1-chome, Chiyoda-ku, Tokyo, 100 Japan
Cable: TOSHIBA TOKYO Telex: J22587 TOSHIBA Phone: 501-5411

The large field of view camera that provides superior diagnostic clarity

Pho/Gamma®

LFOV™

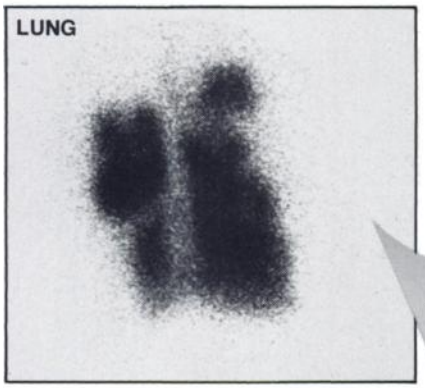
Large Field of View Scintillation Camera

- **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 subsegmental 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.

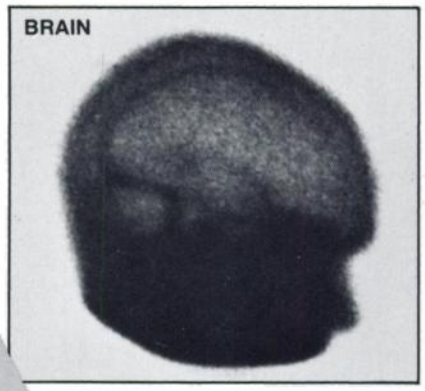
BRAIN STUDY

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

a quiet revolution in WHOLE BODY and ORGAN imaging.

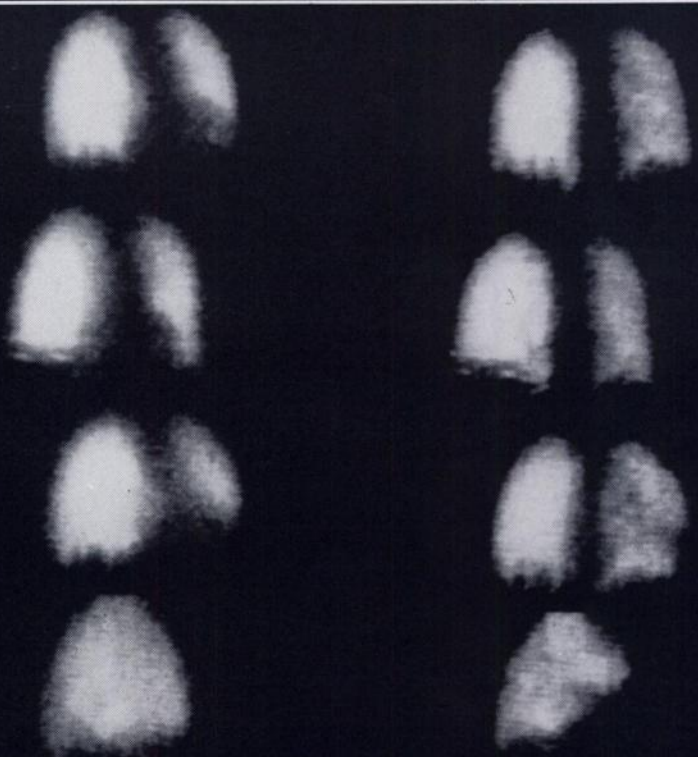
The Cleon Imager fills basic needs in the busy nuclear medicine department. In "WHOLE BODY MODE," it handles patient caseloads three to five times as rapidly as a conventional *rectilinear scanner,* providing dual anterior and posterior skeletal images of such clarity and sharpness that repeat small-area 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.*



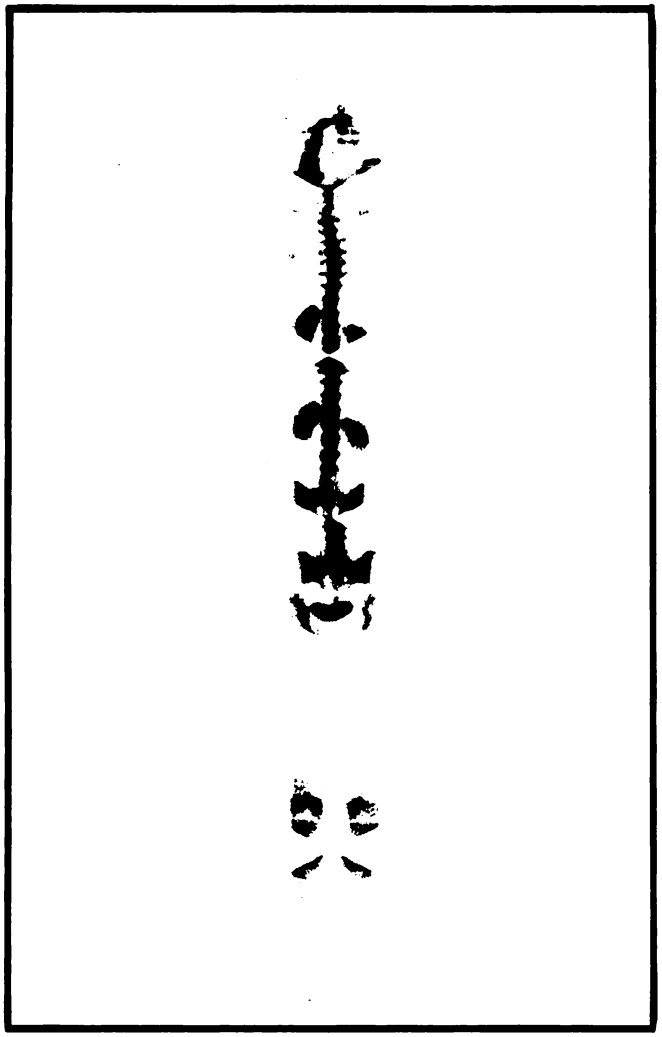
LUNG IMAGE SERIES.
Imaging agent: 1.5 mCi Tc-99m MAA.
Time-to-scan (8 views): 16 minutes.
Image courtesy of *Leonard Morse Hospital, Natick, MA.*

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

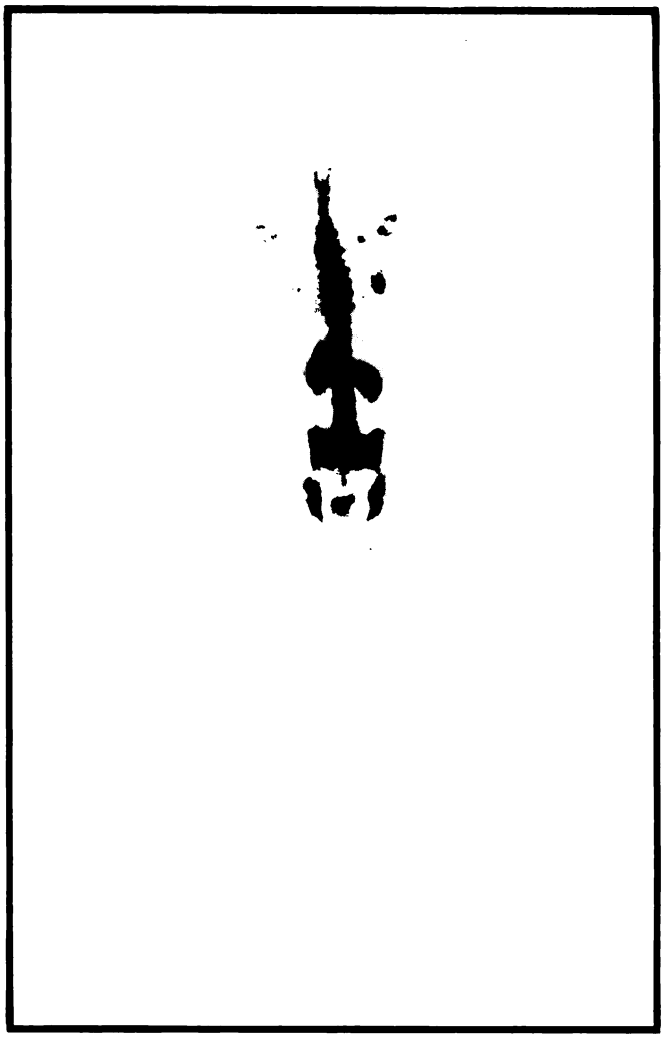
150 Gould Street, Needham, Massachusetts 02192/Telephone 617-444-2494

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 ^{99m}Tc Pyrophosphate
Time Begun: 4 hours post dose

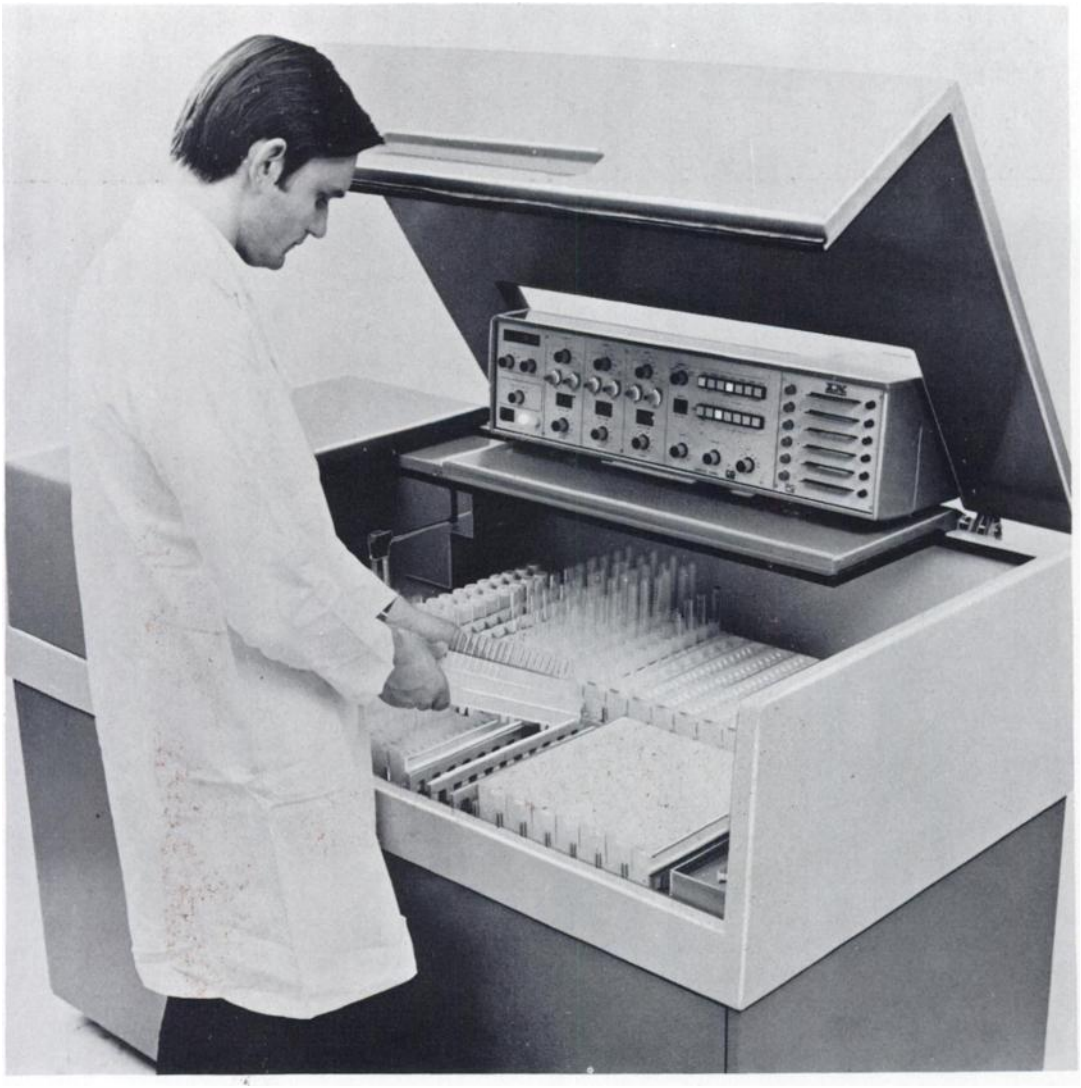
Composite View
700,000 counts per view except legs were 100,000 counts per view
Total Scan Time: 30 minutes (included positioning)

AreaScan

Total Scan Time: 12.2 minutes

ohio-nuclear, inc.
A subsidiary of Technicare Corporation
U S – 6000 Cochran Road • Solon Ohio 44139 Telephone (216) 248-8500 TWX 810 427 2998
U K – Ohio-Nuclear U K • Radix House • Central Trading Estate • Staines • Middlesex England Telephone Staines 51444
Worldwide – Siemens A G Medical Division • D8520 Erlangen • Henkestrasse 127 • West Germany Telephone 09131 84-1 TWX 841 629 847

INTERTECHNIQUE CG-4000 AUTOMATIC GAMMA COUNTERS INCREASE LABORATORY OUTPUT.



