

# 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 x 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 x T-4 = T-7 Value**



**TRIOSORB®-131 or  
TRIOSORB-125**

T-3 Diagnostic Kit

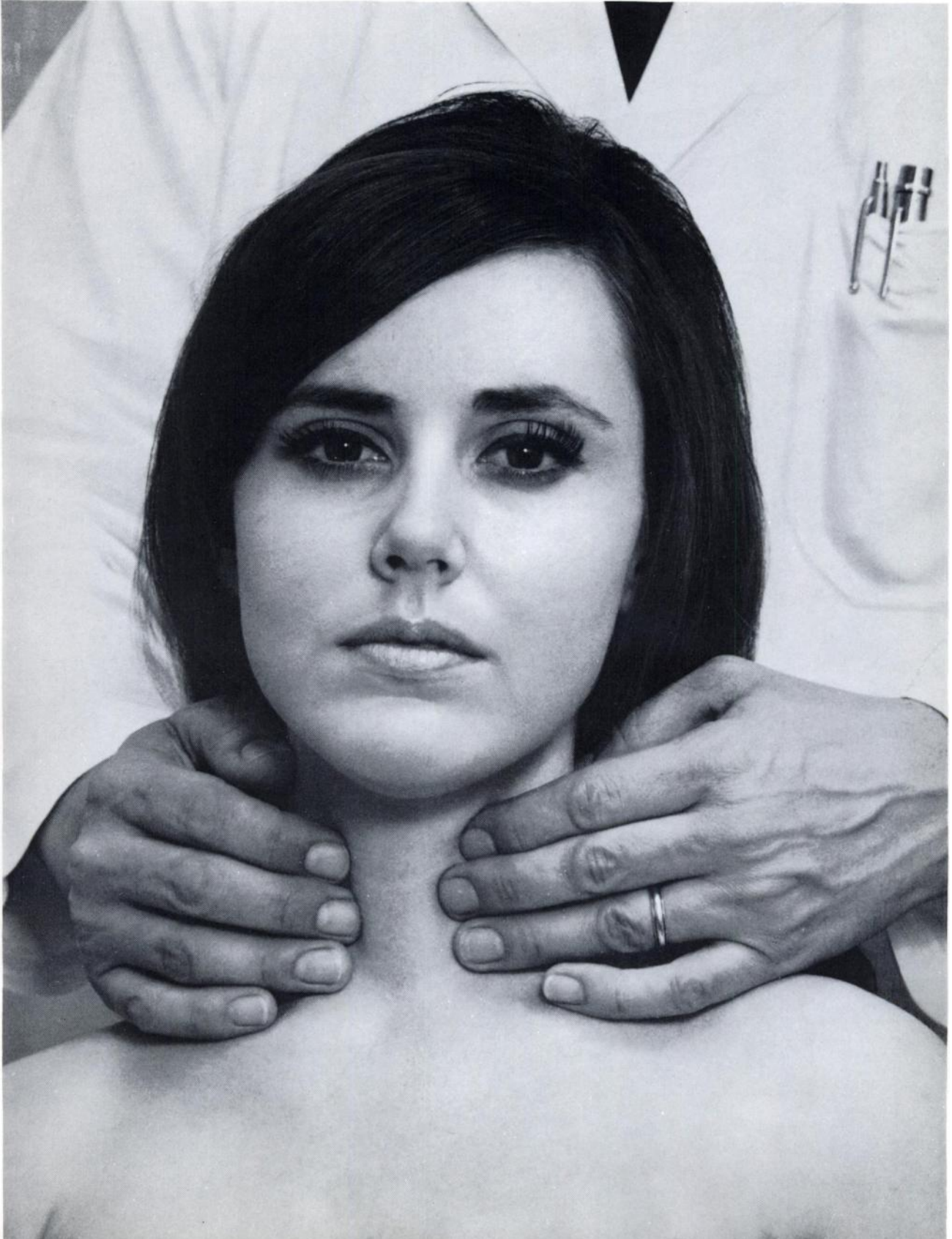


**TETRASORB®-  
125**

T-4 Diagnostic Kit

001187

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



# The LOGIC™ Series-



THE FULL LINE NUCLEAR MEDICAL INSTRUMENT COMPANY

# products of the Space Age!



**Speed of Electronics** (count and display in excess of 15,000,000 counts per minute!)



**Solid State Integrated Circuitry** (highly reliable; less down time)



**Simple to Operate** (minimum of controls) with **Direct Ratio Readout** (in %)



**Integrated System** (Models 101 & 111 have spectrometer and well in one instrument)



**Simplified Service** (easy-to-use service manual; replacement boards in 24 hours; no waiting for servicemen)



**Modular Concept** (built-in versatility protects your investment by letting you add on)



**ABBOTT LABORATORIES, NORTH CHICAGO, ILLINOIS 60064**  
**Nuclear Instruments You Can Count On**

Vertretung für Europa: Labor-Service GmbH, Abt. Radiopharmazeutika, 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.



New England  
Nuclear Corp.

