

ELUTETM TECHNETIUM Tc 99m GENERATOR

A New Addition to Abbott's Radio-Pharmaceutical Products Line

Performance

Built-in 500 ml. saline supply provides 15 to 16 milkings per week.

You have clear, clean eluate from first use. Highly concentrated serial elutions can be made daily.

Low aluminum levels. A special process reduces aluminum levels to make them all but undetectable by normal lab methods. Less trace impurities permit wide diagnostic usage.

Safety

At least 1½ inches of lead lines generator column. Quick milking time lessens exposure.

See-Thru Elution Shield further reduces radiation exposure and simplifies milking. Volume can be measured without lifting vial from elution shield. (Shield is available with first generator.)

Transparent Needle Guard protects fingers.

Convenience

Compact, pre-assembled, and ready to use. Attach needle and you're ready to elute. Saline solution is an integral part of the generator.

Storage compartment on top contains six 30-ml. elution vials, needles, labels, and instructions.

Self-align milking port. Place elution shield in port, and both needle and evacuated vial are automatically aligned.

Pushbutton Elution. Press down to open valve, and a slight turn locks it for automatic elution.

Automatic Disposal Service. Used generators are no longer a problem. Abbott's Elutek service program helps you dispose of them quickly and easily.

Molybdenum and Technetium-99 Decay tables are on front label—can be seen at a glance.

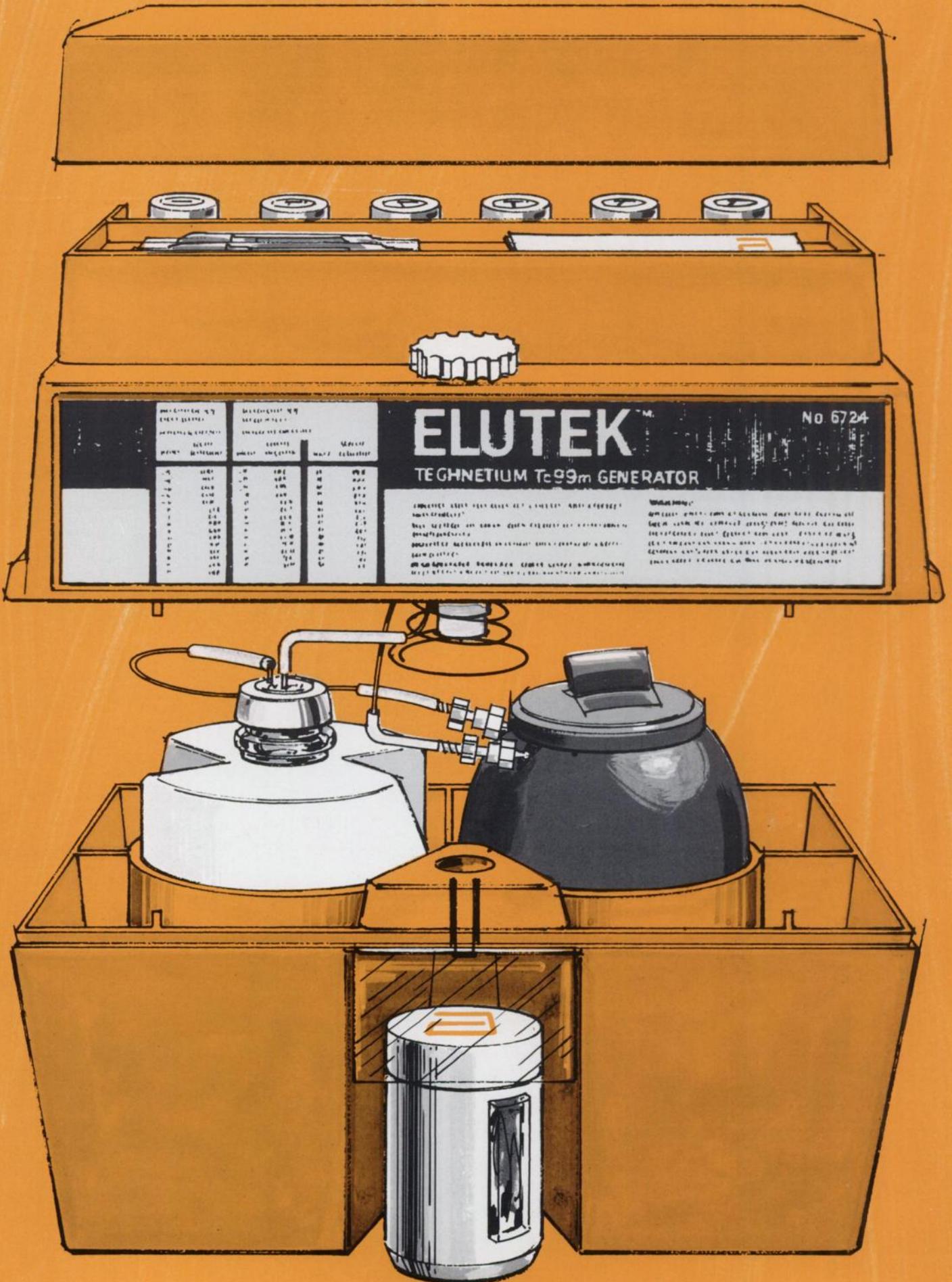
Carrying Handles add to convenience—help you avoid mishaps.

303427

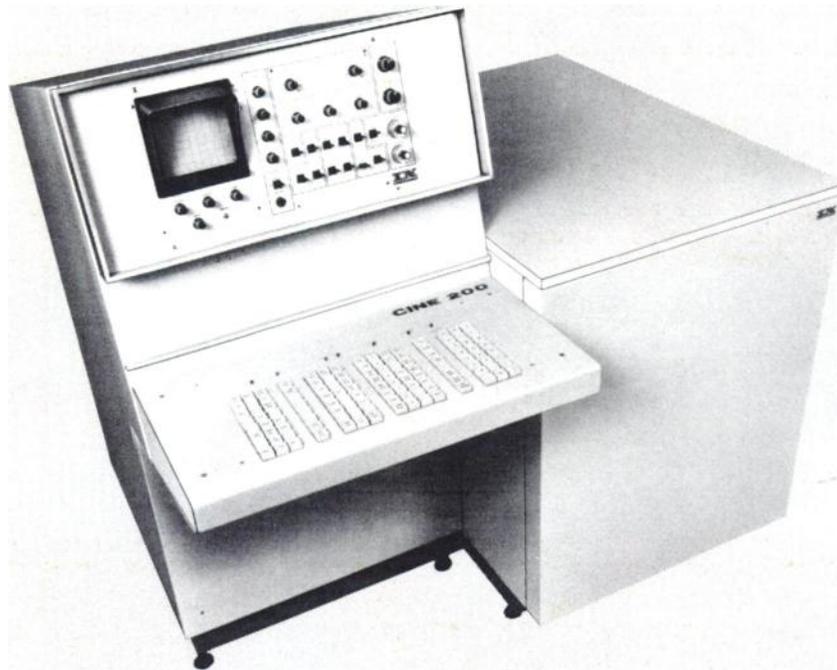
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Abbott Laboratories
Radio-Pharmaceutical Products Division
North Chicago, IL60064





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



CINE 200.

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

There's more to the capability story of the CINE 200. Find out all the details of why it is one of the most versatile image-data processors ever developed — for cameras and scanners. CINE 200 from Intertechnique is sold and serviced in the U.S. exclusively by Raytheon Company. For information, contact Raytheon Company, Medical Electronics, 40 Second Avenue, Waltham, Mass. 02154 (617) 890-3240.



Immediate delivery,
optimal generation conditions, stable assay system.

Angiotensin I [¹²⁵I]RIA kit

Recent published reports^{1,2} have outlined the problems associated with radioimmunoassay for plasma renin activity. NEN has considered these problems carefully in developing this kit. As a result we believe it offers greater sensitivity and reproducibility than other commercially available Angiotensin I RIA kits.

Gentlemen: Please send me complete technical information on your Angiotensin I [¹²⁵I] RIA kit.

Name and Title _____

Organization _____

Department _____

Address _____

Zip _____

AJCP AJMT CC CLP JCEM JNM LM LW ML MLO W

¹Viol, G.W., *et al*, Clin. Biochem., 5, 251 (1972).

²Abe, K., *et al*, Jap.Circulation J. (Eng. Summary), 36, 697(1972).

 **New England Nuclear**
Biomedical Assay Laboratories
15 Harvard Street, Worcester, Mass. 01608
Telephone (617) 791-0911

In your pursuit of
quantitative nuclear medicine
and image processing,
Medical Data Systems,
A Warner-Lambert Subsidiary,
offers the

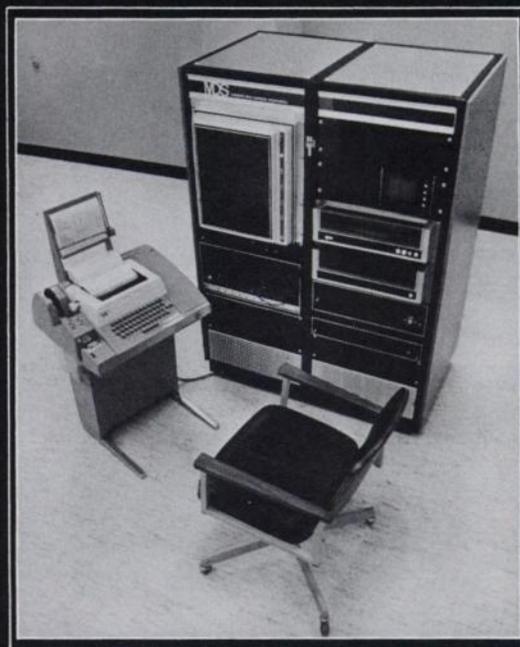
MODUMED SYSTEM

Our MODUMED SYSTEM offers

- Single camera acquisition
- Simultaneous acquisition and processing
- Multiple camera acquisition
- Simultaneous dual camera acquisition and processing
- Single and dual headed scanner-to-computer interface

MDS-supplied hospitals around the country are adding to their clinical efficiency and throughput by the use of the MODUMED SYSTEM.

We sincerely believe that our MODUMED SYSTEM represents the current state of the art in nuclear medicine computer systems.



MODUMED SYSTEM

Medical Data Systems' modular approach to nuclear medicine computer systems. The MODUMED SYSTEM consists of "basic" systems and five option packages.

Choose the system most appropriate for your needs.

BASIC:

The nucleus of the MODUMED SYSTEM. Single camera acquisition or processing of previously acquired data.

PLUS-ONE:

Manipulation (except for region of interest selection) of previously acquired data during acquisition from a single camera.

SIMULTANEITY:

Complete manipulation of previously acquired data during acquisition from a single camera.

DUAL:

Dual camera acquisition, or manipulation of previously acquired data during acquisition from a single camera.

TRINARY:

High speed data acquisition from two cameras with simultaneous complete manipulation of previously acquired data.

SCANNER INTERFACE:

Dual head; whole body-mode. Complements any MODUMED SYSTEM.

We invite your inquiry; brochures and site visits are available on request.

MODUMED SYSTEM RESULTS ARE WORTH YOUR TIME.



MDS

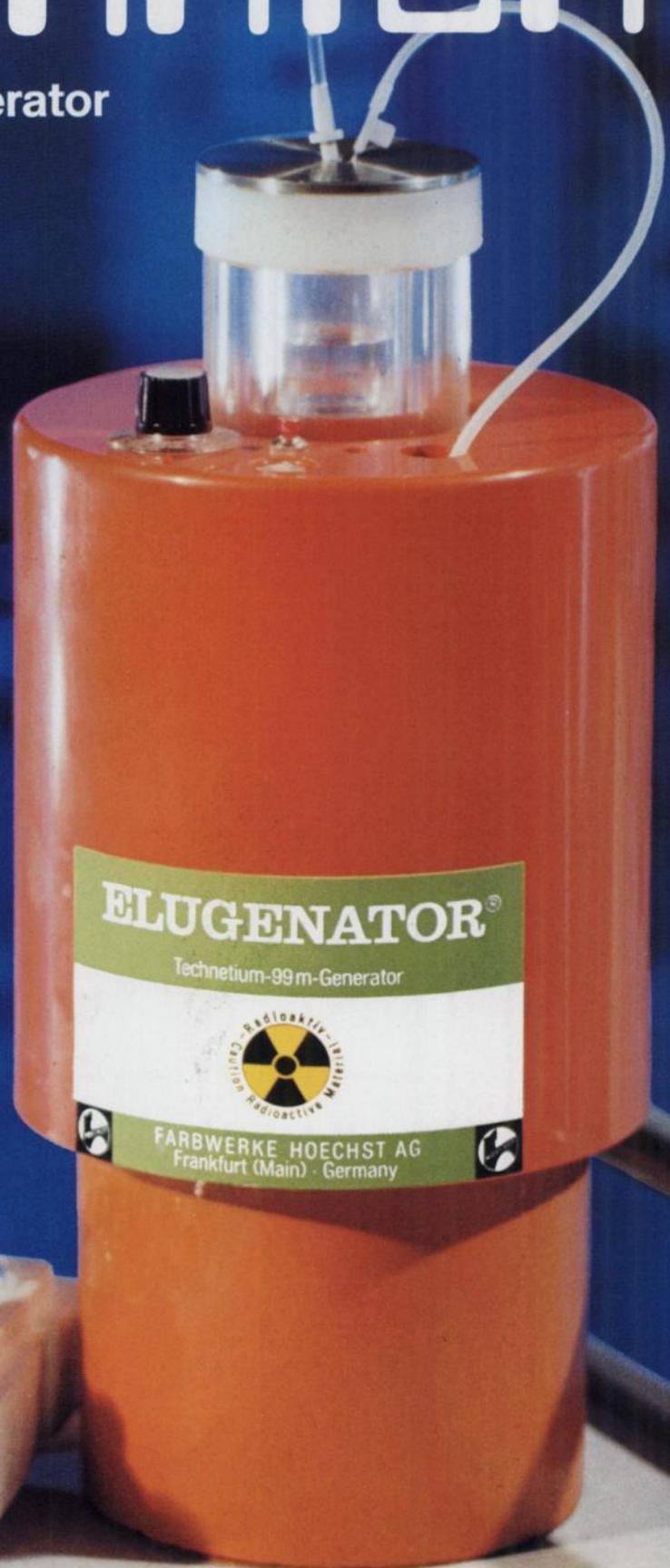
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data systems
corporation**

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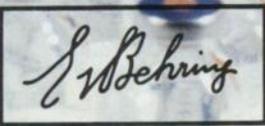
Technetium-99m-Generator



ELUGENATOR®
Technetium-99m-Generator



FARBWERKE HOECHST AG
Frankfurt (Main) · Germany



For further information and service please contact the Farbwerke Hoechst AG subsidiary in your country.



Only someone who makes all these can be sure you get the right one

In technetium-99m generators, Mallinckrodt is the only someone who makes all these.

Because we have a complete line of generators, we can make sure you get the right one for your application, whether you require 50 mCi or 500 mCi. You'll not only get the right technetium generator, you'll get one you can rely on. Every Mallinckrodt Ultra-TechneKow® Generator column is sterilized by autoclaving, and each generator is eluted and tested in our laboratories before shipment.

The Ultra-TechneKow® Generator provides every feature you need. Uniformly high yields help you maintain scanning schedules. The "Ion Control" process keeps aluminum levels at almost undetectable levels. A minimum of 1½" of lead shielding and short elution time safeguard the technician, by providing minimum

radiation exposure. A 500 ml saline supply permits an uninterrupted milking schedule.

If you use technetium-99m generators in your laboratory, deal with the manufacturer who sells you what you need. Not just what he has.

Write for full information, or call (314) 731-4141 (Extension 339) collect.

Choice of 12 Ultra-TechneKow® Generators

MOLY		FISSION MOLY	
50 mCi	Cat. No. 006	50 mCi	Cat. No. 100
100 mCi	Cat. No. 007	100 mCi	Cat. No. 101
150 mCi	Cat. No. 012	200 mCi	Cat. No. 102
200 mCi	Cat. No. 008	300 mCi	Cat. No. 103
300 mCi	Cat. No. 009	400 mCi	Cat. No. 104
400 mCi	Cat. No. 010		
500 mCi	Cat. No. 011		

Subject to AEC or state licensing regulations

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**removes
radioactivity
from lab ware
and isotope
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SPRAY CAN FORM
*for Spot
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of Hot-Lab
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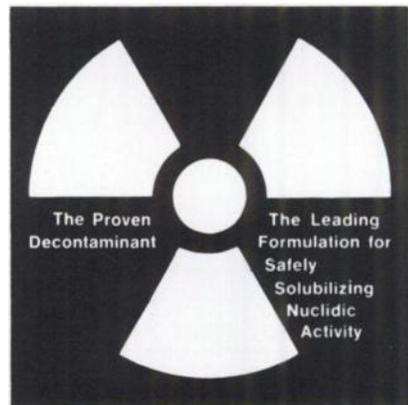
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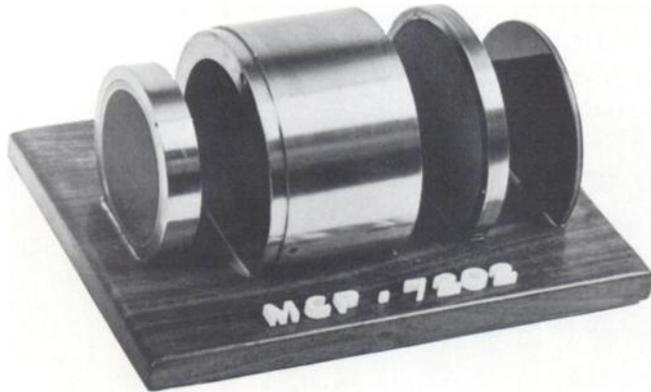
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IMMERSING SOLUTION



Order directly from Isolab or through any local supplier

Multi-Purpose Adjustable Collimators



Model: 7202 (5"-169 holes)*
 Energy: up to 180 KeV
 Resolution FWHM: 5/16" (7.937 mm)
 3/8" (9.525 mm)
 7/16" (11.11 mm)
 1/2" (12.70 mm)
 9/16" (14.29 mm)
 5/8" (15.88 mm)

* 5" Focal Length
 169 Hexagonal Holes

Catalog Numbers for Standard Five Inch Rectilinear Scanners

MCA-7202 Abbott
 MCB-7202 Baird-Atomic
 MCG-7202 General Electric
 MCO-7202 Ohio Nuclear
 MCP-7202 Picker
 MCR-7202 Raytheon
 MCN-7202 SEARLE
 MCS-7202 Siemens

SPECIAL FEATURES OF PRACTICAL IMPORTANCE:

- Does the job of 9 conventional collimators ranging from 5/32" (4 mm) up to 5/8" (16 mm) FWHM.
- Has an extended depth of focus unmatched by other collimators.
- Most sensitivity/resolution adjustments are made without removing the heaviest part of the collimator from the detector.
- Storage is no problem (Dual scanner owner's dream).
- Cost is less than for a whole set of conventional collimators.
- Available for all commercial 5" scanners on the market today.

NOTE: Ultra-Fine Resolution Section (5/32") for 123-Iodine thyroid scans is optional (please specify).



MODEL MGD-7101 XENON GAS DISPENSER

A proven and economical way to dispense 133-Xe gas for your pulmonary ventilation studies.

Designed for simple and reliable operation.

MGD-7101 \$165.00



MODEL MSP-7230 Stylus for Magnascanners

A new stylus for teledeltos recordings.

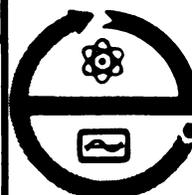
Outlasts the original stylus many times over, and is self-cleaning.

Cost is less than the original stylus.

MSP-7230 \$16.00

WATCH FOR OUR NEXT ANNOUNCEMENT ON:

- Diverging and adjustable Collimators for cameras
- Xenon collection systems utilizing activated carbon.



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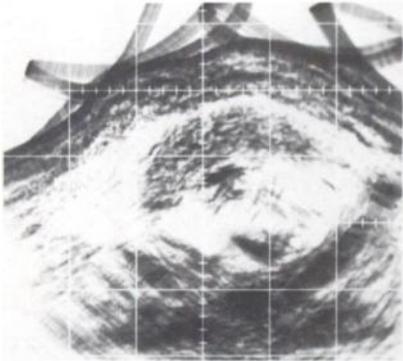
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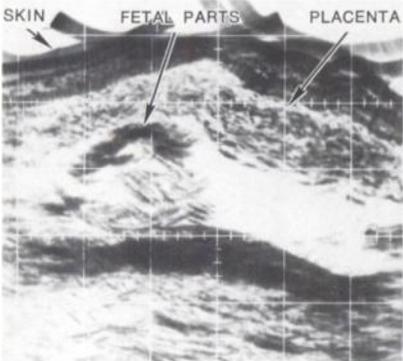
• (213) 860-6708 — (714) 995-4872



A. High sensitivity transverse scan showing liver, gallbladder, right kidney, left kidney and stomach.



C. Transverse scan of pregnant uterus at level of umbilicus showing anterior placenta and fetal parts.



E. Longitudinal scan 2 cm. to right of mid-ventral line showing anterior placenta and fetal parts.

Why all Ultrasound B-Scans should look like Greatone®

Greatone B-Scan display gives maximum information levels of soft tissue and organs. Compare the information level in these Greatone studies against standard studies and see the difference.

Being first in the industry we've been talking to a lot of people, and consequently have been delivering Greatone systems for over six months. Some day everyone will have Greatone.

