

# **The T-7 Value minimizes misleading thyroid results**

Pregnancy, oral contraceptives, estrogens, etc., can produce misleading results by falsely listing euthyroids in either the hypothyroid or hyperthyroid range if only one test is used to determine thyroid function.

"No single laboratory test of thyroid function is diagnostically perfect for all patients."\*

What's more, patients may knowingly or unknowingly give a false history. To prevent this, schedule both a T-3 test (Triosorb) and a T-4 test (Tetrasorb), which supplies the T-7 Value ( $T_3 \times T_4$ ) — a highly reliable result:

- When both test values are decreased, the patient is usually hypothyroid.
- When both test values are increased, the patient is usually hyperthyroid.
- When both test values are normal, the patient is usually euthyroid.
- When a patient is on oral contraceptives or is pregnant, the test values move in opposite directions.

Millions of Triosorb tests have been performed over the past 7 years and today it is considered the standard of T-3 tests.

Tetrasorb is the first diagnostic kit offering a direct measurement of thyroid function by determining serum thyroxine.

Both Triosorb and Tetrasorb are *in vitro* tests providing accuracy, speed and convenience. They are available in disposable kits ready for use.

By multiplying the results of both tests, you arrive at the T-7 Value—a new level of confidence in thyroid diagnosis.

\*Gold, A., Appl. Ther., 9:599, 1967.



**ABBOTT LABORATORIES**  
**North Chicago, Illinois 60064**  
**World's Leading Supplier of**  
**Radio-Pharmaceuticals**

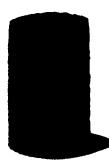
Vertretung für Europa: Labor-Service GmbH, Abt. Radiopharmazeutika, 6236 Eschborn/Ts, Germany, Postfach 1245

$$T_3 \times T_4 = T-7 \text{ Value}$$



**TRIOSORB®-131 or  
TRIOSORB-125**

T-3 Diagnostic Kit

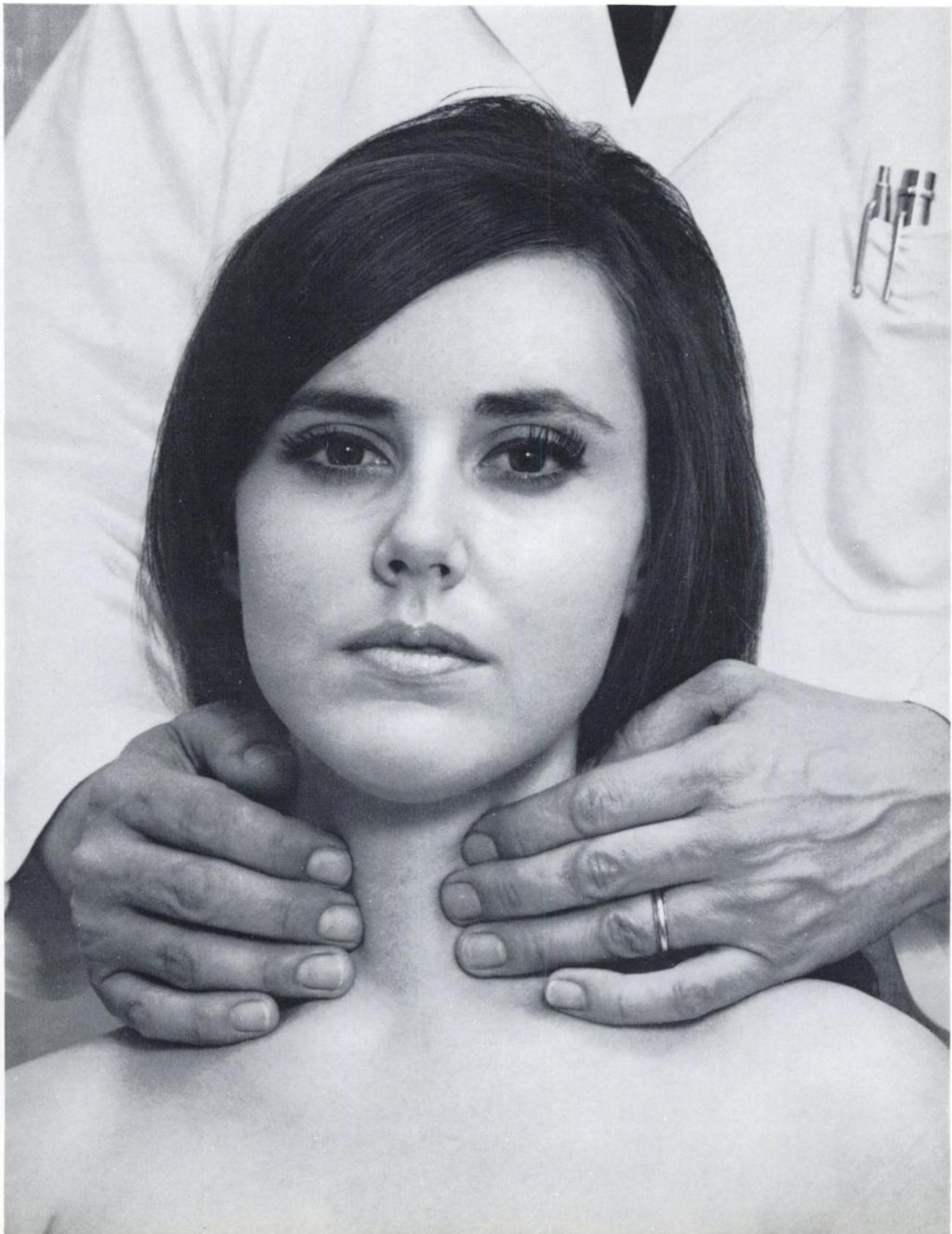


**TETRASORB®-  
125**

T-4 Diagnostic Kit

001187

# **Thyroid dysfunction? Pregnant? On the “pill”?**





**NEW! This is the pair to see**

## **Announcing COLLOKIT™ KIT FOR TECHNETIUM SULFIDE Tc 99m**

Collokit is a "cold" kit that can be stored without refrigeration until you're ready to use it. Then, following directions, it takes just minutes to prepare a sterile, non-pyro- genic colloidal solution of Technetium Sul- fide Tc 99m. Collokit offers many advan- tages:

- **Simplicity** (ease of handling)
- **Mannitol stabilizer** (patent pending)

- **Economy** (less cost than ready-made products)

- **Convenience** (individual units, each with all of the components for a day's use)

Collokit is specifically designed for use with Pertgen-99m. It is not recommended for systems with eluates containing oxidizing agents (such as sodium hypochlorite).

## **PERTGEN®-99m TECHNETIUM Tc 99M GENERATOR KIT**

**Fractional elutions** — the exclusive Abbott Metering Unit permits fractional elutions of the Pertgen-99m Generator allowing the preparation of high assay material using Collokit.

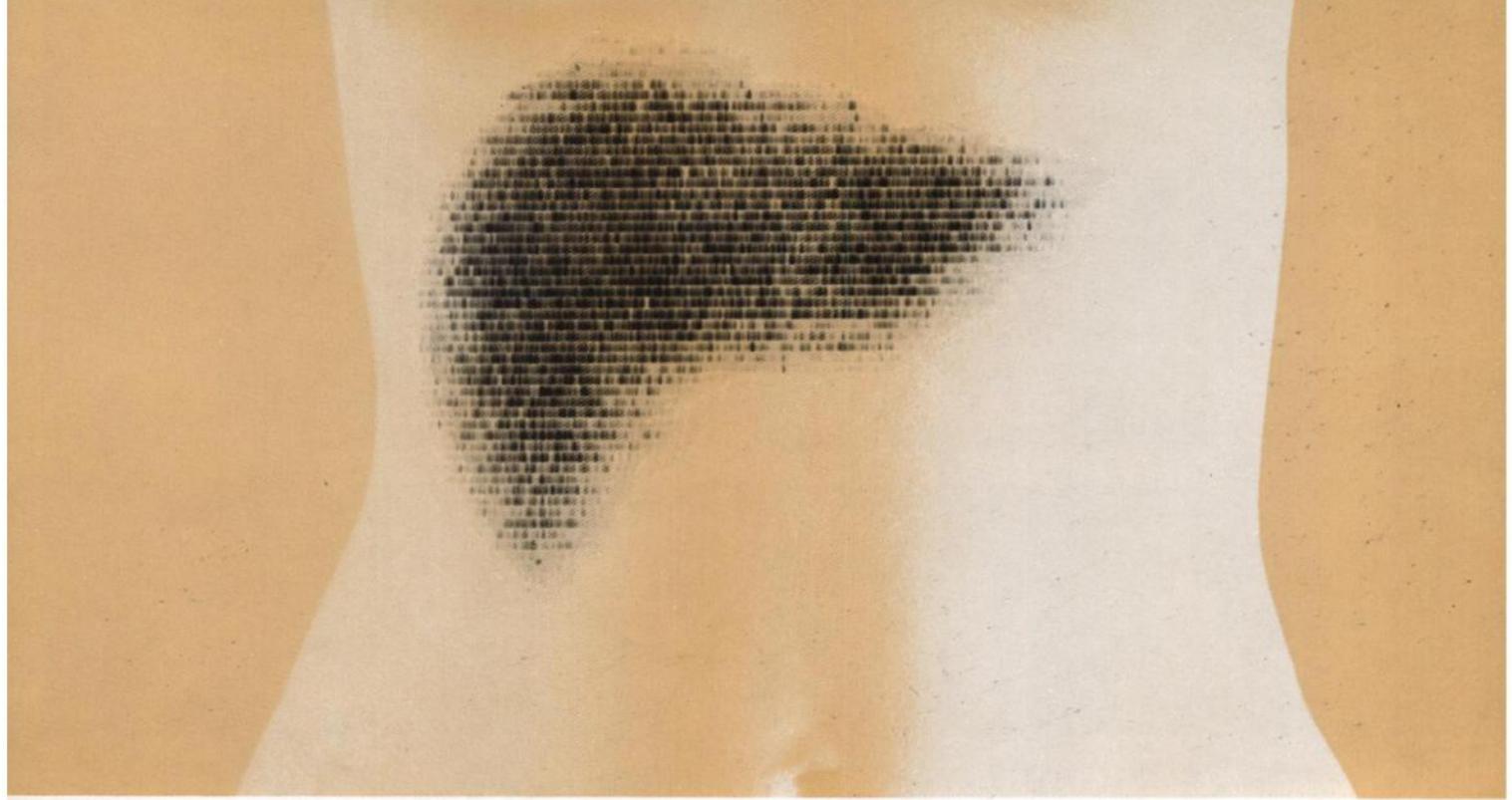
**Safety** — the protection afforded by the unique Rayshield™ (shown underneath the Pertgen-99m Generator), means that Pertgen-99m can be used on the lab bench —there's no need to hide this system behind

the bricks!

**Choice of calibration** — to best fit your needs, you can now order Pertgen-99m shipped on the weekend calibrated for Wednesday or Pertgen-99m shipped on Thursday calibrated for Tuesday.

**Collokit and the consistent and high yields of Pertgen-99 eluates provide an unbeatable combination!**

TM—Trademark.



# **when you want to "see" the liver!**

## **TECHNETIUM SULFIDE Tc 99m**

**Indications:** For direct visualization of the liver and spleen.

**Warnings:** Radio-pharmaceutical agents should not be administered to pregnant or lactating women, or to persons less than 18 years old, unless the information to be gained outweighs the hazards. Radio-pharmaceuticals should be used only by physicians who are qualified by specific training approved by an individual agency or institution already licensed in the use of radio-isotopes.

**Precautions:** Care should be taken to ensure minimum radiation exposure to the patient as well as to all personnel. Although there have been no untoward reactions reported from the use of mannitol stabilized colloid, physicians administering this agent should be prepared to institute emergency resuscitation in the event of an anaphylactoid reaction. The absence of a

lesion in the scan does not necessarily rule out its existence.

### **COLLOKIT**

(KIT FOR TECHNETIUM SULFIDE Tc 99M)

**How Supplied:** Package of 6 units, each containing:

Vial 1: Sterile Thiosulfate—Mannitol Solution, 1 ml. Each ml. contains Mannitol 100 mg. and sodium thiosulfate 2.0 mg.

Vial 2: Sterile Hydrochloric Acid 0.25 N, 1 ml.

Vial 3: Sterile Buffer Solution, 2 ml. Each ml. contains potassium biphosphate 40.8 mg., sodium hydroxide 5 mg., and disodium edetate 1 mg. And accessory equipment.

### **PERTGEN-99m**

(TECHNETIUM Tc 99M GENERATOR KIT)

**How Supplied:** 50, 100, or 200 millicurie generators, and accessory equipment.

007221



### **ABBOTT LABORATORIES**

North Chicago, Illinois 60064

### **World's Leading Supplier of Radio-Pharmaceuticals**

Vertretung für Europa: Labor-Service GmbH, Abt. Radiopharmazie, 6236 Eschborn/Ts, Germany, Postfach 1245

## **CHARCOAT T-3. No fuss, no muss, no multiple pipetting or rinsing.**

You don't even have to throw in a sponge. □ What's more, CHARCOAT T-3 tests take only thirty minutes — start to finish — without complicated setups. You do everything in one little two-part vial. □ Merely pipette 0.5 ml of patient serum into each test vial, invert, incubate, centrifuge, and count the supernatant. □ But don't take our word for how simple and economical CHARCOAT T-3 kits are. Put one to



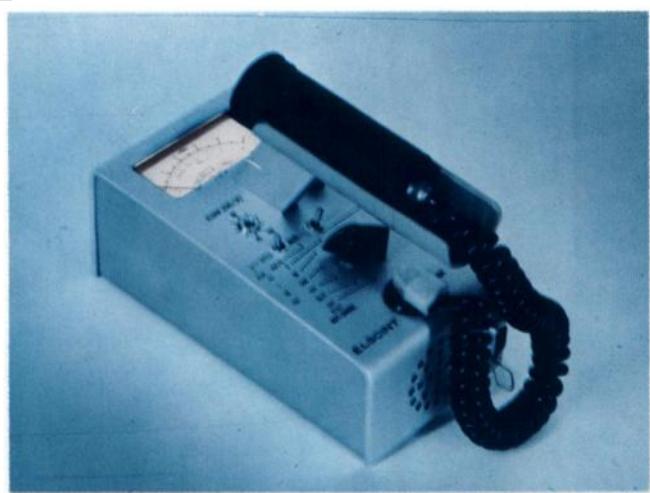
the test. A standard kit (13 test vials) is only \$20, and just a phone call away. Moreover, the extra long shelf-life of the CHARCOAT T-3 test kit makes quantity discount purchases practical. □ Ask about our Automatic T-3 Computer. Easy to use—no calculations. \$1680 sale or lease.