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

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9701 N. KENTON AVE.  
SKOKIE ILLINOIS 60076

WE  
DON'T BELIEVE  
IN BIRTH CONTROL

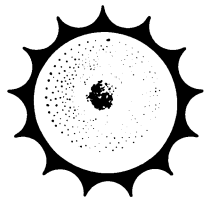


AT LEAST,  
NOT FOR US.

When you have a good thing,  
you like to see it grow. That's why  
we've added three branch labora-  
tories to the Hastings family.

Now you can get the highest  
obtainable quality radiopharmaceu-  
ticals in Dallas, New Orleans, and  
Miami, as well as in Houston.

We're doing our part to bet-  
ter serve the population explosion.



**HASTINGS  
RADIOCHEMICAL  
WORKS, INC.**

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Locke Medical Building  
Dallas, Texas 75235  
4031 Jefferson Highway  
New Orleans, Louisiana 70121  
1549 San Remo  
Coral Gables, Florida 33146





# WHEN THE PILL OR PREGNANCY DISTORTS THYROID TESTS

**Res-O-Mat™ Free Thyroxine  
(FT4) Index —  
easiest way to a more  
reliable determination  
of thyroid function**

The Res-O-Mat FT4 Index comes closest to being the most reliable assessment of thyroid function with the easiest procedure. The combined use of Mallinckrodt's Res-O-Mat T3 and Res-O-Mat T4 Tests gives an FT4 Index that compensates for conditions of pregnancy, estrogen medication, and other factors affecting this measurement.

It is so much easier and time-saving because the Res-O-Mat T3 and T4 strips simplify procedures. In the T3 measurement the strip eliminates all pipetting except initial transfer of serum to the vial. There is no washing, no critical temperature control, and the T4 procedure requires no evaporation or ice bath. There are fewer counting steps. Merely rotate the vials, remove the strips, and count the serum directly.

The Res-O-Mat FT4 Index is the ratio of Res-O-Mat T4 and T3 values. The FT4 index has been shown to have a high degree of correlation with the blood level of free thyroxine.\* And this simple Res-O-Mat FT4 method makes this determination a routine laboratory procedure.

Send for complete information on the Res-O-Mat FT4 Index, or contact your Mallinckrodt sales representative.

\*F. Clark and D. B. Horn, *Journal of Clinical Endocrinology*, 25:39-45, Jan. 1965.



**RADIOPHARMACEUTICALS**

**MALLINCKRODT CHEMICAL WORKS**

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St. Louis, Missouri 63145

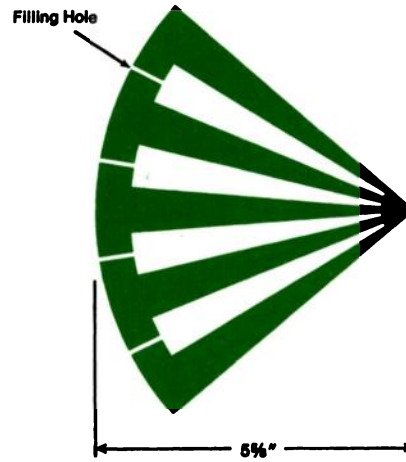
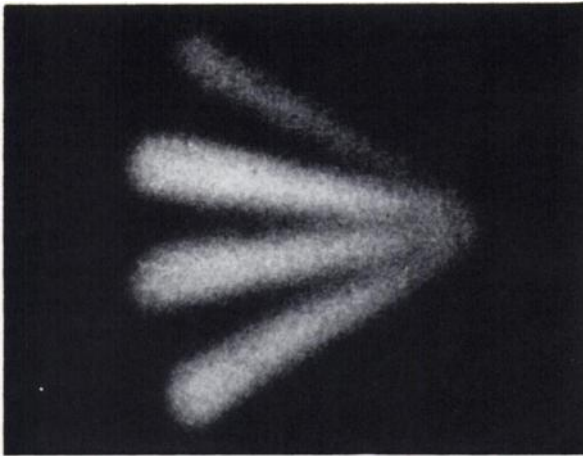
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# The Picker Dynacamera 2:

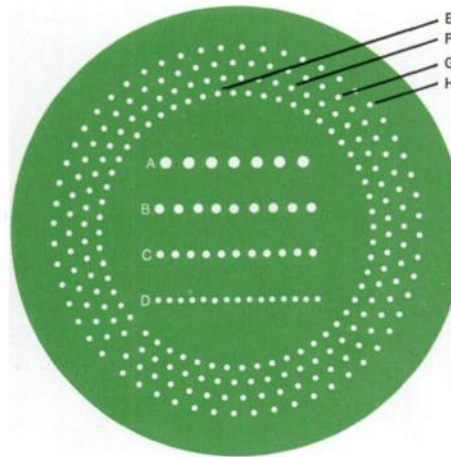
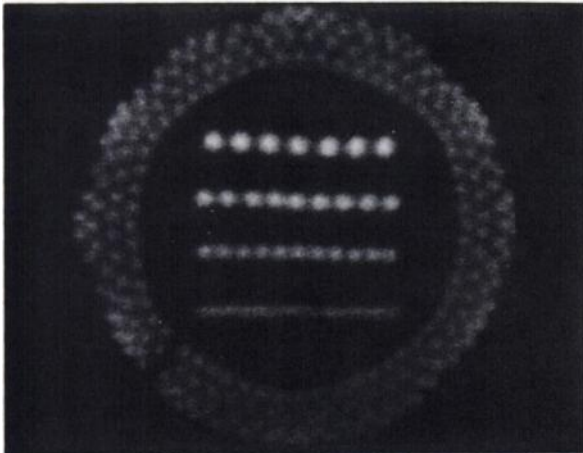
The scintillation camera with both high resolution and a large *undistorted* field of view:

## Resolution



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

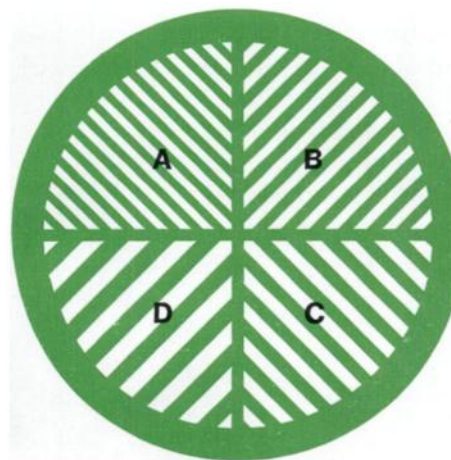
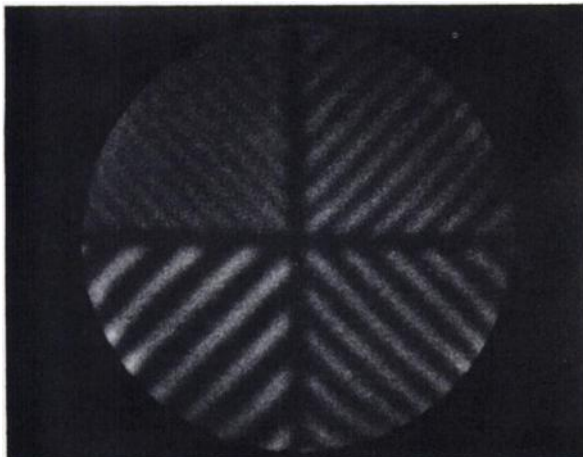
## Resolution and large undistorted field of view



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

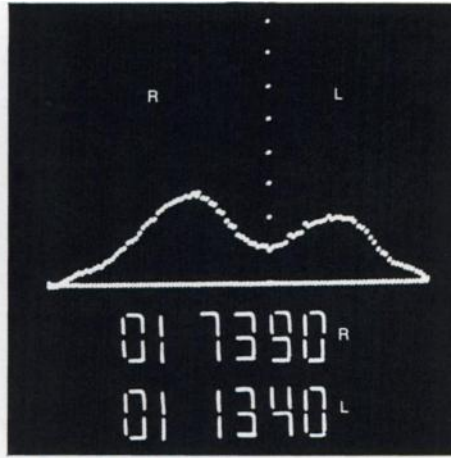
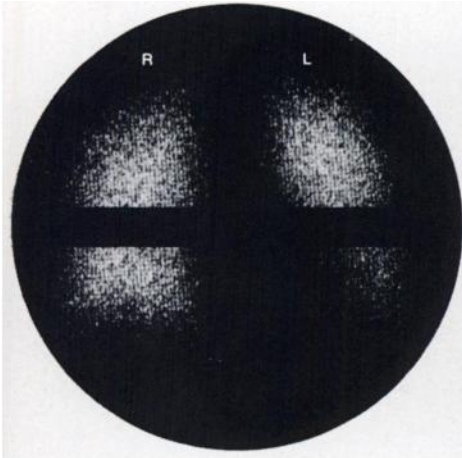


Phantom description: 1/8" thick lead bars mounted between two circular pieces of 1/8" thick lucite. A 14" outside diameter, 1" wide, lead ring surrounds the bars.

- 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

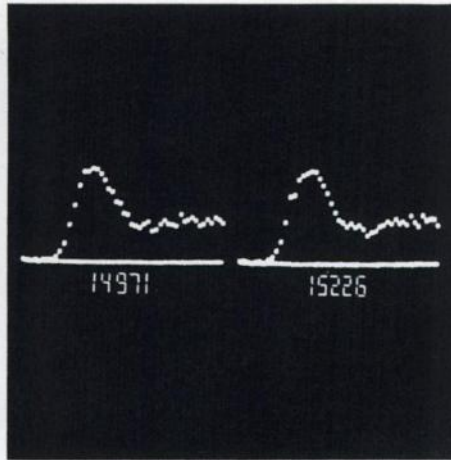
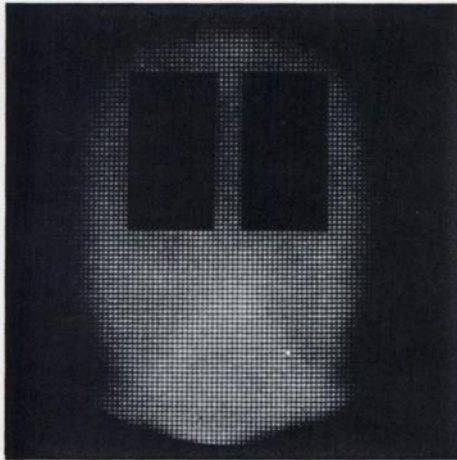
## The scintillation camera with more clinically useful and proven capabilities:

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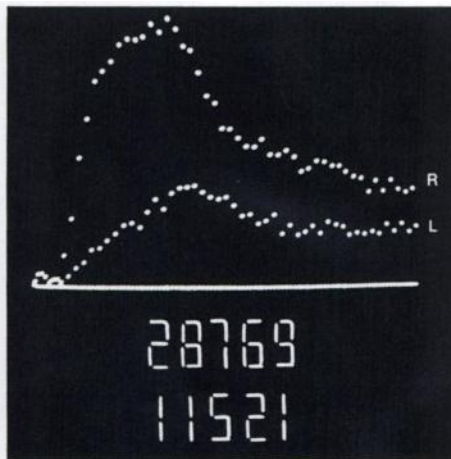
### Quantification of static studies (a built-in capability)

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.

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.

**PICKER**  
The "single source responsibility" company.



## You don't have to build a brick wall around this "cow"!

This is Pertgen-99m, the cow that doesn't leak. Nothing comes out until you're ready to milk it.

**Convenience**—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!

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

**Safety**—the Rayshield, Abbott's exclusive Radioisotope Shielded Dispensing Unit, keeps radiation to operating personnel at a minimum.

**Economy**—because Pertgen-99m is precalibrated, you get more useable activity at no increase in cost!

**Yields are consistent and high—an unbeatable combination!**



Also available:

**PERTSCAN®-99m**  
SODIUM PERTECHNETATE Tc 99m

**Abbott Laboratories North Chicago, Illinois 60064**  
**World's Leading Supplier of Radio Pharmaceuticals**

LABOR-SERVICE GMBH, Abteilung RADIO-PHARMAZEUTIKA,  
6236 Eschborn/Ts (West Germany), Postfach 1245

## Pulmonary problem? Answer: Macroscan-131

- **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.



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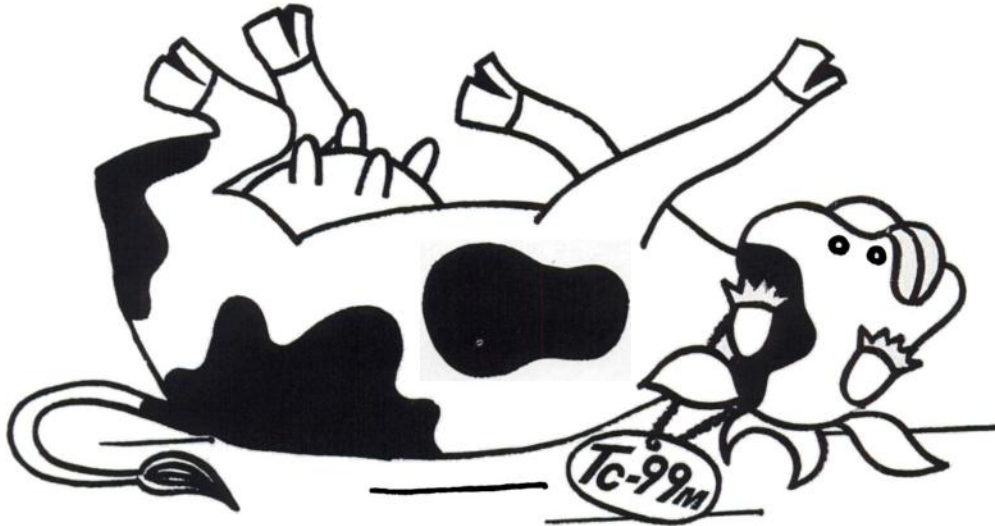
**P.M.—If it's a pulmonary problem, think Macroscan-131.**

**MACROSCAN®-131** AGGREGATED RADIO-IODINATED (<sup>131</sup>I) ALBUMIN (HUMAN)

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

# 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 MEKTec-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!"**

**ELIMINATES . . .**  
moly breakthrough problems!

**GUARANTEES . . .**  
consistent, high technetium yields!

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

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



<u>Mo-99 at Delivery</u>	<u>Tc-99m Yield (approximate)</u>	<u>*Cost/Week</u>
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!



**Modern  
Electronic  
Diagnostics  
CORPORATION**

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510 Lothair Drive  
Libertyville, Ill. 60048  
(312) 362-1025