400-760 TUBE RACK-TYPE TRANSPORT for fast, flexible sample handling. Accepts intermixed tube diameters up to 28 mm. Insures fast, reliable tube transfer to detector.

WELL-TYPE DETECTORS AND CASCADED LINEAR.AMPLIFIER for maximum resolution, efficiency and long term stability with low and high energy isotopes.

BUILT-IN RIA CALCULATOR
computes average NSB and B_o or Total activity from replicates, then

calculates % $\left[\frac{\text{CPM-NSB}}{B_o - \text{NSB}}\right]$

or % $\left[\frac{\text{net CPM}}{\text{Total}}\right]$

ADVANCED RIA COMPUTATION with the 16-32 K Multi-Mat ® 4000 computer option. Programmable in LEM, delivered with general purpose and kit-oriented RIA programs.

MULTI-USER PROGRAMMER selects windows, presets, background subtract parameters and specific RIA programs by individual Control Command Cards ©.

INTERTECHNIQUE

78370 PLAISIR-FRANCE - Teleph.: (1) 460.33.00
cable address INTERTEC Telex: IN 692 642 F
U.S.A 50 Van Buren Avenue WESTWOOD,
New Jersey 07675 Tel : (201) 664-7070

Buy the capabilities of a $70,000 computer...

ADAC Clinical Data System

Standard Features

- ■ 40K x 16 Memory
- ■ Dual 7" x 9" Video Displays
- ■ 64 Gray Shades
- ■ 512 x 512 Image Display Matrix
- ■ Light Pen (8 regions-of-interest)
- ■ Dual Disc Drives
- ■ High Speed (110 characters/sec) Printer
- ■ Clinical Software Package
- ■ In Vivo and In Vitro Data Analysis
- ■ Free Software Upgrades
- ■ Installation and Training
- ■ One-Year Warranty

Optional Features

- □ Third Disc Drive (allows simultaneous processing while acquiring data)
- □ 64K x 16 Memory
- □ 8 x 10 X-ray Film Camera
- □ Polaroid Camera
- □ FORTRAN IV Compiler
- □ Paper Tape Reader (for input of RIA data)
- □ High Speed Disc Drive (list mode, mass storage)
- □ Remote Dual Displays
- □ Color Display
- □ Image Transmission via Telephone
- □ Microdot (Searle TM) Interface

... for the price of a $25,000 tape system!

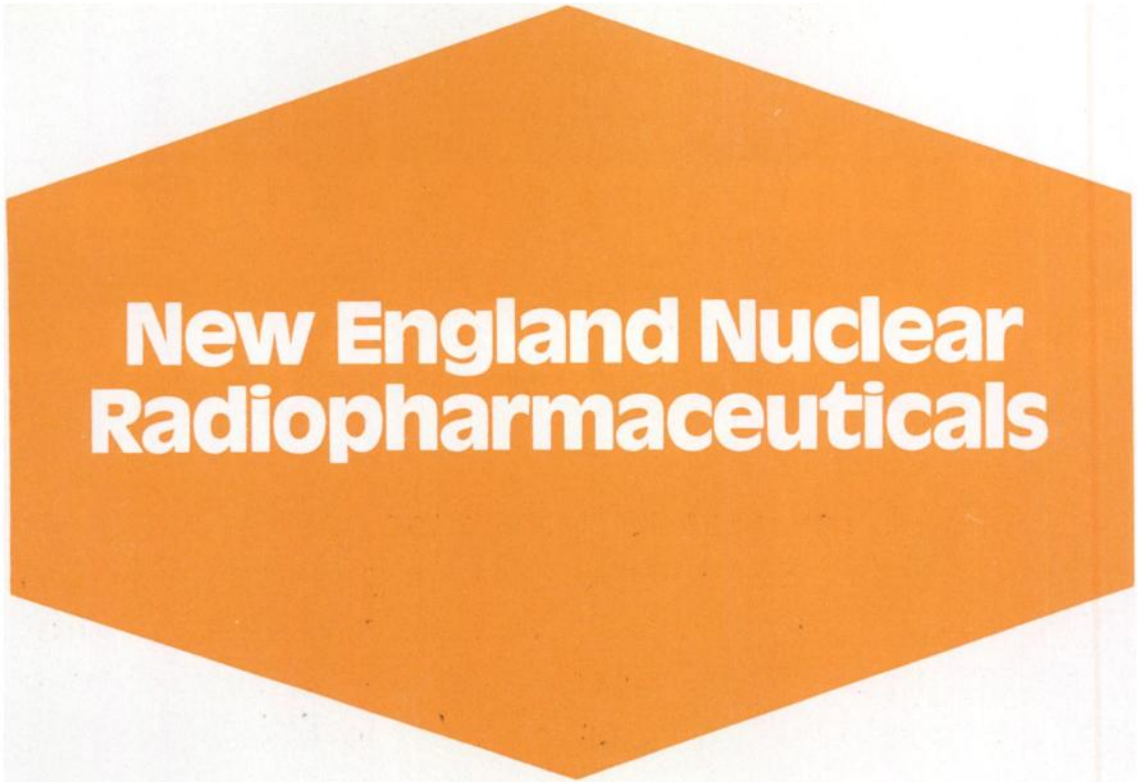
The new ADAC Clinical Data System may be just what you're looking for . . . it's more than a video tape recording system, more than a hard-wired, tape-based data system (and easier to use), and comparable in performance and flexibility to the minicomputer systems that cost $50,000 to $75,000.

Quantitative organ function analysis will play a significant role in the future of nuclear medicine. Effective data acquisition and analysis is becoming more of a necessity than ever before. Until now, your choice was between expensive programmable computers and less costly (and less effective) tape-oriented systems. Recent advancements in computer technology give you a third choice that closes the gap!

For less than $30,000 you can have a programmable computer that incorporates the very latest technology, giving you a system that is low priced, easy to use, versatile, and expandable to meet the most demanding needs of the future.

Call or write today for a sample clinical study and the locations of our current installations.

ADAC
10300 Bubb Road
Cupertino, California 95014
Telephone (408) 255-6353



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 Pertechnetate 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 Pertechnetate Sodium Tc 99m supply may thus adversely affect the quality of the prepared agent. Hence, Pertechnetate 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 Pertechnetate Sodium Tc 99m. Refrigerate after reconstitution.

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

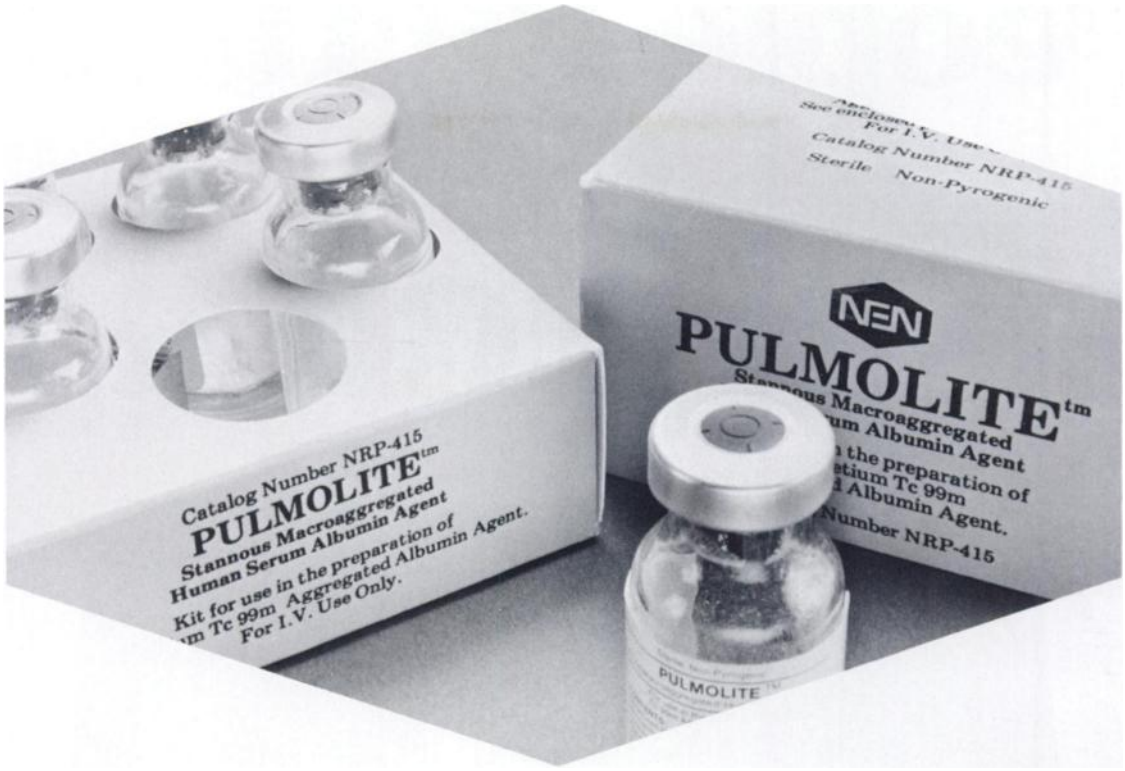
As in the use of any other radioactive material, care should be taken to minimize radiation exposure to the patient, consistent with proper management, and to insure minimum radiation exposure to the occupational workers.

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.

DOSAGE AND ADMINISTRATION. The recommended intravenous dose range for the average patient (70 kg) is 2 to 4 millicuries.

For ease and accuracy in dispensing the prepared agent, it is recommended that prior to reconstitution, concentrated Pertechnetate Sodium Tc 99m be further diluted to a minimum volume of 5ml with fresh, preservative-free, sterile Sodium Chloride Injection (U.S.P.).

The patient dose should be measured by a suitable radioactivity calibration system immediately prior to patient administration. Re-suspend particles in syringe immediately prior to injection by repeated inversion of the syringe. (If blood is drawn into syringe, any unnecessary delay prior to injection may lead to clot formation in situ). Do not back-flush the syringe. Slow injection is recommended, and for optimum results, imaging should begin as soon as possible after injection.