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Nuclear Corp.

NEN Pharmaceutical Division  
575 Albany Street, Boston, Mass. 02118  
Telephone (617) 426-7311 Telex 094-6582

# MONITORING PROBLEMS ? ELSCINT HAS ALL THE ANSWERS

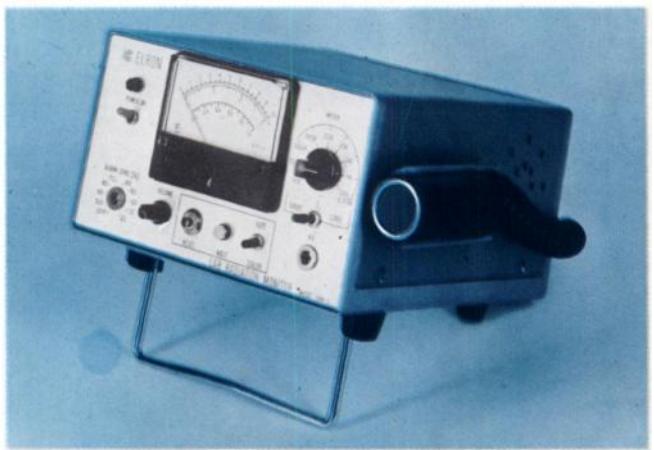
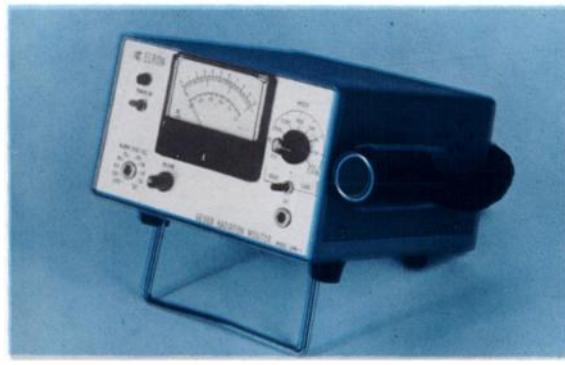


INTEGRATING SURVEY METER MODEL GSM-2 performs similar functions to Model GSM-1, but in addition also indicates the total radiation in rads, accumulated during the survey time. An adjustable preset alarm level activates a warning signal when the predetermined integrated level is reached. It is equipped with rechargeable batteries.



▲ GEIGER SURVEY METER MODEL GSM-1 is portable, battery operated and equipped for detection of  $\alpha$ ,  $\beta$ ,  $\gamma$  or X-ray radiation. It is energy independent (up to 20%) in the range 60 KeV to 1.3 MeV, while its internal loudspeaker eliminates the need for earphones. The probes of both this version and Model GSM-2 can operate on cables of up to 50 M (160 ft) long.

RADIATION MONITOR MODEL GRM-1 is used with a wide variety of Geiger tubes or with scintillation detectors for investigation of body and instrument contamination. An adjustable preset alarm control triggers an audible signal when predetermined radiation levels are exceeded.



▲ RADIATION MONITOR MODEL LRM-1 is similar to Model GRM-1 but has in addition a "SCALER" mode, in which it presents a reading of the accumulated counts during one minute.

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**ELRON INC.**

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With this new program your radiopharmaceutical needs are anticipated with a regular supply schedule, so you won't be caught short or left waiting. The Nuclematic Program is automatic.

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\*DuPont trademark.



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## Lung scanning?

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

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

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

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

**WARNINGS:** Radio-pharmaceutical agents should not be administered to pregnant or lactating women, or to persons less than 18 years old, unless the information to be gained outweighs the hazards. There is a theoretical hazard in acute cor pulmonale, because of the temporary small additional mechanical impediment

to pulmonary blood flow. The possibility of an immunological response to albumin should be kept in mind when serial scans are performed. If blood is withdrawn into a syringe containing the drug, the injection should be made without delay to avoid possible clot formation.

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

009249



## MACROSCAN®-131

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

**ABBOTT LABORATORIES** North Chicago, Illinois 60064

**World's Leading Supplier of Radio-Pharmaceuticals**

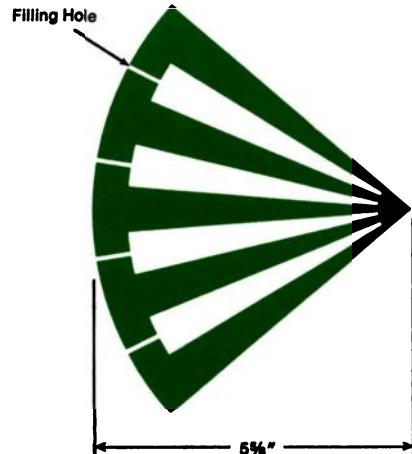
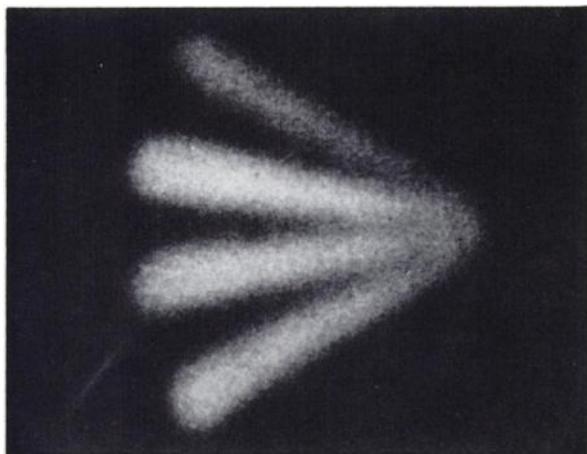
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AGGREGATED RADIO-IODINATED ( $^{131}\text{I}$ ) ALBUMIN (HUMAN)

# The Picker Dynacamera 2:

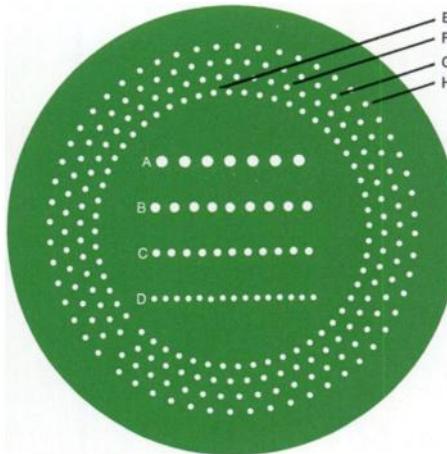
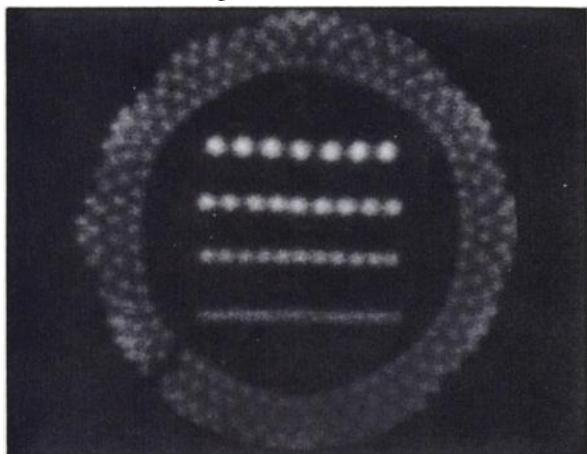
The scintillation camera with both high resolution and a large *undistorted* field of view:

## Resolution



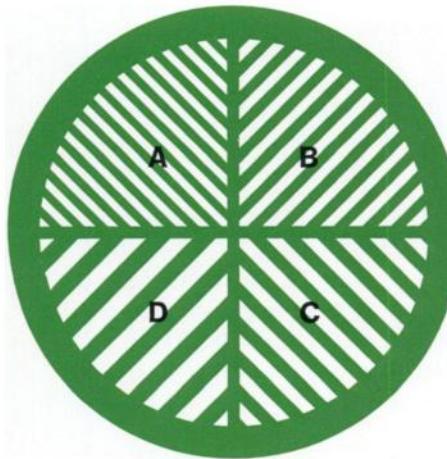
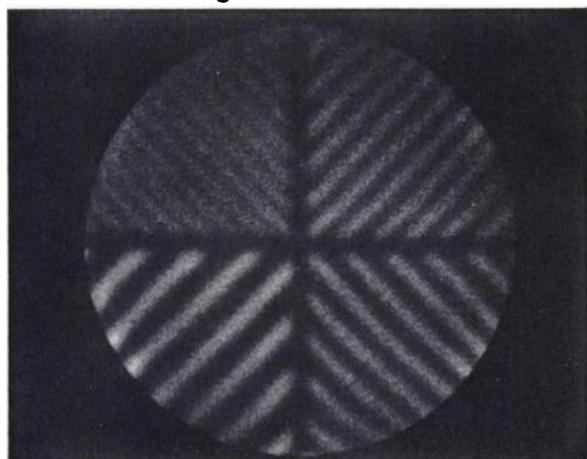
Phantom description: 3/8" thick lucite with four 1/8" thick radiating voids filled with activity.

## Resolution and large undistorted field of view



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

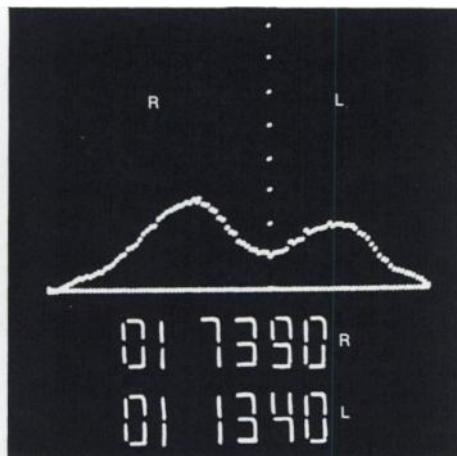
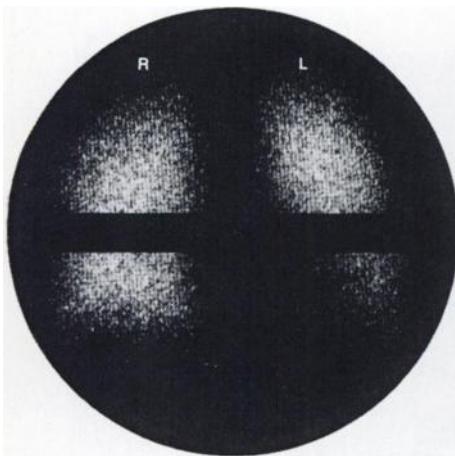
## Resolution and large undistorted field of view



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

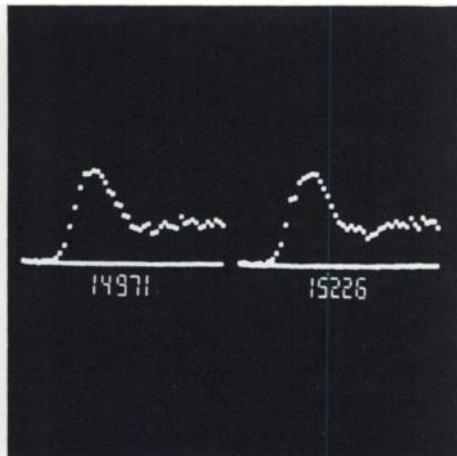
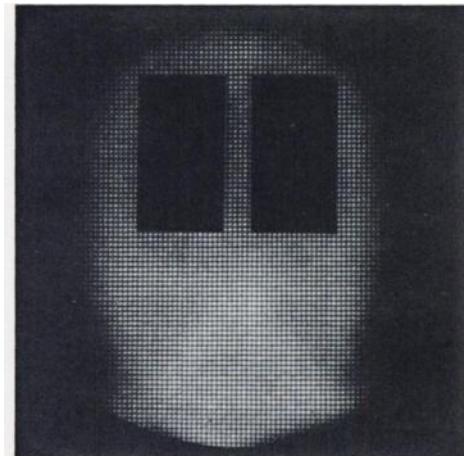
**The scintillation camera with more clinically useful and proven capabilities:**

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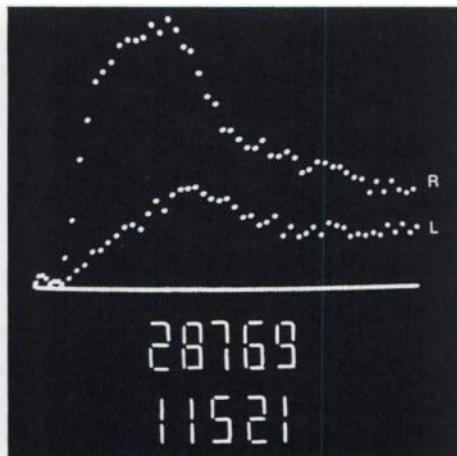
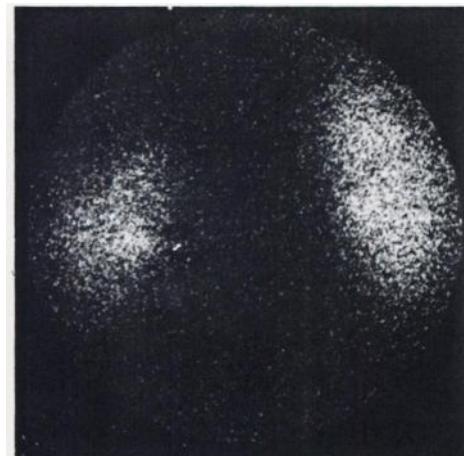
**Quantification of static studies  
(a built-in capability)**

Dynacamera 2 is the scintillation camera that provides both Scintigrams and the total count in an organ or any portion of it.



**Quantitative regions of interest  
(a built-in capability)**

Dynacamera 2 permits the selection of two regions of interest and simultaneously displays both count rate vs. time and total integrated counts in both regions.