**Western**  
820 W. Hyde Park Blvd.  
Inglewood, Calif. 90302  
(213) 673-2201

# STERCOW™ 113m...

**for brain, liver, lung or blood-pool scanning...**

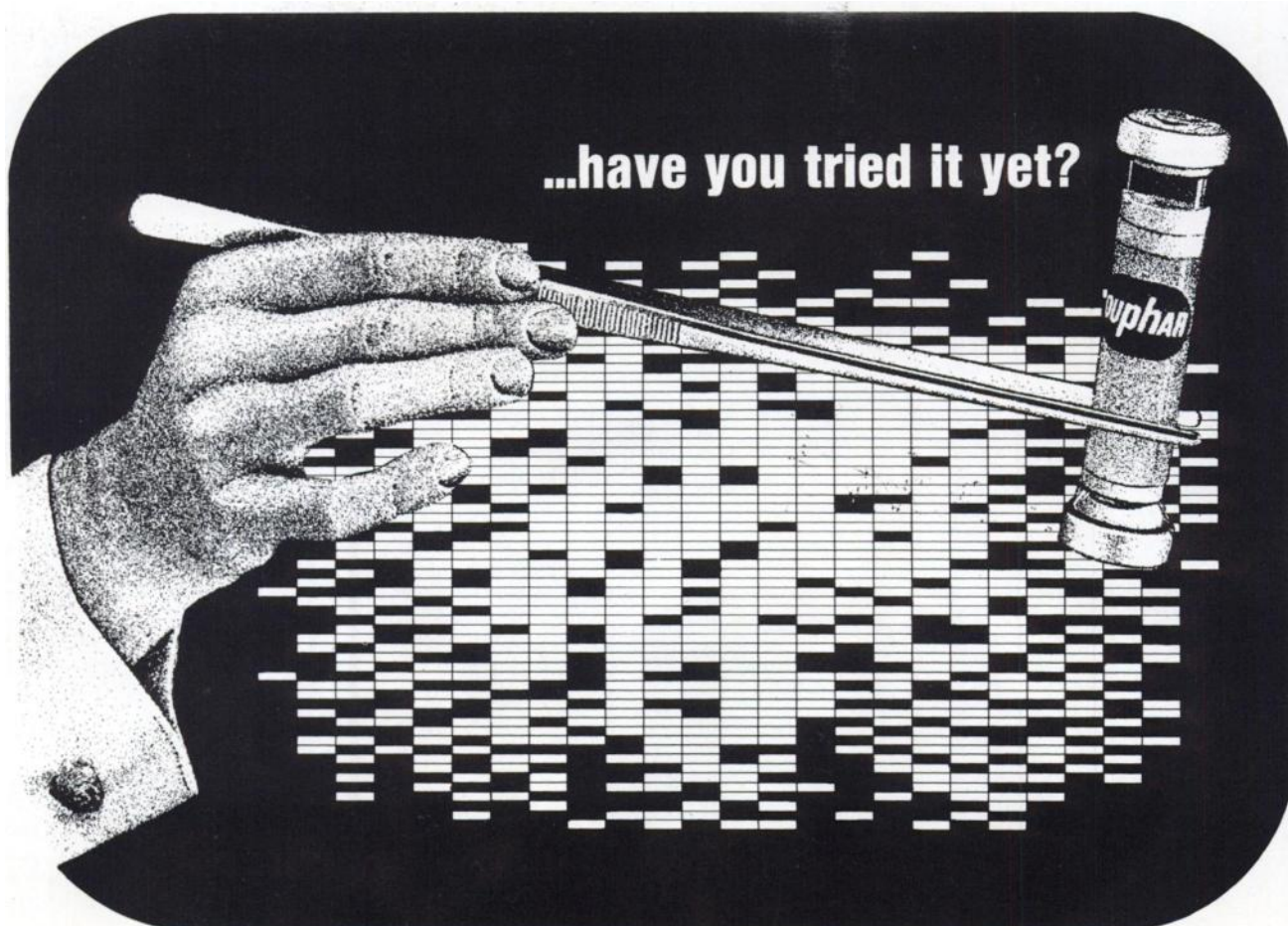
Success has been reported recently in the use of In113m-labelled particles and colloid for lung and liver scanning, and of carrier-free In113m as a blood-pool scanning agent for heart and placental scanning, and as a complex for brain scanning. For this purpose, Duphar have introduced STERCOW 113m, which generates 1.73-hour half-life In113m by elution of the parent isotope, Sn113, with a half-life of 118 days. For some applications, In113m has demonstrated certain advantages

over other nuclides. The relatively long half-life of the parent means that fewer generators need be purchased over a given period. In brain-scanning, the tumour-to-brain ratio is relatively high. Preparation of labelled compounds is simple. STERCOW 113m is available with activities of 5, 10, 25, 50 and 100 mCi, in a standard-sized cartridge. It comes complete with sterile, pyrogen-free elution needles, vent needles, marked elution vials, elution tubing, and a plastic bag containing 500 ml of eluent.

Have you been thinking of trying In113m? Now is a good time to do it.

Ask your Philips representative... or write to us... for full information on this new Duphar product... **STERCOW 113m.**

**N.V. Phillips-Duphar  
Cyclotron and Isotope Laboratories  
Petten, The Netherlands**





# DOES YOUR NUCLEAR MEDICINE LAB HAVE THESE CONVENIENCES?

## LEAD-LINED REFRIGERATORS

For radiopharmaceuticals, tagged biological and other radioactive materials requiring low-temperature storage. Completely lead-lined, 1/8" thick. Key-lock prevents unauthorized access.