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_4

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

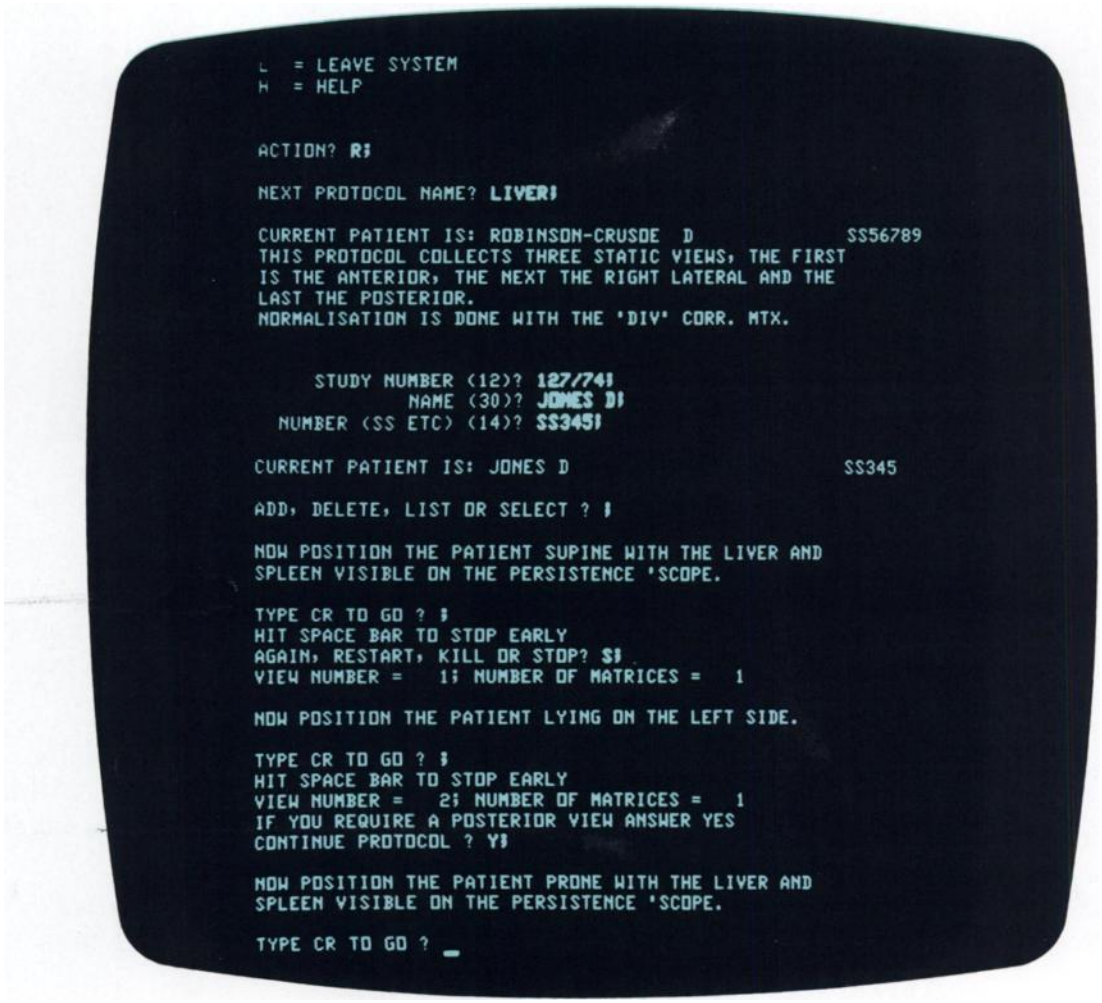
Uniform particle size – Typically 90% of the aggregates are well within the range of 5-75μm, and none larger than 150μm

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

People Pictures for Clinical Clarity



Typical protocol control dialogue (customer prepared) on monochrome display

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

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

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

From Abbott: a masterpiece of engineering... at a modest $5795.

The Auto-LOGIC™ 50/121 Gamma Counting System represents an artful blend of advanced electronics and quality craftsmanship...at a price that's readily affordable.

Abbott designed the Auto-LOGIC System to get the job done—rapidly and efficiently—maximizing accuracy while minimizing tech time. The economical Auto-LOGIC 50/121 System is compact in size, big on performance and easy on your budget. Just compare: 50-sample capacity, 4.5 second sample cycle time, simplified pushbutton controls, automatic printout, automatic shut-off and more. So much more, in fact, that you'd have to look at systems costing twice as much to get comparable performance features.

Abbott Laboratories
Diagnostics Division
North Chicago, IL 60064
800/323-9100

Photographed at
Jack O Grady Galleries,
Chicago, Illinois, 1975.

Auto-LOGIC 50/121:
state of the art.

Tl 201 opens up the heart

With Tl 201 you enter a new era in the diagnostic evaluation of myocardial diseases.
Myocard scintigraphy can now be carried out on a routine basis.
Philips-Duphar supplies Tl 201 wherever you are, whenever you want.

duphar

DUPHAR

PHILIPS-DUPHAR B.V. CYCLOTRON AND ISOTOPE LABORATORIES, PETTEN, HOLLAND.

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®

- **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.

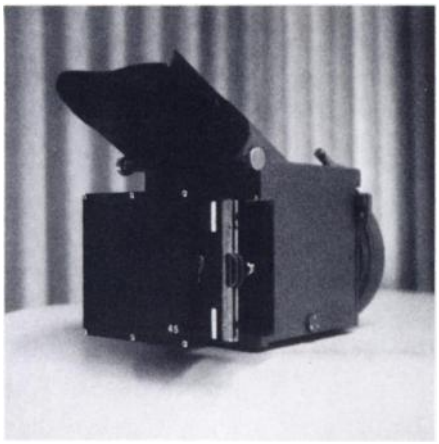
Precise reference standards (optional) . . . certified calibration standards available for routine quality control testing.

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

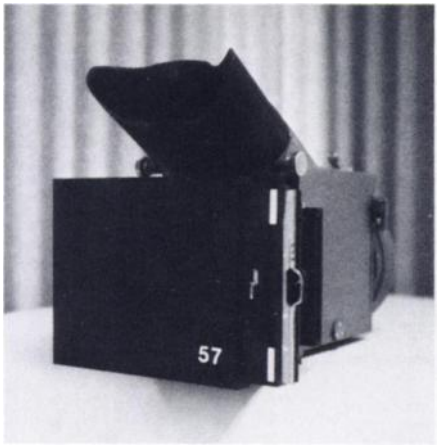
Complete local servicing available in most areas.

Write for information

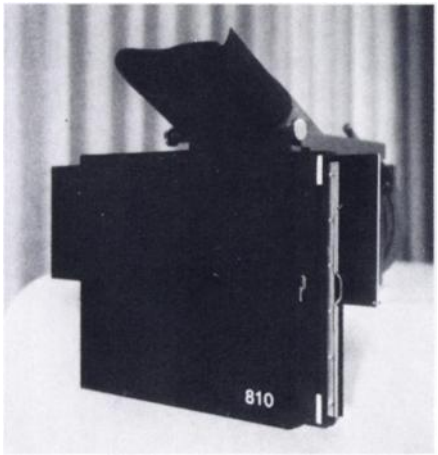
CAPINTEC, INC. 63 East Sandford Blvd., Mt. Vernon, N.Y. 10550 • 914-664-6600 • Telex. 131445 (Capintec MTV)



MODEL "45" (4 x 5)



MODEL "57" (5 x 7)



MODEL "810" (8 x 10)

*"NISE-FORMAT"™

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

Futher information available upon request.
Please write or call

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

N.I.S.E., INC.
20018 STATE ROAD, CERRITOS, CALIFORNIA 90701
TEL. (213) 860-6708

POSITIONS OPEN

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 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, registered or eligible. Challenging position with primary responsibility in scanning in progressive 500-bed Friesen hospital in central Iowa city. Salary commensurate with experience. Excellent fringe benefits. Qualified candidates submit resume to Personnel Department, Mercy Hospital, 6th & University, Des Moines, Iowa 50314. (515) 284-3100.

NUCLEAR MEDICINE TECHNOLOGIST wanted for 172-bed acute care hospital. Located on eastern slope of Rocky Mountains. Contact Personnel Director, Boulder Community Hospital, 1100 Balsam Avenue, Boulder, Colo. 80302. Phone: (303) 442-8190.

NUCLEAR MEDICINE TECHNOLOGIST. Position available as Chief Technologist at North Carolina Memorial Hospital, UNC School of Medicine, Chapel Hill, North Carolina. Must be registered with three years minimum experience in Nuclear Medicine. Will also be director of the Nuclear Medicine teaching program. Salary negotiable with excellent fringe benefit program. Please call or send resume to North Carolina Memorial Hospital, Department of Personnel, Chapel Hill, N.C. 27514. Telephone (919) 966-1825 or Mr. M. H. Jennings, Department of Radiology, North Carolina Memorial Hospital, Chapel Hill, N.C. 27514. Telephone (919) 966-4268.

NUCLEAR MEDICINE TECHNOLOGIST-Registered. 269-bed modern hospital. Excellent benefit package. Salary $10,000–$12,000 range. Contact Personnel Dept. Osteopathic General Hospital, 1750 N.E. 167th St., North Miami Beach, Fla. 33162. Tel: (305) 949-0211.

NUCLEAR MEDICINE TECHNOLOGIST. Current opening for full time Nuclear Medicine Technologist. Modern 320-bed hospital with progressing Nuclear Medicine Department. Excellent salary with fringe benefits program. Must be registered having experience in Gamma Camera, Dual Probe Scanning and Ultrasound. Position includes scheduled calls. Contact: Mr. Eli Cvijanovich, R.T., B.A., A.H.R.A., Administrative Chief, Department of Radiology, Lee Hospital, 320 Main Street, Johnstown, Penn. 15901.

NUCLEAR MEDICINE CHIEF TECHNOLOGIST. We seek an exceptional individual to head our new 3000 square ft. department. This individual must possess excellent technical skills and have a minimum of 3 years supervisory experience. Hoag Hospital, Personnel Dept., 301 Newport Blvd., Newport Beach, Calif. 92663.

NUCLEAR MEDICINE TECHNOLOGIST, certified or eligible, for position in 125-bed hospital Central Coast of California. Competitive salary, excellent fringe benefits. Send resume to Personnel Director, Marian Hospital, P.O. Box 1288, Santa Maria, Calif. 93454.

NUCLEAR MEDICINE TECHNOLOGISTS—Winters are beautiful in Florida—Immediate opening for a staff technologist to work in a busy department in a 434-bed hospital. Must be registered or eligible for registry. Write us and find out what we can offer you: Personnel Department, St. Anthony's Hospital, 601 12th Street North, St. Petersburg, Fla. 33705.

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

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

NUCLEAR MEDICINE TECHNOLOGIST: Immediate opening, 1200-bed private hospital with medical school affiliation in Texas Medical Center. Well equipped expanding laboratory with 4 scintillation cameras and computer. Contact Staff Employment Manager, St. Luke's Episcopal & Texas Children's Hospital, 6621 Fannin, Suite 2R515, Houston, Tex. 77025. An Equal Opportunity Employer. M/F.

ASSISTANT CHIEF TECHNOLOGIST: Immediate opening, 1200-bed private hospital with medical school affiliation in Texas Medical Center. Requires minimum 3 years experience. Well equipped, expanding laboratory with 4 scintillation cameras and computer. Contact Staff Employment Manager, St. Luke's Episcopal and Texas Children's Hospital, 6621 Fannin, Suite 2R515, Houston, Tex. 77025. An Equal Opportunity Employer M/F.

POSITION WANTED

NUCLEAR MEDICINE TECHNOLOGIST desires to relocate. Graduate of prestige university with many years field experience. Versed in opening and managing Nuclear Departments. Reply: Box 101, 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 102, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.

M.S., ARRT, TECHNOLOGIST EXPERIended in vivo/in vitro, desires position in nuclear medicine. Mohammed Yaqub, 560 W. 165th St., New York, N.Y. 10032, 568-3824.

BIOMEDICAL ENGINEER WITH Ph.D. and over thirteen years experience in teaching and research, six years in nuclear medicine image processing and computer applications, seeks position in university, hospital, or industry. Write: Box 103, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.

NUCLEAR MEDICINE PHYSICIAN, completed two-year residency from a university, desires full-time position in nuclear medicine. Reply to Box 104, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.

PHYSICIAN, CERTIFIED ABNM, trained at leading university, diverse experience in all aspects of Nuclear Medicine, i.e., clinical, administrative, teaching, research, radiology background, desires full-time position, available summer 1976, respond with job description, please reply to Box 105, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.

(A.R.R.T.) NUCLEAR MEDICINE Technologist (two) looking for position in Canada. Experience in vivo, in vitro, administrative and interested in research. Please reply to Box 106, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.