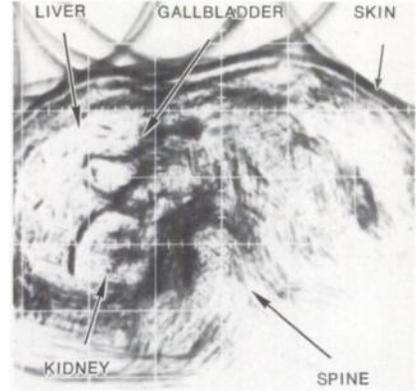
It's worth talking about.

Greatone is the trademark for UNIRAD'S method of achieving "gray scale" presentation. Patent pending.

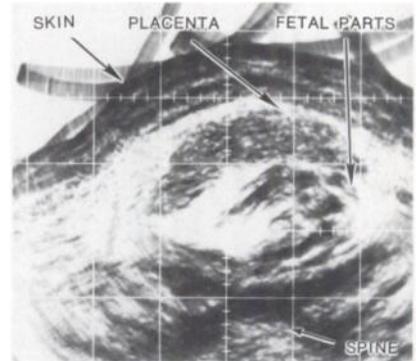
Greatone studies courtesy of LOMA LINDA UNIVERSITY MEDICAL SCHOOL.



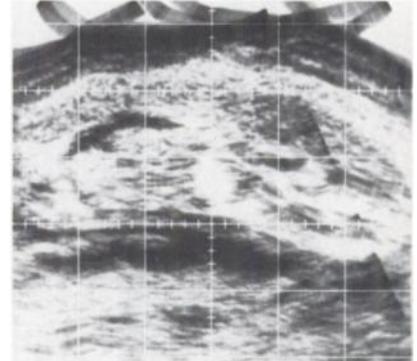
Unirad Medical Products Division
4665 Joliet Street
Denver, Colo. 80239
Phone (303) 364-7258



B. Low sensitivity transverse scan (same level as "A") showing less internal organ structure.



D. Transverse scan of pregnant uterus 2 cm. above umbilicus from that in "C" showing anterior placenta and fetal parts.



F. Longitudinal scan at midventral line (same as in "E") showing anterior placenta and fetal body.

103

I would like additional information on UNIRAD'S GREATONE B-SCAN SYSTEM

Send detailed literature

NAME _____ TITLE _____

STREET _____

CITY _____ STATE _____ ZIP _____

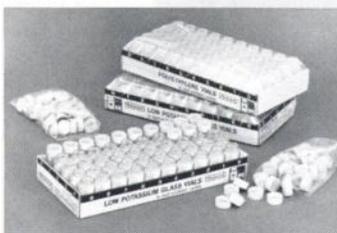
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103-JNM

THE MOST WANTED FEATURES

IN LIQUID SCINTILLATION SYSTEMS

FOR RIA PROCEDURES



Multi-Assay, Multi-User Versatility Packard's 2400 Series Tri-Carb® Spectrometers are truly the ultimate for counting all beta and gamma RIA tests, such as Digoxin, Renin, B₁₂/Folate, Estrogen, Corticoids, Insulin. They feature the exclusive new SERVO-TRAY® System, which holds up to 450 samples, using 50-vial trays. Each disposable tray can be loaded and programmed for a separate radioimmunoassay by an individual user. *All Packard instruments are available on a rental or leasing plan. Write for complete information—request Bulletin 1177.*

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every time you use an RIA/CBA kit or reagent from Amersham/Searle, you get something extra.

Since radioimmunoassay was first introduced, new applications have been developed almost daily, exploiting the excellent technical features of the methodology. Clinical and research staffs are requesting that more and more tests be performed by RIA and CBA methodology. As their demand increases, so does your demand for RIA and CBA components and reagents of high quality. Amersham/Searle has kits available for ACTH, HPL, INSULIN, T3 uptake, Total T4, and Cyclic AMP. Every Amersham/Searle kit offers you *something extra—quality control of the components and methods.*

- The exclusive **ACTH Immunoassay Kit** measures concentrations of ACTH in plasma from 10-4000 pg/ml. All the freeze-dried reagents and reaction tubes required are supplied with the kit.

- Our **HPL Immunoassay Kit** provides a 90-minute test to measure Human Placental Lactogen. Sensitivity throughout the 0.02-10.0 µg HPL/ml. range enables the physician to monitor pregnancy in all three trimesters.



- **Thyopac™-3 and Thyopac™-4 Kits** for T3 uptake and Total T4 determinations require only short incubation periods before equilibrium is reached. Samples for counting are withdrawn at **Equilibrium** eliminating the variables associated with "rate reaction" type procedures.

- The **Insulin Immunoassay Kit** was the first commercial RIA kit available. A double antibody technique is used to accurately measure insulin levels utilizing a modified Hales and Randle method. Years of experience support the precision of the method.

- The **Cyclic AMP Kit** includes all, not just some, of the freeze-dried reagents necessary to construct one standard curve (five levels of cyclic AMP in duplicate) and the assay of 65 unknowns in duplicate.

- Bulk labeled **Reagents** for T3, T4, High Specific Activity B₁₂, Insulin, Folic Acid, DNA, and High Specific Activity Tritiated Steroids are also available.

You demand fine quality and dependability . . . we supply it. To order, please call or write our Customer Service Department..

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our specific activity is service.

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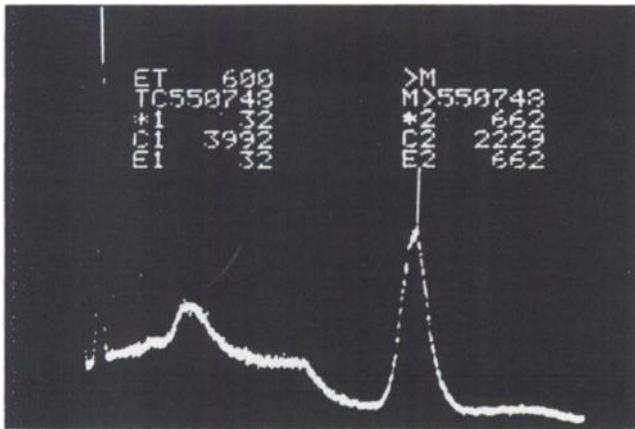
**This is the simplest way
to computerize your
scintillation camera**



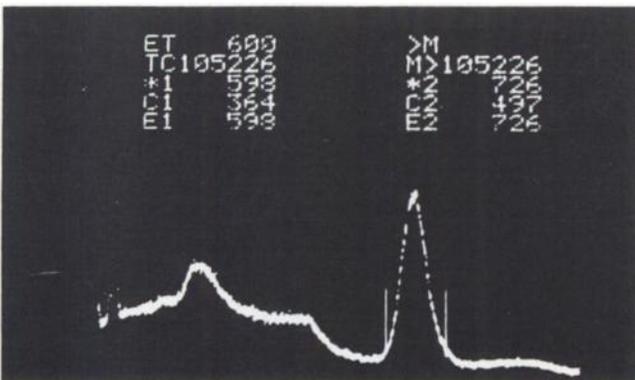
Nuclear Data's Med Stor™

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

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



ND100 display showing dual markers positioned on reference 32 Kev X-ray peak and 662 Kev Cesium 137 photopeak for energy calibration.



ND100 display showing dual markers positioned about Cesium 137 photopeak for peak area totalization.

Important questions to consider before you computerize your scintillation camera.

- (1) Which is the only company that actually makes its own scintillation cameras and medical computers? **(Nuclear Data)**
- (2) Who is the most experienced producer of computerized image storage and processing systems in the world? **(Nuclear Data)**
- (3) Which company has the most such systems in routine clinical use? **(Nuclear Data)**
- (4) What one computerized image storage and processing system has done away with the typewriter keyboard and is operated totally by simple pushbuttons? **(Med Stor)**
- (5) What company has the most experience in interfacing computers with cameras? **(Nuclear Data)**
- (6) Which modestly-priced image storage and processing system is a real computer and not just a hard-wired multichannel analyzer? **(Med Stor)**
- (7) Which company can be described in these words: "... The most sophisticated developer of software in this field and who has been doing it for a longer time than anyone else and who has more clinical software than anyone else in this field ..."? **(Nuclear Data)**
- (8) Which computerized image storage and processing system can actually be mastered in about two hours? **(Med Stor)**
- (9) Which computerized image storage and processing system can be readily and most inexpensively upgraded to Nuclear Data's advanced MED II? **(Med Stor)**
- (10) Who has an active user's group that exchanges and develops clinical software? **(Nuclear Data)**
- (11) Which computerized image storage and processing system has been successfully interfaced with every major scintillation camera? **(Med Stor)**
- (12) Which computerized image storage and processing system is accompanied by a Nuclear medical computer application specialist? **(Med Stor)**

These are some important reasons for computerizing your scintillation camera with MED STOR. There are more in store. To learn about them, write to the Nuclear Data office nearest you.



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Write today for information concerning available RIA procedures and other reference laboratory information.



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We have built a unique system to acquire, playback and analyze Gamma-Camera studies.

Our Image Recorder is the only instrument capable of reproducing Gamma-Camera studies with the original image quality and the option of increasing or reducing the duration of the study without degradation of information inherent in digital systems.

Our system consists of the Image Recorder, the Dual Channel Ratemeter/Recorder, the Variable Persistence Monitor and the Dual Area Generator.

Our Image Recorder utilizes standard 1/4 inch audio tape as its recording medium, resulting in a savings in money, time and storage space.

Areas of interest are presented brightly outlined on otherwise normal camera image for easy first-try area placement.

The R.B.E. system components are simple to operate and have proven to be effective and consistent in clinical use. Tapes are machine to machine compatible and the system can operate independently for teaching and training purposes.

We, of course, guarantee service on a 24-hour basis. You can purchase our system in total as well as in components, according to your individual requirements. Our total system price \$24,350.00.

If you have any questions please call collect at (714) 687-1654.



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We have built a unique system to acquire, playback and analyze Gamma-Camera studies.

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If you have any questions please call collect at (714) 687-1654.



Riverside Bio-Engineering, Inc., 5835 Jurupa Avenue, Riverside, CA 92504,



RIVERSIDE BIO-ENGINEERING, INC.
Engineers for Life Science

**What's your
scintillation camera
trying to tell you?**



Nuclear Medicine Clinician: It's clear to me that our scintiphotos don't give us all the information available. What can Mednet add?

Mednet: Quantitative information. Numbers. Not simply an indication of direction of flow, but how much, how fast. Better diagnostic data about heart and kidney function.

Administrator: What is Mednet?

Mednet: We're a medical communication and computational service that provides computer-aided analysis of clinical data.

Nuclear Medicine Clinician: How does Mednet work?

Mednet: We take the output from your scintillation camera, format it, transmit the data to our computer for processing and return the test results to your nuclear medicine department in clinical form.

Nuclear Medicine Clinician: How fast?

Mednet: 24 hours or less. Nationwide. All you need is a scintillation camera and a phone.

Urologist: What specific information does Mednet give me?

Mednet: Total and fractional blood flow to the kidneys. Total and fractional urine output. And other values previously not measured.

Cardiologist: What about the heart?

Mednet: Cardiac output and pulmonary blood volume, non-invasively.

Nuclear Medicine Clinician: Our hospital has a reputation for moving conservatively with new diagnostic tools. Is anyone currently using Mednet?

Mednet: Yes, we've already processed over 1300 patient studies for more than twenty hospitals across the U.S.

Administrator: What capital outlay is required for installing Mednet?

Mednet: Hospitals pay a one-time installation charge (typically \$200) and then a per test fee. We provide the nuclear medicine department with the computational assistance of our large computer facilities and even the telecommunications interface required with your existing nuclear instruments.

Cardiologist: I'd like to find out more. Who do I call?

Mednet: If you'd like to speak to our professional staff, call (408) 255-6353. ADAC, Analytical Development Associates Corporation, is the name of our company. Mednet is the name of our service. If you would like our Mednet literature, send a note to ADAC, 10300 Bubb Road, Cupertino, CA 95014.



Ask Mednet.

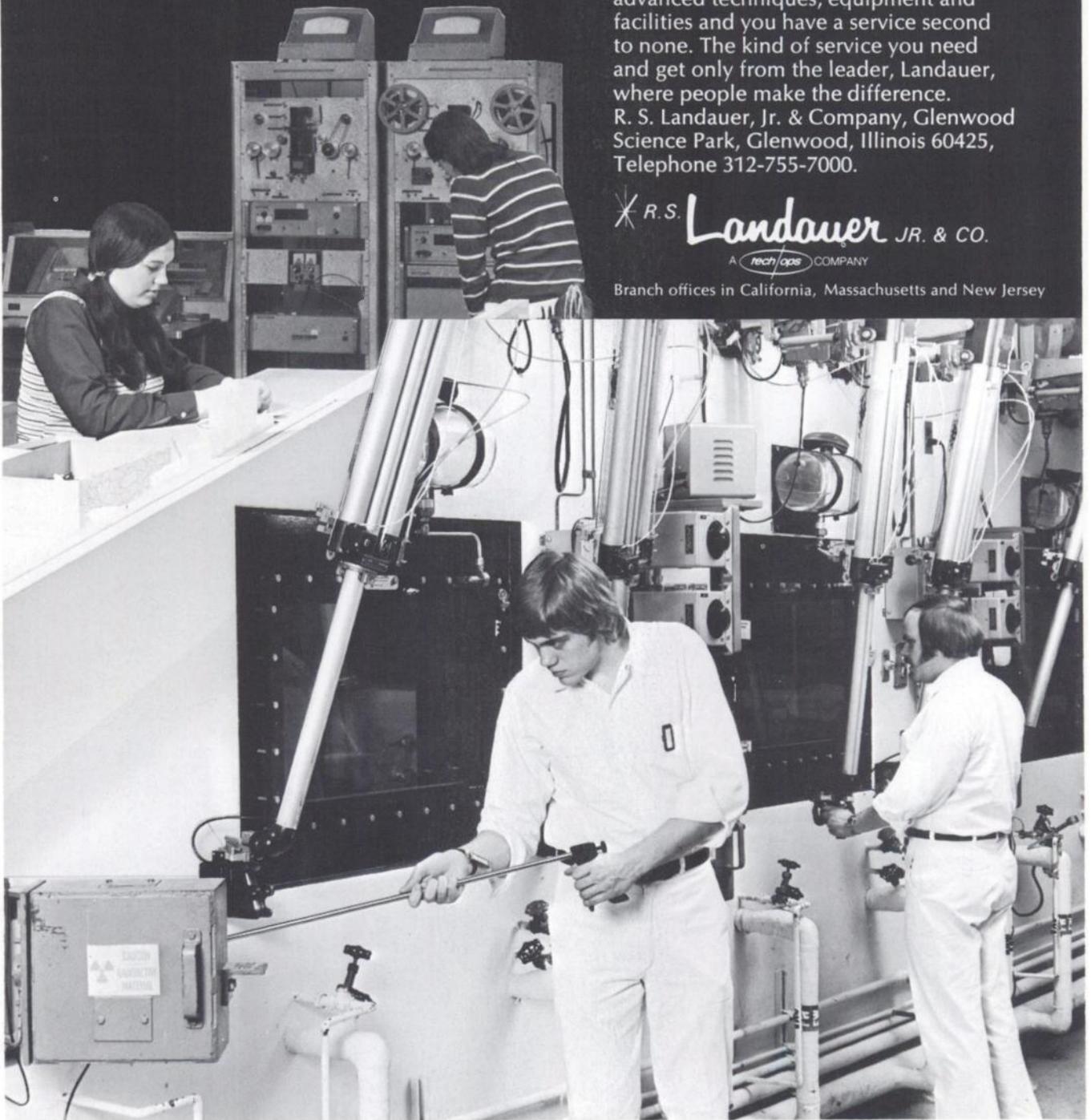
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Truly concerned people make the difference. Unusual people, the people at Landauer, take a personal interest in protecting your people who wear our dosimeters. This attitude — thinking of badges not as badges but as people — is a part of what makes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

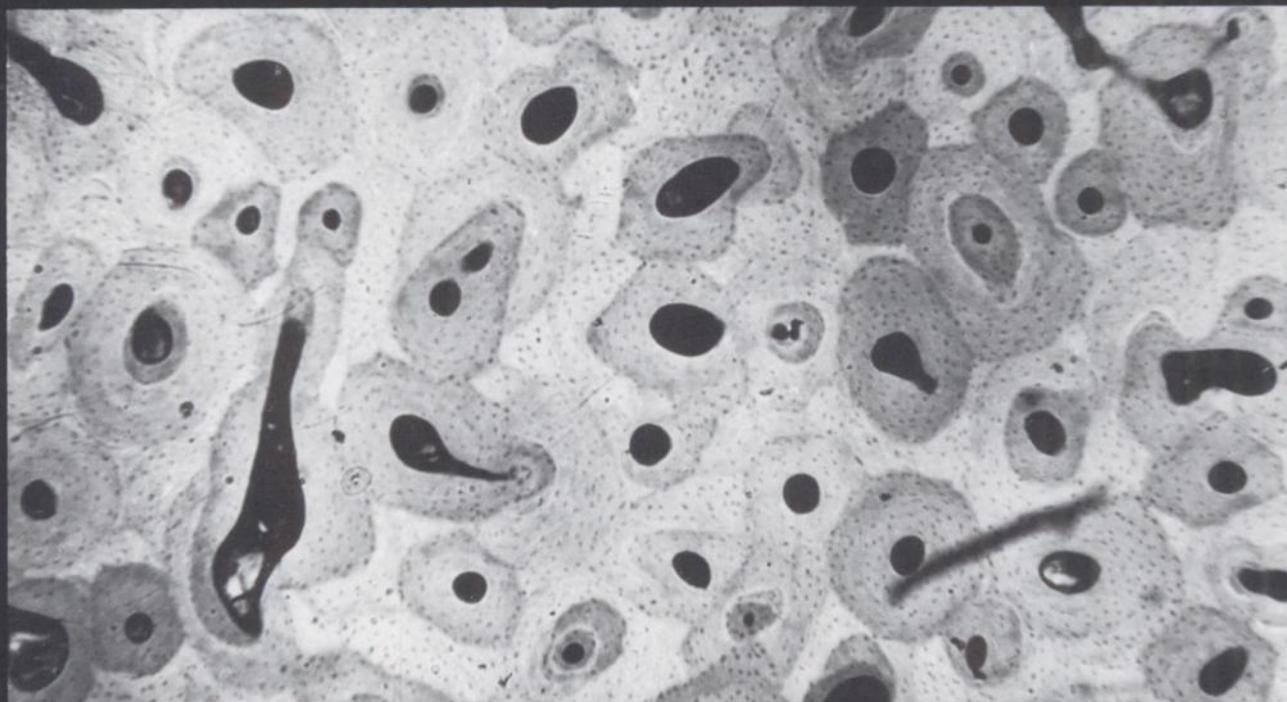
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We Would Like To Tell You About Our New Parathormone Radioimmunoassay



*Microradiograph of bone section, courtesy of Marshall R. Urist M.D.,
Bone Research Laboratory, Department of Surgery, UCLA Medical School.*

Ongoing research permits us to add PTH to our growing list of assays. Clinical correlation studies validate its usefulness and reliability.

Data on parathormone is published in our Radioimmunoassay Manual. And we would like to send you a copy. The Manual is a detailed, authoritative, and an up-to-the-minute reference

which researchers, clinicians and their staffs are finding indispensable. The handbook describes the application, methodology and quality control of more than eighteen thyroid, steroid and peptide radioimmunoassays. The Fall edition is now available, free for the asking.

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Pipette, incubate, centrifuge, count and never touch a tube!

The 1008 sample Searle Analytic Radioassay System.

Searle Analytic (formerly Nuclear-Chicago) revolutionizes sample handling with its 1285 Automatic Gamma Counter, designed specifically for ^{125}I Radioassay.

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

Four Times Faster

Searle Analytic's patented detector counts 3 tubes at once and changes samples faster. You'll count 100 morphine tests in triplicate in 20 minutes compared to 1¼ hours with a conventional counter. A full load of 1008 samples takes only about 3 hours and 10 minutes in the 1285... the equivalent of a conventional counter working for over 12 hours!

Reduced Computation Time

The 1285 with its programmable tray automatically senses RIA protocol, subtracts background, corrects for nonspecific binding, averages duplicate and triplicate samples, calculates unknown as % of standard, and sorts results into low, medium and high areas you determine. The PDS/3 data system, when linked to the 1285, plots optimum standard curve and provides dose levels in absolute units.

The Searle Analytic 1285 Radioassay System is backed by the world's largest team of nuclear instrument service men. Searle Analytic (formerly Nuclear-Chicago) is the world's most experienced manufacturer of automatic gamma counting equipment, with more systems in use than any other manufacturer.

Find out more by writing for our free brochure or contacting your nearest Searle Analytic sales engineer.

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Protects Lab Personnel from Accidental Exposure to 133Xe Radiation.

Especially designed for routine air monitoring and leak testing in nuclear medicine laboratories performing Xenon studies.

Radiation hazards may result if multi-dose ¹³³Xe source containers are used or if expired air and ¹³³Xe from a patient will leak into the laboratory air.

A leakage of less than 10% of a 10 millicurie dose of Xenon administered to a patient in a single study can establish a hazardous concentration in the laboratory atmosphere.

The new Model 133 monitor reads 0.1 to 10 MPC of ¹³³Xe. It features a large, easy-to-read panel meter; both audible and visual alarms; and a recorder output. This new, low-cost monitor provides reliable, unattended operation. It is shielded against gamma radiation to prevent false alarms.