- 53-350** Lead-Lined Refrigerator, 2 cubic ft. Only 20" high x 20" wide x 23" deep. Compact enough to fit on or below a lab bench.....\$425.00\*
- 53-375** Lead-Lined Refrigerator, 5 cubic ft., with 1/3 cu. ft. freezer compartment. 34" high x 19" wide x 23" deep.....\$595.00\*



53-350 Lead-Lined Refrigerator



53-375 Lead-Lined Refrigerator

## PROTECTIVE LEAD BARRIER

Eliminate radiation to your body or face while milking a Tc-99m generator or handling any other radioactive material. Most generators provide enough shielding for the generated activity but not for the setting-up process (e.g., energetic Mo-99 gamma radiation to the face, at 3 feet from a generator, can be as high as 35 mR/hr). All exposure is stopped by a 12" x 12" x 1/2" lead shield and a 12"x24" lead-glass sheet (4.8 gm/cc).

- 56-600** Protective Lead Barrier.....\$275.00\*

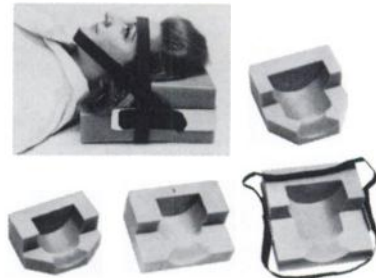


56-600 Protective Lead Barrier

## NUCLI-FOAM HEAD POSITIONERS

For positive, comfortable immobilizing of a patient's head during nuclear scanning. Made of washable polyurethane foam. Lighter and easier to use than other cumbersome devices. Two instant-adjust straps hold patient's head and block of foam snugly against an aluminum base. Set of 4 Positioners includes adult and child sizes (one each for lateral and A.P. positions).

- 17-400** Nucli-Foam Head Positioners.....\$35.00



17-400 Nucli-Foam Head Positioners

### IMMEDIATE DELIVERY

Also send for NEW CATALOG 70-B  
Contains a complete line of Nuclear and X-Ray accessories

**NUCLEAR ASSOCIATES, INC.**

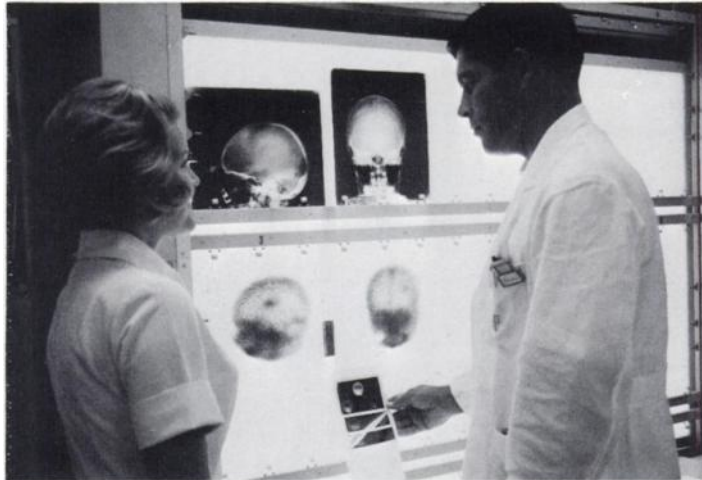
35B URBAN AVENUE, WESTBURY, N. Y. 11590, PHONE (516) 333-9344



\*Plus shipping charges

# CINTO-PHOTO ENLARGER, MODEL A-3

Patent Pending



ARE YOU TIRED OF TRYING TO EVALUATE SCINTIPHOTOGRAPHS  
WITH SKULLS THE SIZE OF THUMBNAILS ? ? ?

FOR ABOUT 1% OF THE INITIAL COST OF YOUR CAMERA YOU  
CAN ADD AT LEAST 50% IN CAPABILITY WITH OUR ENLARGER  
ATTACHMENT FOR YOUR SCINTILLATION CAMERA OR ANY OF THE  
SO-CALLED ADVANCED RADIONUCLIDE IMAGING SYSTEMS THAT  
USE THE OSCILLOSCOPE FOR READOUT . . . . .

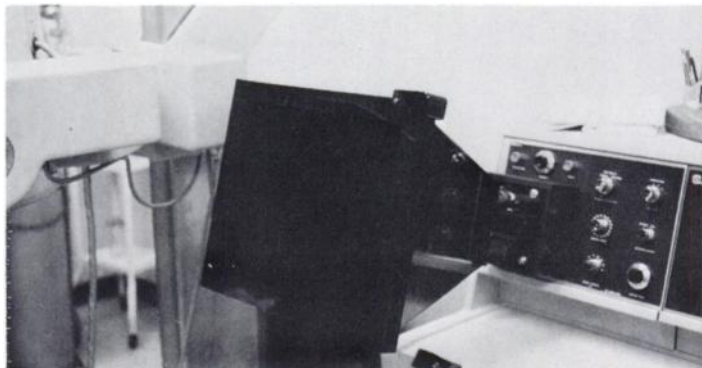
OUR ENLARGER USES REGULAR X-RAY FILM AND PROCESSING . . . . .

MAGNIFICATION IS SELECTED PER YOUR DESIRES . . . . .

ENLARGER EASILY ATTACHES OR DETACHES . . . . .