FOR SALE

OHIO NUCLEAR MODEL 84FD DUAL Five Radioisotope Scanner with 2 ea. Model 53524L (Tc-99m), 53538M (I-131), and 53538H (F-18) Collimators; 4 Film Cassettes ; Recorder X-Y Reverse ; Scan Minification; Additional Storage Monitor; Oversize Patient Couch; and Conversion for Pulse Height Analyzer from 1.0 Mev. to 1.5 Mev. Original purchase date: February 1971. Contact: Box 107, Society of Nuclear Medicine, 475 Park Ave. South, New York, N.Y. 10016.

PICKER WELL, PULSEHEIGHT ANAlyzer and Discriminator Scaler, 90 day warrantee, $1800 + shipping, call (609) 589-5154, or write MGS Nuclear Associates, 1059 Kilborn Place, Williamstown, N.J. 08094.

Photographic Memory

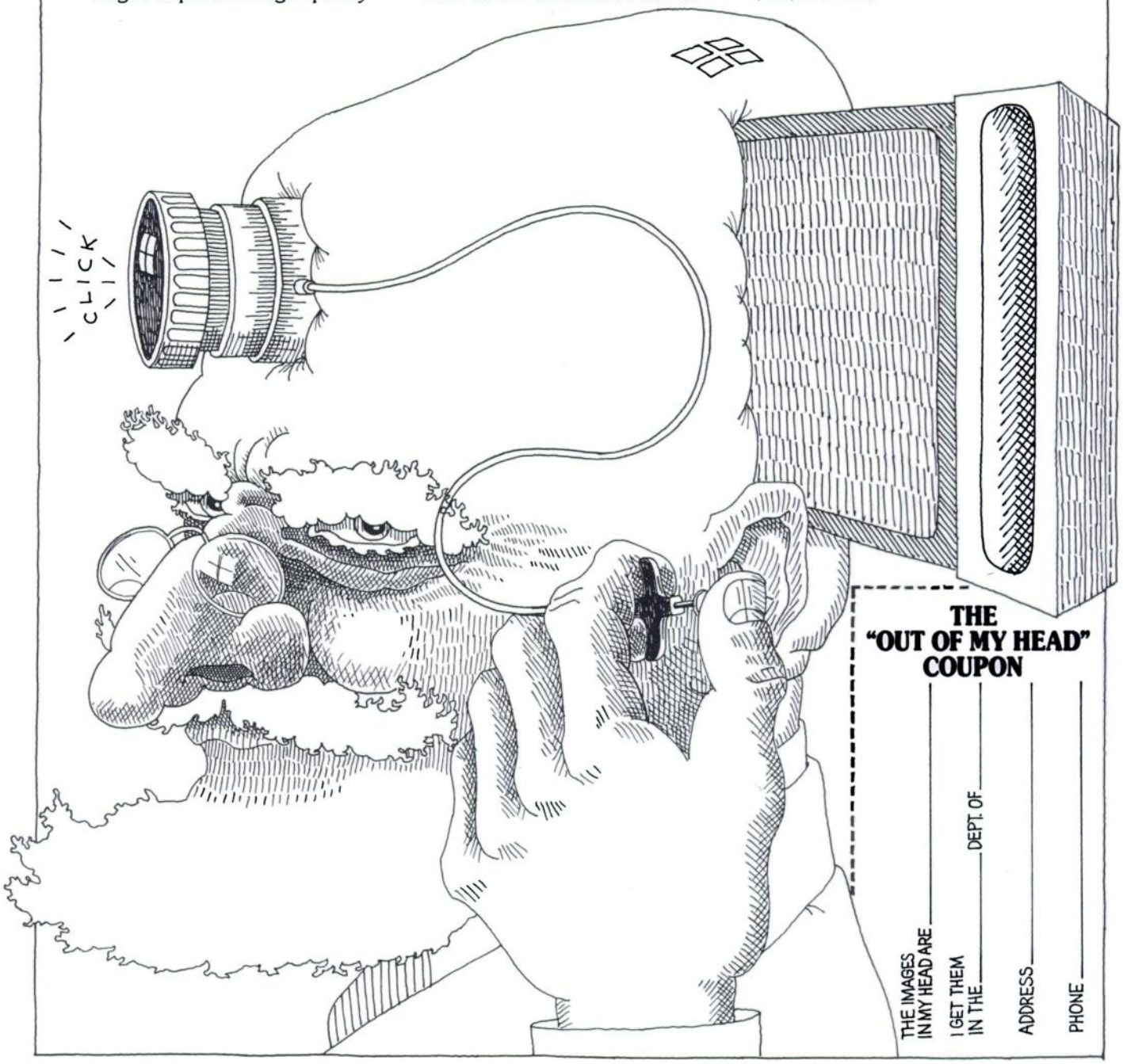
You have the medical image in your head, but you can't hold your head up to the viewbox . . . or file it in the patient's records. You need a consistent photographic record of the display . . . hard copy. And its quality is critical, not underexposed, not overexposed.

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



Immediate Opening!

NUCLEAR MEDICINE TECHNOLOGIST

Come, see what Nashville has to offer for registered or registry-eligible nuclear medicine technologists. A 550-bed teaching hospital, with a dynamic Department of Nuclear Medicine. Opportunity to alternate in Vitro, Vivo and Radiopharmacy areas. Modern facilities, including three gamma cameras, dual probe scanner, and X-ray fluorescent scanner. Excellent technologist training program. Negotiable salary. Outstanding health insurance. Retirement plans. Over one week of paid holidays. Paid sick leave. Two weeks paid vacation. Overtime and stand-by pay, with paging device provided. Scheduled call: One out of six weeks. Excellent growth opportunity in pleasant Southern atmosphere with unusually high quality lifestyle. Write or Call Collect (615) 322-2801.

VANDERBILT MEDICAL CENTER

Ms. Margaret Boyd
Vanderbilt Employment Center
110 21st Avenue South
Room 1103 Baker Building
Nashville, Tennessee 37203
An Equal Opportunity Employer

Academic Nuclear Medicine Physician

July 1, 1976, opening for full-time Nuclear Medicine physician at a major academic center. Board certification in Nuclear Medicine or equivalent experience is required. The physician will have active responsibility for clinical Nuclear Medical procedures, will assist in teaching programs and should be capable of conducting independent research. New York State license required.

Address reply, containing complete curriculum vitae and statement of academic goals, to Philip M. Johnson, M.D., Director, Division of Nuclear Medicine, Department of Radiology, College of Physicians and Surgeons, Columbia University, 630 West 168 Street, New York, N.Y. 10032.

An Affirmative Action/Equal Opportunity Employer. Applications from women and members of Minority Groups welcomed.

RESIDENCY POSITIONS AVAILABLE

The Department of Nuclear Medicine at William Beaumont Hospital (700-beds) offers a two-year AMA-approved residency in nuclear medicine. The 5,000 square foot, modern department is staffed by three full time Board certified nuclear medicine physicians, two radiopharmacists, three physicists, one Ph.D. immunochemist, and 11 certified technicians. Training is highly clinical in orientation; yet the atmosphere is academic with full access to the William Beaumont Research Facility. Procedures (23,000/year) are balanced between imaging and radioassay. The department also trains seven nuclear medicine technicians yearly in its AMA-approved programs.

For further information and applications for July, 1976, contact Howard Dworkin, M.D., Chief, Nuclear Medicine Department, William Beaumont Hospital, Royal Oak, Michigan 48072.

SUPERVISOR
NUCLEAR MEDICINE TECHNOLOGIST

Excellent opportunity for experienced technologist in a 500-bed acute general hospital with forward looking ideas. Affiliated with Southwest Medical School, it is a growing medical facility. Excellent employee benefits and opportunities. Must have experience in vivo and in vitro nuclear medicine.

Apply Director of Personnel, Presbyterian Hospital of Dallas, 8200 Walnut Hill Lane, Dallas, Texas 75231.

An 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

March 8–12, 1976
May 10–14, 1976
July 12–16, 1976
November 8–12, 1976

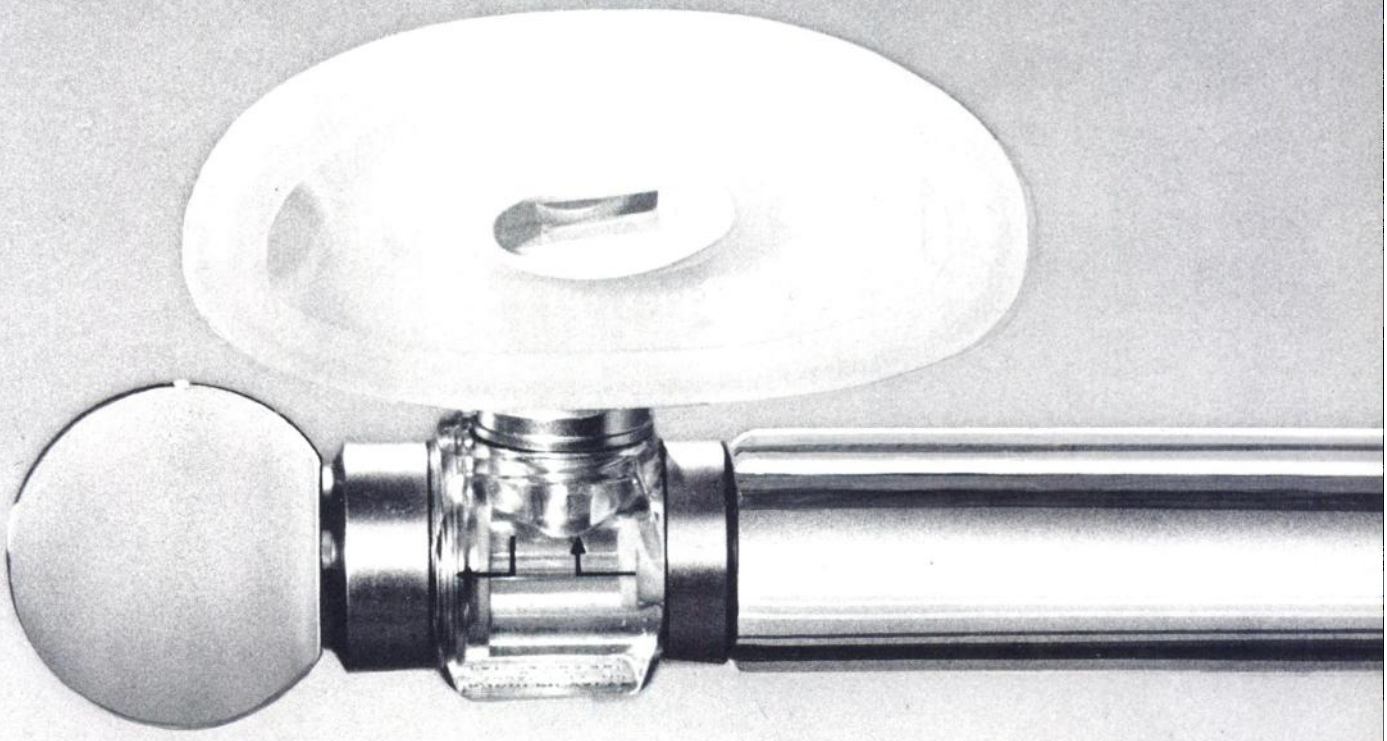
JNM CLASSIFIED PLACEMENT SERVICE SECTION

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 ⅛ page, $90 for ¼ page, $165 for ½ 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

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

World-Wide Acceptance ...Global Availability

ISOCLEAN CONCENTRATE

Radio-Labware Cleaner

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.*

ISOLAB inc.
INNOVATIVE PRODUCTS FOR RESEARCH
Drawer 4350 Akron Ohio USA 44321

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

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

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

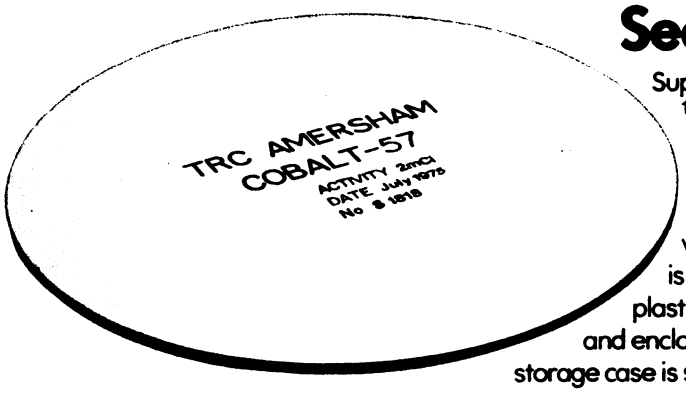
SOUTH AFRICA
CHEMLAB Pty. Ltd.
P.O. Box 56218
Pinegowrie, Transvaal, RSA

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.