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biological and chemical research.**

The BACTEC system is used by hospitals and laboratories for the detection of bacteria in blood, spinal fluids, pharmaceuticals, radio pharmaceuticals, foods or other products requiring sterility. The technique is based on the release and detection of ¹⁴CO₂ produced by bacterial metabolism of ¹⁴C labeled substrates in BACTEC culture vials.

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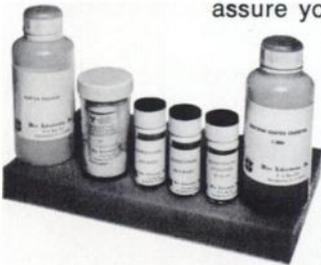
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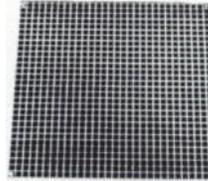
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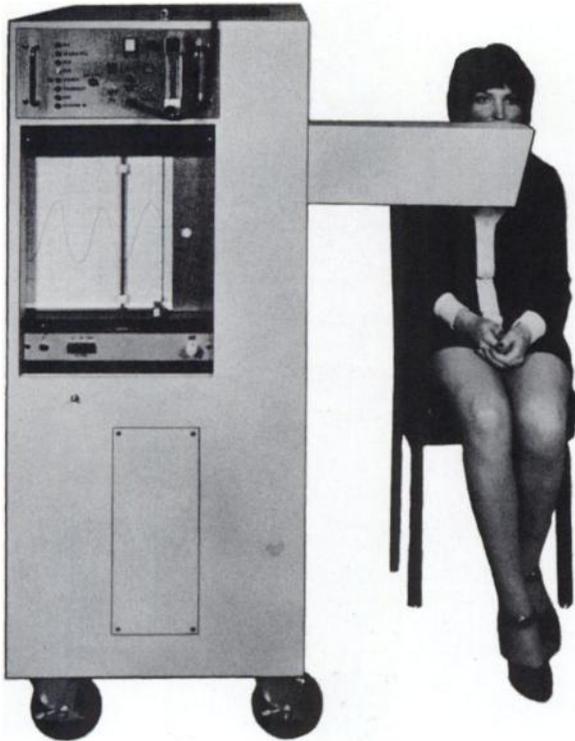


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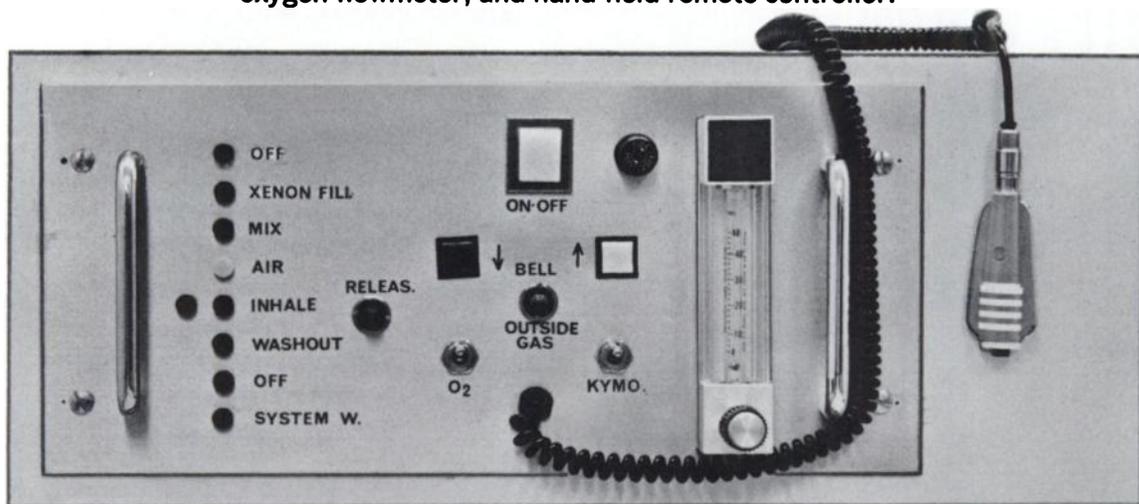
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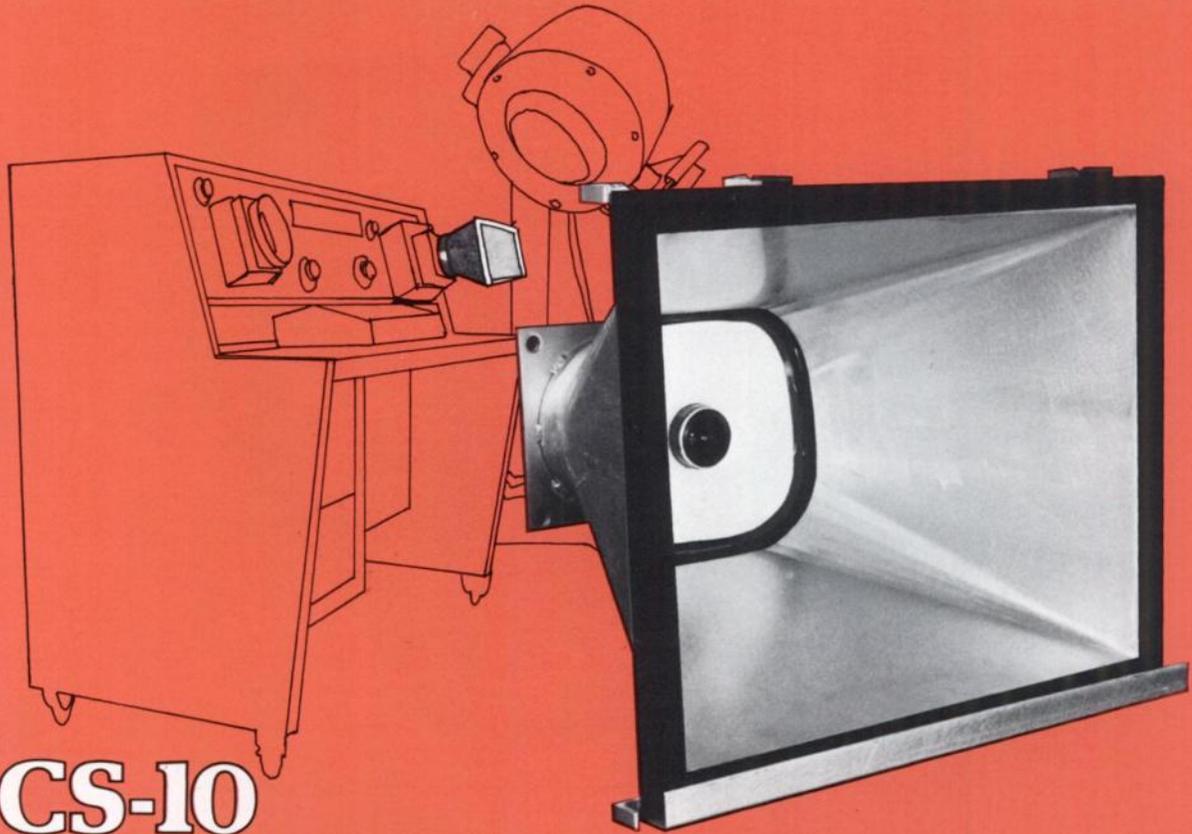
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CS-10 CAMERA-SCOPE

Just attach it and forget it . . . for always in-focus, fully illuminated, distortion-free, adjustment-free gamma photos

Potomac Nuclear's new CS-10 Camera-Scope provides adjustment-free, error-free photography . . . with crystal clear resolution. Just install it and use it! The CS-10's new computer-designed, straight-through optical system doesn't use mirrors . . . and its unique mounting arrangement assures a constant focal distance between the film plane and the CRT face so it's always in focus.

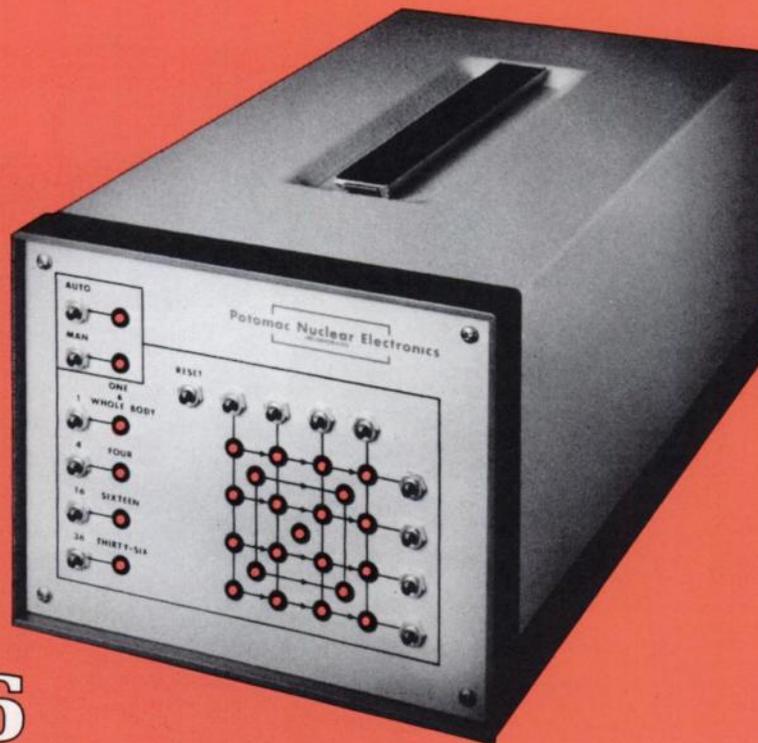
Exceptionally easy-to-use, the CS-10 has a fully color-corrected, high speed lens that provides *maximum, equal illumination across the entire 10-inch square film plane* . . . completely eliminating vignetting and edge distortion!

The CS-10 weighs only three pounds and readily mounts onto your gamma camera. A large ground glass permits full image viewing. The unit's new "quick latch" feature lets you quickly and easily snap-in and snap-out x-ray sized film cassettes, from the top, when you're ready to photograph. And, the CS-10's full frame image lets you select either one 10" picture . . . four 5" pictures . . . sixteen 2½" pictures, or thirty-six 1⅝" diameter pictures—with no peripheral loss of image.

To learn more about our new CS-10 Camera-Scope, or to arrange a demonstration, please write or call:

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Incorporated

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(703) 836-0996
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RSI-36 RAPID SEQUENCE IMAGER

**Saves you up to 90%
in Film Costs . . . and at
least 30% in Time**

The new Model RSI-36 Rapid Sequence Imager operates with any Gamma camera to permit low cost, highly flexible formatting for either static or dynamic studies. This single unit allows you pushbutton selection of any of four, automatically-framed formats on a single (11" x 14") X-Ray film:

- *Life Size* (1:1)
- *4-Mode* (2:1 minification with 125mm images)
- *16-Picture Rapid Flow* (4:1 minification with 70mm images)
- *36-Picture Rapid Flow* (6:1 minification with 35mm images)

The RSI-36 readily adapts to your existing Gamma camera. Its unique operation using only one standard X-Ray sheet lets the system pay for itself within a very short time. Consider. Instead

of Polaroid film at 30¢ per photo (or \$4.80 for a 12-picture cerebral flow plus 4 additional static brain images), the RSI-36's 16 picture rapid flow sequence would cost you only 40¢! A savings of \$4.40! A bone study using the 36-Picture Rapid Flow format would cost you only 40¢ compared to \$10.30 using Polaroid film—*A Savings of 95%!*

And, with the RSI-36, there is no imaging dead time between frames of a flow study . . . no film advance . . . no shutter bar . . . and no moving parts to cause problems. Couple this with standard RSI-36 features such as: Auto Upright Imaging, Pushbutton selection for Manual or Automatic Advance with the unit slaved to the camera, and user selection of starting points anywhere on the film image area—and you have better diagnostic studies at tremendous cost savings.

To learn more about the new RSI-36 Rapid Sequence Imager, or to arrange a demonstration, please write or call:

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IC-1 INTENSITY COMPUTER

**Assures the Right Exposure
"Every Time" on your
Gamma Camera—
Regardless of Electronic Drift**

The new Model IC-1 Intensity Computer removes the guesswork from exposing your Gamma camera. It assures that the exposure will be Right—the first time and every time after that—even if the camera itself experiences electronic drift. The IC-1 is ideal for Flow Studies since consistently proper exposure eliminates the probability of repeat scans—thereby saving both valuable time and money—not to mention patient inconvenience.

Typical IC-1 benefits include:

- Right exposure every time
- Independent of input power variations
- Eliminates repeat scans
- Eliminates need for 3-lens camera
- Permits 3X-4X larger image on single lens Polaroid

- Simplified, pushbutton operation
- Eliminates need to reset focus
- Eliminates astigmatism on Gamma camera
- Reduces costs of operation

The IC-1 Intensity Computer is virtually fool-proof. Even a new operator can get the exposure right the very first time. The operator merely depresses a few plainly-marked pushbuttons to select: Type of Organ to be studied . . . Number of Counts to be accumulated . . . Relative Size of the patient . . . Type of Film to be used (Polaroid, X-Ray, 35mm) . . . and the number of pictures to be taken (if the unit is used in conjunction with the Model RSI-36 Rapid Sequence Imager*). That's it! Efficient. Easy to use. The right exposure each each time.

*Ask about our Package Offer including the Intensity Computer, Camera and Rapid Sequence Imager.

To learn more about the Intensity Computer, or to arrange a demonstration, please write or call:

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Typical X-Ray Formats using the RSI-36 Rapid Sequence Imager



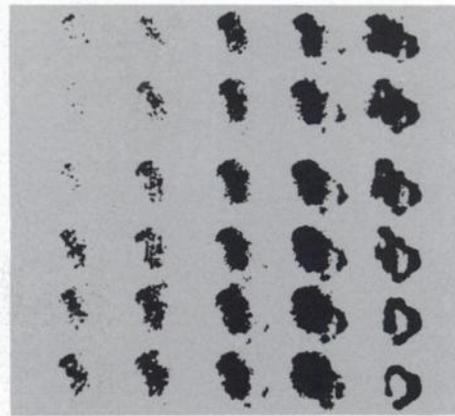
Life Size (1:1)



Four-Mode (2:1 minification)



16-Picture Rapid Flow (4:1 minification)



36-Picture Rapid Flow (6:1 minification)



"Normal Dot Pattern of Low Count Flood Field before modification"



"Upgraded Dot Pattern following modification by Potomac Nuclear Electronics"

Now . . . you can **UPGRADE YOUR CRT RESOLUTION FREE!**

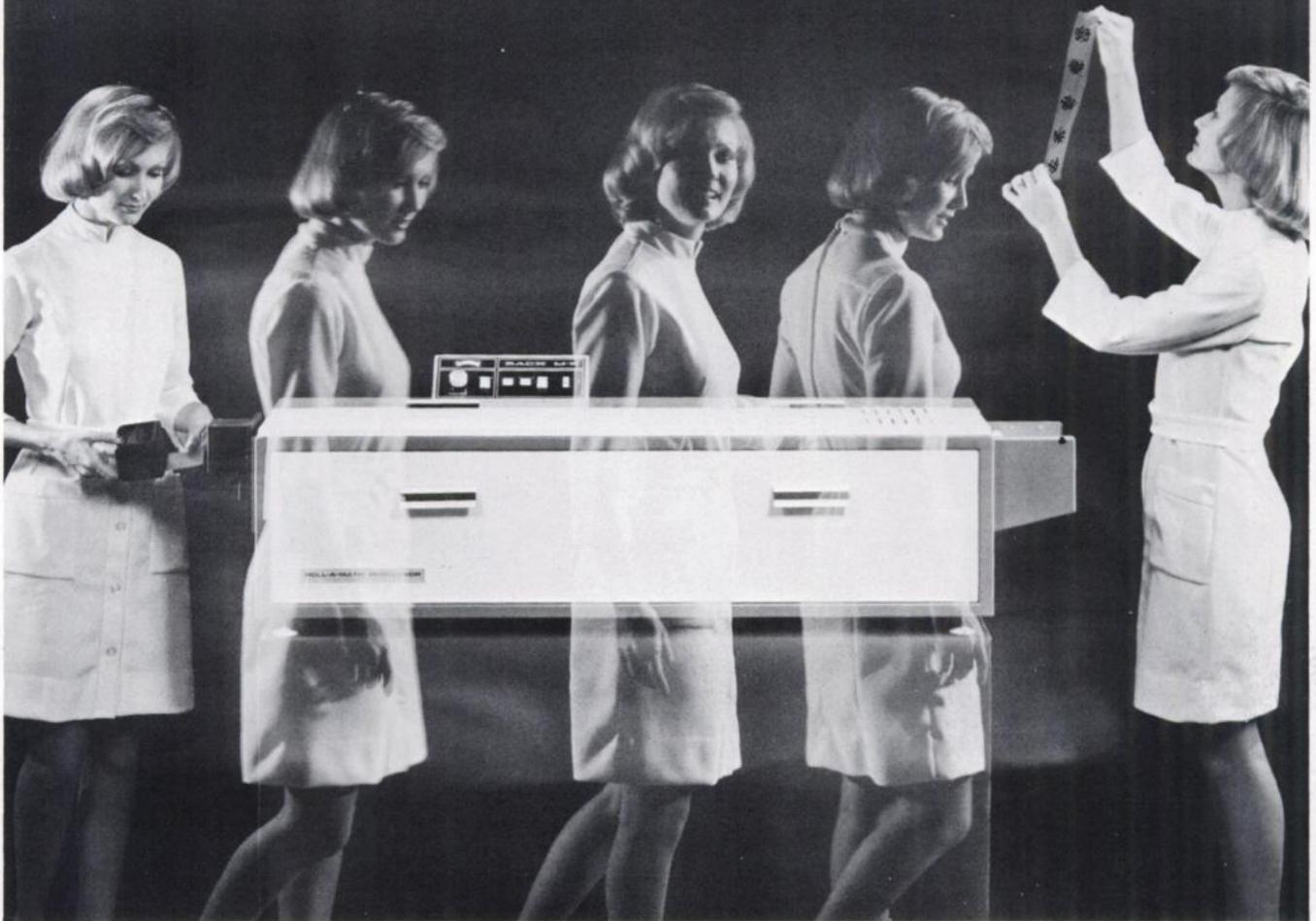
Potomac Nuclear Electronics Incorporated has developed a technique whereby the CRT resolution of virtually any Gamma Camera can be significantly enhanced. Essentially, our technique both reduces and clarifies the individual dots without damage or modification to the actual matrix itself. This results in a much sharper and better defined image—both easier to view and to interpret. Now, as a service to our customers, we are offering to perform this modification to your Gamma Camera—**AT NO CHARGE**—if you purchase either our RSI-36 Rapid Sequence Imager or IC-1 Intensity Computer before September 15, 1973.

For complete information on our systems, or to arrange a demonstration at your facility, please write or call:

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**RADX M-3
ROLL-A-MATIC
PROCESSOR**

The Roll-A-Matic goes where you need it, too. No darkroom. No external plumbing. Fully self-contained. Just put it on any convenient table or counter and plug it in. Also adaptable to chemical replenishment where usage volume is high.

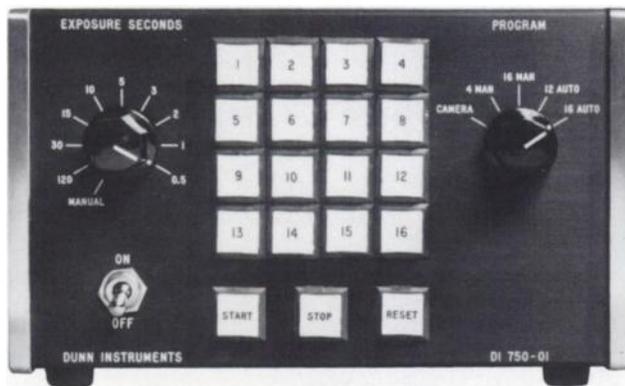
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the means

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It's the 750-01 Electronic Programmer, one-half of the radically new 750 Multi-Format Camera System. The half that makes our system the only oscilloscope camera appropriate for all your needs. Our Programmer electronically minifies the image displayed on the CRT. It manipulates the image in size, location, duration and number. Select 1 through 16 frames per film, manually or electronically advanced on the CRT. The size can range from full display, (full use of the CRT diameter), to 1/16th. Because our system moves the image on the CRT and not the film, there are no moving parts. Hence, the 750 is highly reliable and easy to operate.