**Quantitative dynamic studies  
(a built-in capability)**

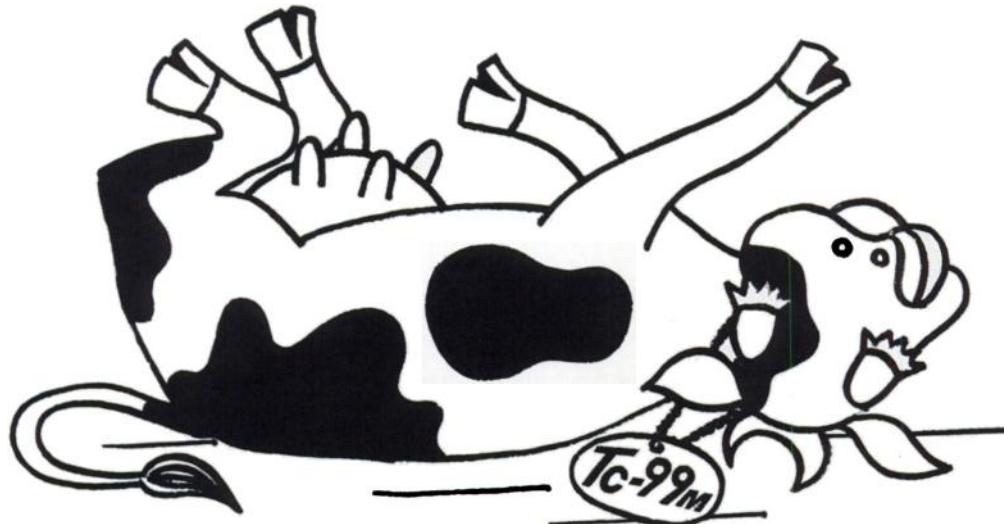
Dynacamera 2 performs quantitative dynamic function studies in selected regions without the need for modifications, accessory systems, or extra cost and produces digital histograms simultaneously for quantification of each discrete phase.

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

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# THE COW IS DEAD...



...MEKTec-99™

## **an Automatic Liquid-Liquid Extraction System for the Production of High Quality Technetium-99m, is Now Available to Those Hospital Isotope Units Now Using a Molybdenum Column Generator!**

**What is an automatic MEK or Liquid-Liquid Extraction System? Simply this!**

MEKTec-99 automatically measures and mixes Methyl Ethyl Ketone (MEK) in a shielded container with an aqueous solution containing Mo-99/Tc-99m. Phase separation is allowed to occur. The ketone layer containing Tc-99m is transferred automatically through an alumina adsorbent column and a sterilizing membrane filter to a sterile, pyrogen-free vial. The MEK is then automatically evaporated by MEK-Tec-99.

The sterile, pyrogen-free, carrier free Tc-99m is now ready for dilution with any aqueous media such as sodium chloride injection, to any desired volume, and for quick and easy processing into chemical

compounds such as technetium sulfur colloid and albumin.

The advantages of a MEK Extraction System have been known for some time. Indeed, several commercial suppliers of "instant technetium" and several hospital units have been using this method, but on a time consuming manual basis.

In terms of **QUALITY**, highlighted by the far lower molybdenum and alumina levels in the product, **COST**, indicated by the weekly savings, and **CONVENIENCE** of a completely automated extraction system, the MEKTec-99 Automatic Extraction System is far superior to the now outmoded generator (cow).

**CALIFORNIA RADIOCHEMICALS, INC.  
ANNOUNCES:**

## **MEKTec-99™**

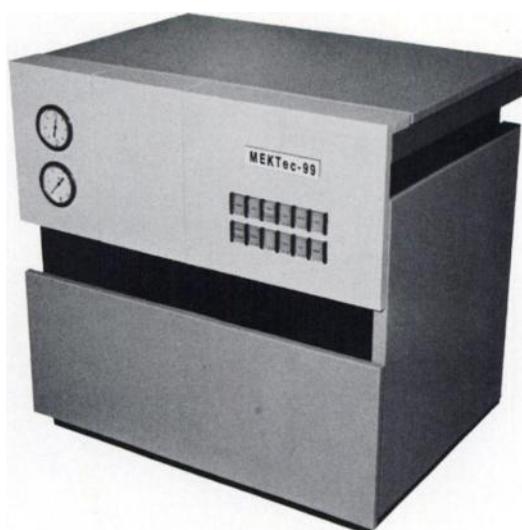
**A Completely Automated Liquid-Liquid Extraction System for the Production of Tc-99m. "All Molybdenum Column Generators Are Now Obsolete!"**

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consistent, high technetium yields!

**CONCENTRATES . . .**  
technetium for any desired volume!

**REDUCES . . .**  
weekly cost below all Tc-99m generators!



<b>Mo-99 at Delivery</b>	<b>Tc-99m Yield (approximate)</b>	<b>*Cost/ Week</b>
200 mCi	160 mCi	\$120
400 mCi	320 mCi	155
600 mCi	480 mCi	205

Greater quantities available upon request.

\* Cost is based upon a one year service agreement, cancellable within the first 30 days, and includes sterile vials, filter cartridges, weekly shipments of Mo-99 and MEK, and use of a MEKTec-99 Automatic Extraction System.

Mo-99 is delivered Tuesday mornings throughout the U.S. with calibration for 12 Noon, Pacific Time. Weekly delivery and an initial nominal freight charge are extra.

### **OPERATING PROCEDURE**

1. Each week insert a fresh filter cartridge into the machine. Insert the transfer needle into the new shipment of Mo-99. The MEKTec-99 Extraction System will automatically transfer the Mo to the mixing reservoir which is shielded by 3½" of lead.
2. Initially set the MEKTec-99 clock to the time and to the days of the week for which the product is desired.

3. Set the MEKTec-99 Extractor to AUTO. Insert a sterile collecting vial and replenish the MEK supply. The product will automatically be delivered dry, within the sterile vial, at the time and on the days specified. The product is now ready for dilution as may be required.
4. For additional Tc-99m requirements set the control key to MANUAL and immediately initiate an extraction with a yield of approximately 70%.

To institute service or for additional details about the MEKTec-99 Automatic Liquid-Liquid Extraction System, contact your nearest sales agent office!



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**we wouldn't  
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alone!**

## **improved Albumotope®—LS**

**Aggregated Radio-Iodinated  
(I<sup>131</sup>) Albumin (Human) for  
Lung Scanning**

### **introduced by Squibb... improved by Squibb**

#### **■ Reduced Protein Content**

Squibb has reduced the amount of protein by 50% while maintaining good lung scans.

#### **■ Reduced Supernatant Activity**

Squibb has sharply reduced the amount of radioactivity in the supernatant, decreasing the possibility of liver interference with the lung scan.

#### **■ Reduced Unbound Iodine**

Squibb has substantially reduced the amount of unbound iodine 131, effectively reducing the problem of blood background radioactivity.

Albumotope—LS—a good example of Squibb leadership in radiopharmaceutical research and development. Some people won't leave "well enough" alone.

**Contraindications:** Radiopharmaceuticals should not be administered to pregnant women or to persons under the age of 18 years unless the indications are very exceptional. Because iodide is excreted in human milk, aggregated radioalbumin should not be administered to nursing mothers.

**Side Effects and Precautions:** There have been no reported cardiovascular or other untoward effects attributable to Albumotope—LS. Extensive clinical use of Albumotope—LS has not borne out the hypothetical possibility that particles of large size might induce deleterious cardiovascular or cerebrovascular effects. The product appears to possess no antigenic properties. One patient with a known history of angioneurotic edema, who had been given Lugol's solution in conjunction with aggregated radioalbumin similar to Albumotope—LS, developed urticaria.

For full prescribing information, see package insert.

**Available:** As a sterile, nonpyrogenic, aqueous suspension. Each cc. contains approximately 0.5 mg. aggregated human serum albumin labeled with iodine 131. Not less than 90% of the aggregates are between 10 and 90 microns and none are more than 150 microns in size. The preparation also contains 0.9% (w/v) benzyl alcohol as a preservative. The potency

**Medotopes\*** ranges from 250 to 450 micro-curies per cc. on date of assay.



**Squibb Division of Nuclear Medicine**  
New Brunswick, New Jersey 08903



## RADIOIMMUNOASSAY— the long and short of it

Radioimmunoassay offers one of the most sensitive methods available for testing in medicine. This is because it can be used to measure physiological levels of protein hormones in millimicrogram to micromicrogram quantities. But obstacles in developing antibodies (an essential part of the test) have limited the use of radioimmunoassays.

Now, Abbott has helped this situation by introducing a complete radioimmunoassay kit — HGH-125 Imusay Kit.

With this kit, the quantitative determi-

nation of human growth hormone in serum becomes a practical matter. Children, whose growth rates are suspect, can be checked for a hypopituitary or an acromegalic condition. Since this is an *in vitro* test, the child receives no radioactivity.

The HGH-125 Imusay Kit introduces tomorrow's diagnostic tools today — and this is only the beginning. Abbott is now working on additional radioimmunoassay kits for other hormones.



007225

TM—Trademark.

### HGH-125 IMUSAY™ Kit HGH IMMUNOASSAY KIT

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Behold the "mini-scan!" Makes possible whole body scans recorded 5-to-1, all on single, comprehensive, 14" x 17" sheets of film with no loss in diagnostic quality or detail, and a big gain in efficiency.

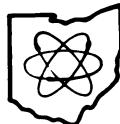
Ohio Nuclear series 84 radioisotope scanners equipped with this remarkable option, not only provide basic 1:1 scale recordings, but **2:1 and 5:1 minified recordings**. This avoids serial scan examination and consolidates diagnosis in a compact, more perceptible and uniform visual field.

5:1 rectilinear field reduction capability is equivalent to increasing count rate by a factor of 25, which in turn, affords the possibility for corresponding increases in scan speed per unit area of examination.

Think about "mini-scan" next time you have to piece together two or five pieces of film for a comprehensive analysis.

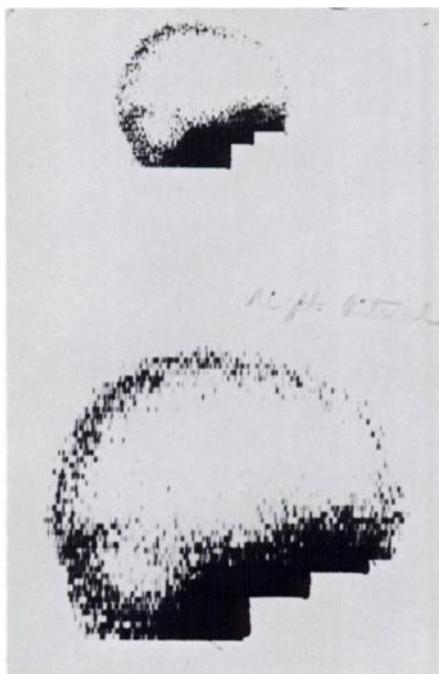
Full descriptive brochures available on the versatile 84 and compact 76 scanners.

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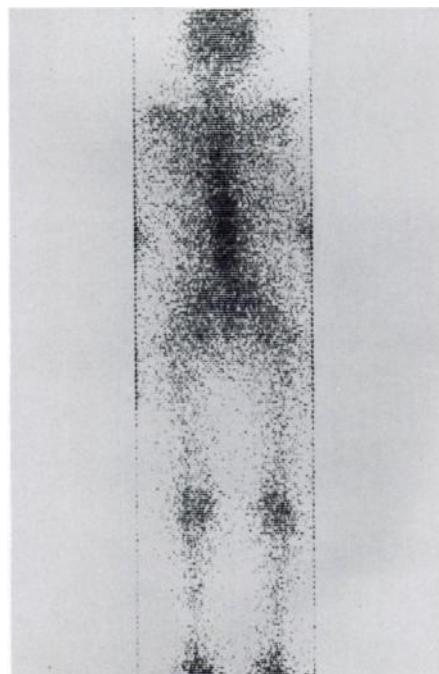


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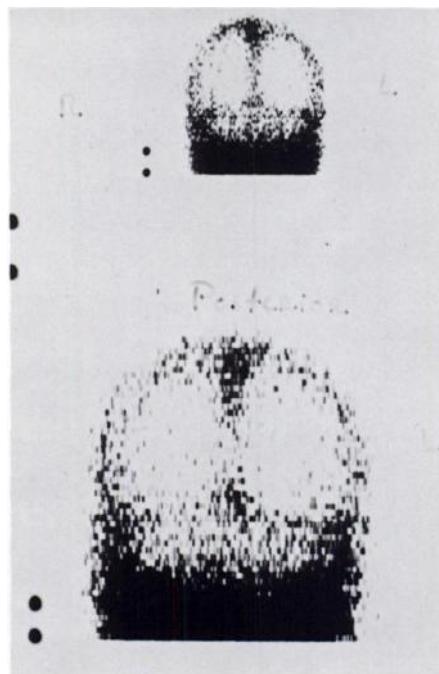
# think scan minification



Brain scan:  
1:1 and 2:1 right lateral.  
Contrast enhancement 60%.  
Typical speeds 250 to 350 cm/min.



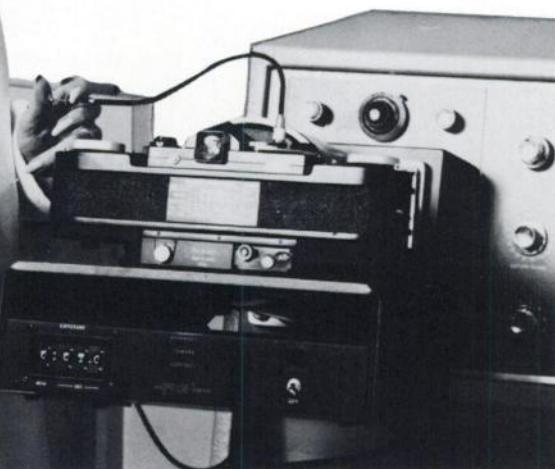
Whole-body bone scan:  
Typical speeds 400 to 700 cm/min.