A reference is only as good as its source

Our sources have an excellent reputation for safety and convenience; they offer you references you can trust.



Sealed flood sources

Supplied as ^{57}Co (2 and 3mCi) and ^{133}Ba (0.5 and 1.0mCi) in two sizes, to check the uniformity and resolution of conventional and wide field-of-view gamma cameras, and for transmission imaging. The maximum acceptable variation in activity over the entire active area, is ±1% of the mean value. Each uniformly active plastic component is surrounded by inactive plastic and enclosed in an anodized aluminium casing. A shielded storage case is supplied with each source.

Anatomical marker sources

Spot sources are available as a 1mm bead of ^{57}Co or ^{133}Ba (10 and 100μCi). Features include a welded plastic capsule, point source geometry with a visible active bead, and colour coding for quick identification of nuclide and activity. They are packed in sets of three in shielded boxes; replacements are available separately.

Pen point tracers have a 1mm diameter bead of ^{57}Co (100μCi) sealed in the tip of a ball-point pen shaped holder with a brass shield for the active end.

Flexible sources are 50cm x 4mm diameter; ^{57}Co (100μCi) is dispersed in an inner core of active plastic, sealed in an inactive PVC tube, and closed by aluminium caps.

^{129}I rod sources for γ counters

^{129}I (0.1μCi) gamma/X-ray spectrum is virtually identical to ^{125}I, and has a half-life of 1.57×10^7 years. Calibration in terms of ^{125}I is available. The length is 100mm, maximum diameter 15mm—suitable for most manual and automatic counters. Active material is sealed in a plastic capsule attached to a handling rod. Other nuclides ^{241}Am, ^{133}Ba, ^{57}Co, ^{60}Co, ^{137}Cs, ^{54}Mn, ^{22}Na, ^{75}Se, ^{123m}Te, ^{88}Y and mock ^{131}I.

The Radiochemical Centre Amersham

Please write for further details.
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

0353

PortaCamera system not only gets around your hospital...it gets around space & budget limitations, too.

Name the scintillation camera system that's more compact than a mobile patient stretcher, and can be wheeled just as easily into the CCU, ICU, even the O.R., making 99mTc studies possible with patients who can't be moved.
A system that weighs under 1,000 pounds... less than half the weight of others. And costs far less, too.

Only one system fits that description: the PortaCamera™ system, by General Electric. Camera and integrated electronics console can serve as a comprehensive nuclear department on wheels for the hospital just getting into nuclear medicine. And as a versatile,

high-performance back-up system to relieve patient loads in established nuclear institutions.

PortaCamera system has no rival for ease of use. Counter-balanced detector permits precise positioning with supine or seated patients. No motors. No restrictive detector yoke. No awkward pedestal. Two-step operating procedure is quickly mastered by your technician, to speed patient through-put.

The PortaCamera system is another example of General Electric's expanding nuclear capability. Backed by GE's recognized service organization. And available under attractive lease plans which don't require a capital investment. Look for the commitment behind the equipment. See your GE representative.

General Electric
Medical Systems
Milwaukee, Toronto,
Madrid

GENERAL ELECTRIC

NUCLEAR MEDICINE INSTRUMENTATION

AUTORANGING RADIOISOTOPE CALIBRATOR

Model 430

- Easy one step operation.
- Activity measurement completed in one second.
- Automatic ranging from 10μCi to one curie.
- 3 digit led display with floating decimal point.
- Direct Digital Readout in mCi/ml.
- Calibrated for all radionuclides in clinical use.

Model 430 ..... **$2185.00**

IN-VITRO SCINTILLATION COUNTING SYSTEM

Model 100

- Easy-to-read display.
- 5 ml or 15 ml well volume.
- Complete system for $1995.
- Light Weight and Compact Design.
- Preset time intervals from 0 to 10 min.

Model 100 (5 Digit Display) **$1995.00**
(6 Digit Display) **$2045.00**

Write for Atomic's CATALOG NM1-75 describing our complete line of nuclear medicine instrumentation.

NUCLEAR SPECTROMETER

Model 300

- One MHz count-rate.
- Eleven digit led display.
- Five mA high voltage supply.
- Power interruption indicator.
- Five decade presettable timer.
- Six decade presettable scaler.
- All integrated circuit electronics.
- Thumbwheel controls for analyzer settings and to present scaler and timer.

FACTORY INTEGRATED OPTIONS AVAILABLE

Digital to analog converter
Automatic baseline advance
Parallel printer interface
Teletype interface
Sample change interface
Dual radionuclide

Model 300 ..... **$2495.00**

RATEMETER/RADIATION MONITOR

Model 270

- Audio output.
- 4 Time-constants
- Recorder output.
- Optional remote alarm control.
- Variable level internal alarm circuit
- 7 count-rate ranges: 0-333 to 0-300,000 cpm.

Model 270 ..... **$565.00**
Remote Alarm Option ..... **$ 75.00**

compact, economical & reliable instruments are our business . . .

ATOMIC DEVELOPMENT CORP. • 7 FAIRCHILD COURT, PLAINVIEW, N.Y. 11803 / (516) 433-8010

• All prices F.O.B. Plainview, N.Y. • Terms: Net 30 days • Prices and specifications subject to change without notice • Printed in U.S.A. **10/75**

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 [^{125}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 [^{125}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.

Schwarz/Mann

Schwarz/Mann, Division of Becton, Dickinson and Company B-D
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 [^{125}I]

☐ Please have your representative call

NAME _____ TITLE _____

INSTITUTION _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

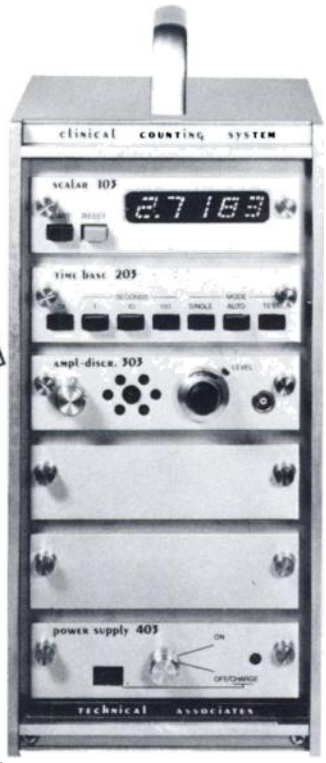
TELEPHONE NUMBER _____

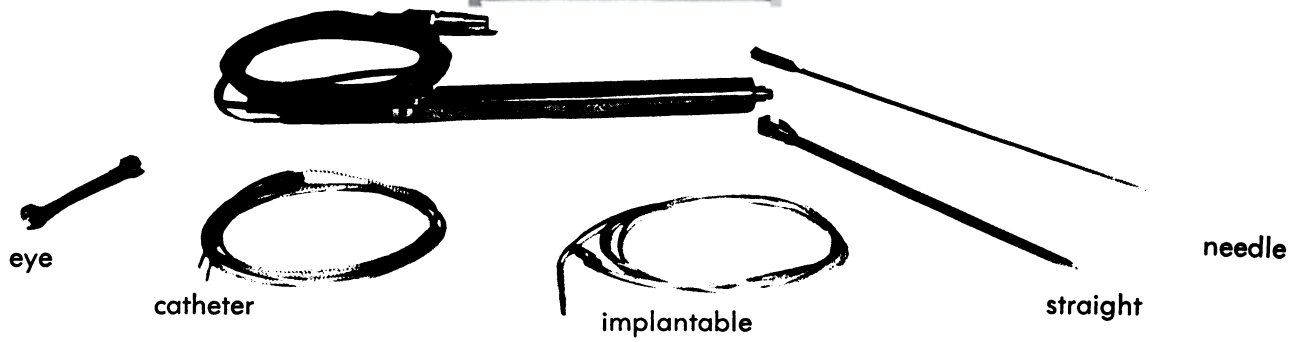
☐ I am ☐ I am **not** currently doing RIA work.

Schwarz/Mann

the proven clinical counting system

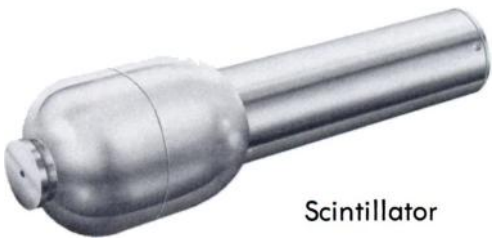
NEW
Thrombus Detectors
write for details





Solid State Probes

G.I.



Scintillator

- 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

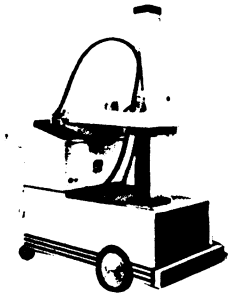
TECHNICAL ASSOCIATES

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

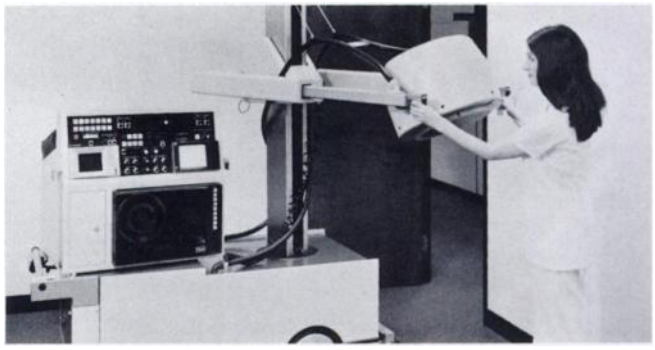
mobility and dependability

with no loss in resolution

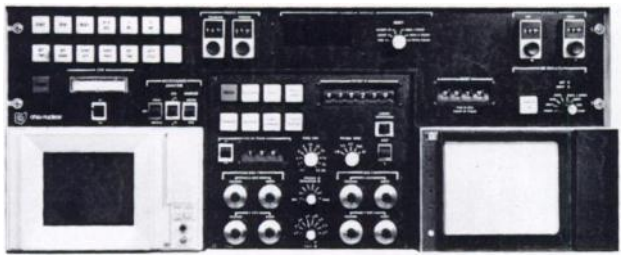
Wherever the need arises, in ICU, CCU, the Emergency Room, or within the NM Department, the Series 120 Mobile Camera is immediately available to generate high quality diagnostic information. And like all Ohio-Nuclear equipment, it is simple to operate.



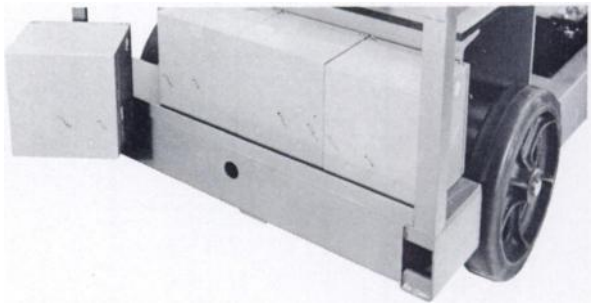
Mobility. The self-propelled Series 120 will travel at about 150′ per minute, and negotiate a 10% incline under its own power, or it will creep for accurate patient positioning, all while maintaining full HV power to its photomultiplier tubes. This permits operation as soon as the unit is in place.