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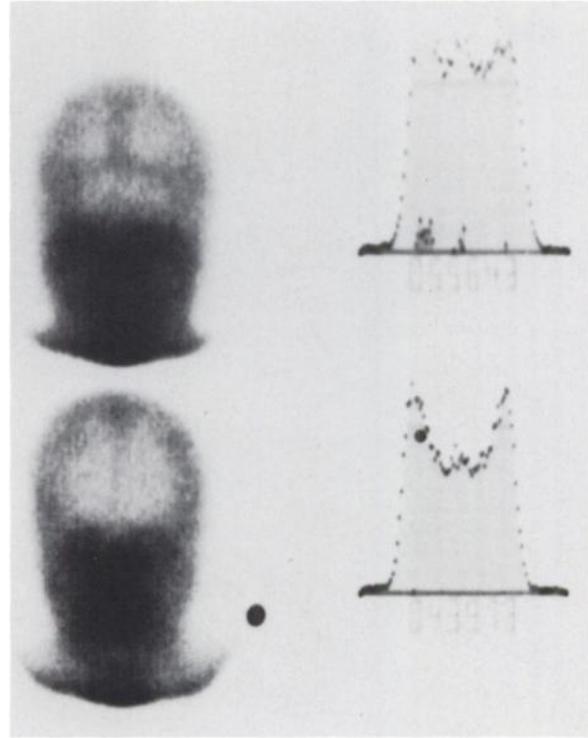
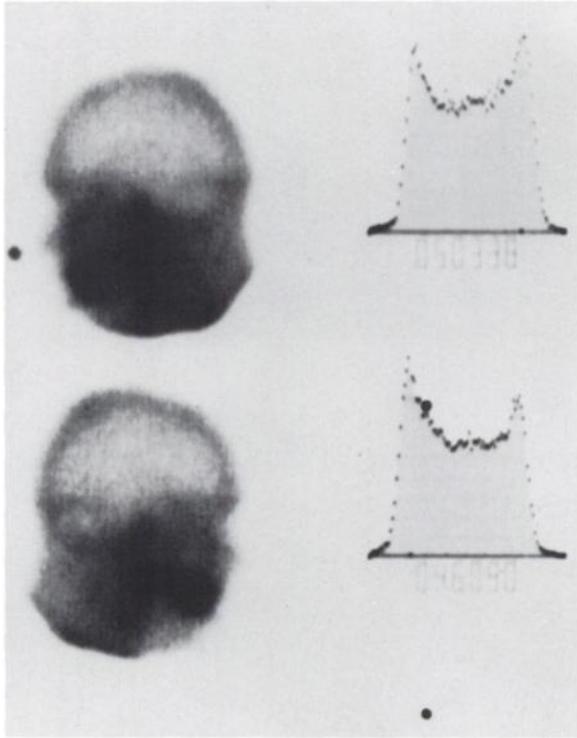
**THIS IS THE OTHER HALF
OF THE 750 MULTI-FORMAT SYSTEM.
THE 750-02 X-RAY FILM CAMERA.**



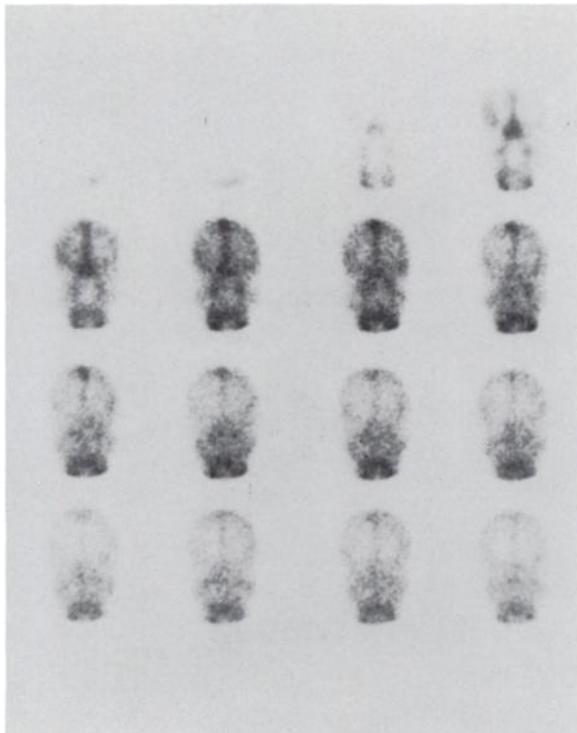
It optically enlarges the image onto 11" x 14" X-ray film. By combining the Programmer and the X-ray Camera, the 750 allows you multiple choice: the choice of image size and the choice of X-ray film. X-ray film has a proven acceptance for organ imaging. It's available in a wide range of contrasts and grey scale latitudes. The large film is easy to view, especially by large groups, and is inexpensive and easy to store. If you already have an X-ray film camera, such as the Nuclear Chicago Photoscope, all you need now is the Electronic Programmer. The two part 750 System will cost you less than \$3,000. And it will pay for itself in six months in film cost savings. Write or call collect for "Economic Justification" and complete details.

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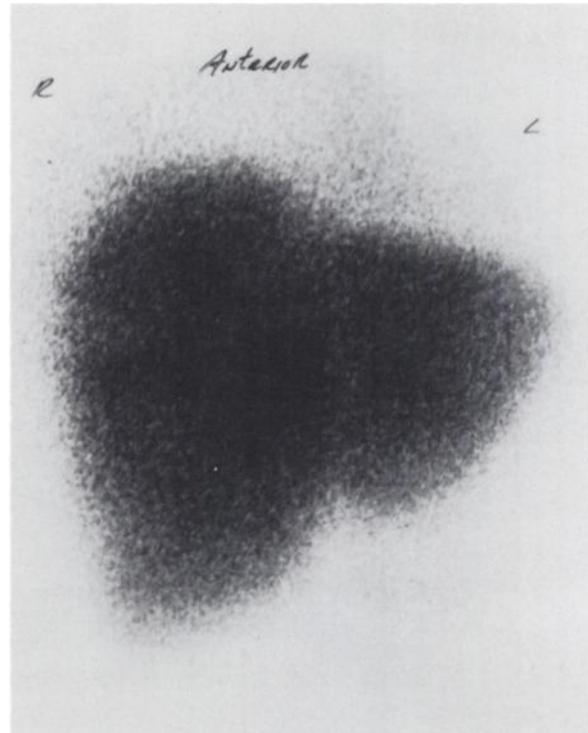
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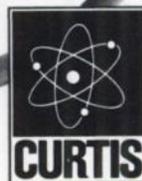
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POST-OPERATIVE DEEP VEIN THROMBOSIS:

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diagnostic tool
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*Lancet, Sept 25, 693-694, 1971.

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**Iodinated (¹²⁵I) Human Fibrinogen Injection (IM.53P)
for the early detection of post-operative deep vein thrombosis**



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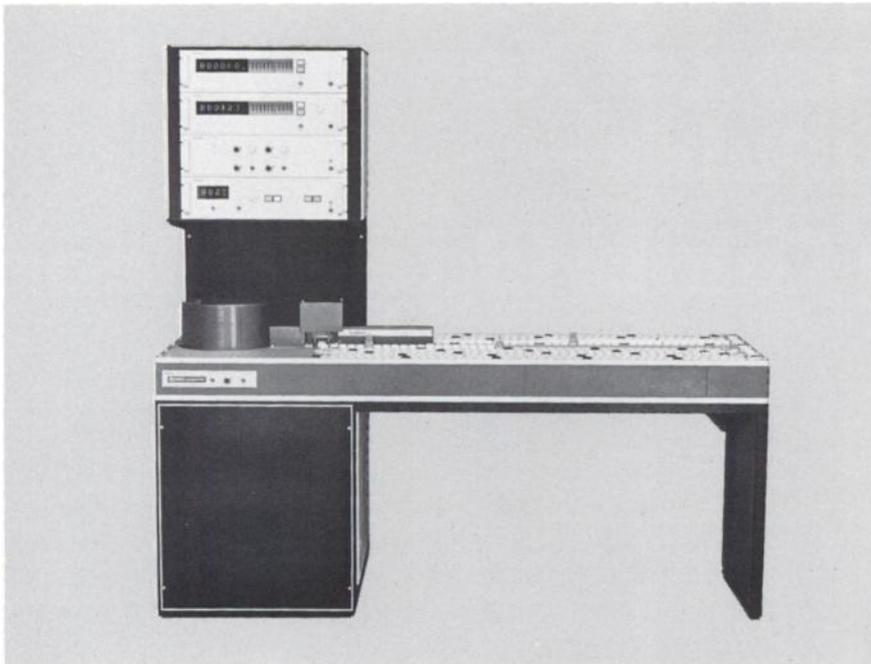
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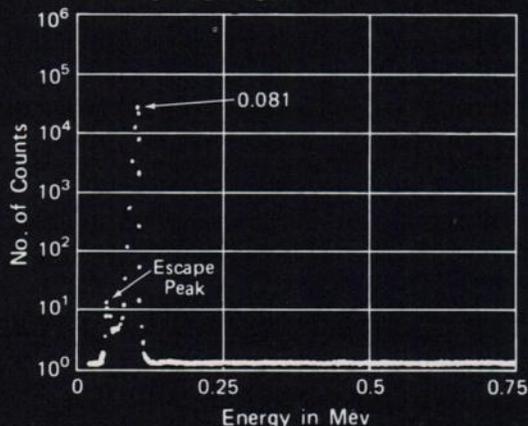
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GENERAL PROPERTIES AND CHARACTERISTICS RADIATION EMITTED

DECAY (β^-)		GAMMA (γ)		INTERNAL CONVERSION
ENERGY (Mev)	%	ENERGY (Mev)	%	%
0.35	100	0.081	100	—

$T \left(\frac{r/hr}{mCi/cm^2} \right)$	$K\beta \left(\frac{gm-rad}{\mu Ci} \right)$
0.3	0.0041

GAMMA SPECTRUM



The Cambridge Nuclear Xenon-133 System can be an enormous help in measuring regional ventilation. And when combined with conventional lung scanning, it aids in the differential diagnosis of pulmonary embolism and obstructive pulmonary disease.

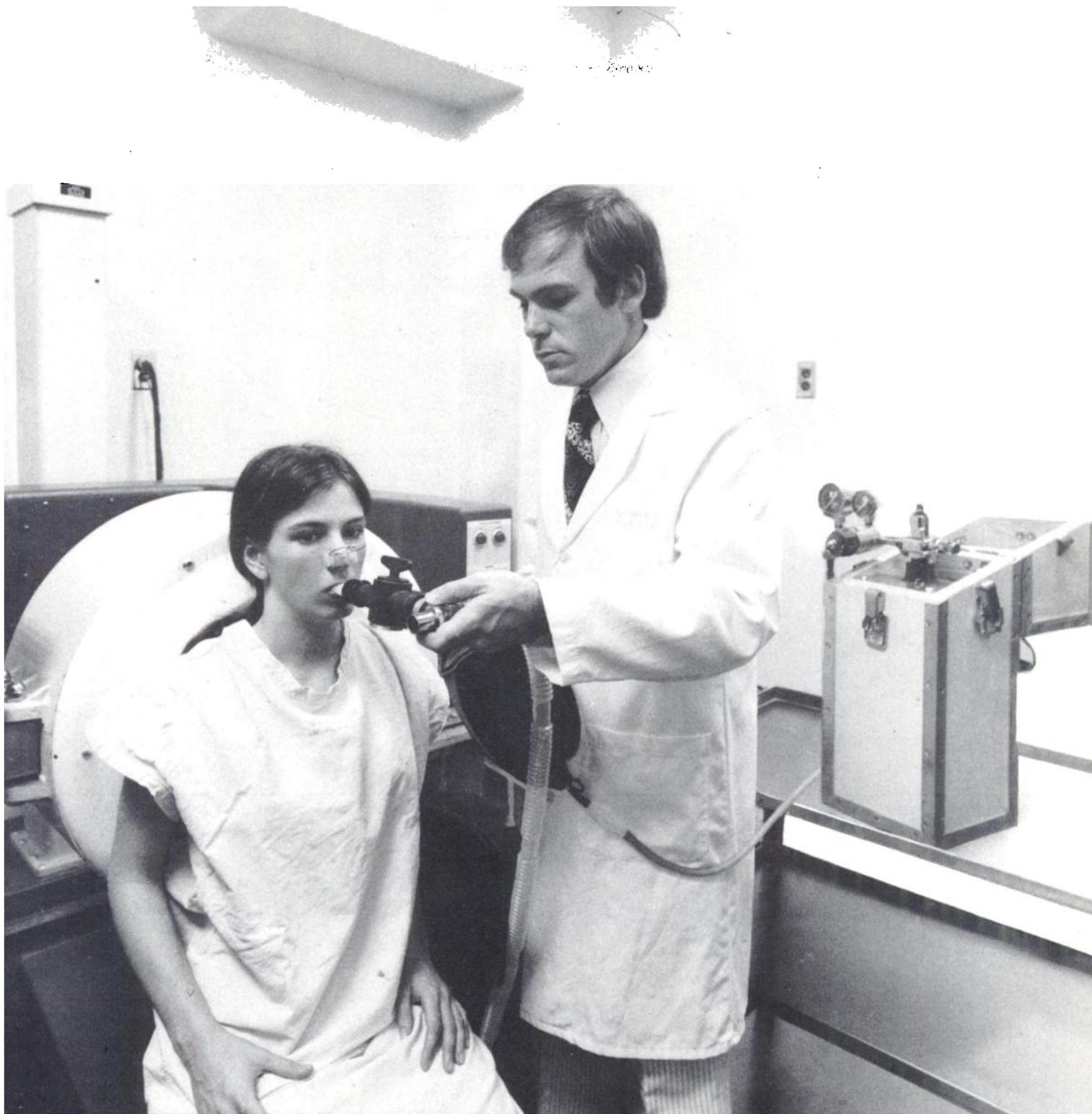
There are many advantages in using this system. Xenon-133 is not used or produced by the body. It diffuses easily through cell membranes and freely exchanges through blood and tissue. And it's physiologically inactive when inhaled in small doses and also is readily excreted by the lungs.

Because the Cambridge Nuclear Xenon-133 System is so simple, it's easily installed and is easy... and safe... to use. The gas, with a half-life of 5.27 days, is available daily from stock, with radioactivity ranging from 100 to 1,000 mCi per cylinder in breathing air.

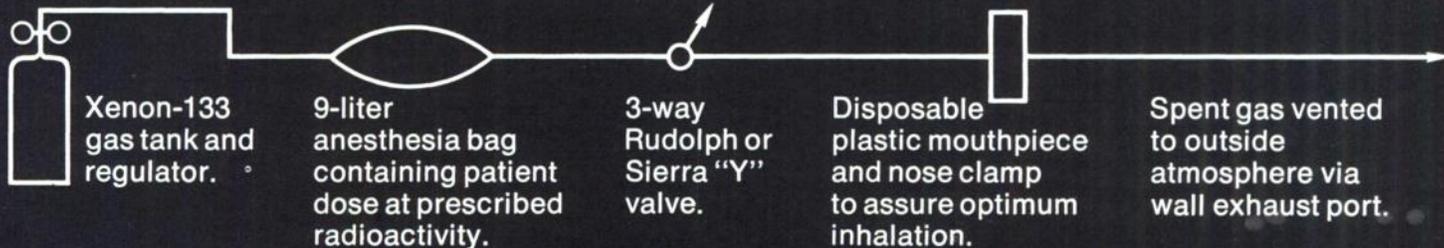
Contact us today. We'll be pleased to send you further information and work with you in designing and installing this efficient and economical system.

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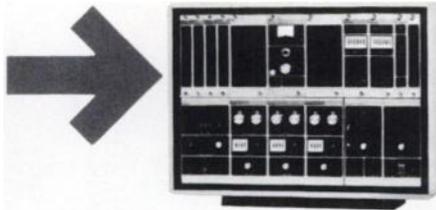
Automated pipetting station, allied to the RIA rack, assures hands off RIA all through the system... no individual tube handling, no massive micropipetting, no deviations in volume and dilution. Flexible through-put: handles small or large numbers of tubes with equal ease, all with reproducibility of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



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



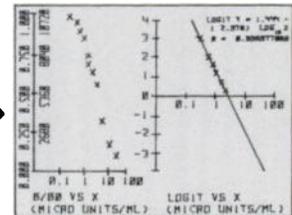
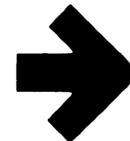
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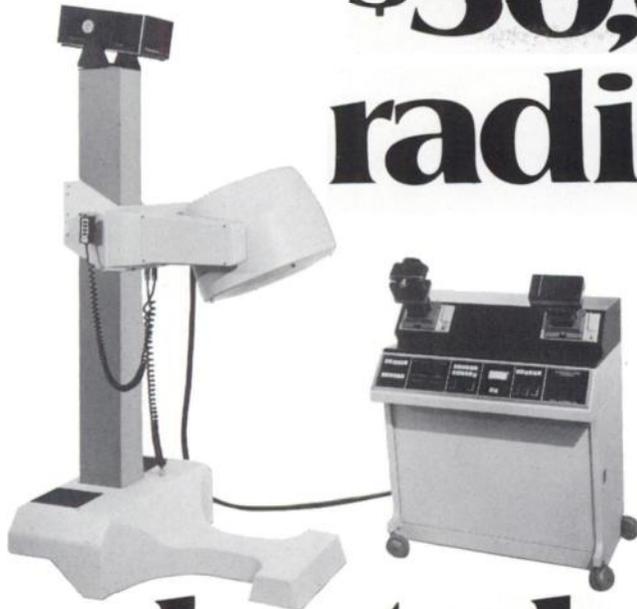
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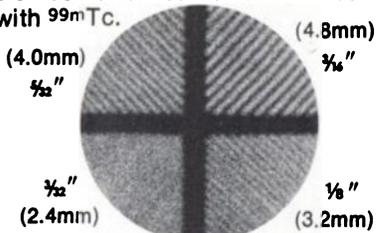
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Scintiphoto (above) taken using $\frac{1}{8}$ " (3.2mm) thick bar phantom. No collimator. 500,000 counts ^{99m}Tc .



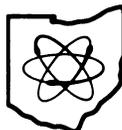
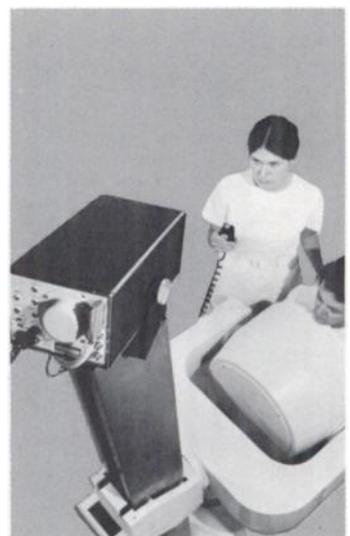
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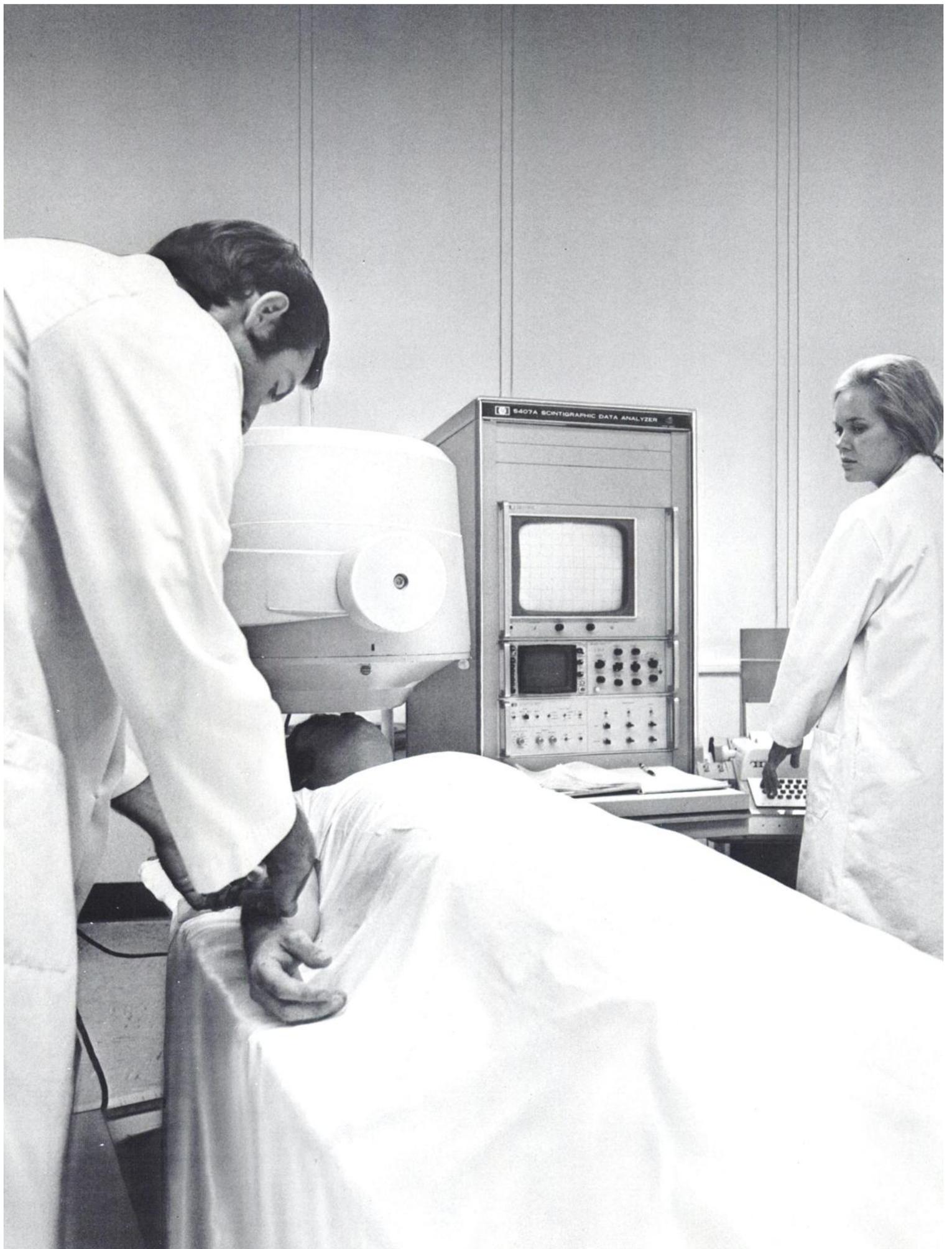
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List Mode. The unique List Mode, provided in addition to the Histogram Mode, offers many innovations. For example, you store *all* the original raw data from your study. Later you can decide how to frame or otherwise manipulate it *without losing raw data*. You can store your manipulated data, too. Even at rates up to 100 frames per

second, you get all these features:

1. Data resolution of 128×128 .
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Just several keystrokes give you complete Time Function and Frame (Image) Arithmetic. You can smooth, add, subtract, divide, multiply, using either images or constants. Complex images

such as lung ventilation-perfusion ratios are yours with just several keystrokes. And it normalizes images for non-uniform camera responses.