Brain scan:  
1:1 and 2:1 posterior—anterior.  
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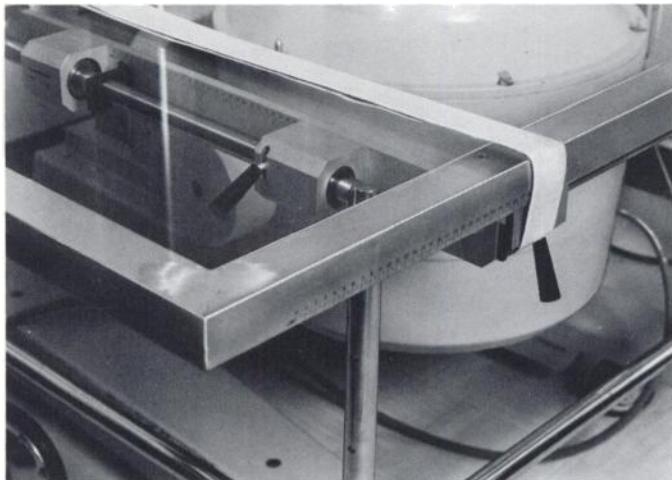
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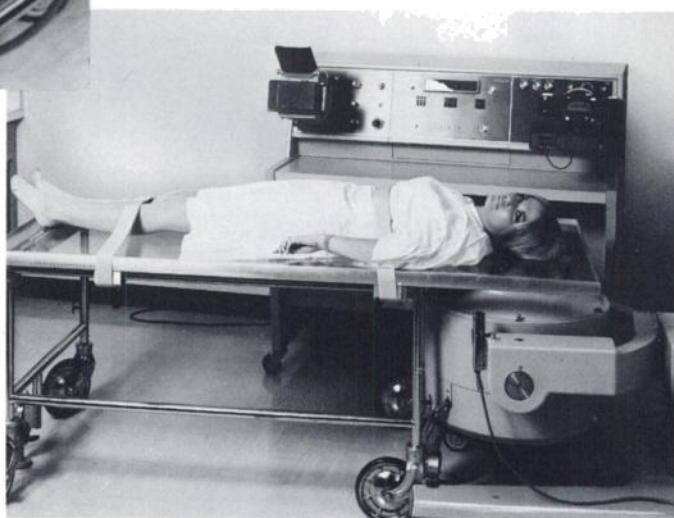
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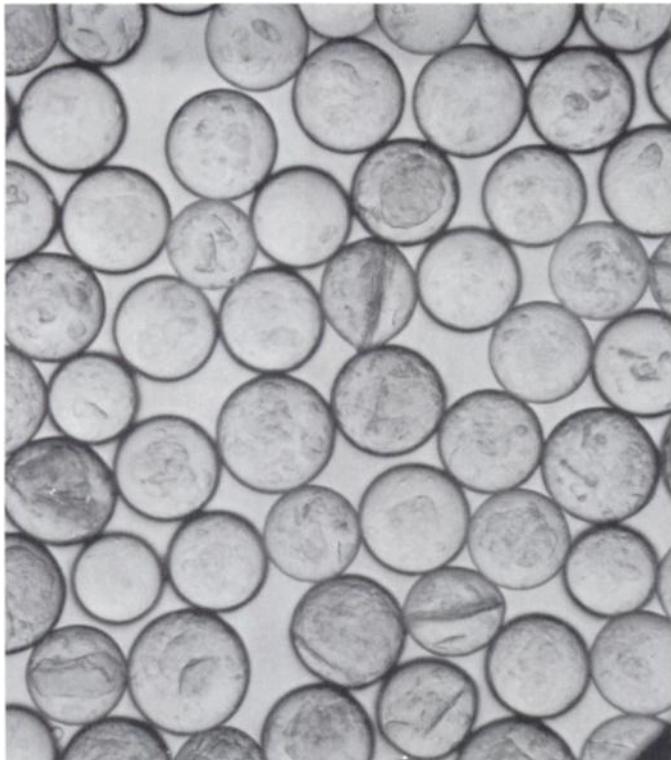


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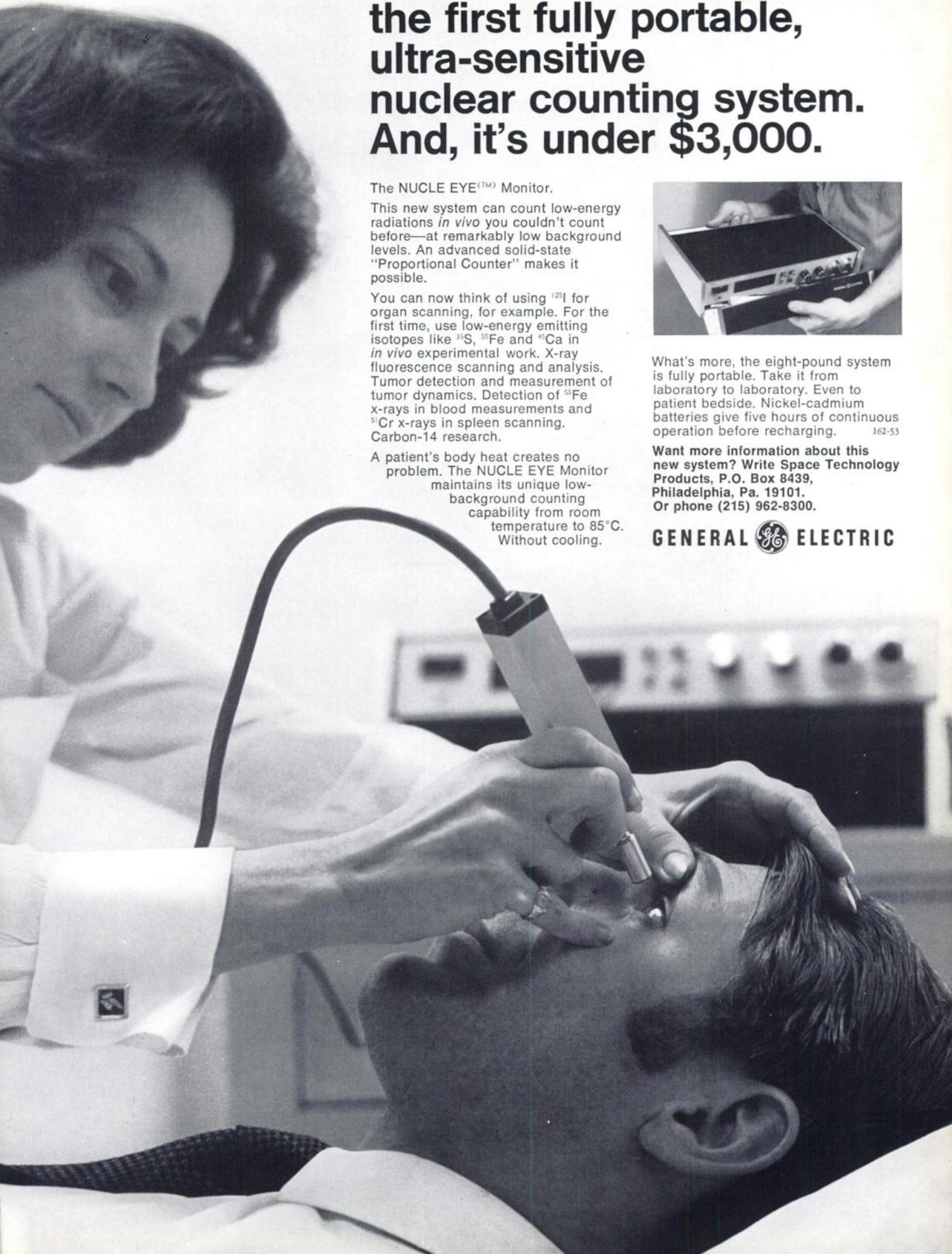


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A patient's body heat creates no problem. The NUCLE EYE Monitor maintains its unique low-background counting capability from room temperature to  $85^\circ\text{C}$ . Without cooling.

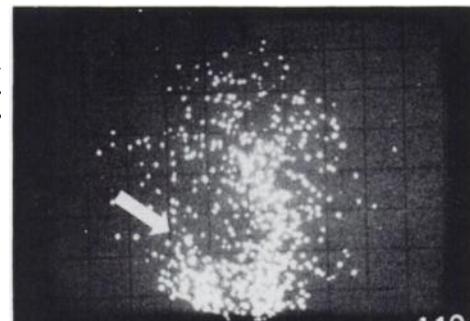


What's more, the eight-pound system is fully portable. Take it from laboratory to laboratory. Even to patient bedside. Nickel-cadmium batteries give five hours of continuous operation before recharging. 162-53

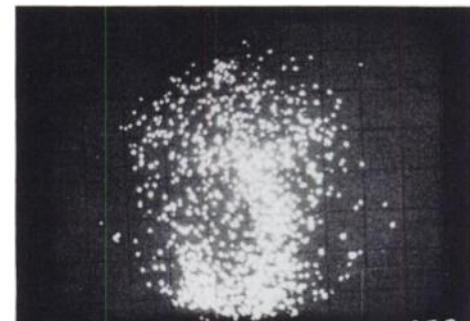
Want more information about this new system? Write Space Technology Products, P.O. Box 8439, Philadelphia, Pa. 19101. Or phone (215) 962-8300.

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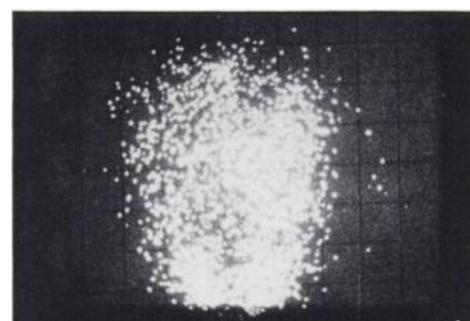
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MOTION-PICTURE  
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ANTERIOR VIEW.**



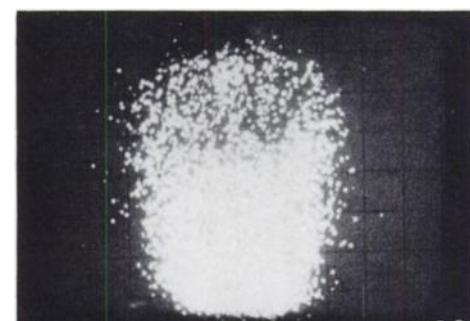
R      ~3.4 SEC. FOLLOWING INITIAL  
DETECTION OF ABNORMALITY  
ON PERSISTENCE SCOPE.



R      ~1.2 SEC. LATER.

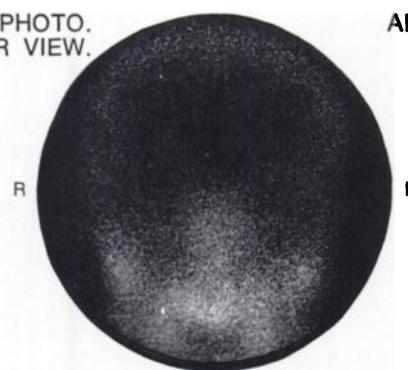


R      ~2.7 SEC. LATER.

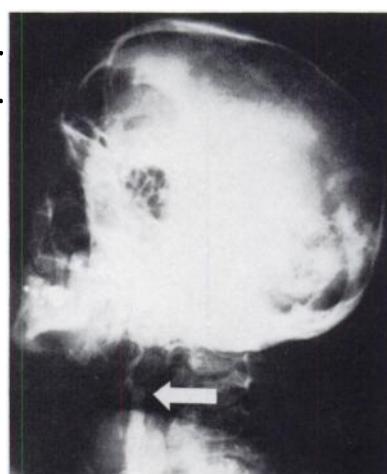


R      ~11.6 SEC. LATER.

**STATIC SCINTIPHOTO.  
ANTERIOR VIEW.**



**ARTERIOGRAPHIC  
STUDY.  
RIGHT OBLIQUE  
VIEW.**



**THE PHO/GAMMA  
SCINTILLATION CAMERA.**



# The Cerebral "Flow" Study

## Evaluation of Cerebral Vascular "Flow" with the Nuclear-Chicago Pho/Gamma® Scintillation Camera

In this technique using  $^{99m}$ technetium pertechnetate for dynamic study of vascular "flow" pathways (both intra- and extra-cranially), the Pho/Gamma Scintillation Camera is equipped with the Nuclear-Chicago Super-8/Persistence Scope.

**SETTING-UP.** The standard 4000 parallel-hole collimator is used. The area to be visualized includes the patient's neck and head. With the patient in the supine position, the Pho/Gamma detector is positioned touching the tip of the nose. This orientation can be readily achieved, because of the Pho/Gamma detector's positioning flexibility.

**ISOTOPE AND DOSE.** An intravenous injection of 10 mC of  $^{99m}$ technetium pertechnetate is administered, preferably in one of the antecubital veins. No attempt is made for a bolus injection.

**DATA ACCUMULATION AND DISPLAY.** At the first detection of events on the persistence scope (which displays data in live "fluoroscopic" fashion), the scope display is filmed with the Super-8 movie camera. Frame rate is 32 per second. Filming is stopped when the recirculation phase is detected — usually about one minute after the beginning of the study.

Then, approximately one hour later, conventional scintiphotos are taken, in a variety of viewing positions, each representing approximately 250,000 counts.

The motion-picture film is subsequently viewed with the Super-8 Analyst projector in slow, fast, or stop-motion, as necessary for evaluation.

These Pho/Gamma-generated data can also be recorded, in high-resolution digital form, on the Nuclear-Chicago Data-Store/Playback Accessory or on the CDS-4096 Clinical Data System. With either of these system accessories, patient data can be stored and then re-played, processed, and manipulated at the clinician's discretion. The result is an increased range of analysis, yielding additional qualitative and quantitative data.

**CASE HISTORY.** The clinical study illustrated on the opposite page is of a patient with the following history: Male, 51 years old. Three-month history of intermittent episodes (one to three minutes duration) of right visual-field constriction. Physical examination negative, except for slight blurring of right optic disc.

**EVALUATION.** In the selected frames from the Super-8 motion-picture film shown at left, these clinically relevant indications are seen: Frame 119, there is no isotope flow through right carotid artery pathway (arrow); note also outline of anterior and middle cerebral artery pathways, with relatively decreased concentration in right hemisphere. In Frame 158 (capillary phase), block in right carotid pathway is still evident. In Frame 204 (venous phase), delayed arterial perfusion in the right hemisphere begins. And, in Frame 490, recirculation with evident delayed arterial perfusion in right hemisphere is seen.

The static scintiphoto shown is essentially negative for any evidence of abnormal isotope accumulation, as were a number of other scintiphotos taken following the Super-8 study.

**CONCLUSIONS.** In this case, detection and localization of an abnormal "flow" pattern in the Super-8 dynamic study—but not in the static scintiphotos—led to a meaningful differential diagnosis. To this end, a serial arteriographic study was performed. The radiograph selected from that study reveals complete occlusion (arrow) of the right internal carotid artery at the bifurcation with the external carotid on the right. The intra-cranial problem was therefore shown to be the result of extra-cranial pathology.

Thus the Pho/Gamma Scintillation Camera permits the use of a relatively innocuous, yet rapid, technique to produce supplementary diagnostic information. This information can provide direction for the use of other investigative techniques and make possible a more definitive diagnosis.