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. 810-427-2696
(U.K.), Radix House, Central Trading Estate, Staines, Middlesex, England • Phone Staines 51444

Where it all comes together

Searching for package circulars, catalogs or other product information has been an ordeal for many radiologists. But now there is a place where it all comes together. PDR For Radiology and Nuclear Medicine.

It's the single most complete reference source for information on products, instruments and equipment utilized in the practice of radiology and nuclear medicine. Along with its coverage of radiopharmaceuticals and equipment, PDR For Radiology and Nuclear Medicine offers you a strong up-to-date editorial section. It summarizes current practices in nuclear medicine, prepared by Dr. M. Donald Blaufox and Dr. Leonard M. Freeman of the Albert Einstein College of Medicine. The 1975/6 edition will treat iodinated contrast media in detail, other highlights include imaging and non-imaging procedures with T_3-T_4, renal function, gastrointestinal function and RIA tests.

PDR For Radiology and Nuclear Medicine is compiled with the same painstaking care and meticulous attention to detail that earns Physicians' Desk Reference its place as the traditional source of physician information. We wouldn't have it any other way.

PDR
1975/6

Table of Contents

Physicians' Desk Reference

FOR RADIOLOGY AND NUCLEAR MEDICINE

Where information for the radiologist all comes together.

Litton MEDICAL ECONOMICS COMPANY
Oradell, New Jersey 07649

The Innovators In Radiology And Nuclear Medicine

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 built in 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**
- **Automated Arm Positioning – Positive Locking**
- **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.**
- **Electrical Interlocks – on all access panels**

For more information Write or Call Collect

Medi-Ray, Inc.

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

Because a lot depends on your answer.

Digitalis dosage. Therapeutic or toxic? A lot depends on your answer, since the margin of safety is so narrow.

The Digoxin I 125 Imusay Kit from Abbott Diagnostics Division offers assured sensitivity, a range of 0.25 ng/ml to 4.0 ng/ml and excellent reproducibility. Only one test tube is needed for a complete assay, no extra preparations are required for reagents, and each kit is complete with reagents and tubes.

Easy PEG (polyethylene glycol) separation of bound from unbound tracer eliminates charcoal and facilitates procedure. Pre-packaged serum bound standards, comparable to USP standards, insure optimum accuracy and reproducibility. RIA is the preferred method to monitor digitalis therapy because it is superior to other methods in accuracy, specificity and sensitivity.

When the margin of safety is narrow, Digoxin I 125 Imusay Kit can provide an extra measure of confidence.

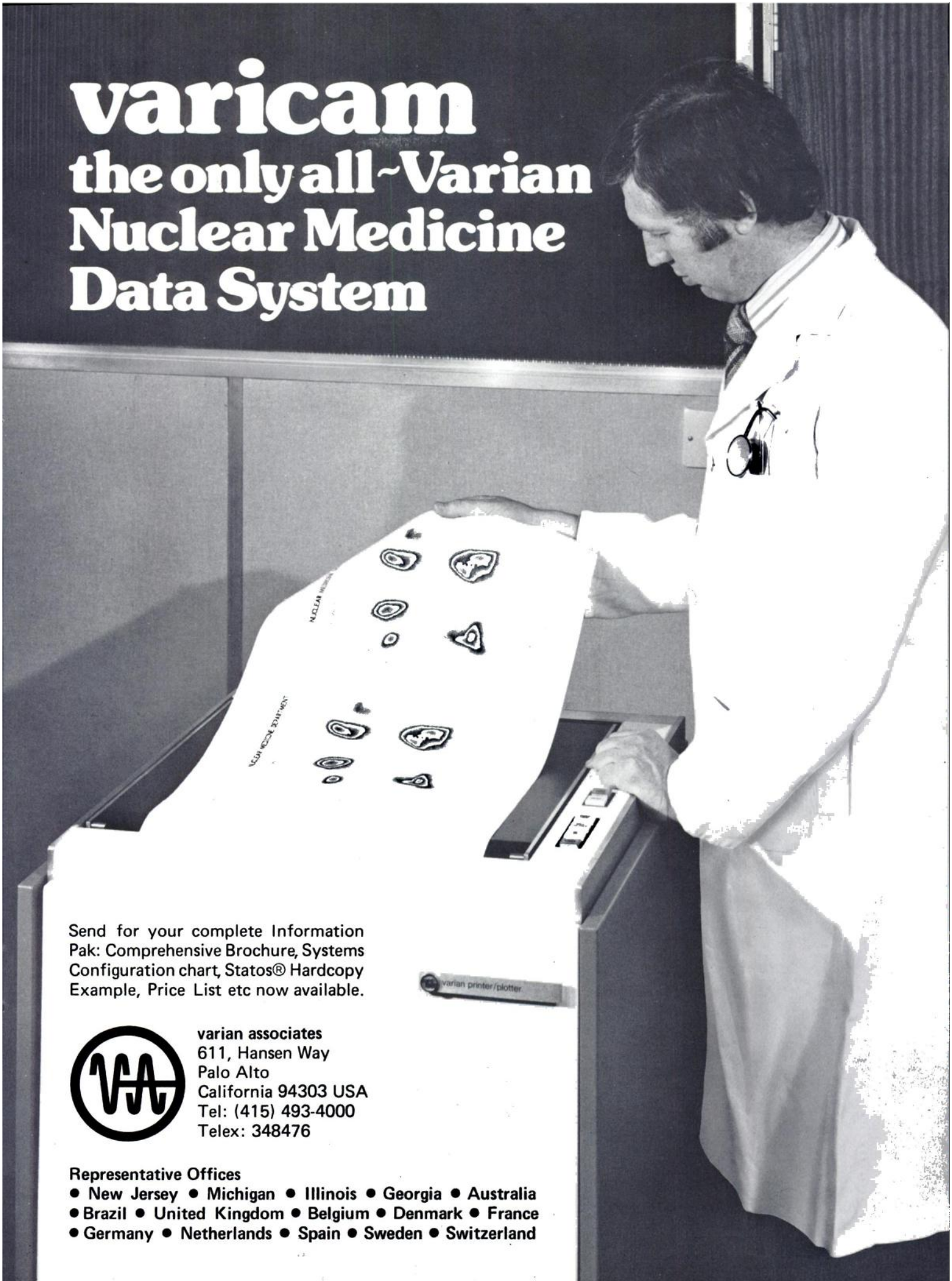
Free Monograph Available

Important background information on cardiac glycosides prepared by a leading authority—Dr. Thomas W. Smith—is available from Abbott Diagnostics Division, Dept. 929, AP-8, North Chicago, IL 60064.

DIGOXIN®
I 125 IMUSAY

Abbott Laboratories
Diagnostics Division
North Chicago, IL 60064
(800) 323-9100

varicam
the only all-Varian Nuclear Medicine Data System



Send for your complete Information Pak: Comprehensive Brochure, Systems Configuration chart, Statos® Hardcopy Example, Price List etc now available.

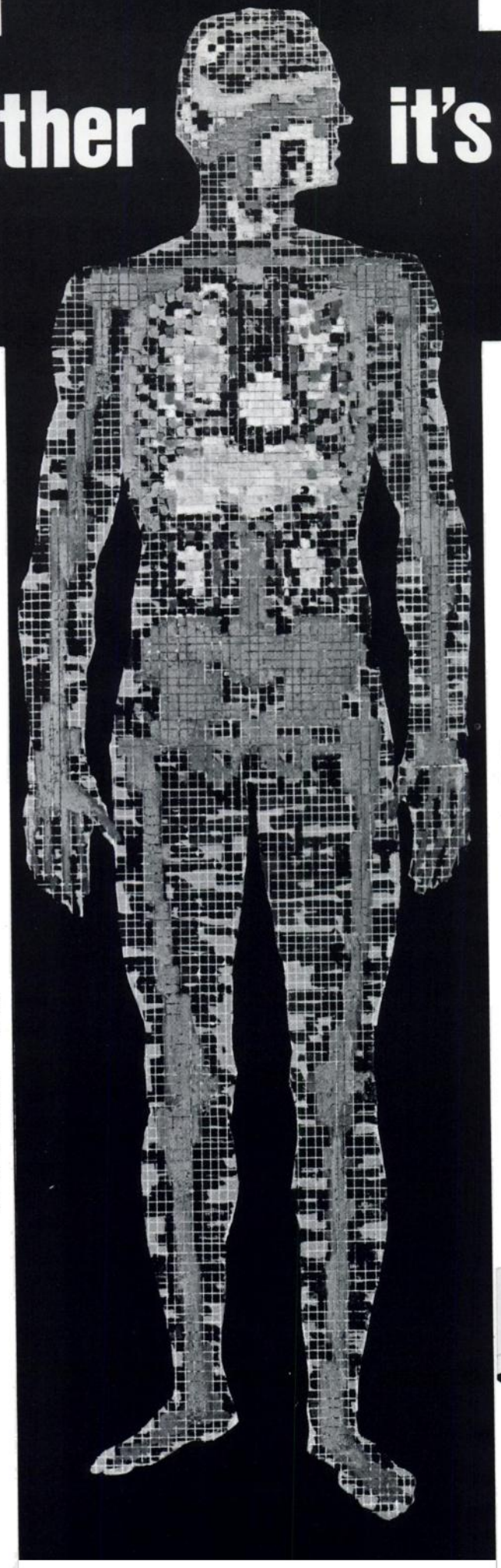
varian associates
611, Hansen Way
Palo Alto
California 94303 USA
Tel: (415) 493-4000
Telex: 348476

Representative Offices
• New Jersey • Michigan • Illinois • Georgia • Australia • Brazil • United Kingdom • Belgium • Denmark • France • Germany • Netherlands • Spain • Sweden • Switzerland

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

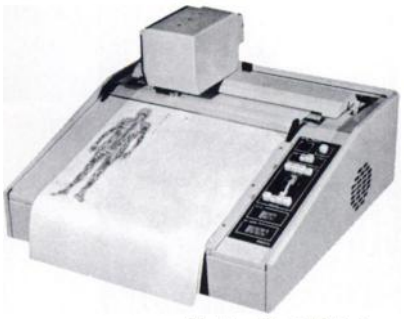
Space saving imaging accessory greatly extends the camera's usefulness.

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.

138-160 Johnson Ave. (P.O. Box 832), Hackensack, N.J. 07602; **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.

GammaCoat™ ^{125}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 ^{125}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.

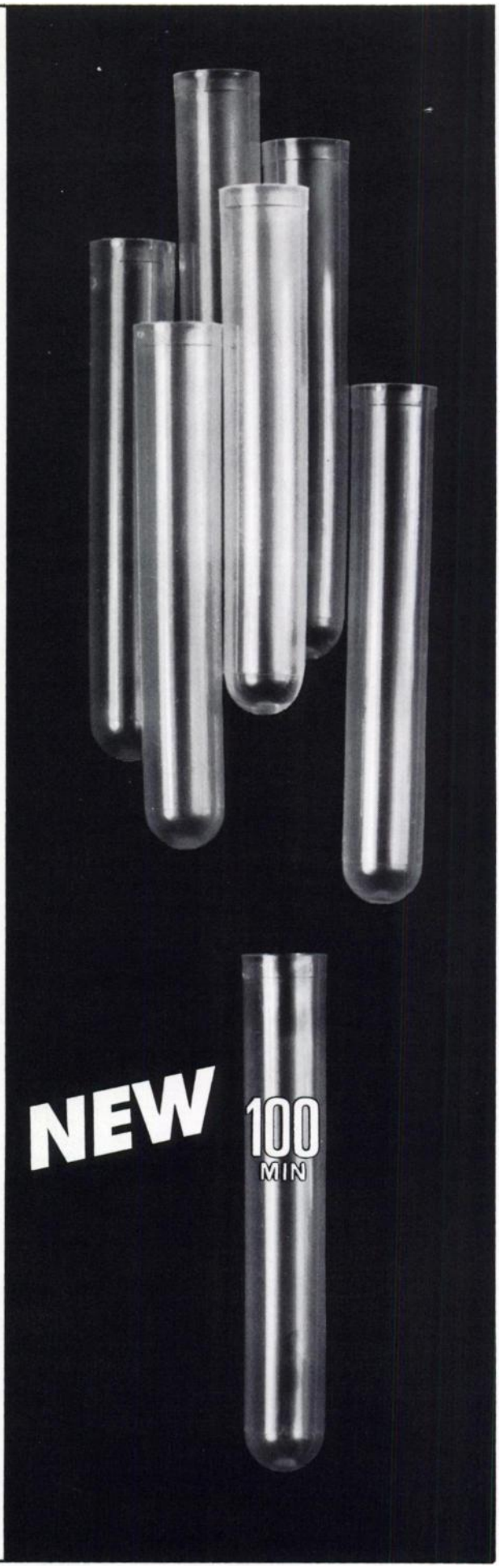
A ^{3}H Cortisol RIA with dextran coated charcoal separation is also available.