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Hewlett-Packard, an international leader in measurement, analysis and computation, makes all major components of the Model 5407A system, including the computer, and tape and disc memories. The company has 172 offices throughout the world ready to give you service and technical assistance.

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The title is "HP's Total System Approach to Nuclear Medicine." In 22 pages, it covers all the advantages of the new HP 5407A Scintigraphic Data System. For your copy simply send in one of the attached postcards or call your nearest HP Office. Or write the Hewlett-Packard Company, 175 Wyman Street, Waltham, Massachusetts 02154; Europe: 1217 Meyrin-Geneva, Switzerland.

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Also available is the RGD-700 Radiogas Dispenser. The RGD-700

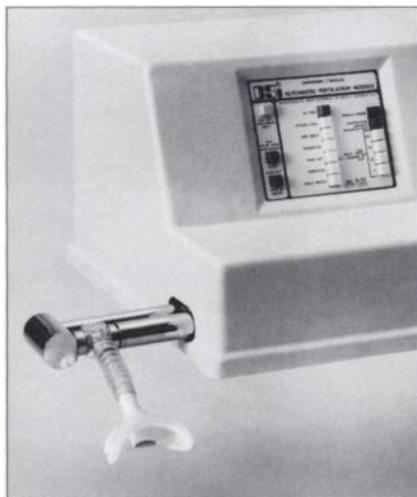
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CHALLENGING POSITION SOUGHT. Experienced physician American Board Nuclear Medicine licensed N.J., N.Y., Pa. Board certified radiologist (therapy). Any

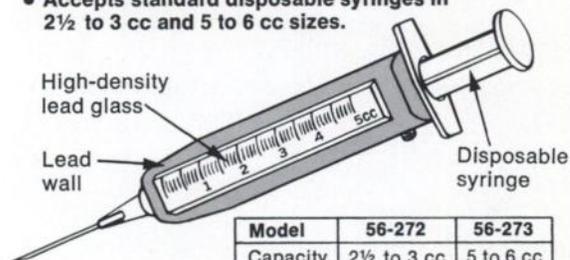
M.D., ABNM CERTIFIED, ABR ELIGI-ble, university trained, experienced teacher, clinician, administrator. Presently in academic position, seeks challenging position in New England, Florida, or Rockies. Box 1004, Society of Nuclear Medicine, 305 East 45th Street, New York, N.Y. 10017.

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*U.S. Patent 3,596,659

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Weight	3.2 oz.	4.6 oz.
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An all-day symposium will be presented by the Technologist Section, Mid-Eastern Chapter, Society of Nuclear Medicine, on Saturday, November 10, 1973 at the Sheraton Inn, Washington-Northeast, New Carrollton, Maryland.

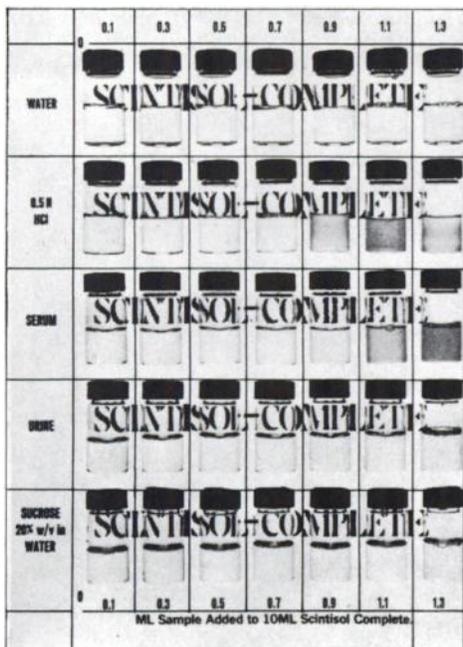
The faculty will lecture on various aspects of in vivo procedures in nuclear medicine.

Registration fee: \$12.50 including luncheon.

For registration and program information, contact:

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**November 5-9, 1973
December 3-7, 1973**

**January 14-18, 1974
February 18-22, 1974**

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For further information and registration forms, contact:

D. Bruce Sodee, M.D., Director
Nuclear Medicine Institute
6760 Mayfield Road
Cleveland, Ohio 44124

CAMBRIDGE NUCLEAR RADIOPHARMACEUTICAL CORPORATION 5th ANNUAL SYMPOSIUM IN CLINICAL NUCLEAR MEDICINE.

Saturday, October 20, 1973
Playboy Club Hotel at Great Gorge, Mc Afee, N.J.

Faculty:

Henry M. Wagner, Jr., M.D. Richard A. Holmes, M.D. Michael M. Cianci, R.T.N.M.
Richard C. Reba, M.D. James K. Langan, R.T.N.M. William Eckelman, Ph. D.

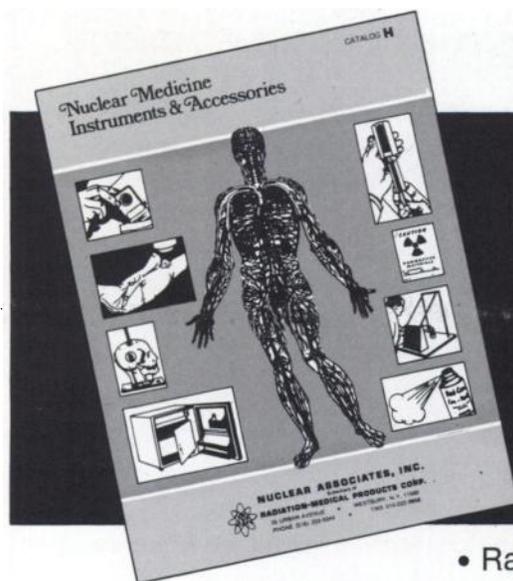
Registration fee: \$25.

Convention Room Rates: \$29. Single; \$33. Double.

Charter buses available from Baltimore,
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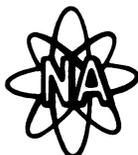
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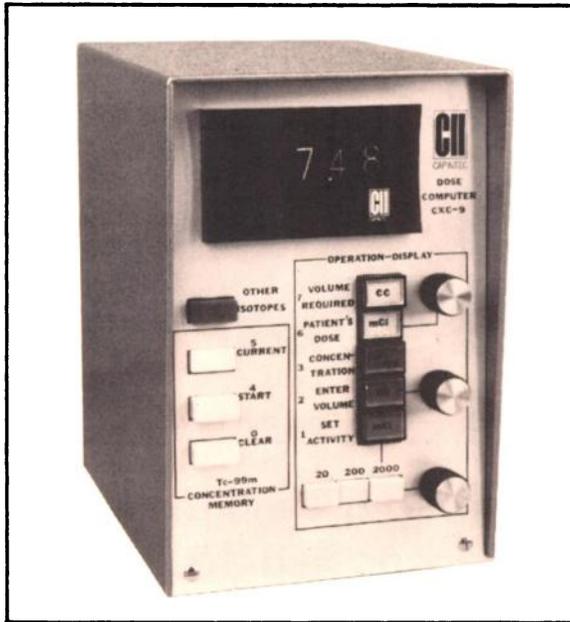
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The stand-alone CXC-9 Dose Computer provides the complete analytical work-up for Radio-Pharmaceutical dose management required by the exacting standards of Nuclear Medicine.

SIMPLE TO OPERATE...JUST DIAL IN THREE NUMBERS:

Total dose from your present Calibrator (or recall Tc-99m value from memory); stock volume, and the required dose..... The CXC-9 Dose Computer instantly displays the exact volume of dose for patient administration.

SAVE TIME AND ELIMINATE COMPUTATIONAL ERRORS

The CXC-9 Computer is programmed to provide the information that you need...rapidly and quietly. Its control panel is designed for operator use.... to human engineering standards. A "BY-THE-NUMBERS" step by step computational procedure is so straightforward that operator or slide rule errors are virtually eliminated.

REDUCE OPERATOR EXPOSURE.

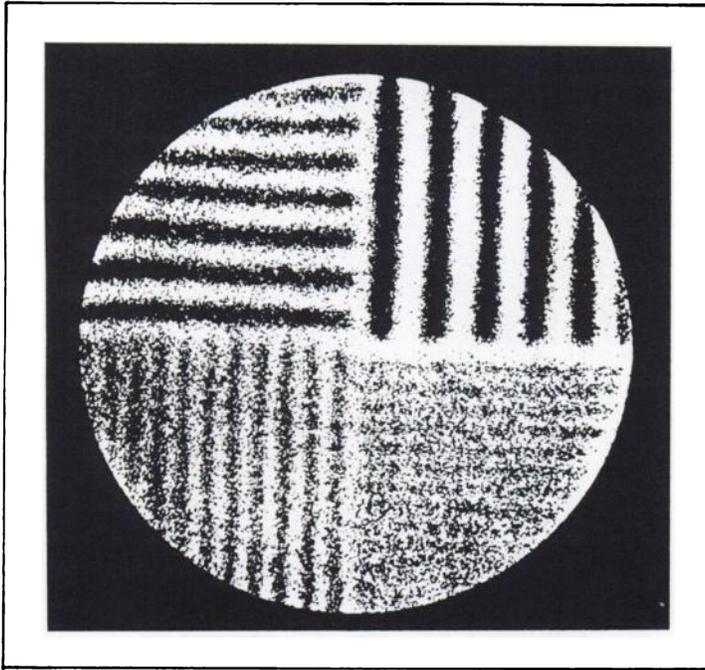
The CXC-9 computes patient dose correctly the first time and every time that it is used. Consequently, the handling of radioactive material, either in stock bottle or syringe, is kept to a minimum with a corresponding reduction in exposure.

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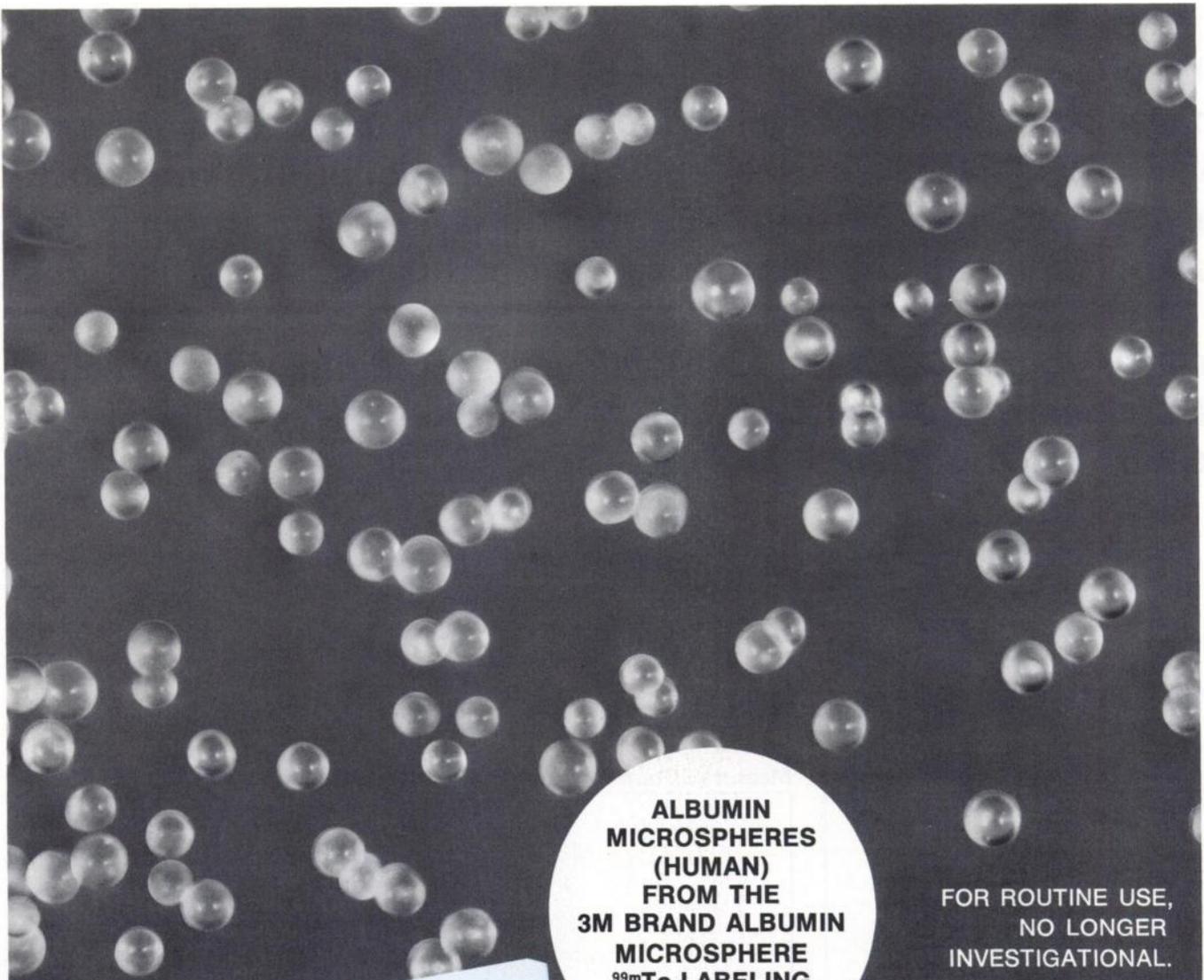
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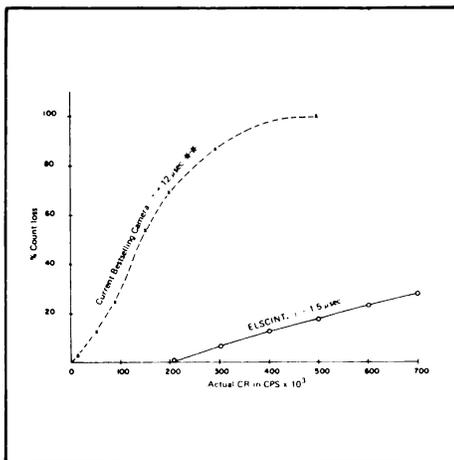
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But performance is determined by hard specifications. Polaroid snapshots of bar phantoms are no substitute. Elscint's new Gamma Camera leads the way out of the labyrinth with documented proof of performance superiority. Be fair, though, and ask our competitors to produce their comparison specifications.

See for yourself – at the 13th Congress of Radiology and Nuclear Medicine in Madrid, Oct. 15-20, 1973 – or by calling your nearest Elscint office.

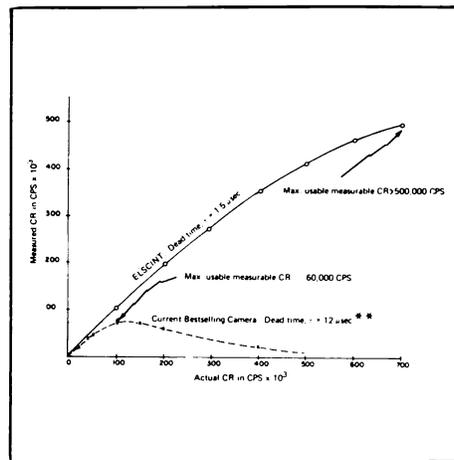
new gamma camera

% Count Loss vs. Actual Countrate



The dead time, τ , is one of the crucial parameters of a camera since it determines the maximum usable count-rate. This implies use of the camera for short frame time dynamic studies using very short half-life radiopharmaceuticals, of which high doses may be administered.

Measured Counts vs. Actual Counts



This curve clearly shows that a 12 μsec dead time camera is virtually useless even for countrates from as little as 70 Kcps. The ELSCINT camera with its 1.5 μsec is usable for countrates higher than 500 Kcps.

** J. Nucl. Medicine, vol. 14, No. 6;
pp 383-384, 1973.

Performance Figure-of-Merit

$$M_E = \frac{F_E \sqrt{A_1 A_2}}{\pi \tau (\bar{\rho})^2} = \frac{F_E R_1 R_2}{\tau (\bar{\rho})^2} = 93.6 (\mu\text{Sec})^{-1}$$

- F_E = Usable count fraction (0.53)
- A_1 = Detector area with $\pm 10\%$ uniform response to flooded field exposure.
- R_1 = Radius of A_1 (152.5 mm)
- A_2 = Detector area with intrinsic FWHM ≤ 10 mm
- R_2 = Radius of A_2 (130 mm)
- τ = System deadtime in μsec (1.5)
- $\bar{\rho}$ = Average FWHM within A_1 (9 mm)

The gamma camera is a working system of many interacting factors, expressed in the performance figure-of-merit, M_E .

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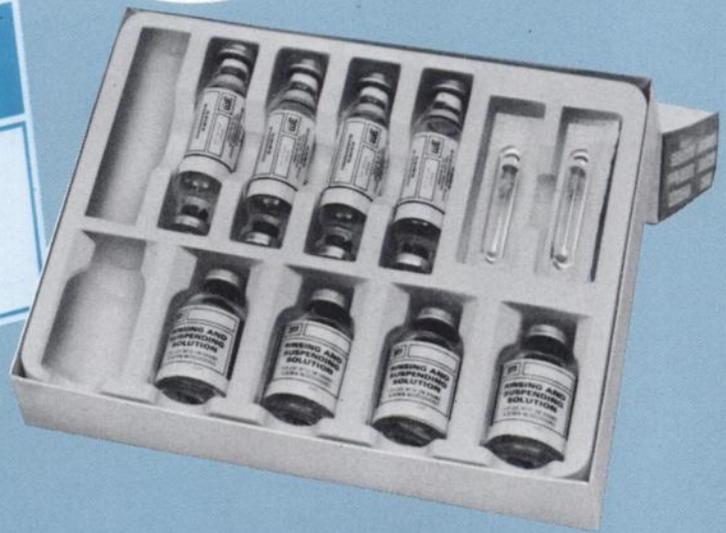
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**ALBUMIN
MICROSPHERES
(HUMAN)
FROM THE
3M BRAND ALBUMIN
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^{99m}Tc-LABELING
KIT**

FOR ROUTINE USE,
NO LONGER
INVESTIGATIONAL.



FOR CONSISTENT LUNG IMAGES

day after day after day after day!

USE ^{99m}Tc ALBUMIN MICROSPHERES

- **Uniform Shape and Size**

Perfectly spherical, the 3M Albumin Microspheres are uniformly sized to 15-30 microns in diameter. This uniformity, coupled with an extremely low tendency to agglomerate, results in truer images of lung perfusion. The result — no hot spots or extra-lung activity.

- **Integral, yet Biodegradable**

Each Albumin Microsphere is a single homogeneous sphere of albumin — they won't disintegrate in the vial or syringe. Yet, microspheres readily clear from the lung. Pulmonary clearance half-times are long enough for multiple view imaging but are still short enough to allow daily imaging, if required. Microscopic analysis of lung tissue in the mouse showed 99 percent of the administered microspheres were gone after 29 hours.¹

1. Data on file at the 3M Company and the Bureau of Biologics.

- **Eliminate Interference from "Free" Technetium**

"Free" isotope need no longer interfere with the scan. The unique filter construction of the Microsphere Labeling Vial allows the free isotope to be removed, leaving just labeled microspheres for suspension.



- **Stable Kit**

Currently the expiration date of each kit is 6 months after the date of manufacture. You can stock the kit and have it available for immediate use. Even a department doing a moderate amount of lung imaging can take advantage of quantity discounts.

- **Each Lot FDA Approved**

Thoroughly tested by 3M, each lot is checked by the Bureau of Biologics, FDA, and approved for shipment. This provides a double-check of sterility, lack of pyrogens, and all the important performance parameters of the kit.

INDICATIONS Scintillation imaging of the lungs with ^{99m}Tc -Labeled Albumin Microspheres is indicated as an adjunct to other diagnostic procedures whenever information about pulmonary circulation is desired.

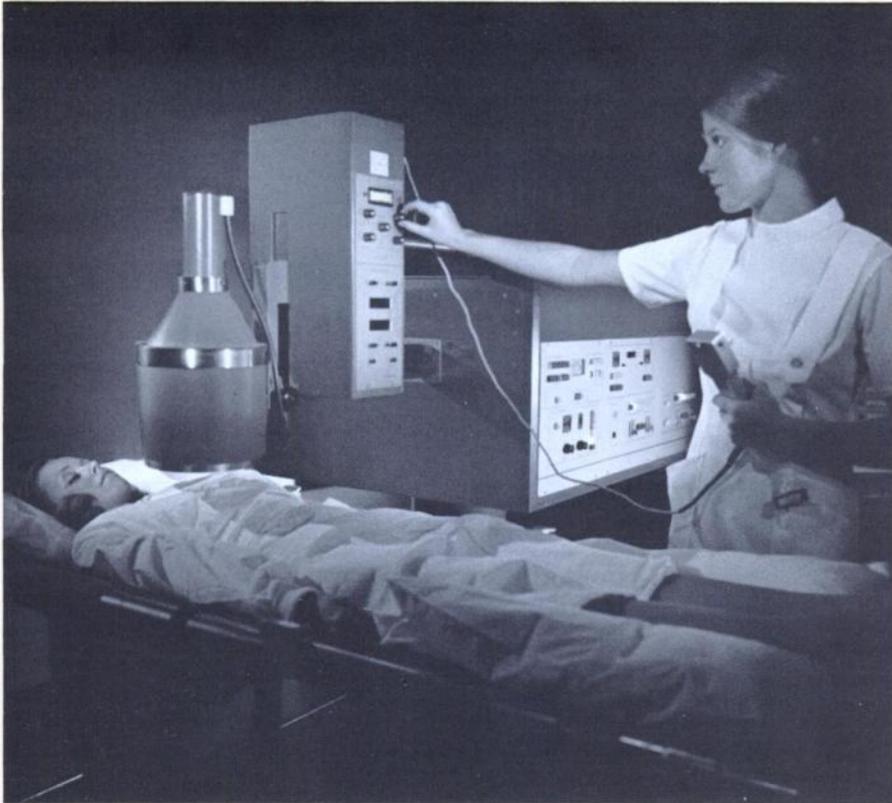
CONTRAINDICATIONS The safety of Albumin Microspheres in patients with a known right-to-left cardiac shunt has not been established and its use in such patients is contraindicated.