0-225

## Nuclear Reviews

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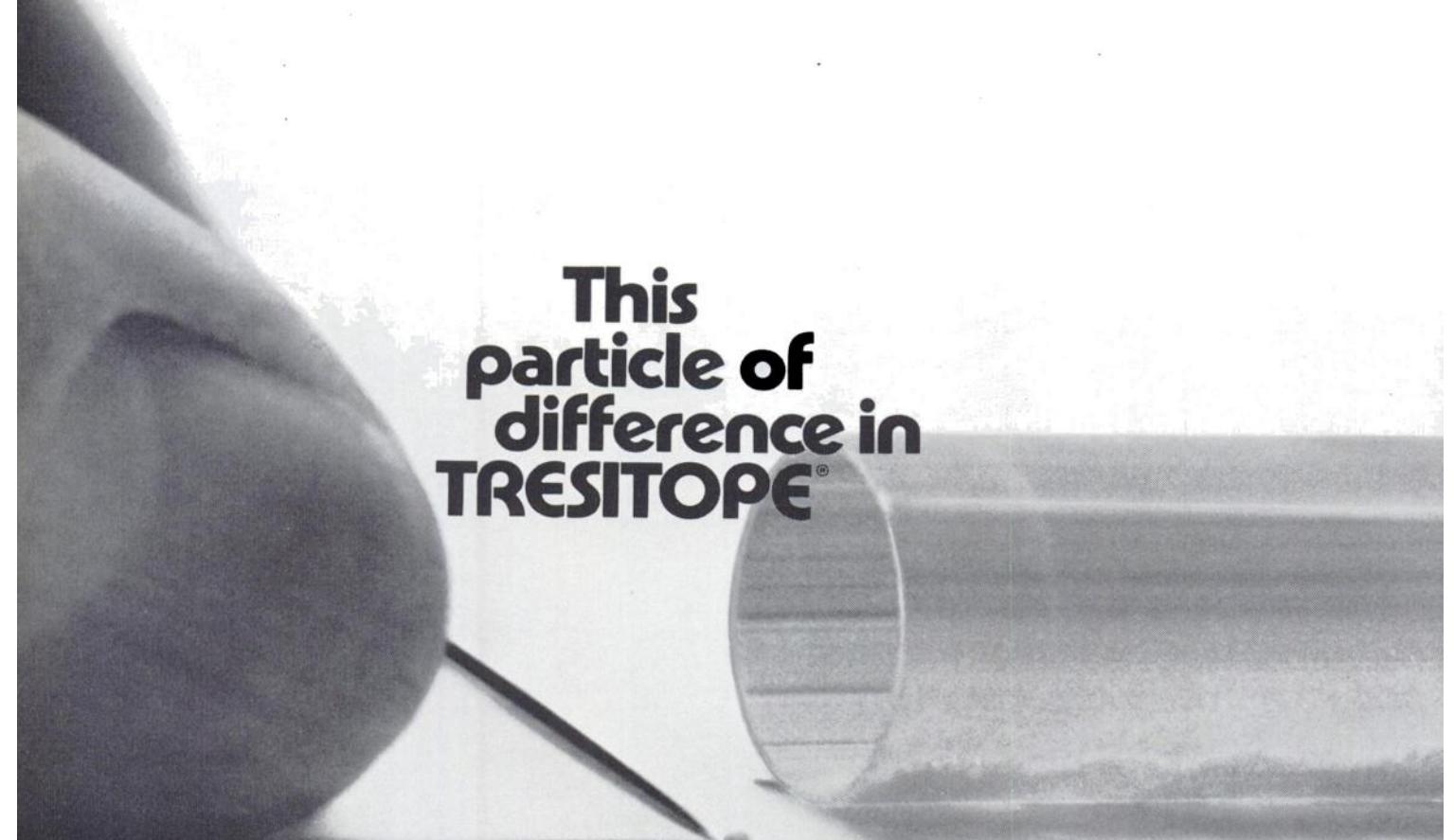


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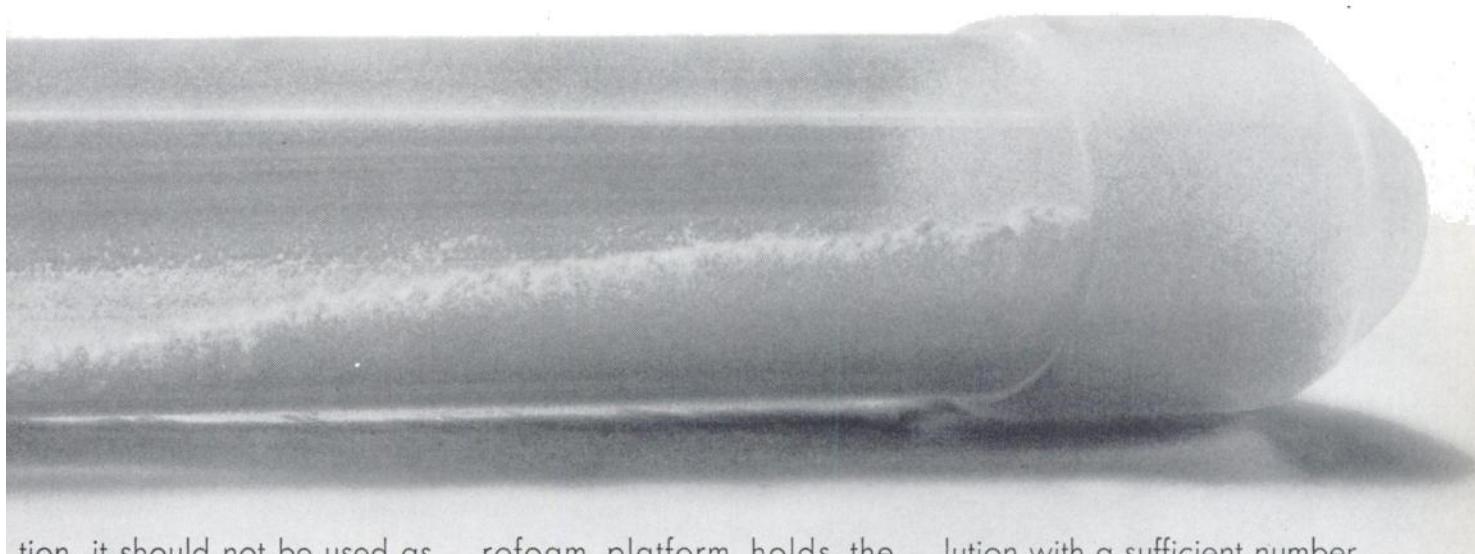
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**\*NOTE:** While the resin uptake test is a very useful aid in the evaluation of thyroid func-



tion, it should not be used as the sole basis for such an evaluation. In any patient, the clinical state is probably the best indication of thyroid status, and any laboratory test must be interpreted with caution when test results do not agree with clinical evidence.

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rofoam platform holds the vials. One end of the platform is modified to facilitate suction washings of the resin powder.

The Tresitope Diagnostic Kit is also available as a 105-test kit and a bulk vial kit. The 105-test kit contains 100 light-resistant (amber) vials of solution for serum testing, plus 5 vials for use with reference samples. The vials of radioactive test solution are packaged separately with these two kits and are the only parts requiring refrigeration. Included is a sufficient supply of tubes of resin powder and individual droppers for each test.

The bulk vial kit contains a 60 ml. bottle of test so-

lution with a sufficient number of plastic tubes of resin powder to perform at least 105 tests.

#### **IMPORTANT**

Use appropriate radiation precautions in handling, identifying and discarding all radioactive material. Remember that minute amounts of radioactivity remain on components used in the test, including the styrofoam platform when it is used in performing the test, and particularly when the Tresitope Suction Method is used for a number of tests.

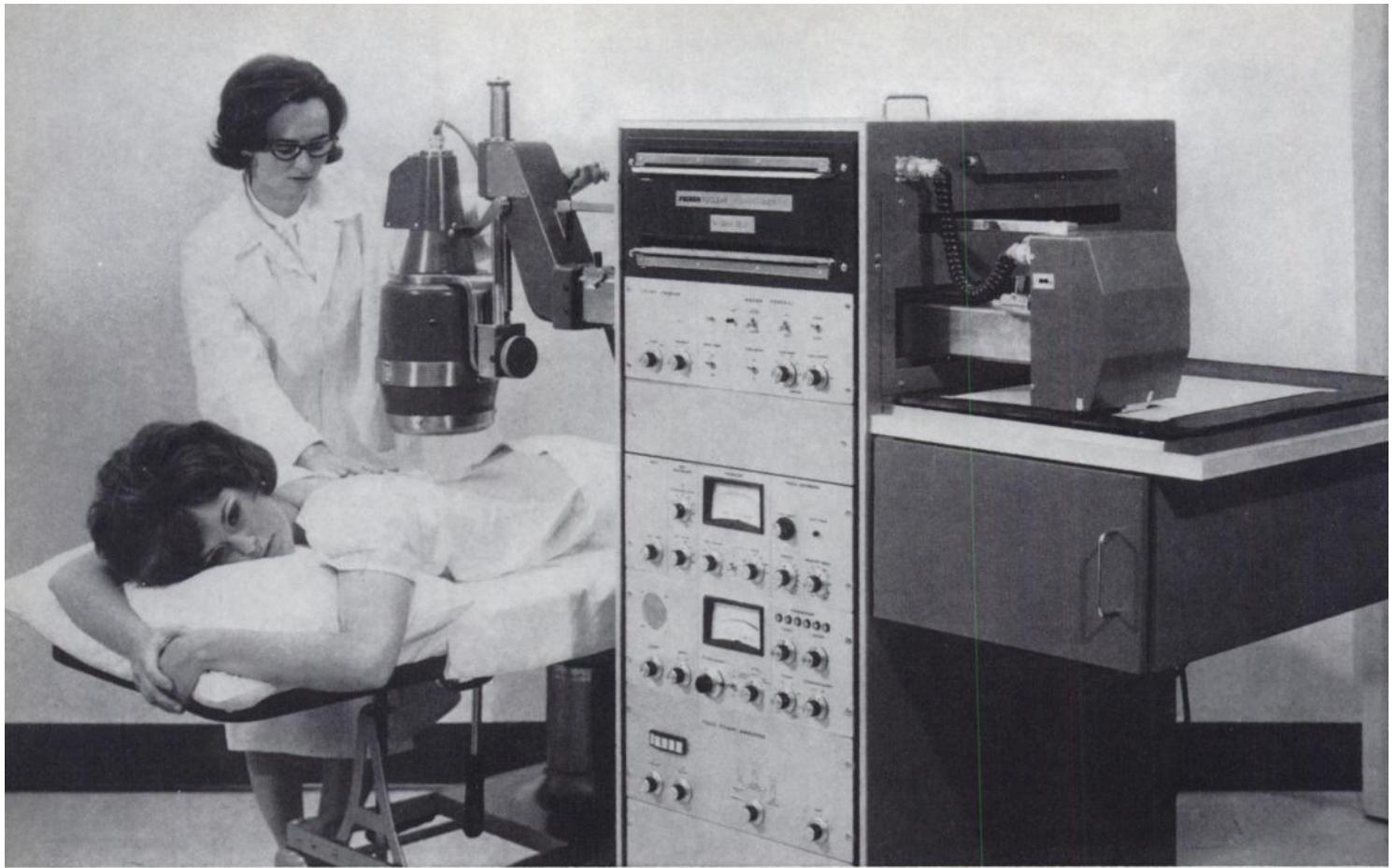
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## The case for the classical radioisotope scanner, or...

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None of this should imply that the Magnascanner is

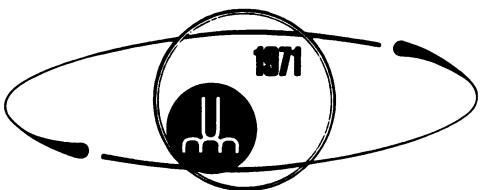
an untouched island in the stream of progress. Today's instrument is generations away from yesterday's. Note: (1) maximum scan speed has been increased from 200 cm/min to 500 cm/min; (2) detector can be positioned by a control on the detector head itself, and a ratemeter on the detector head facilitates and speeds location of "hot" and "cold" spots; (3) a new color photo recording system is available in addition to black and white photorecording, multicolor dot recording, and Tele-deltos black dot recording; (4) push button energy window selection (in addition to manual selection) for the most common radioisotopes used in diagnosis.

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# FIRST WORLD CONGRESS OF NUCLEAR MEDICINE AND BIOLOGY

## ANNOUNCEMENT

The First World Congress of Nuclear Medicine & Biology will take place in Montreal, Canada, between August 30 and September 4, 1971.

The Congress is sponsored by the WORLD FEDERATION OF NUCLEAR MEDICINE & BIOLOGY and by the SOCIETY OF NUCLEAR MEDICINE (U.S.A.) for all matters concerning the scientific program.

The WORLD FEDERATION OF NUCLEAR MEDICINE & BIOLOGY is a nonpolitical nonprofit organization of professional and academic nature, founded in 1967. Membership in the Federation comprises the national societies of nuclear medicine & biology, as well as technical affiliates, representatives of organizations involved in the technical developments of biomedical uses of radionuclides.

The scientific program of the Congress is expressed by its theme:

### "NUCLEAR MEDICINE—THE SECOND GENERATION"

The thematic program will attempt to evaluate the progress achieved by biomedical specialties during the past generation, as well as the contribution of nuclear sciences to this progress. There will be a number of panels covering the major clinical and fundamental aspects, as well as some timely topics, such as aerospace medicine, environmental medicine, etc. Other panels will be devoted to educational problems in the field of nuclear medicine. The conclusions of the panels will be discussed in a plenary session, where the broad lines of development will be sketched and the most urgent needs will be defined.

Other specialized subjects will be treated in symposia, where the broad lines of development analyzed in the thematic program will be replaced by analysis in depth of a well delimited technical subject. A number of topics are being examined by the Scientific Program Committee, such as computer problems in nuclear medicine, high resolution radioautography, trace elements, etc.

Free communications will be accepted, insofar as they report original contributions or new developments in radionuclidic procedures. Also, a limited number of films or video tapes could be accepted, when specific techniques are presented.

Technical and commercial exhibits are accepted; the administration of the Society of Nuclear Medicine (U.S.A.) is in charge of the arrangements with the organizations who contemplate such exhibits.

Persons interested in attending the Congress and in contributing to the scientific program are requested to apply for the information form, either at the Administrative Office of the Society of Nuclear Medicine, 211 E. 43rd St., New York, N.Y. 10017, or to the:

SECRETARIAT GENERAL DU PREMIER CONGRES MONDIAL DE MEDECINE &  
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**EXPERIENCED SENIOR NUCLEAR** medicine technologist required for the department of nuclear medicine. Reply Royal Victoria Hospital, Dr. P. Farrer, Director of Nuclear Medicine, 687 Pine Ave., West Montreal.