Also available are:
GammaCoat Digoxin ^{125}I
GammaCoat Renin Activity ^{125}I
GammaCoat Digitoxin ^{125}I
Vitamin B_{12} ^{57}Co
Folate ^{125}I
Folate ^{3}H
Digoxin ^{3}H
Digitoxin ^{3}H

For full details contact:

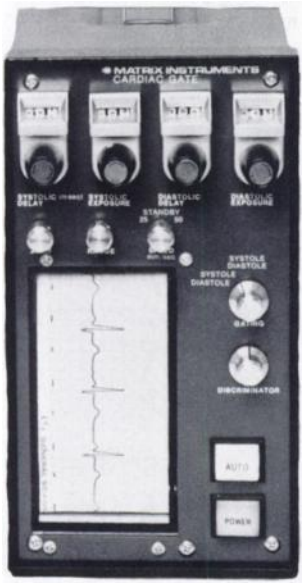
Clinical Assays, Inc.

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



State of the art in cardiac and respiratory synchronization.

Cardiac Gate



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.

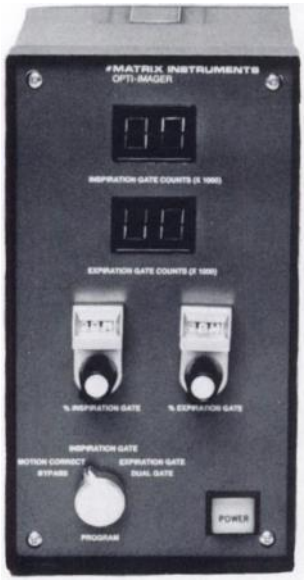
The dual gating operation mode allows recording of both end-systole and end-diastole simultaneously in a split screen two image format.

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



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 samples studies

Name _____ Hospital _____ Address _____ State _____ Phone _____

Title _____ Dept. _____ City _____ Zip _____

Gamma labelled partners for adrenal/pituitary testing

Cortipac*

Cortisol CPB Kit

* Assay range 2·5–45μg/100ml
* Unique ^{75}Se gamma label for counting convenience
* Predispensed test vials for simplicity and reliability
* 30 minute incubation, 2 hour assay
* Small sample size (100μl serum)
* Excellent correlation with Mattingley methods

ACTH RIA Kit

* Assay range 10–4000pg/ml
* ^{125}I gamma label
* Plasma extraction with adsorbent glass minimizes non-specific interference
* Antiserum directed at biologically active (N-terminal∝1-24) part of ACTH molecule
* 24 hour assay

Full information available on request

The sign of quality in Radioassays

The Radiochemical Centre Amersham

The Radiochemical Centre Ltd., 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

0207 *trademark

QUALITY ANTISERA AND REAGENTS FOR THYROID HORMONE RIA

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

Increased sensitivity and specificity

Assay times less than 5 hours*

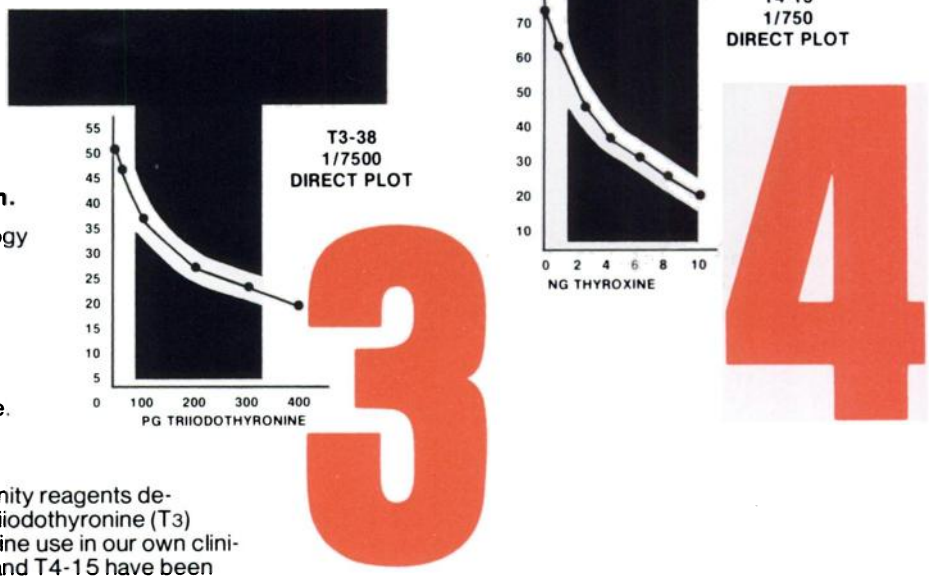
Low sample volume requirements:
Only 0.1 ml for T3-38*
Only 0.02 ml for T4-15*

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

Proven Endocrine Sciences methodology supplied with each antisera.

Each vial sufficient for the immunoassay of 500 tubes.*

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



DIRECT PLASMA RIA

T3-38 and T4-15 are specific, high-affinity reagents developed for the radioimmunoassay of triiodothyronine (T_3) and thyroxine (T_4). Tested through routine use in our own clinical laboratories for over a year, T3-38 and T4-15 have been used in a simple RIA to determine T_3 and T_4 **directly** in plasma. The higher sensitivity and specificity of these antisera used in direct RIA offer distinct advantages over methods involving extraction and competitive protein binding. Increased sensitivity alone allows more precise measurement of T_3 and T_4 at critical lower physiological concentrations. Greater accuracy and precision are attained through elimination of errors associated with extraction and other sample processing.

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

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

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

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

Recovery of known amounts of T_3 or T_4 added to plasma samples is excellent.

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

Mean plasma T_4 by RIA	9.5 ug%
Mean plasma T_4 by CPB	9.0 ug%

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

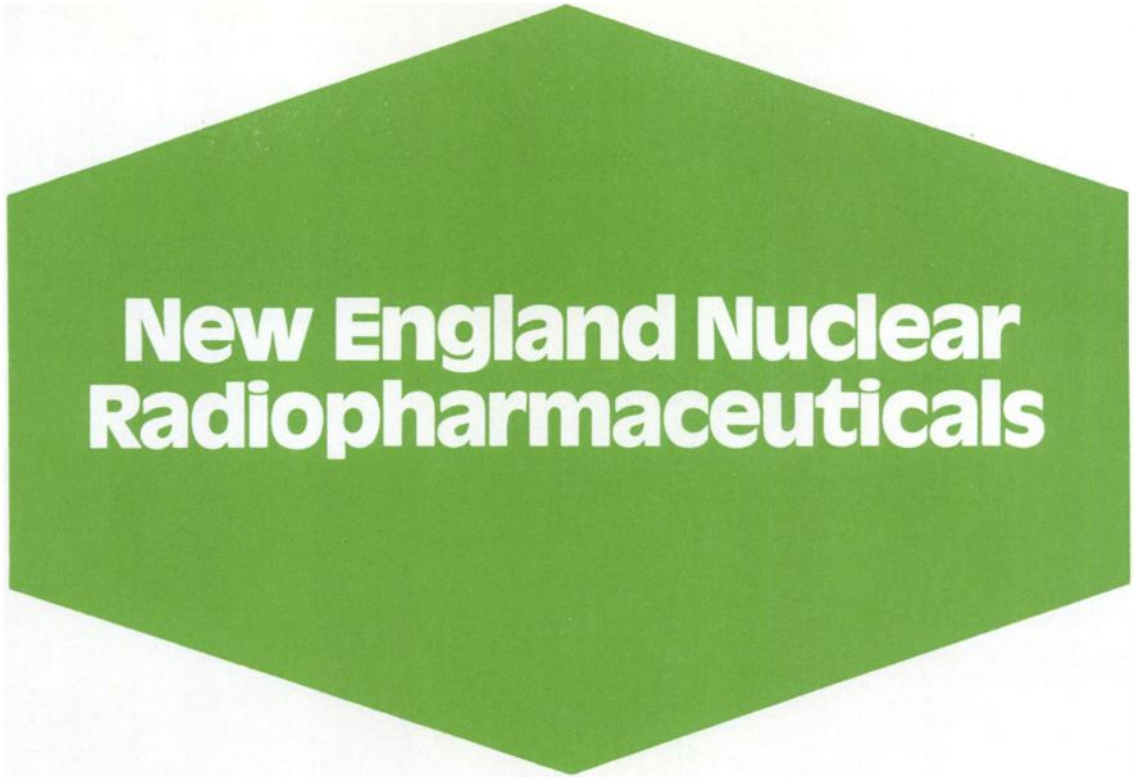
Clinical and research laboratories have been using Endocrine Sciences specific thyroid hormone antisera for more than a year now with complete confidence. Why? Because our T_3 and T_4 antisera were developed to meet exacting standards of specificity and sensitivity. Our customers know that each batch of T_3 and T_4 antiserum undergoes extensive quality control testing before its shipment. Users of our T_3 and T_4 antisera also know that our biggest customer is Endocrine Sciences Clinical Services Laboratory where these antisera must meet our own rigid standards daily.

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

Other Endocrine Sciences quality RIA reagents including T_3 and T_4 free plasma, I^{125} hormones, and purified bovine serum albumin are also available. Inquiries should be directed to our products division.

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

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



INDICATIONS: Inhalation of Xenon Xe 133 gas has proved valuable for the evaluation of pulmonary function and for imaging the lungs It may also be applied to assessment of cerebral flow.

CONTRAINDICATIONS: To date, no known contraindications to the use of Xenon Xe 133 gas have been reported.

WARNINGS: This radiopharmaceutical should not be administered to pregnant or lactating women 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 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. Expired Xenon Xe 133 gas should be controlled in a manner that is in compliance with the appropriate governmental agency regulations

Xenon Xe 133 adheres to some plastics and rubber and should not be allowed to stand in tubing or respirator containers. Such unrecognized loss of radioactivity from the dose for administration may render the study non-diagnostic. Xenon Xe 133 gas delivery systems, i.e., respirators or spirometers, and associated tubing assemblies must be leakproof to avoid loss of radioactivity into the laboratory environs not specifically protected by exhaust systems.