SIDE EFFECTS Although no anaphylactoid reactions have been reported in patients following the administration of Albumin Microspheres, the possibility should be considered that hypersensitivity reactions may occur rarely in patients who receive additional doses of the Microspheres.

HOW SUPPLIED Each kit contains five labeling units. Each labeling unit contains one day's supply of Albumin Microspheres (5mg — enough for 5 to 7 patients) plus all the reagents necessary to attach technetium to the microspheres.

For detailed information about Microspheres and the 3M Brand Albumin Microsphere ^{99m}Tc -Labeling Kit, write: **Nuclear Products for Medicine**, 3M Company, 3M Center, St. Paul, Minnesota 55101, or phone TOLL FREE (800) 328-1671.

3M
COMPANY



Single probe scanner automatically delivers diagnostic information

A combination of automatic features, preset with simple push button and thumbwheel controls, facilitates operation of General Electric's single probe digital scanner; thus provides less opportunity for technic errors.

Scanning speed is controlled and displayed automatically at the panel meter after desired line spacing and information density settings have been selected and the hot spot located. And, speed can be adjusted manually, if desired.

Other automatic features include: film exposure slit length changes

with line spacing to prevent scan gaps or overlaps; scalloping corrections to align the photoscan display; and, photorecording density settings between preset minimum/maximum values.

The GE single probe scanner also provides a built-in scaler; push button probe positioning; easy-to-read light-emitting diodes; and four collimators as standard equipment.

Scan information is available three ways: standard format includes mechanical dot and photorecording. GE's electronic color Videodisplay and Processing Unit is optional.



Videodisplay Processor extends the diagnostic value of any scanner or nuclear camera. Permits viewing and quantification of patient count information, in black and white or fully functional color. Images are displayed on a video monitor; can be manipulated long after the patient leaves the department to enhance desired details; aid interpretation and diagnosis. Information remains stored in the VDP's electronic memory, for further manipulations, until erased. Enhanced VDP data may be played back to the detector and recorded on 14 x 17 inch film. Scans can be recorded on cassette tape as well as on photographic film; count information from any scanner or camera can be transmitted to a VDP unit over regular telephone lines.



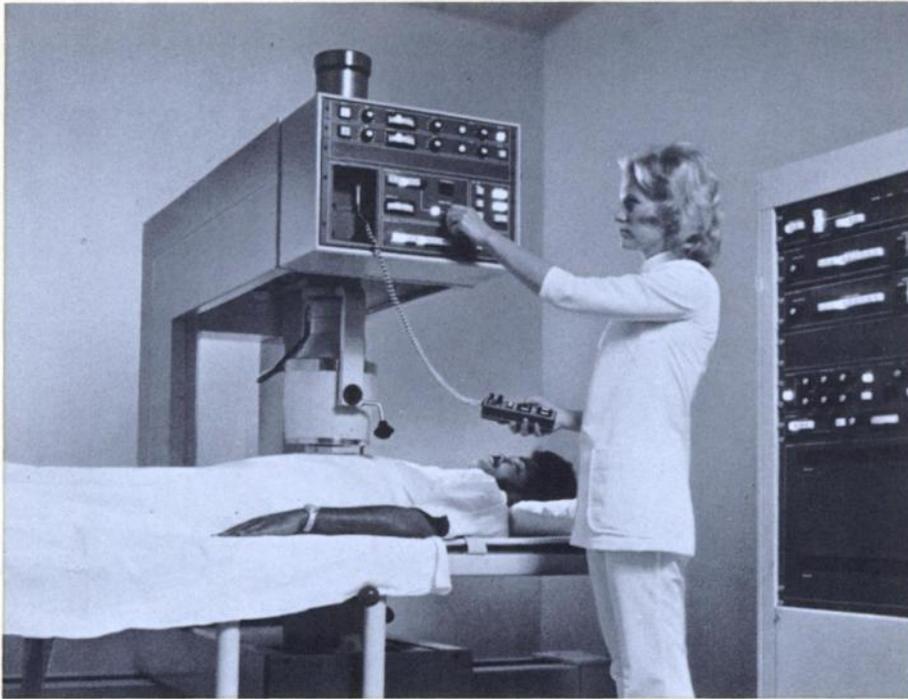
The complete nuclear laboratory. The Nuclear Medicine Accessories & Non-imaging Instrumentation catalog by General Electric offers a complete product listing for the nuclear laboratory.

The featured instrument systems are, for the most part, unique in their ability to provide versatile yet functional diagnostic tools.

In addition to a full line of diagnostic instrument systems, the catalog describes protective equipment, film processors and illuminators, phantoms, tables and other nuclear supplies.

This free catalog and specific product information is available by contacting your GE Medical Systems representative.

information compendium



Scan the whole body or a single organ with equal ease

The value is well established for viewing a full-size nuclear scan of a single organ on 14 x 17 inch film. Yet it's equally easy to scan any patient's entire body and minify the image to fit the same size film, using General Electric's Maxiscan Whole Body Digital Scanner.

The unit's two probes and three scanning directions provide maximum patient count information with minimum technic error and reduced set up time.

Skeletal surveys, for any size patient, can be conducted within a travel range of 2 feet wide by 6 feet 8 inches long. This permits the location and diagnosis of bone metastases beyond a specific organ, without a series of small area scans; such as, prior to radical mastectomy procedures.

In addition to whole body scans, Maxiscan performs local area studies too, all with minimum patient movement. The scanner's two probes and three scanning directions cover the entire lung, top and bottom, without turning the patient. The top probe angulates 270° and has a powered 12 inch vertical

travel. With optional vertical plane scanning, the patient can be seated upright; also, vertex views of the brain can be accomplished with the patient reclining normally.

Rotating switch settings permit selection of full size scans or mini-fications of 2:1, 3:1, 4:1 and 5:1. This versatility, plus push button quadrant placement controls, precisely segments four different scans on a single 14 x 17 inch film, with no image overlap.

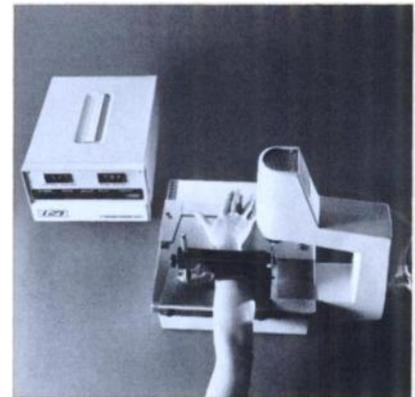
Maxiscan controls are sequentially arranged to minimize the operator's back and forth movement between the electronics console and the gantry. Also, a number of automatic features are controlled with push button and dial settings. For example: scanning speed. After desired line spacing and information density settings have been selected and the hot spot located, scanning speed for the procedure is automatically displayed; no charts, graphs or calculations.

To view and quantify scans in black and white or color, Maxiscan can be combined with GE's Videodisplay and Processing Unit.

Non-invasive technic for diagnosing bone diseases

Gradual decreases in the amount and strength of bone tissue, caused by osteoporosis and other metabolic bone diseases, can now be identified before serious complications set in.

This simple, non-invasive diagnostic unit, available from General Electric, measures changes and losses in bone mineral content and bone width. This permits quantitative assessment of skeletal integrity. Ideal for serial studies to determine therapeutic progress.



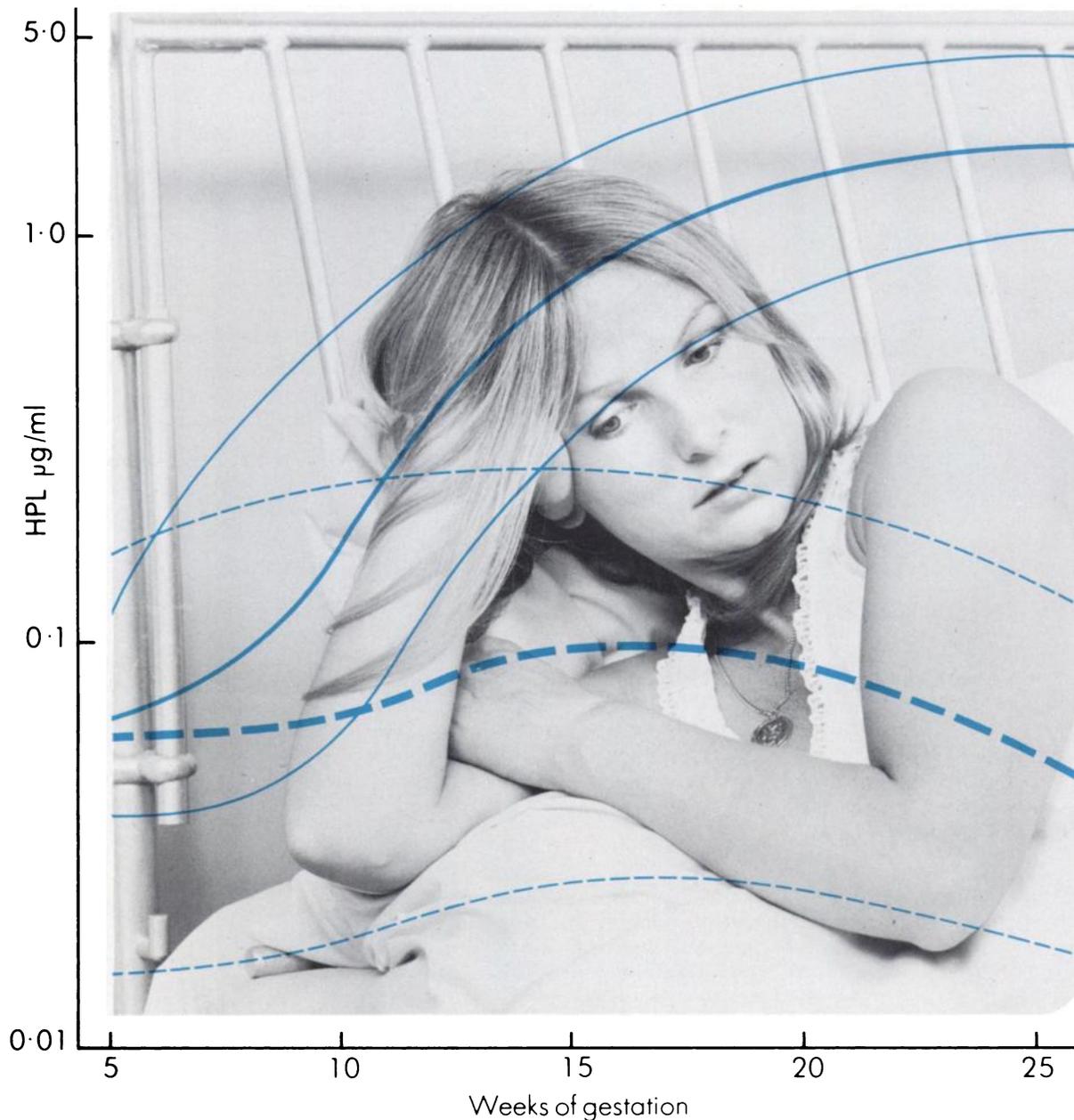
The Bone Mineral Analyzer includes a scanner, which automatically transports a closely collimated beam of mono-energetic gamma rays (^{125}I) across the limb in a programmed pattern. The generated data is transmitted to a mini-computer which calculates the mineral content and bone width; displays measurements in digital read-outs. This data can be related to normal and specific patient populations.

The system is compact, readily portable and easy to operate. The radioisotope used can be purchased from General Electric.

General Electric Medical Systems, Milwaukee and Toronto.
In Europe, Elscint GmbH, Wiesbaden;
Elscint France SARL, Buc.

GENERAL ELECTRIC

Early warning or false alarm?



In cases of vaginal bleeding in early pregnancy it is frequently impossible on clinical grounds alone to distinguish between those patients who will abort and those who will proceed to term.

It has been shown that the assay of human placental lactogen (HPL) in maternal serum can often make this distinction.⁽¹⁾ Patients with lower than normal levels usually went on to abort during their first admission, whereas those with normal levels were likely to continue successfully to term. Thus, the HPL assay "can indicate those women in whom abortion is inevitable and could be used

to reduce substantially the length of hospital stay in this common complication of early pregnancy."⁽¹⁾

Reference Brit Med J. 3: 799-801, 1972.

Human Placental Lactogen a rapid, reliable test of placental function

- * no 24-hour collection of urine
- * serial estimations easily performed
- * no risk to either patient or foetus

Now available in kit form: HPL Immunoassay Kit (IM.68)



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The thyroid machine that does everything but mail in the test results!

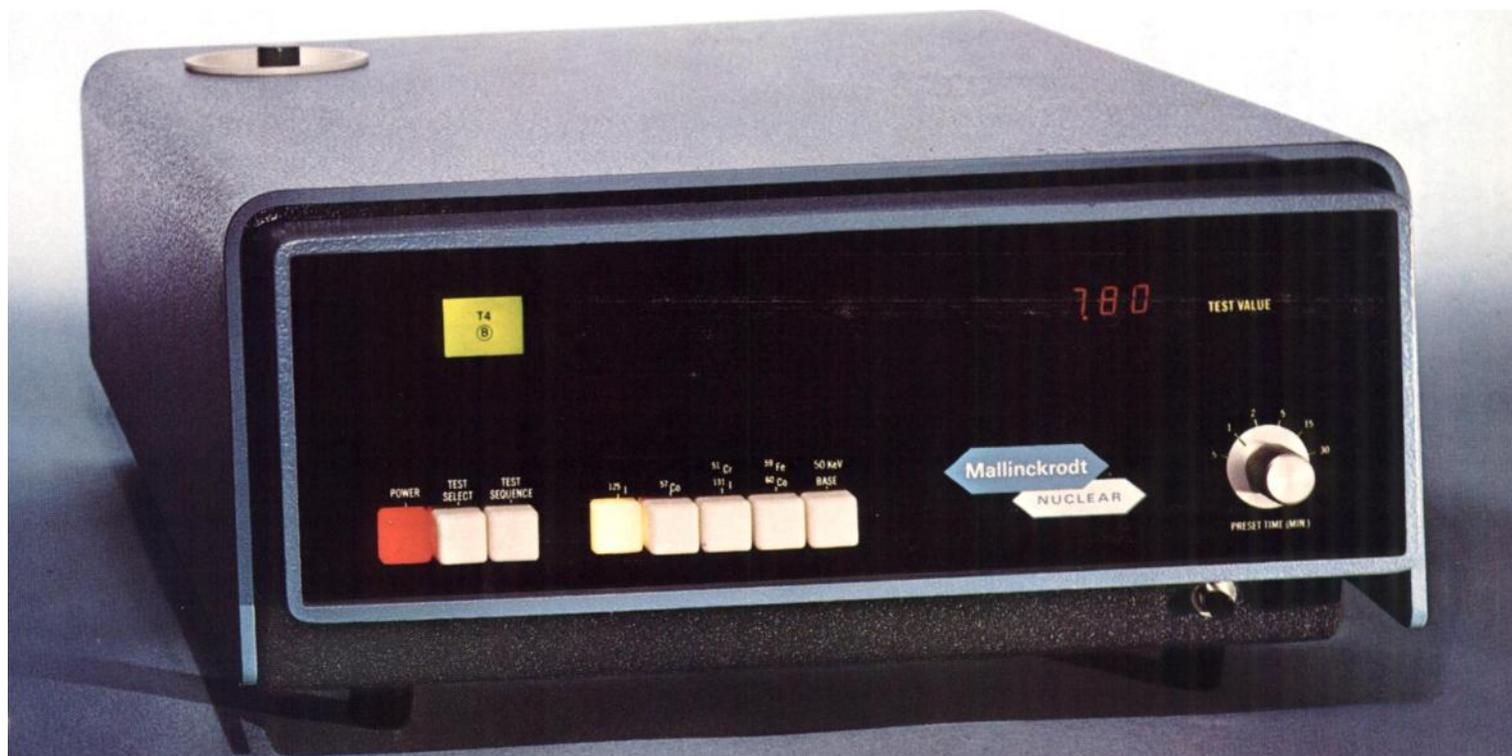
At last...one instrument that counts and computes all three of the major thyroid function test values for you. Now, all you do is push the buttons. The digital read-out shows the T3*, T4 and Effective Thyroxine Ratio test values. No ratios to figure. No curves to draw. The laboratory is spared time, extra work, and concern.

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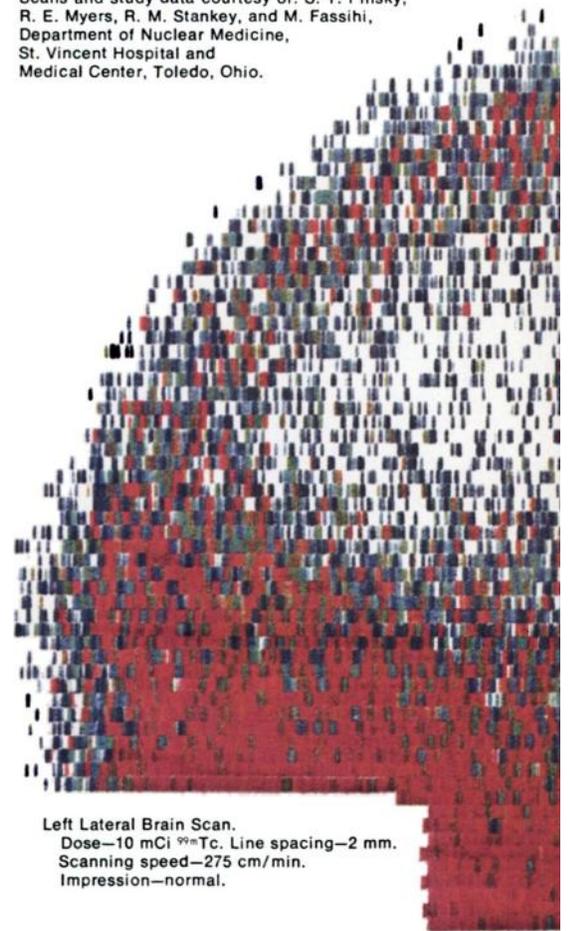
City _____ State _____ Zip _____

World's Record Holder: Magna[®] Scanner was the choice in over 3000 hospitals!*

(What did all those customers know?)



Scans and study data courtesy of: S. T. Pinsky,
R. E. Myers, R. M. Stankey, and M. Fassihi,
Department of Nuclear Medicine,
St. Vincent Hospital and
Medical Center, Toledo, Ohio.



Left Lateral Brain Scan.
Dose—10 mCi ^{99m}Tc. Line spacing—2 mm.
Scanning speed—275 cm/min.
Impression—normal.

*Well over 3000 Magna Scanners are in use today. And our best estimate is that there are more Magna Scanners now in active use throughout the world than all the other gamma-imaging devices combined.

Presumably, these customers knew a *better* thing when they saw it. And, with every new Magna Scanner model, this "better thing" gets better and better.

Look at the newest Magna Scanners, for example, with their abundance of "better things."

Better Thing #1: Automated scan set-up.

Computerization simplifies and speeds the entire setting-up procedure. Calibration is virtually instantaneous: the instrument is ready to go in a matter of seconds. (But the computer doesn't limit flexibility.)

Better Thing #2: Consistent scans, minimal repeats.

Since scan parameters are automatically optimized by the computer, overall scan quality and consistency are superior and so interpretation is improved. Hence, the annoyance, time, and cost of retakes is minimized. Productivity goes up.

Better Thing #3: Training simplified.

With the task of calibration assigned to the computer, technologist training is simplified and speeded.

Better Thing #4: Improved color printer.

Result: the highest quality color scans available at any scanning speed. (And color ranges are set up automatically.)