**NUCLEAR MEDICINE TRAINEESHIP:** 1 or 2-year program, University of Minnesota Hospitals Minneapolis, available immediately. Minimum prerequisites: 1 year clinical internship followed by 1 year residency training in internal medicine, radiology or pathology. Contact: Merle K. Loken, M.D., Professor of Radiology, Director, Division of Nuclear Medicine, University of Minnesota Hospitals, Minneapolis, Minn. 55455.

**PHYSICIAN WANTED:** PHYSICIAN needed part time for ultra modern nuclear medicine laboratory in Bridgeport, Conn. Contact David Fischer, Administrator, Nuclear Facilities, Inc., 1401 Ocean Avenue, Brooklyn, N.Y. 11280 or call 212-252-7711.

**NUCLEAR MEDICINE TECHNOLOGIST:** Position available August 15, 1970 for experienced R.T. in a 500-bed community hospital. Registry eligible technologist will be considered. Salary commensurate with experience and qualifications. Liberal fringe benefits available. Send resume to: Nuclear Medicine Department, Jersey Shore Medical Center, 1945 Corlies Avenue, Neptune, New Jersey, 07758. Attn: Gary D. Gallamore, R.T. (ARRT).

**CHIEF TECHNOLOGIST WANTED:** Challenging position available about Sept. 1, 1970 in Bridgeport, Conn. Equipment will include scintillation camera with on line computer, twin probe scanner, liquid scintillation system, etc. Salary open. Send resume to: David Fischer, Administrator, Nuclear Facilities, Inc., 1401 Ocean Avenue, Brooklyn, N.Y. 11280 or call 212-252-7711.

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**Ph.D. WITH EXPERIENCE IN LOW** energy nuclear physics and computers, desires teaching and research position in field of medical physics in a department of radiology and/or physics. Available immediately. Reply to Box 901, Society of Nuclear Medicine, 211 E. 48th St., New York, N.Y. 10017.

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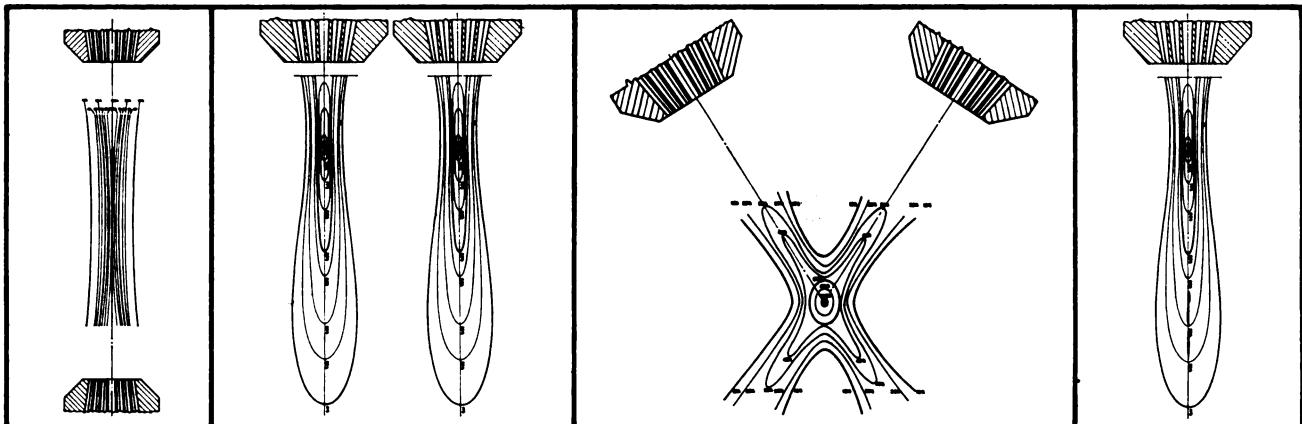


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For more information on the new Raytheon family of nuclear scanners, contact Raytheon Company, Medical Electronics, 190 Willow Street, Waltham, Massachusetts 02154. Tel: (617) 899-5949.

In medical electronics . . . Raytheon makes things happen.



# Another NMS System Plus

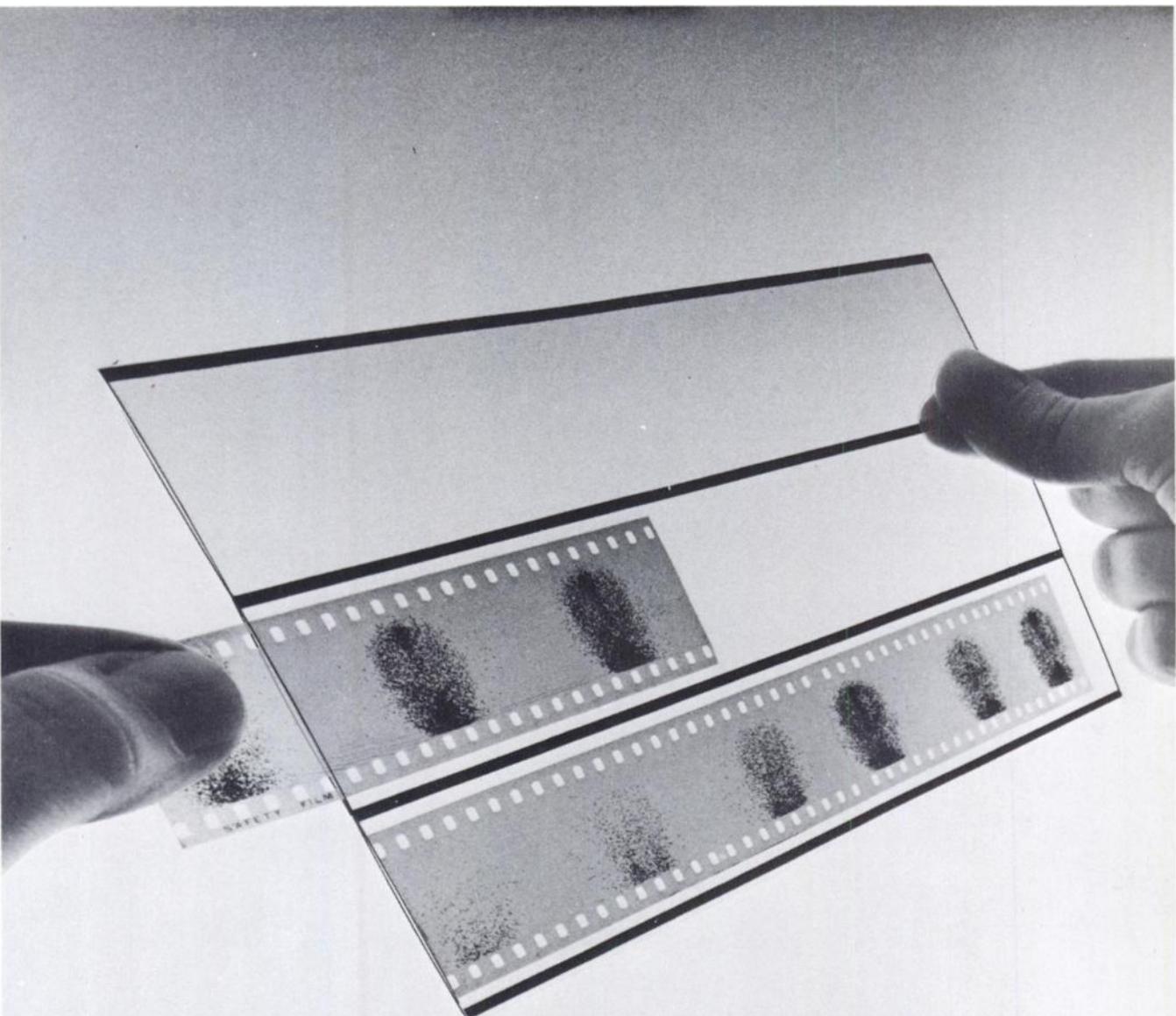
NMS 35mm and 70mm photographic systems routinely record pathology often missed by Polaroid. NMS systems give you another big plus—they add dynamic recording capability to your scintillation camera.



Time-lapse study performed by Dr. Lester Levy,  
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Scintillation Camera: Picker Dynacamera  
Photographic System: NMS 200

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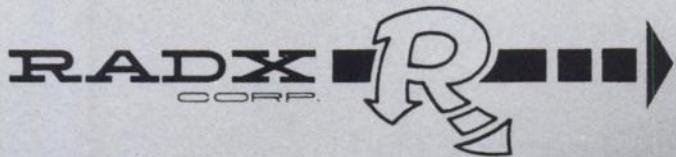


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Developed by Schwarz/Mann, this is the first such commercially available kit for the determination of renin activity by the measurement of generated Angiotensin I. Highly sensitive, highly specific, rapid method for serum samples. Contains 4 vials Angiotensin I antiserum (each vial sufficient for 100 tubes), 1 vial  $^{125}\text{I}$  Angiotensin I, and 1 vial Angiotensin I standard solution. Kit sufficient for 400 tubes.

## Insulin

Permits measurement of insulin concentration in small volumes of blood plasma, urine, or tissue homogenates. Contains 1 vial  $^{125}\text{I}$ -labeled pig insulin, 1 vial human insulin standard solution, and five vials of Insulin Binding Reagent (each vial sufficient for 80 individual tubes). Kit sufficient for 400 tubes. (Note: Developed by the CEA-CEN-SORIN Association in collaboration with the Laboratory of Clinical Physiology of C.N.R., Pisa, Italy.)

## Human Growth Hormone

Permits measurement of low concentrations of Human Growth Hormone in small volumes of serum or plasma. Contains 1 vial  $^{125}\text{I}$ -labeled HGH solution, 1 vial HGH

standard solution, two vials anti-HGH antiserum (produced in guinea pigs), and two vials of precipitating antiserum (produced in rabbits). One vial of each of the two antibodies is sufficient for 80 tubes. Each kit is sufficient for 160 tubes. (Note: Developed by the CEA-CEN-SORIN Association in collaboration with the Laboratory of Clinical Physiology of C.N.R., Pisa, Italy.)

## Digoxin

For monitoring digoxin levels in cardiac patients. Being developed by Schwarz/Mann—to be introduced shortly.

## Subsequent Introductions

Schwarz/Mann is actively involved in the development of additional radioimmunoassay kits. To be kept informed of the newest introductions, please check the appropriate box on the coupon below.

Note: An AEC or participating state radioactive license is required to order these kits. Please include appropriate license number on coupon. Thank you.



Mountain View Avenue, Orangeburg, New York 10962  
Division of Becton, Dickinson and Company

## Order form for kits and/or information.

Kit	Catalog Number	Price			Quantity Desired	Check Here For Information
Renin Activity	0750-03	\$75 ea.	\$70 ea. (2-5)	\$65 ea. (6-11)	\$60 ea. (12+)	<input type="checkbox"/>
Insulin	0750-02	\$55 ea.	\$50 ea. (2-4)	\$45 ea. (5-9)	\$40 ea. (10+)	<input type="checkbox"/>
HGH	0750-01	\$60 ea.	\$55 ea. (2-4)	\$50 ea. (5-9)	\$45 ea. (10+)	<input type="checkbox"/>
Digoxin	0750-04	—	—	—	—	<input type="checkbox"/>

Note: To be informed of future radioimmunoassay kit introductions, please check here.

Date \_\_\_\_\_ Order Number \_\_\_\_\_ Radioactive License Number \_\_\_\_\_

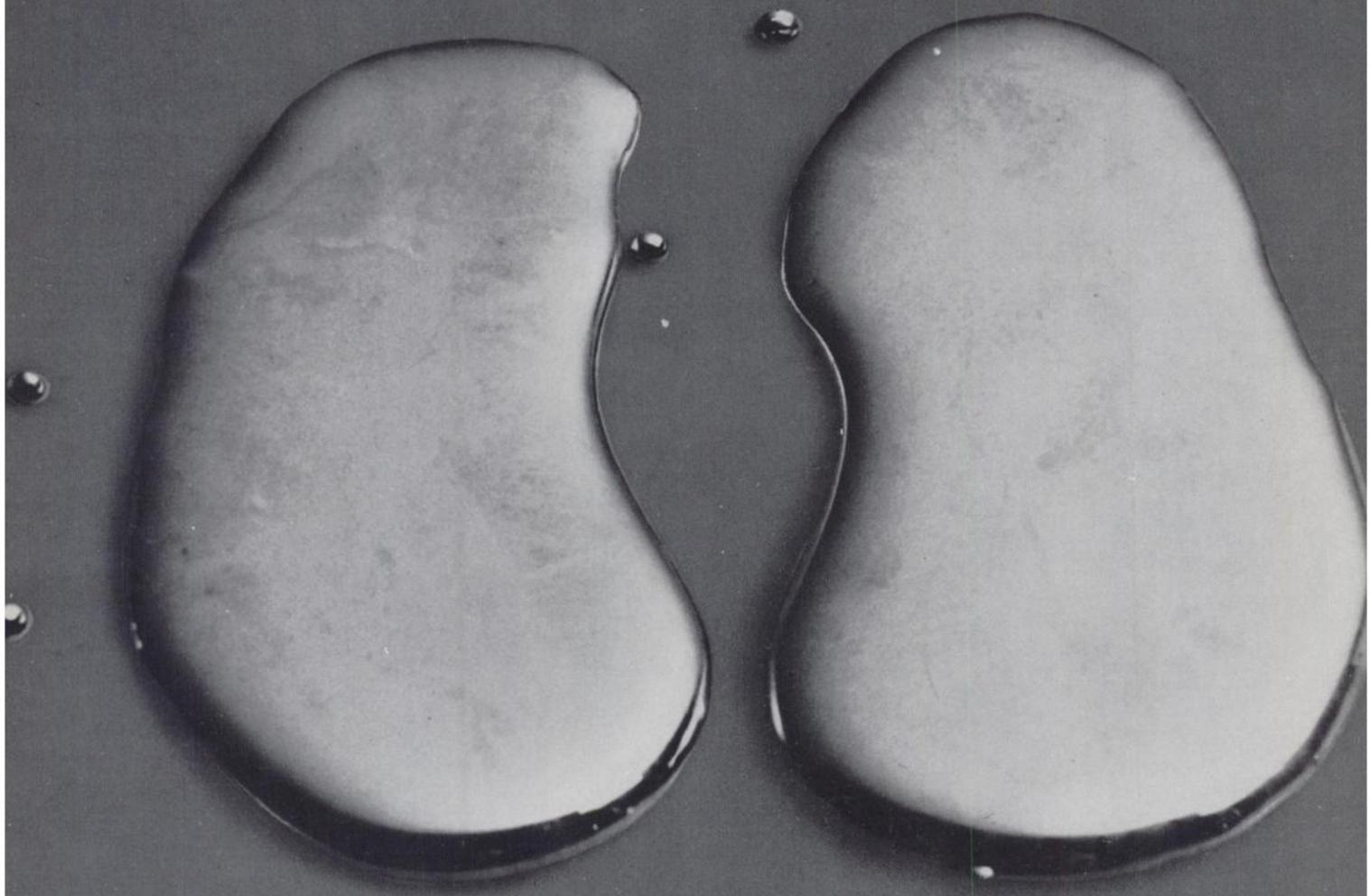
Name \_\_\_\_\_ Title \_\_\_\_\_ Department \_\_\_\_\_

Organization \_\_\_\_\_

Address \_\_\_\_\_ Phone Number \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**Squibb takes the mercury  
out of kidney scanning.**



# The new Renotec™ Kit.

## (Technetium 99m-Diethylenetriamine Pentaacetic Acid [DTPA])

### The Non-Mercurial Renal Scan

A convenient, easy-to-use kit for preparing technetium 99m-DTPA—a renal scanning compound that gives you *all* these advantages:

- low radiation exposure to the kidney
- sustained activity in the kidney for conventional rectilinear scans
- doses prepared in minutes, utilizing  $^{99m}\text{Tc}$  eluate from your Squibb generator.