ALLOWS OBSERVATION ON REGULAR X-RAY FILM VIEW BOXES AND  
IMAGE MANIPULATION WITH CLOSED CIRCUIT TELEVISION . . . . .

FULL SIZE NEGATIVE PICTURES FOR EVALUATION  
OR DISPLAY . . . . .



Manufactured by:  
FRED S. DUNNING COMPANY, 2910 FRANKLIN BOULEVARD  
SACRAMENTO, CALIFORNIA, 95818, PHONE 451 - 4259

# General Electric introduces the first fully portable, ultra-sensitive nuclear counting system. And, it's under \$3,000.

The NUCLE EYE™ Monitor.

This new system can count low-energy radiations *in vivo* you couldn't count before—at remarkably low background levels. An advanced solid-state "Proportional Counter" makes it possible.

You can now think of using  $^{125}\text{I}$  for organ scanning, for example. For the first time, use low-energy emitting isotopes like  $^{35}\text{S}$ ,  $^{55}\text{Fe}$  and  $^{45}\text{Ca}$  in *in vivo* experimental work. X-ray fluorescence scanning and analysis. Tumor detection and measurement of tumor dynamics. Detection of  $^{55}\text{Fe}$  x-rays in blood measurements and  $^{51}\text{Cr}$  x-rays in spleen scanning. Carbon-14 research.

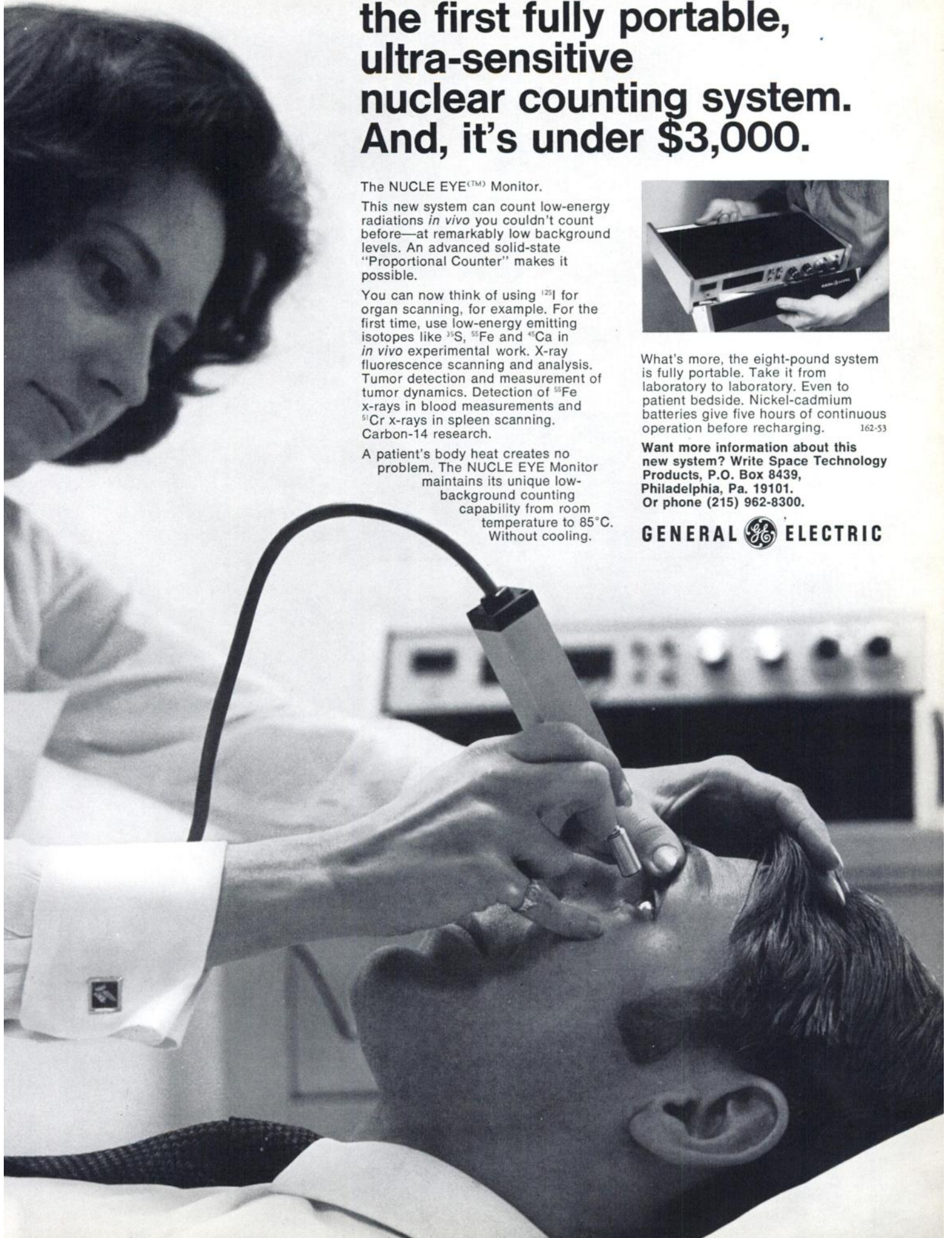
A patient's body heat creates no problem. The NUCLE EYE Monitor maintains its unique low-background counting capability from room temperature to  $85^{\circ}\text{C}$ . Without cooling.