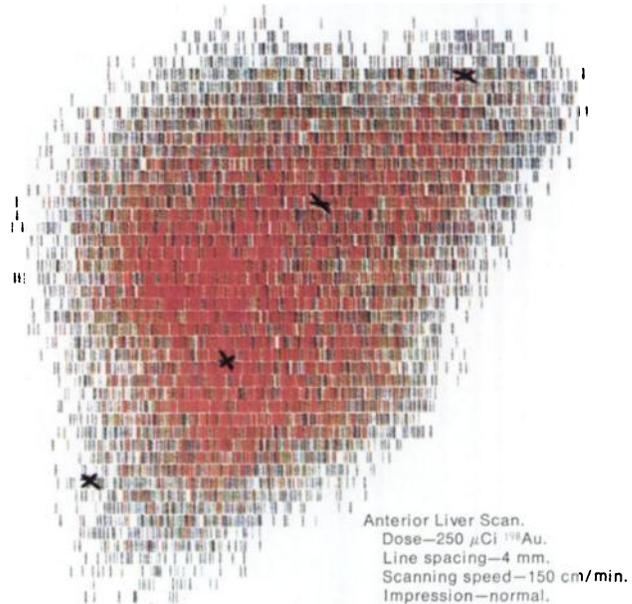
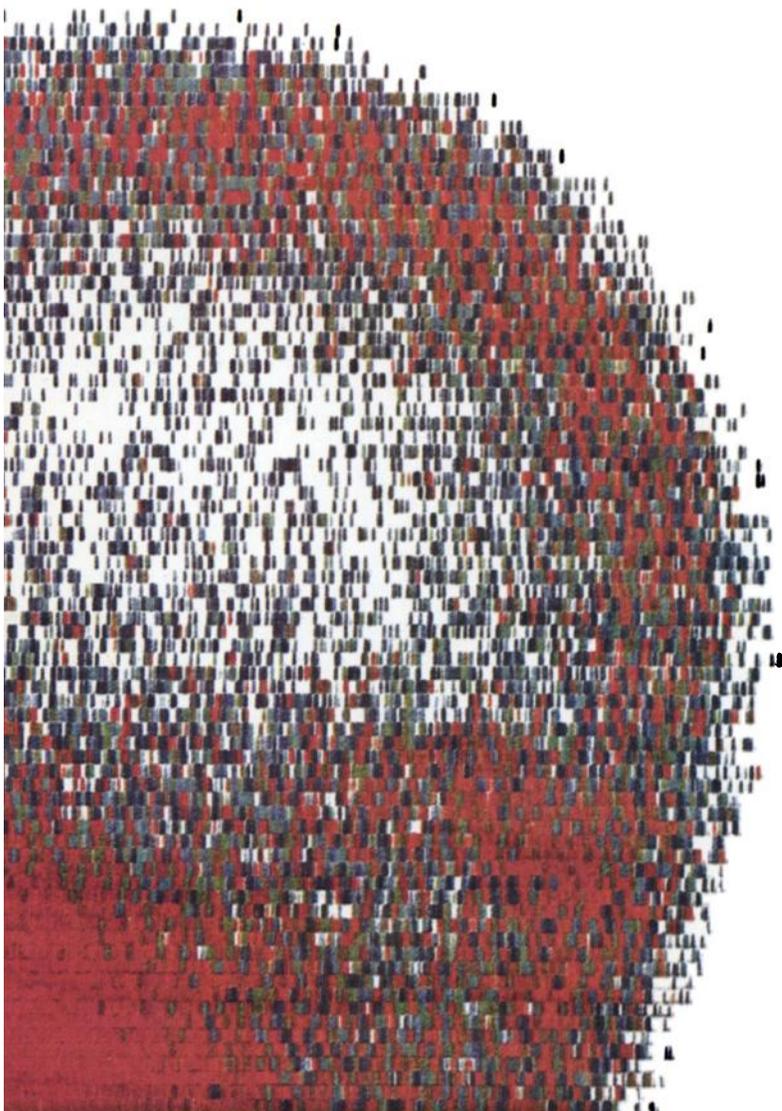
Note well: all of these better things are shared by both the new Magna Scanners and the new Dual

Magna Scanner. And the Dual Magna Scanner also offers: dual isotope and subtraction modes, and matched scans from the lower and upper probes.

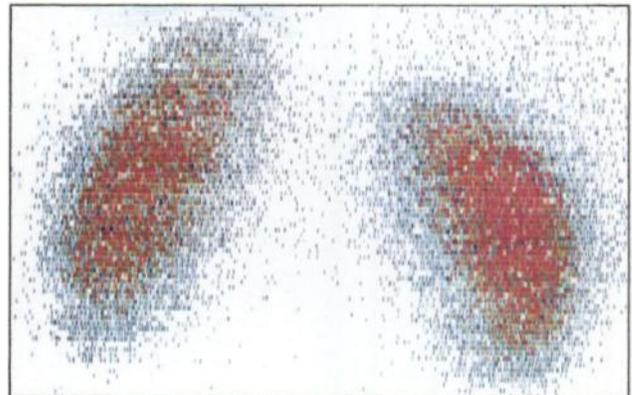
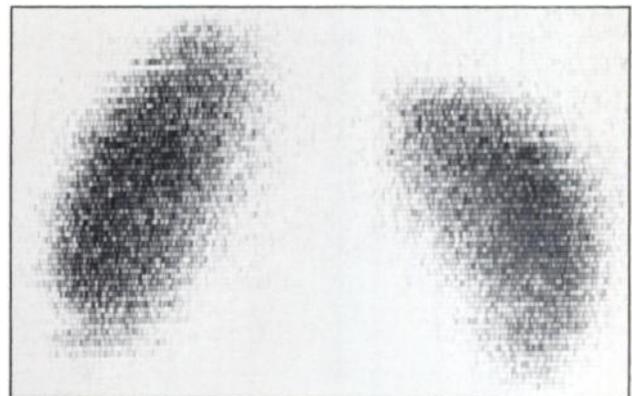
So, if you now contemplate the purchase of a scanner, find out what else those 3000 (plus) hospitals already know—and like—about their Magna Scanners.

The easiest way to do this is to speak to a Magna Scanner user or your local Picker representative. They're both easy to find. (Ask us also about our flexible lease plans.) Or write Picker, 595 Miner Road, Cleveland, Ohio 44143.

PICKER®



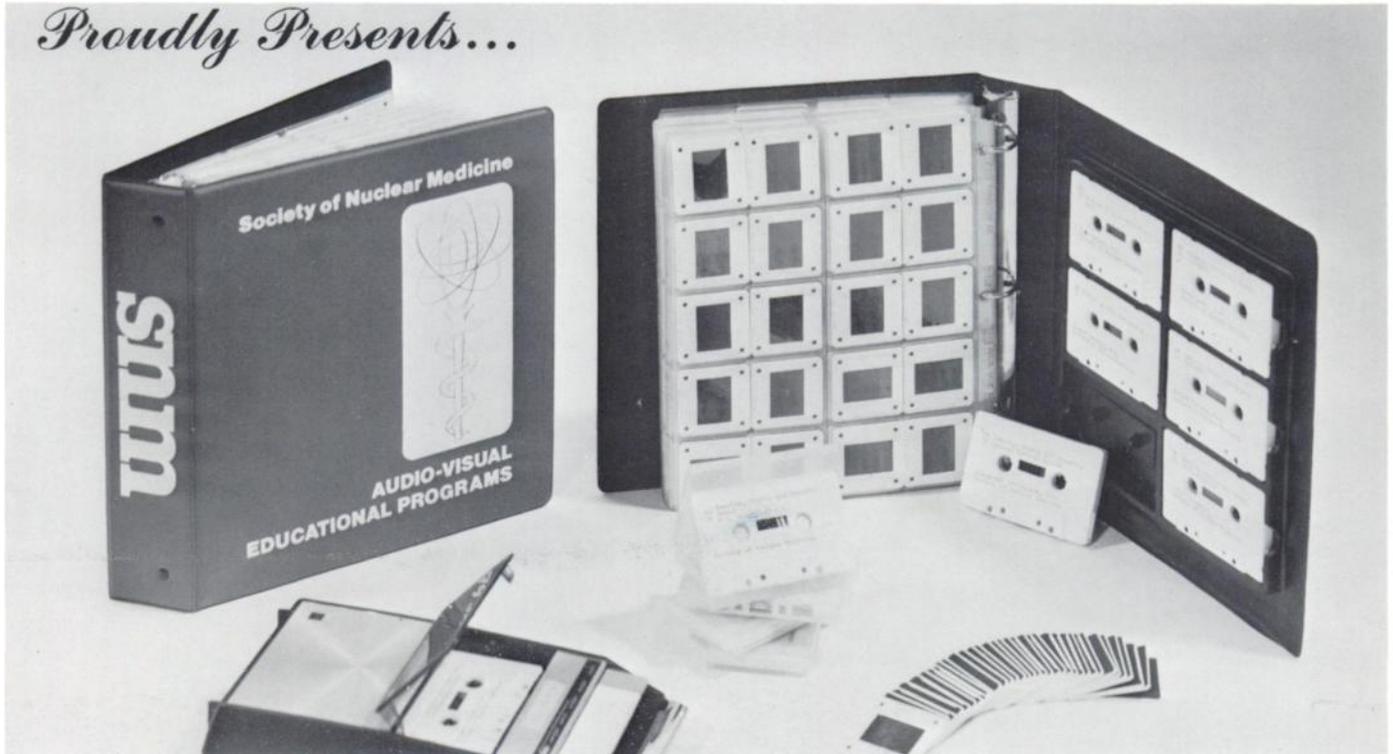
Anterior Liver Scan.
Dose—250 μCi ^{199}Au .
Line spacing—4 mm.
Scanning speed—150 cm/min.
Impression—normal.



Posterior Kidney Scan.
Dose—300 μCi ^{203}Hg . Line spacing—2 mm.
Scanning speed—250 cm/min.
Impression—possible cysts in both kidneys. Small area of diminished activity seen in central portion of lower pole in right kidney and two areas of diminished uptake in both upper poles and mid-portion in left kidney.

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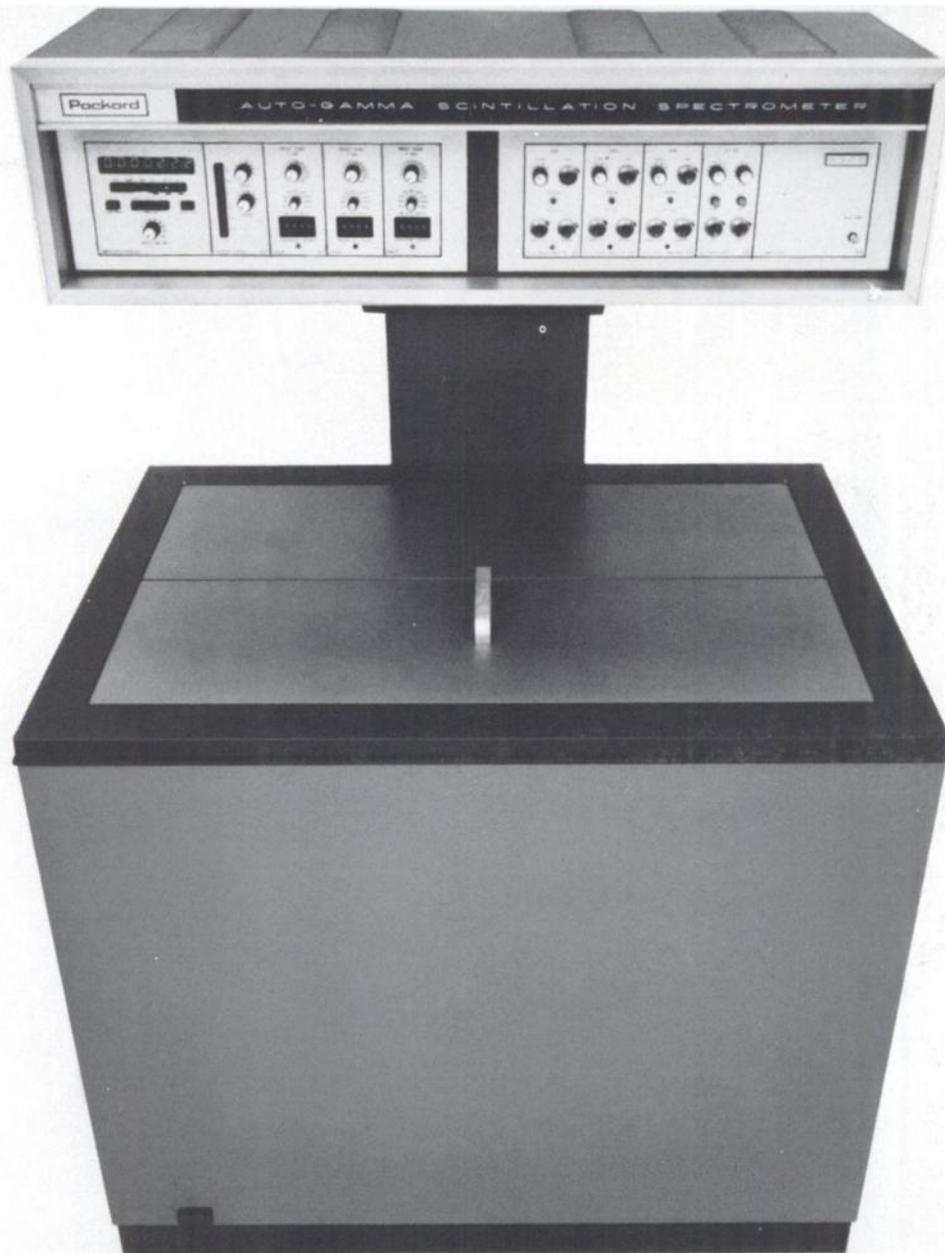
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Multi-imager system for

The complete sequence imaging system with built in physiological trigger functions.



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

scintillation cameras.

- Up to 36 frames of dynamic flow study recorded on 11" x 14" X-ray film
- Physiological trigger options permitting imaging of predetermined multiple phases of the respiratory or cardiac cycles in separate frames.
- Electronic frame advance without any moving mechanical components.
- Electronic frame advance dead time of less than 1/1,000th of a second.
- Variable automatic exposure time per frame of 0.1 second to 10 minutes.
- Compatible with all scintillation cameras.

Introduction

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

Dynamic flow study applications

The Multi-Imager System allows selection of 4, 16, or 36 frame format dynamic flow studies. The three formats vary in the size of the image being recorded and the maximum number of available frames:

frame format	maximum number of frames	frame size 11" x 14" X-ray film
4	4	3.5" diameter
16	16	2.0" diameter
36	36	1.3" diameter

The exposure time per frame is adjustable from 0.1 second to 10 minutes. The frame advance dead time of the system is less than 1/1,000th of a second. A remote foot operated start switch is also available.

Static study applications

A one frame format allows recording of a life size 10" diameter image on 11" x 14" X-ray film. In addition, the dynamic flow study frame formats can be operated manually, advancing the frame after each view is recorded.

In the 4 frame format four static views can be recorded on a single sheet of 11" x 14" X-ray film, each view image having a diameter of 3.5". In the 16 frame format a sixteen view bone study can be recorded on a single sheet of 11" x 14" X-ray film, each view image in the correct anatomical orientation, with a diameter of 2.0".

Physiological trigger accessories

Unlike a motorized camera, the Multi-Imager System can not only advance frames, but also return to re-expose frames. Physiological trigger accessories are available that allow synchronization of recorded data with the patient's cardiac or respiratory cycle.

The cardiac function system records the systolic image data in one frame and the diastolic image data in a second frame, alternating exposures between the two frames synchronous with the patient's cardiac cycle. The respiratory function system is useful to minimize respiration motion artifacts in liver and lung studies. Through use of a chest expansion transducer, one frame records the inspiration plateau image data, the second frame records the expiration plateau image data, and the third frame records the image data between the two plateaus. The exposures are cycled through the three frames synchronous with the patient's respiratory cycle. With both physiological trigger accessories, all the available image data is recorded, separated into frames corresponding to phases of the cardiac or respiratory cycle.

Photographic recording options

An 11" x 14" format X-ray film camera and a 4" x 5" format scope camera are available for use with the Multi-Imager System.



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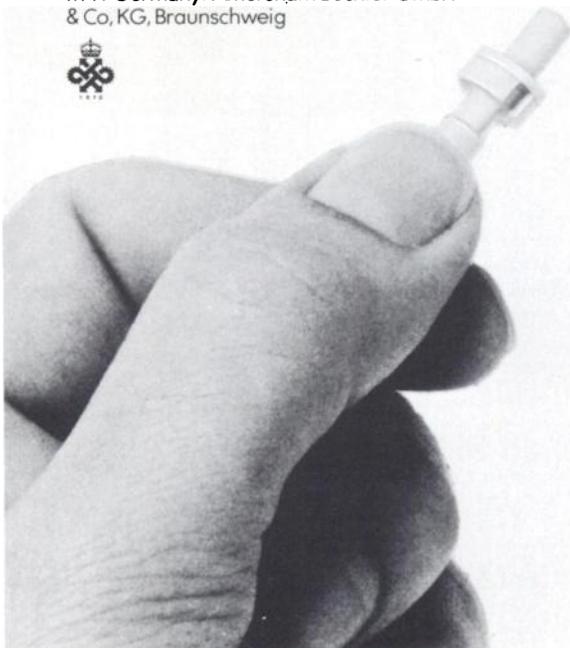
Our second thought was to make it even simpler and safer.

You can now insert the input and output assemblies without removing the lead end plugs or dismantling the lead shielding. Like this:
You'll like it.



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Only Clincom is specifically designed to improve on the image of the world's most experienced scintillation camera. Clincom is fully compatible with Pho/Gamma—forming an integrated unit of unprecedented versatility in data storage, playback, and manipulation at the push of a button. It includes many "firsts"—in both today's and tomorrow's nuclear medicine procedures—to aid the physician in his particular diagnosis. To name a few Clincom enhancements of Pho/Gamma . . .

Simplified Acquisition—Mounted on top of Pho/Gamma's console, the Acquisition Panel easily facilitates camera/Clincom control by the technician. All operating parameters including date, patient identification number, collimator used, framing rates, and patient orientation are

pushbutton selected. Furthermore, the acquisition of data begins when the Pho/Gamma's "Start" button is activated.

Image Processing—All processing controls are located on the Physician's Viewing Console. The Analysis Scope displays either current data being received from Pho/Gamma, or stored images developed from Clincom's wide-ranging diagnostic procedures. The Text Scope continuously logs (in everyday clinical language) all information on the desired study. Both the processed image and the text may be photographed with a synchronized camera for storage in patient records.

Permanent Storage—Data is stored on the master tape and later may be transferred to cartridge tape for inexpensive, long-term storage. Self-checking features are incorporated to prevent unintentional data erasure.

"Powerful" Software—Clincom will remember, with the help of the "Capture Procedure" pushbutton, an entire sequence of data operations. A program thus generated is simply recalled with fingertip control. In addition, Clincom offers a wide range of on-line and off-line programs for future research and clinical needs.

Remote Viewing—Clincom can be placed up to 200 feet from the Pho/Gamma Console. This allows the physician to process studies in any area removed from the patient's presence.

Clincom . . . the image processing system for Pho/Gamma. Find out how Clincom can specifically meet your clinical and diagnostic needs. Contact your Searle Radiographics (formerly Nuclear-Chicago) sales engineer, or write to us for your free brochure.

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additional modules may be added at any time. Updating is simple and economical.

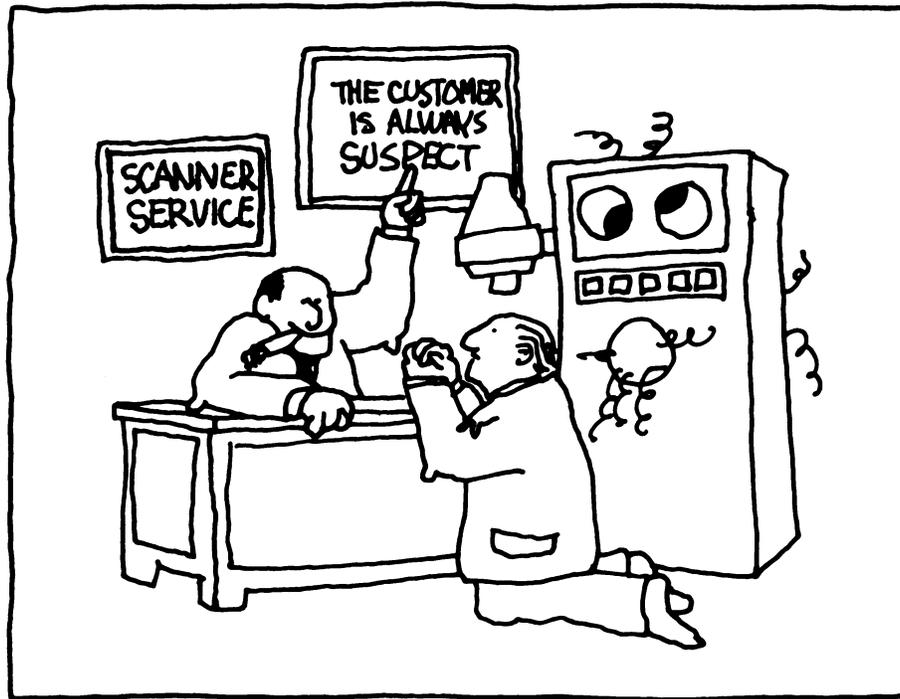
And as if all of this were not enough, RADX recognizes that a day without your Mark V is like a day without sunshine. If during the warranty period, your Mark V does not perform within stated specifications, RADX will air express you a loaner to use while yours is being repaired—at no charge.

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When were you last on your knees?



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Graphic is a versatile and rugged instrument. But let's face it; even the best equipment eventually needs service. The speed and thoroughness with which your supplier responds is your most important consideration.

Frankly, we don't expect too many calls telling us the Graphic is "down". The Graphic scanner is rugged and reliable. We even provide our normal warranty for mobile use. It's not one of those complex units that spends more time with a service

engineer than it spends with your patients. You handle more patients in less time with the easy-to-operate Graphic scanner.

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The DI 800 Triaxial Table: The total performance imaging table

Ultimately, it had to happen . . . a table that matches the high diagnostic aims of Nuclear Medicine. When you consider the high cost and sophistication of imaging equipment, partially adequate tables seem slightly incongruous. Long needed was a stable platform with movement capabilities that maximized patient comfort, facilitated patient handling and access, and was easy to operate. Above all, the table would have to allow a precise control of the patient's position so that the entire organ of interest

could be encompassed within the limited field of view of the detector. Result: The DI 800 Triaxial Table.

The DI 800 offers continuous height adjustment. Hence, easy patient transfer (whatever the height of the conveyance vehicle) onto either side of our table because of its flush edges. All four wheels lock from two controls. For final precise positioning the DI 800 has long axis adjustment of 18 inches in the horizontal plane. Most important, the top is tiltable, head up or head down. This means

greater patient comfort. More, it will permit oblique imaging. Example: tilting will permit cephalad displacement of the liver for improved pancreas imaging. With its open under carriage, overhanging adjustable head rest and 1/4 inch lucite top, the DI 800 offers an unobstructed view of the patient—above, below, either side and vertex. That's total performance.