After intravenous injection,  $^{99m}\text{Tc}$ -DTPA is rapidly cleared by the normal kidney. Sufficient activity remains in the kidney, however, to permit conventional scans at two hours after injection.

Unlike radiomericurial compounds for renal scanning, the much shorter physical half-life of technetium 99m (only six hours) greatly reduces the radiation exposure to the kidney.

Toxicity due to DTPA is not a major problem with the dose of chelate administered in subjects with either normal or depressed renal function.

With Renotec, doses can be prepared in minutes, as you need them, utilizing the  $^{99m}\text{Tc}$  eluate from your Technetope® II (Technetium 99m) Sterile Generator.

### New Versatility For Your Squibb Generator

The Technetope II (Technetium 99m) Sterile Generator provides a means of obtaining a sterile, non-pyrogenic supply of technetium 99m for use with *two different Squibb diagnostic kits*: the new Renotec (Tech-

netium 99m-DTPA) Kit and the Tesuloid® (Technetium 99m-Sulfur Colloid) Kit (an easy-to-use kit for preparing technetium 99m-sulfur colloid solution for liver and spleen scanning).



See next page for brief summary.

# New Renotec™ Kit

## (Technetium 99m-Diethylenetriamine Pentaacetic Acid [DTPA])

# The non-mercurial renal scan.

The RENOTECH (Technetium 99m-Diethylenetriamine Pentaacetic Acid [DTPA]) Kit includes: 1) 5 vials (2 cc. each) of Sterile Reaction Solution providing 5 mg. ferric chloride per cc. and 2.5 to 5 mg. ascorbic acid per cc.; 2) 5 Unimatic® Disposable Syringes (2 cc. each) containing Sterile 0.07N Sodium Hydroxide Solution providing 2.8 mg. sodium hydroxide per cc.; and 3) 5 Unimatic Disposable Syringes (2 cc. each) containing Sterile DTPA Solution providing 2.5 mg. diethylenetriamine pentaacetic acid per cc.

The TESULOID (Technetium 99m-Sulfur Colloid) Kit includes: 1) 5 vials (3 cc. each) of Sterile Sulfur Colloid Reaction Mixture providing 4 mg. sodium thiosulfate, 3 mg. gelatin, 8.5 mg. potassium phosphate, and 0.93 mg. disodium edetate per cc.; 2) 5 Unimatic Disposable Syringes (2 cc. each) containing Sterile 0.25N Hydrochloric Acid Solution providing 9 mg. hydrochloric acid per cc.; and 3) 5 Unimatic Disposable Syringes (2 cc. each) containing Sterile Buffer Solution providing 35 mg. sodium biphosphate and 10 mg. sodium hydroxide per cc.

TECHNETOPE II (Technetium 99m) Sterile Generator provides a means of obtaining a sterile, non-pyrogenic supply of technetium 99m as sodium pertechnetate.

**Warnings:** The contents of the syringes in the Renotec Kit and the Tesuloid Kit should not be injected directly into a patient.

**Usage in pregnancy**—These agents should not be administered to women who are pregnant or who may become pregnant and during lactation unless the indications are exceptional and the need for the agent outweighs the possible potential risk from the radiation exposure involved.

Since sodium pertechnetate  $^{99m}\text{Tc}$  may be taken up by the fetus and excreted in human milk, administration of the preparation during pregnancy and lactation is not recommended.

Formula feedings should be substituted for breast feedings if these agents must be administered to the mother during lactation.

$^{99m}\text{Tc}$ -DTPA,  $^{99m}\text{Tc}$ -S colloid, and sodium pertechnetate  $^{99m}\text{Tc}$  should not be administered to persons less than 18 years of age unless the expected benefit outweighs the hazards. It should be noted that although radiopharmaceuticals are not generally used in individuals under 18, procedures using  $^{99m}\text{Tc}$ -DTPA or  $^{99m}\text{Tc}$ -S colloid are occasionally necessary in such patients. The low internal radiation dosage of  $^{99m}\text{Tc}$ -DTPA makes it a very satis-

factory agent when scans of the kidney, brain, or blood vessels are necessary in young patients. The low internal radiation dosage of  $^{99m}\text{Tc}$ -S colloid makes it a very satisfactory agent when liver or spleen scans are necessary in young patients.

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

When obtaining elutions from Technetope II (Technetium 99m) Sterile Generator, proper radiation safety precautions should be maintained at all times. The column containing  $^{99m}\text{Mo}$  need not be removed from the lead shield at any time. There is a high radiation field surrounding an unshielded column. Solutions of sodium pertechnetate  $^{99m}\text{Tc}$  withdrawn from the generator should always be adequately shielded. The early elutions from the generator are highly radioactive. Important: Since material obtained from the generator may be intended for intravenous administration, aseptic technique must be strictly observed in all handling. The stoppers of the eluent bottle, of the elution tube, and of the collecting vial, as well as both rubber closures in the generator column, should be swabbed with a suitable germicide before each entry. All entries into the generator column must be made aseptically with sterile needles. Only the eluent provided should be used to elute the generator. Use a fresh milking tube and collecting vial for each elution; sufficient equipment is provided for this purpose. All equipment used to collect or administer sodium pertechnetate  $^{99m}\text{Tc}$  must be sterile. Do not administer material eluted from the generator if there is any evidence of foreign matter.

NOTE: The Renotec Kit and the Tesuloid Kit are not radioactive. However, after the eluted  $^{99m}\text{Tc}$  is added, adequate shielding of the resulting preparation should be maintained.

**Precautions:** When using radioactive material, care should be taken to insure minimum radiation exposure to the patient (*i.e.*, by using the smallest dose of radioactivity consistent with safety and validity of data) as well as to all personnel directly or indirectly involved with the patient. Before a test is repeated in the same patient, the need should be carefully evaluated; this is especially true in younger patients.

Each elution from Technetope II (Technetium 99m) Sterile Generator should be

assayed before use for  $^{99m}\text{Tc}$  activity and for the possible presence of  $^{99m}\text{Mo}$ . Material containing more than 5 microcuries of  $^{99m}\text{Mo}$  per dose of  $^{99m}\text{Tc}$  pertechnetate exceeds Atomic Energy Commission limits and should not be administered. Poor gastrointestinal absorption of an oral dose of pertechnetate and resultant low blood radioactivity levels have been observed in the postprandial state, in seriously ill patients, and in a small number of normal, fasting individuals. Since pertechnetate is concentrated by the gastric mucosa and the salivary glands, secretions of the digestive tract are radioactive and may cause artifacts on the cranial scan. Therefore, all possible care should be taken to avoid extracranial contamination, not only for the protection of patients and of hospital personnel but also to avoid obtaining a falsely positive scan due to extracranial radiation. Any condition which alters the blood-brain barrier or the normal cranial vasculature may cause abnormal areas of increased radioactivity. The brain scan with sodium pertechnetate  $^{99m}\text{Tc}$  is therefore likely to be abnormal in patients with scalp contusions or acute head injuries. Following a craniotomy, uptake of radioactivity is increased throughout the operative field, usually for only a few weeks but in some instances for prolonged periods. Since cerebral radiographic techniques temporarily affect the blood-brain barrier, brain scanning with sodium pertechnetate  $^{99m}\text{Tc}$  should precede cerebral angiography when possible, or should be postponed for several days thereafter. A negative brain scan does not rule out the possibility of a lesion and should therefore never be considered diagnostically conclusive. Because the normal vascular structures are more apparent on a  $^{99m}\text{Tc}$  pertechnetate scan than on a radiochloromerodrin scan, and because the choroid plexus may be visible, it is particularly important to recognize the appearance of a normal brain scan when  $^{99m}\text{Tc}$  pertechnetate is used, in order to avoid incorrect interpretation.

NOTE: The Renotec Kit and the Tesuloid Kit were designed for use with the sodium pertechnetate eluate obtained from a Technetope II Sterile Generator. It is recommended that only Technetope II be used as the source of sodium pertechnetate with the Renotec Kit and the Tesuloid Kit unless the user has demonstrated that other sources of  $^{99m}\text{Tc}$  are consistently compatible and meet the standards of Technetope II.

**SQUIBB**

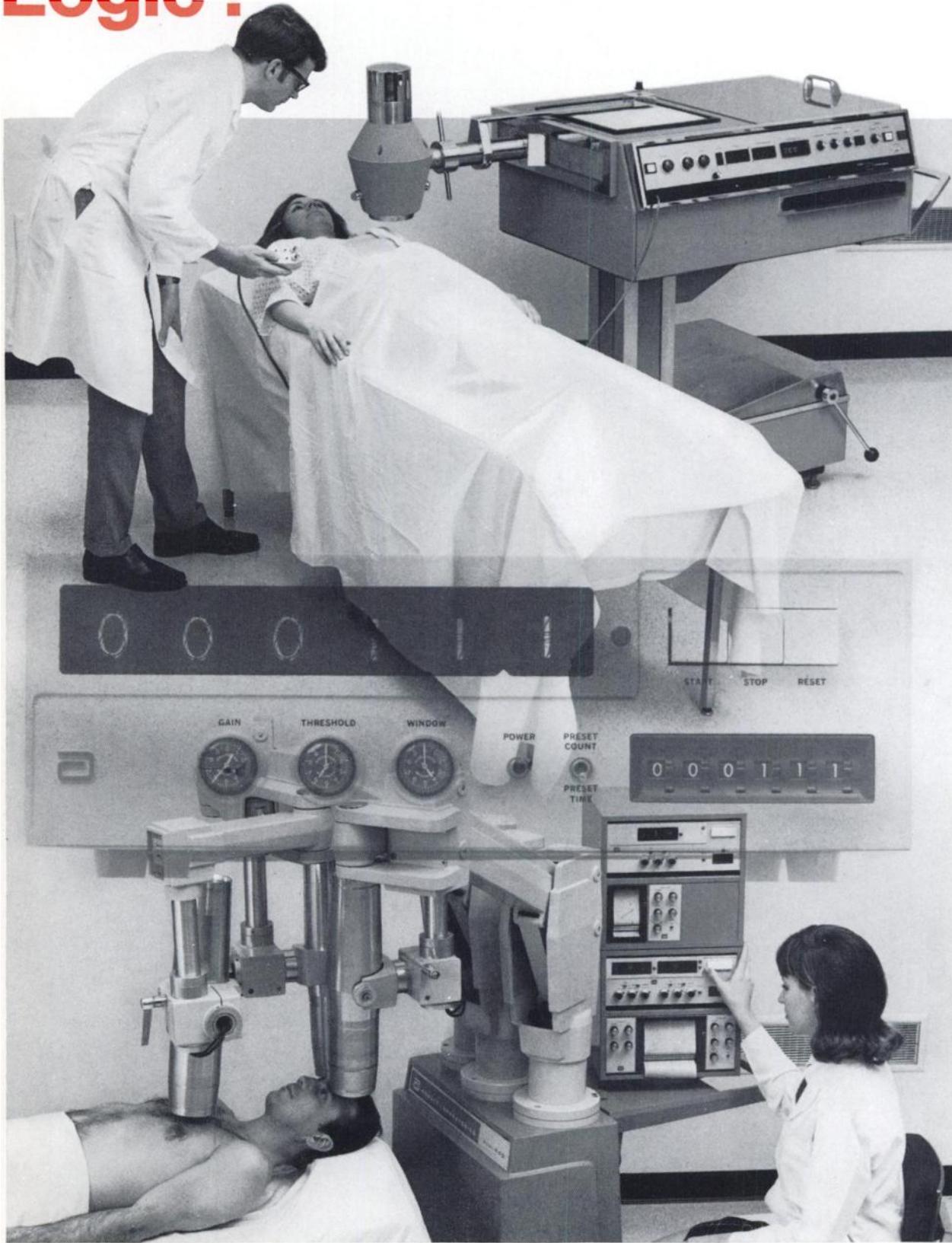
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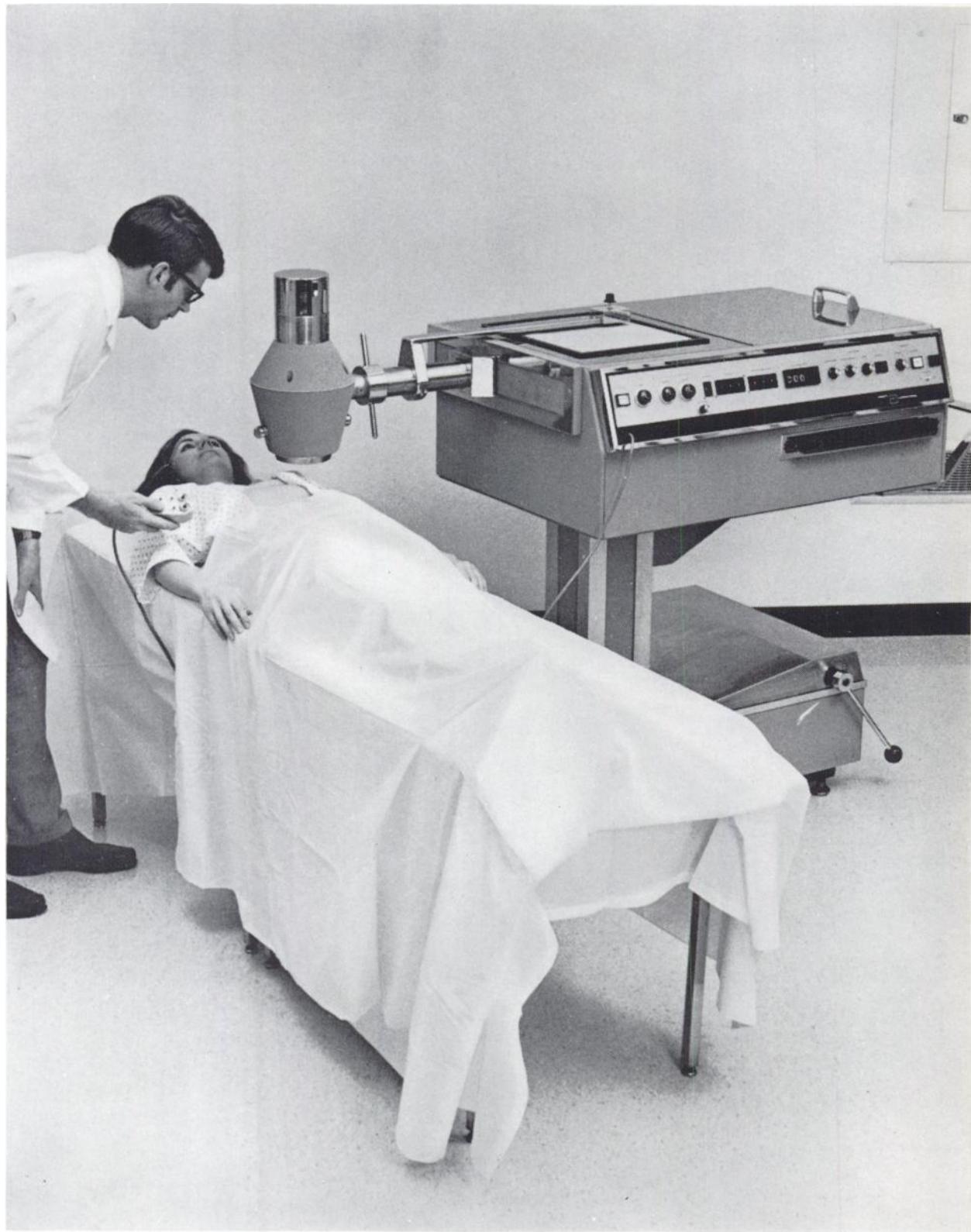
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# **Graphic™! Dynamic™! Logic!**