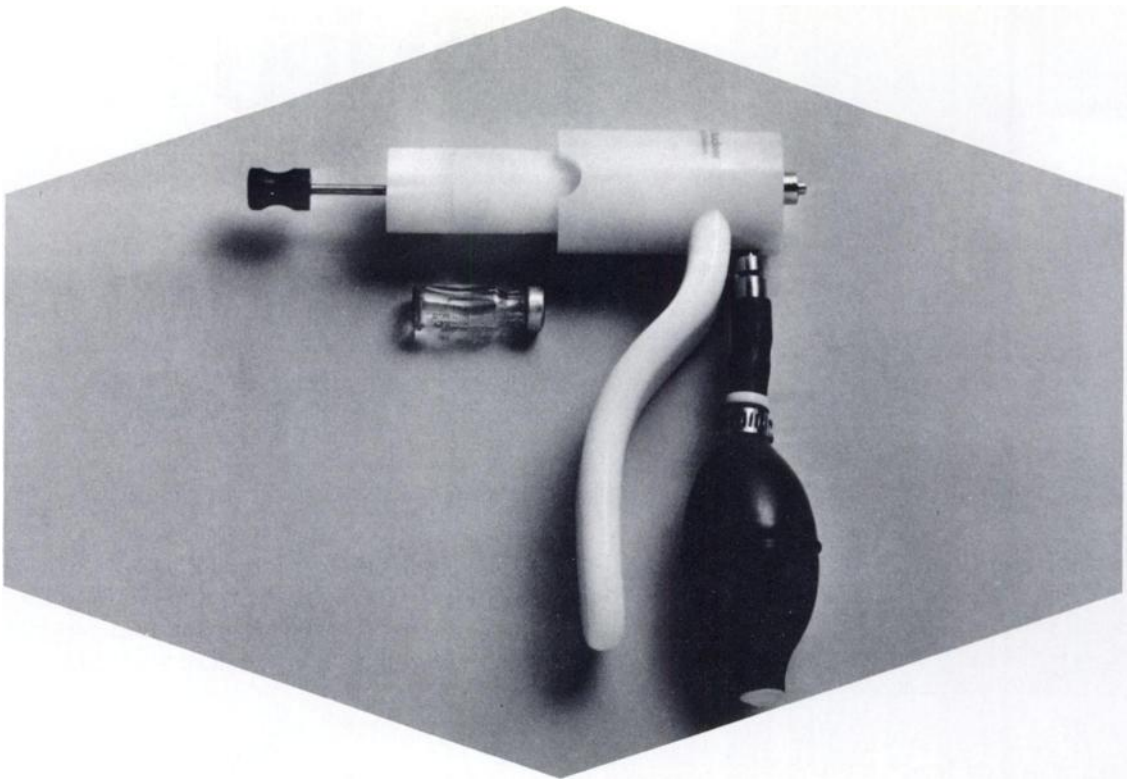
ADVERSE REACTIONS: To date, no adverse reactions based on the use of Xenon Xe 133 gas have been reported.

DOSAGE AND ADMINISTRATION: Xenon Xe 133 gas is administered by inhalation from closed respirator systems or spirometers.

The suggested activity range employed for inhalation by the average adult patient (70 kg) is:

Pulmonary function including imaging: 2-30mCi in 3 liters of air.
Cerebral blood flow: 10-30mCi in 3 liters of air.

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



Xenon 133 gas dispensing system

We put it all together for you: Single, precalibrated doses; easily loaded from shielded shipping container into shielded gun; conveniently dispensed by a squeeze of the bulb; administered to the patient through our new breathing apparatus.

The gun is free. The breathing apparatus is disposable. And the whole system is ready for demonstrating to you. Just contact your NEN sales representative.

NEN 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

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

Imagine the versatility, convenience and economy, just in ^{99m}Tc alone. Milk your generator in the morning... then, at any time of day, enter the time 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 μCi 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.
100 VOICE ROAD • CARLE PLACE, N.Y. 11514

INDEX TO ADVERTISERS

Sure of Our Basics

All reagents ready to be used.
Bench time for both assays,
10 minutes.

Now Available

B_{12} Kits

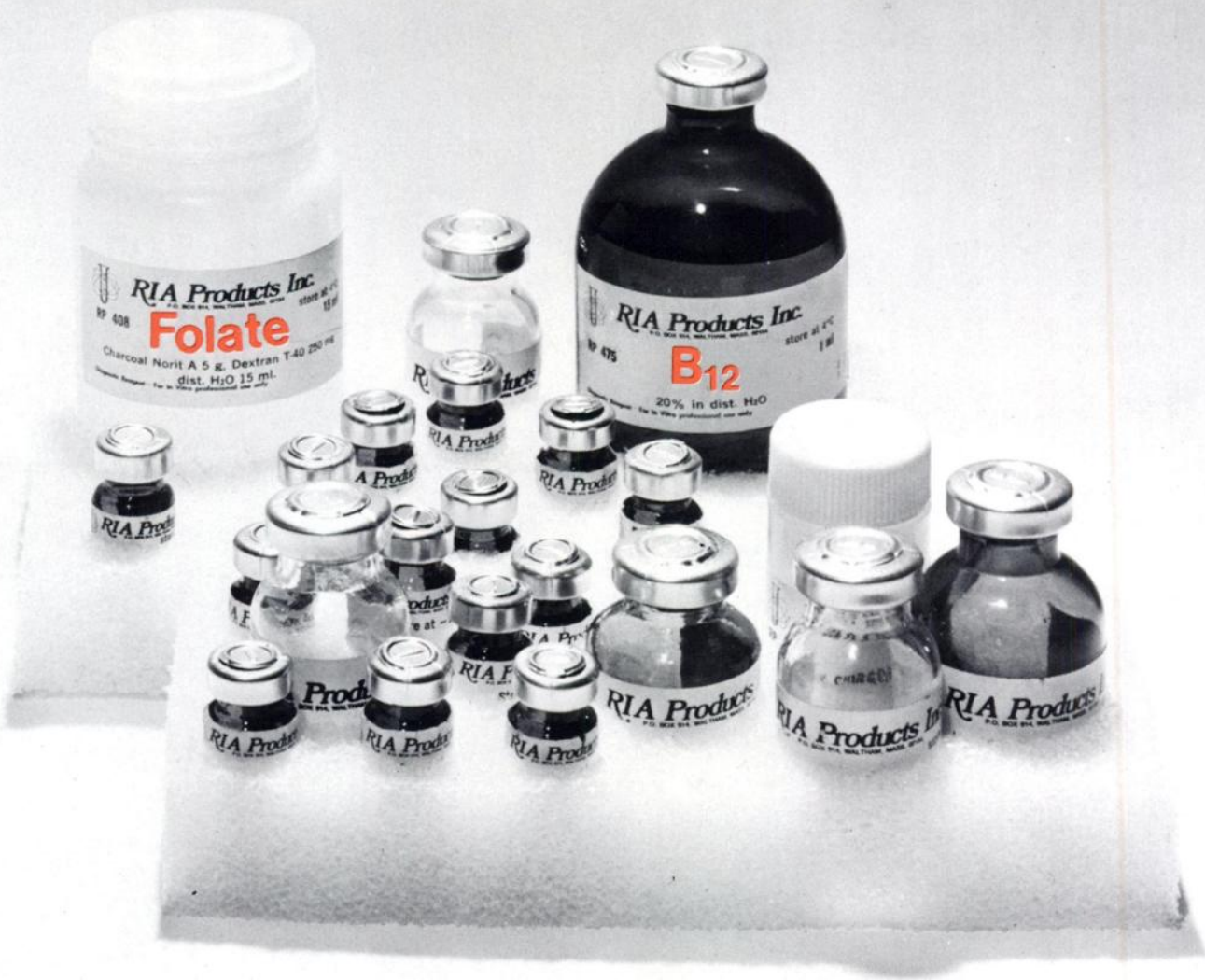
Featuring — all reagents ready to be used, only 4 pipeting steps, prediluted protein based standards and unsurpassed sensitivity at below 50 Pg level.

Folate Kits (^{125}I or ^{3}H)

These well established kits require no boiling. The unique patented (applied for) process eliminates the need for patient blanks, measures both PGA and nMTHFA with no pH adjustment of buffer, stable prediluted human serum based standards.

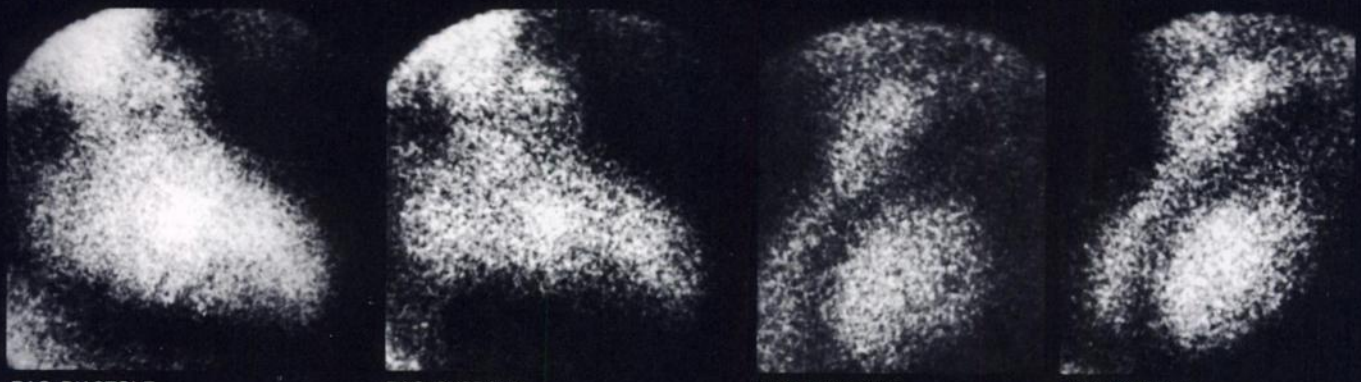
Available Immediately

Coat 57 B_{12} Kit • ^{125}I-Folate Kit • FAS™ T_4 RIA Kit • ^{3}H-Folate Kit • Serum Controls



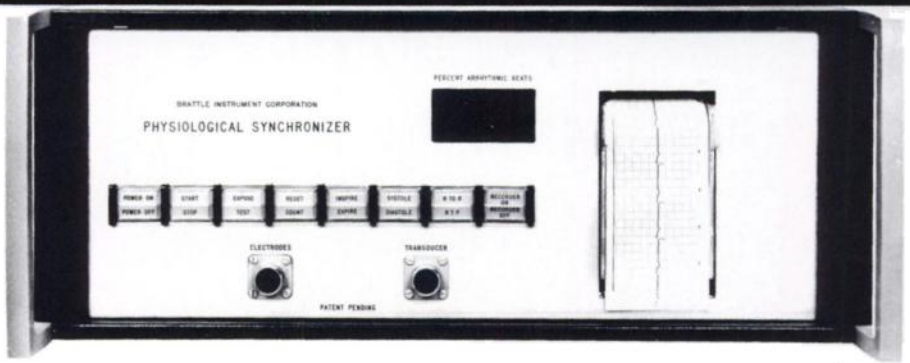
RIA Products Inc.
P.O. Box 914 • Waltham, Mass. 02154 • 617-894-2684

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



RAO, DIASTOLE | RAO, SYSTOLE | LAO, DIASTOLE | LAO, SYSTOLE

The RAO view shows akinesis of the lower antero-lateral wall and apex; and contraction of the inferior wall and high up the antero-lateral wall. The LAO view shows good contraction posteriorly and akinesis of the septal aspect of the chamber. Patient was injected IV with 20mCi of ^{99m}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 because we stay right with him. Brattles contain an ECG to track heart, a plethysmograph to track respiration, and a tiny computer to deduce systole and diastole times from the heart signal. And because it's all built in, your operator need not be a physiologist.

We don't cover our tracks—we print them
The panel lights flash whenever the patient reaches the selected phases; and pushing the RECORDER-ON button gets you an ECG tracing marked with breathing and camera-on times. You can verify function before, during and after exposure.

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

Some Brattles have been in clinical use for over 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.

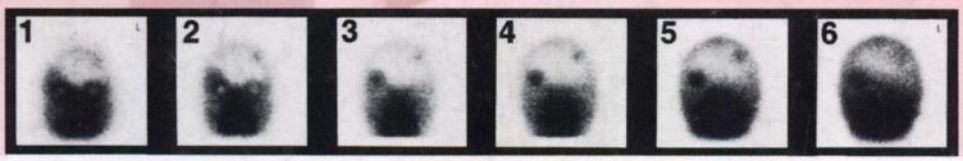
What's the next step? Get in touch
Ask your NEN man about Brattles and HSA Kits. He can show you a portfolio of clinical pictures and arrange to have one of our people give you a demo. Or write or call us direct. We'll send you brochures on this and other models, and will give you your own set of clinical 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

CM-363