Dunn Instruments

1335 Columbus Avenue, San Francisco, Ca. 94133 / Phone (415) 776-7033



Price increase of \$200 effective November 15, 1973.

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All Micromedic Systems liquid delivery instruments offer: ■

- Repeatability of 0.5% C.V. or better.
- Continuous micrometer volume adjustment from 0 to 100% of pump capacity.

Automated Pipetting Station ■

- Eliminates manual effort in RIA.
- Offers exclusive Slurry Dispenser that automates separations using charcoal and other slurries.

MS 2 Spectrophotometer ▲

- Twin 17 ul cuvettes.
- Two seconds from feed to read.
- Stable: drift less than 0.001A per day.
- Repeatable: $\pm 0.001A$ or better.

Automatic Gamma Counter ●

- Eliminates tube handling by using standard MSI racks.
- 588-tube capacity.
- Multiple-user operation: each of 3 trays can be independently programmed . . . even for isotope selection.
- Interruption of automatic mode for manual counting without loss of index.
- Automatic shutdown.

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Literature only _____

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- Automated Pipetting Station
- MS 2 Spectrophotometer
- Automatic Gamma Counter

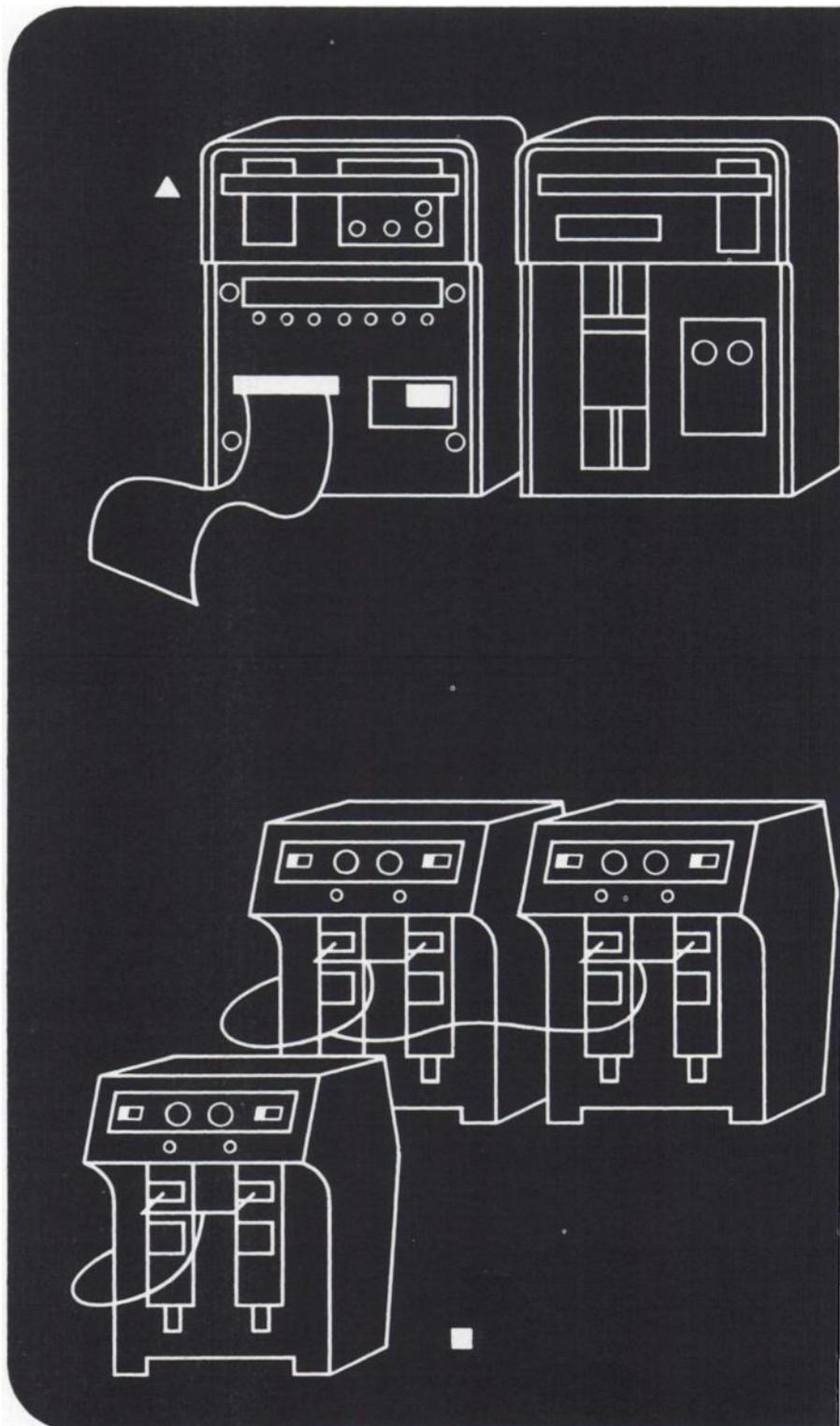
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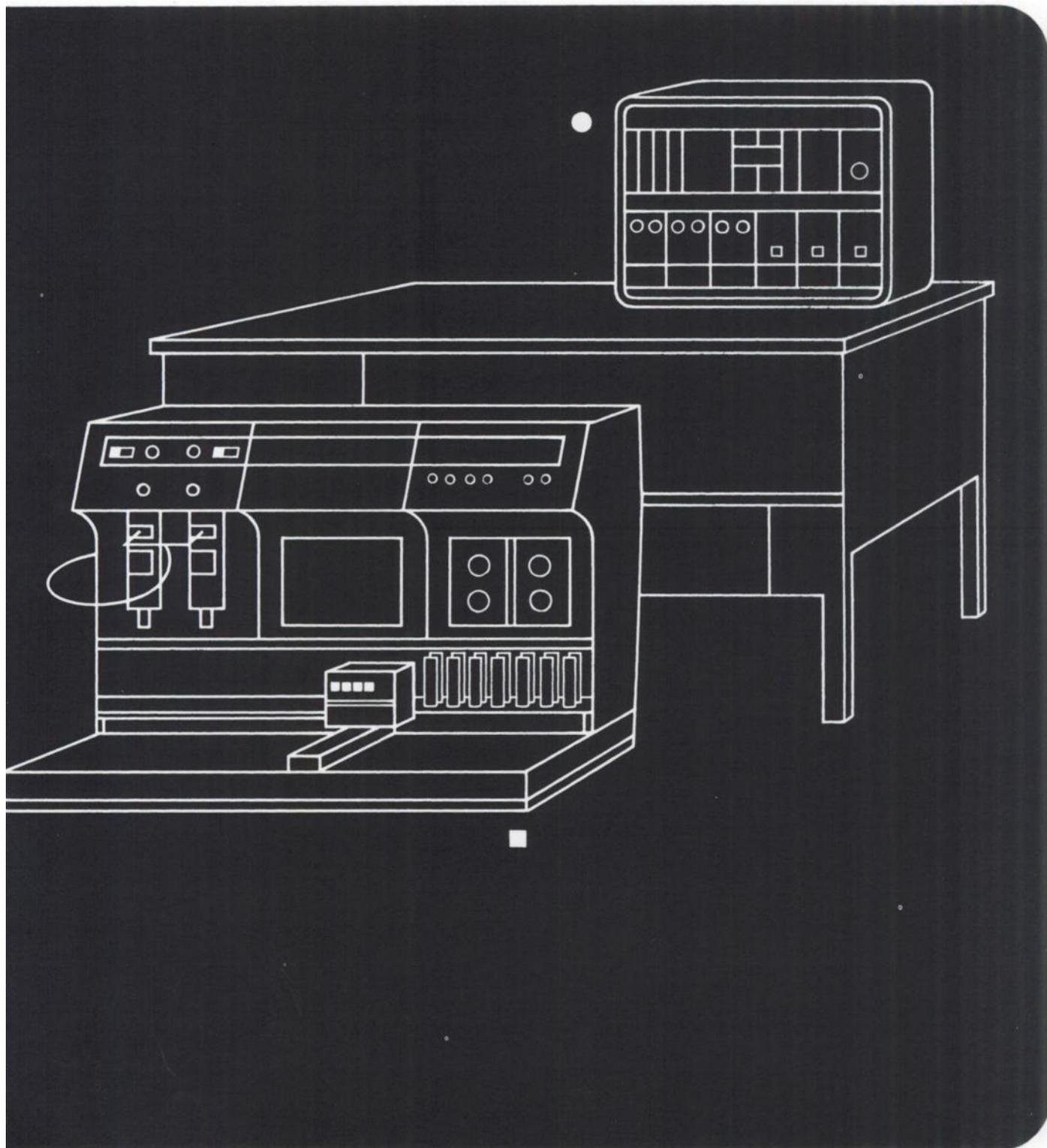
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When you spend \$20,000 for a DataSystem, what should you be getting?



DataSystem

Resolution. All three modes are built in and operator selected.

- 128 x 120 (16K) matrix (8 bits deep), or
- 64 x 60 (4K) matrix fields (12 bits deep), or
- 32 x 30 (1K) matrix fields (12 bits deep).

Fast Framing. Dynamic studies are recorded as follows:

Speed	Resolution
16 frames/sec	32 x 30 (1K)
5 frames/sec	64 x 60 (4K)
1 frame/sec	128 x 120 (16K)

Available options provide:

39 frames/sec	32 x 30 (1K)
13 frames/sec	64 x 60 (4K)
3 frames/sec	128 x 120 (16K)

Digital Computer Compatibility. Nine track 800 bpi magnetic tape.

Isometric Displays. View isometrics, profile histograms, and isotope uptake at camera console.

Contrast Enhancement/Background Erase

Regions of Interest. Two—rectangular. Operator selects size and position. Counts read out on display, along with area.

Display. Non-flickering interactive display continually refreshed from core memory.



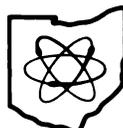
Alphanumeric Display. Patient study number always displayed on left of image. Six digit time of storage (in hundredths of a second) and dynamic study frame number displayed on right; or six digit count and four digit

area within an area of interest (or the total count of the area) can be displayed on the right.

Slices. Two slices along either the X or Y axis can be defined independently, & observed on the isometric view.

Options Available. Black and White video displays, 9" and 14" diagonal, with 64 shades of gray, flicker free; Isometric display, 14" and 5" diagonal, sixteen shades of green; Color display, 12" diagonal, 16 or 8 colors, switch selectable; Color and B&W simultaneous display; Field uniformity correction; Statistical Smoothing; Chart Recorder for plot of profiles set by slices, or plot of dynamic study count versus time; Fast Framing Tape; Added Memory; 16 Extended Rectangular Areas; Irregular Areas; Interfaces; B&W or Color Polaroid Capability.

Want More Information? Write for our DataSystem brochure and our Product Bulletin — Series 150 DataSystem Description. Visit an installation . . . we'll arrange it. And talk to us. We have something better. The complete DataSystem. From Ohio-Nuclear.

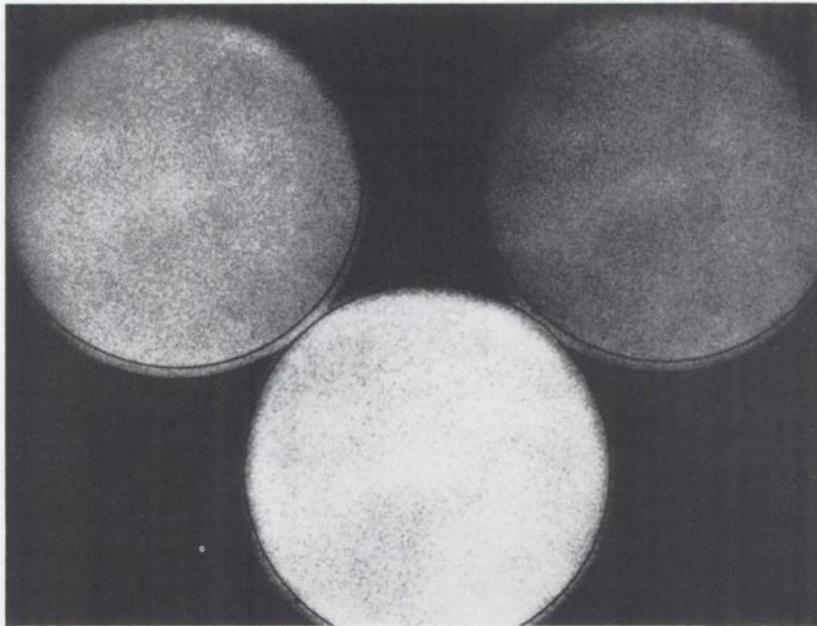


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Diagnosis: Diseased organ? Sick Camera?



The difference is critical. The image above shows the result of unbalanced photomultipliers which might necessitate a repeat scan. NEN flood sources provide a clean and efficient method of daily camera check which can easily be performed by a technician.

They are solid, flat, light discs, 13.5" in diameter — precision made to provide uniform radiation over the entire surface ($\pm 5\%$ or better). The flood

test is made with the camera collimator in place. No liquids to mix, spill, or dispose of.

The NEN flood source (1 mCi ^{57}Co) provides a radiation level that floods without saturation. Effective life of this source, two years.

New England Nuclear is the expert in calibration sources for nuclear medicine. Just ask, and we'll send you a comprehensive summary of our flood sources and other products for instrument calibration.

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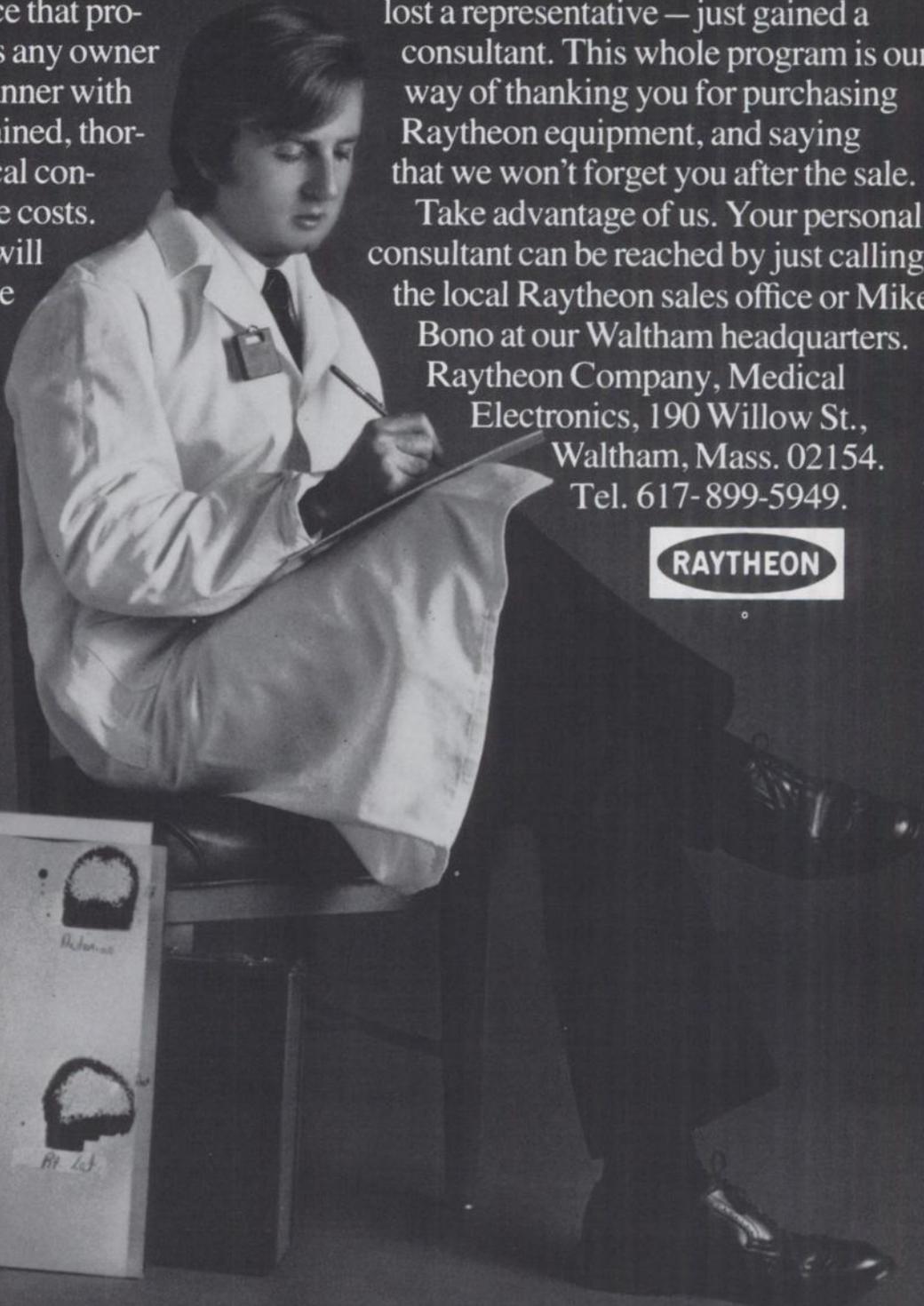
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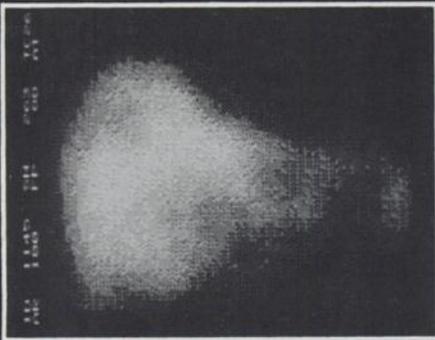
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RAYTHEON

Statics



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



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

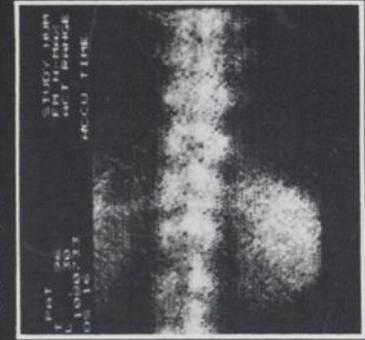


Abnormal Liver Scan — ant. view
Study Time — 320 sec.
Isotope — 2mCi ^{99m}Tc
Total Counts — 445,502

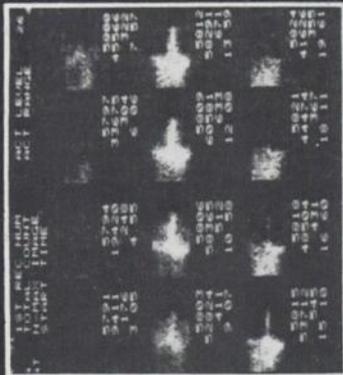


Brain-Bone Scan — left lat. view
(abnormal foci in the convexity and orbit)
Study Time — 240 sec.
Isotope — 6mCiTc Polyphosphate
Total Counts — 222,926

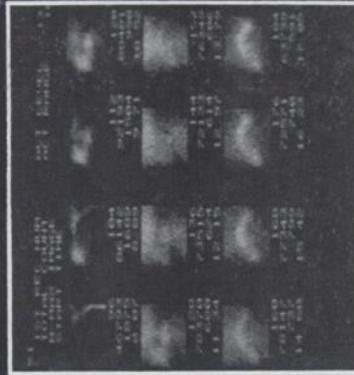
Normal Thoracic and Lumbar Spine Scan
— post. view
Study Time — 480 sec.
Isotope — 6mCiTc Polyphosphate
Total Counts — 1,000,733



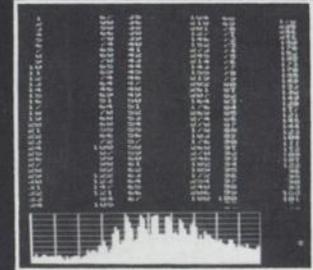
Dynamics



Abnormal Cerebral Blood Flow —
post. view
(decreased perfusion left cervical area)
Accumulation Interval — 0.5 sec.
Display Interval — 2 sec.
Peak Counts per sec. — 17,283
Isotope — 15mCi $^{99m}\text{TcO}_4^-$



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



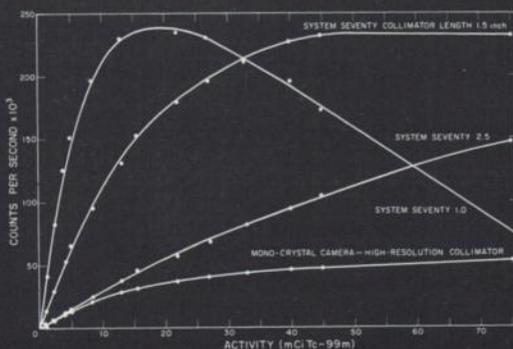
Normal Left Ventricular Quantitative
Histogram

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

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

Note — definition of sinus rhythm of left
heart.

Performance



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

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

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

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

System Seventy Or...

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

Diagnostic Superiority

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

Operation Simplicity

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

New Standard!

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

No ONE of these terms really describes SYSTEM SEVENTY.

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

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

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

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

work and realizing the technically superior results.

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



BAIRD-ATOMIC

Nuclear Division, 125 Middlesex Turnpike,
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Searle Radiographics. We do more gamma imaging than anyone in the world.



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

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

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

SEARLE

Searle Radiographics Inc.

(Formerly Nuclear-Chicago)
Subsidiary of G. D. Searle & Co.
2000 Nuclear Drive
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