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to learn what goes on  
inside the patient!



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**...a new  
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in scanners!**

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Portability!  
Simplicity of Operation!**

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. . . variable from 10 to 1,000 cm./minute with appropriate fixed index level. 1,000 cm. minute makes it the fastest scanner available. Portal to portal patient time may be less with some studies than with camera devices.

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. . . system is readily portable and can be easily moved on its 5" casters. Will fit through any standard door opening. It is the only scanner that can easily be taken right to the patient in his hospital bed.

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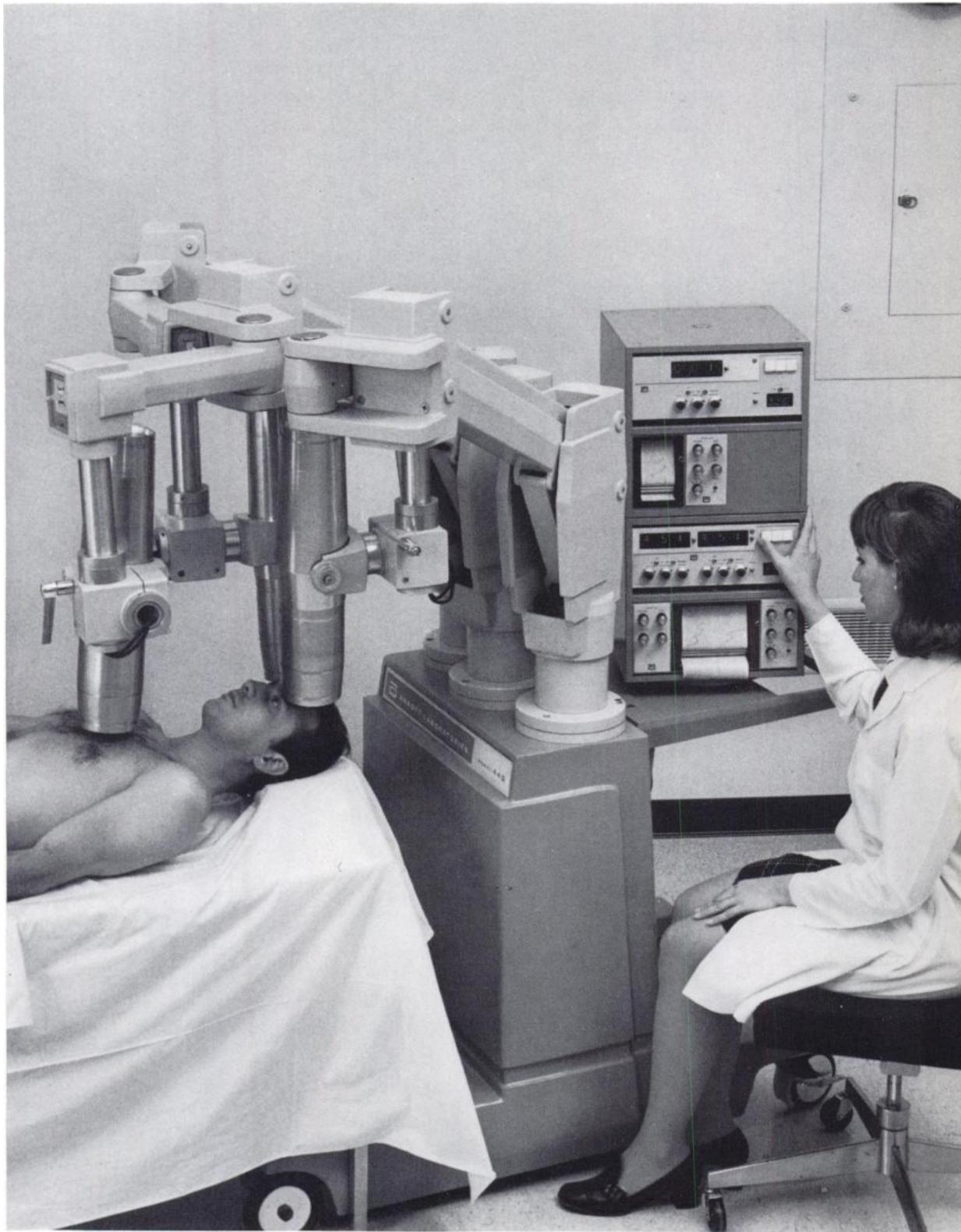
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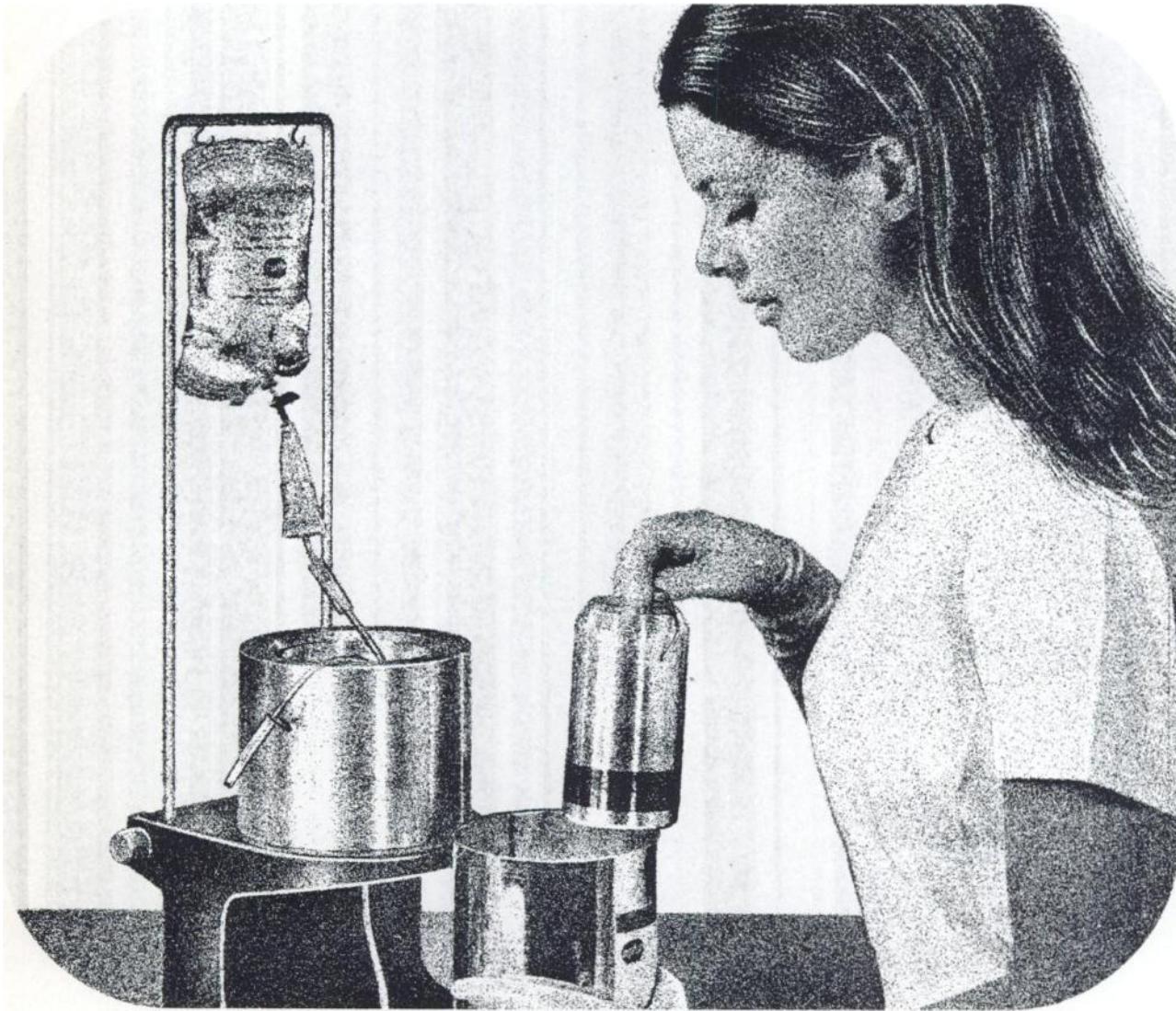


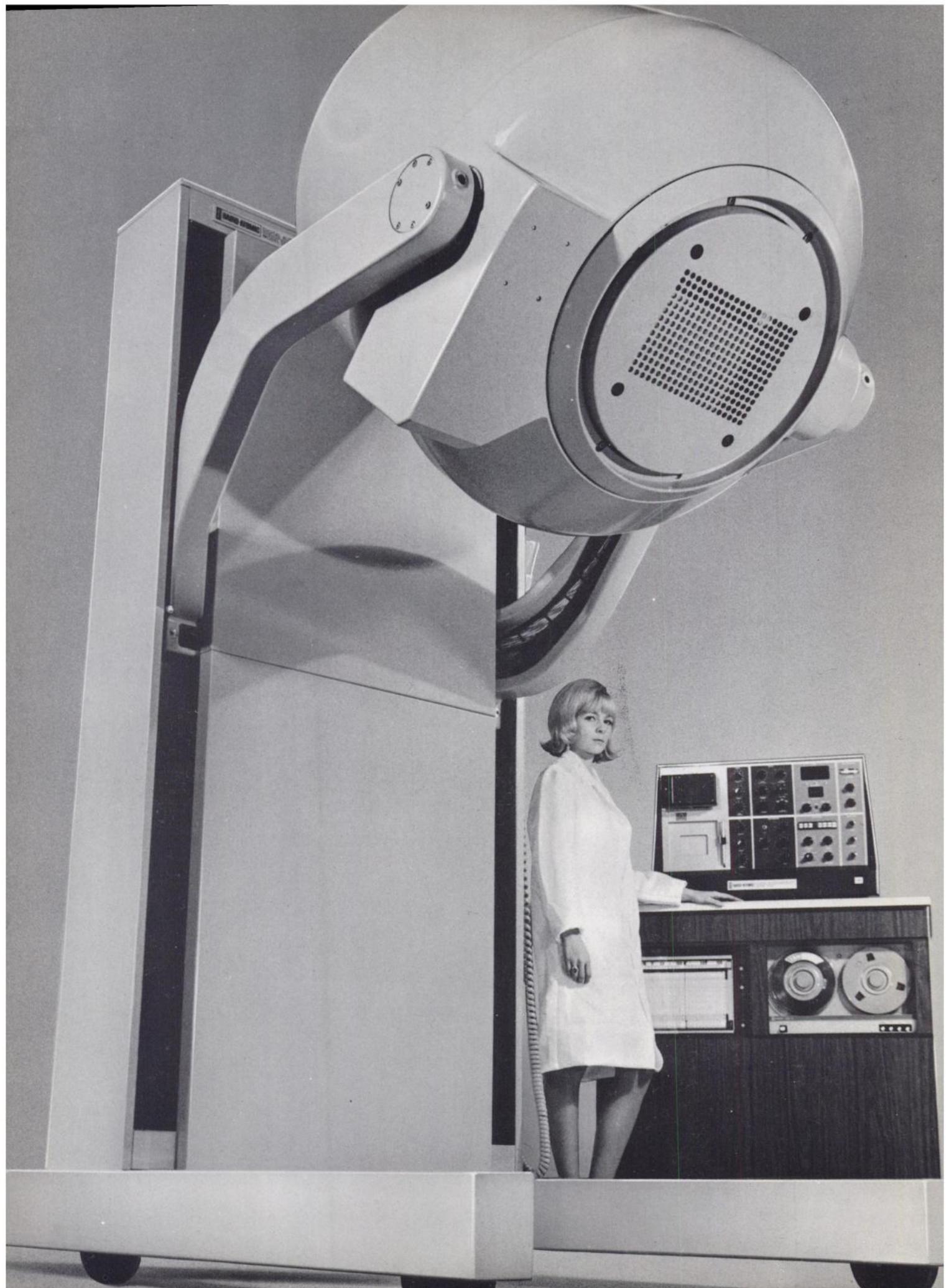
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Up to now, whenever you read in the literature of a clinician using a "scintillation camera," the chances are it could mean only one thing. He was using our scintillation camera—the Nuclear-Chicago Pho/Gamma® III Scintillation Camera or one of its predecessors.

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