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.

GENERAL  ELECTRIC





**Which would you  
rather use?**

	<b>PGL 35mm System</b>	<b>Polaroid</b>
Film Cost	\$120 per year	\$3000 per year <small>(More than the total cost of the PGL System)</small>
Picture Quality	Extended grey scale	Limited Latitude
Dynamic Studies	Automatically advanced	Manually Pulled

***Want Proof?*** We'll send you clinical studies, cost analysis, and complete specifications on the PGL MODEL 250 automatic camera system.

*Write or Call Collect*



1280 COLUMBUS AVE.

SAN FRANCISCO, CA 94133

(415) 474 6338

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.

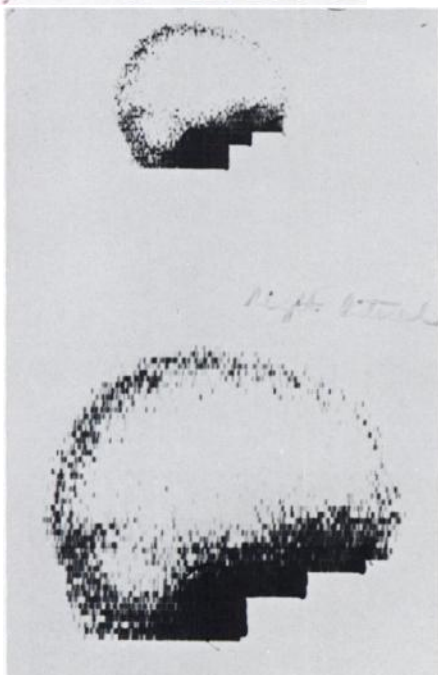
Full descriptive brochures available on the versatile 84 and compact 76 scanners.

**ohio-nuclear, inc.** 

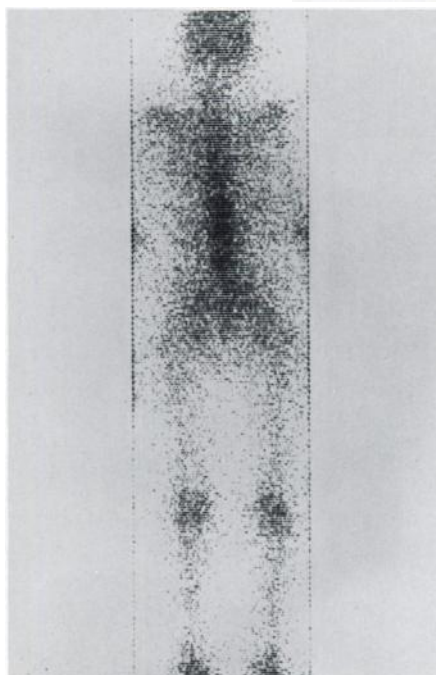
7700 St. Clair Ave., Mentor, Ohio 44060 (216)946-5506

# think

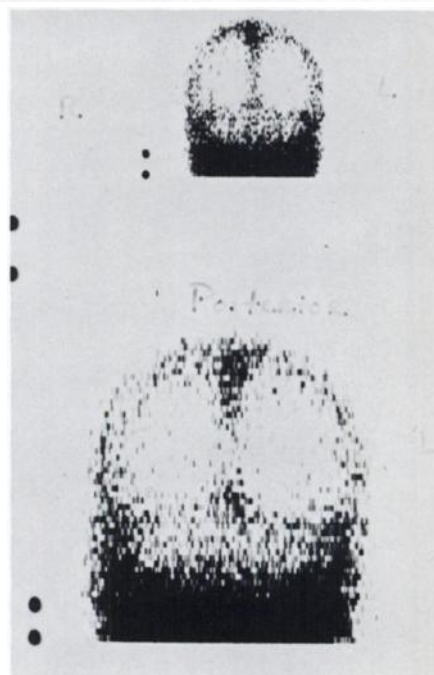
# scan minification



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

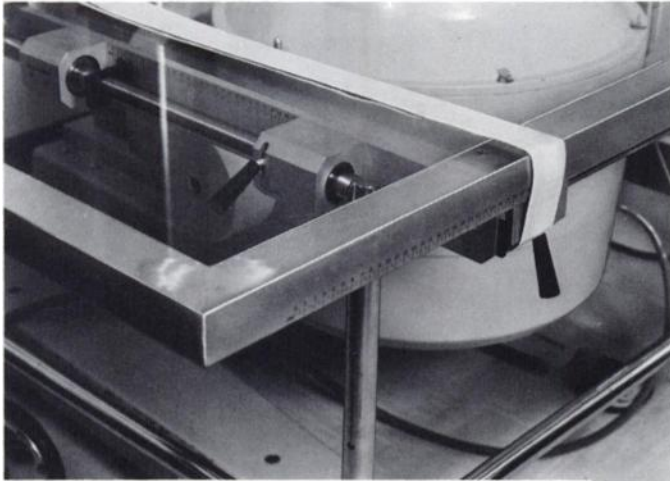


Whole-body bone scan:  
Typical speeds 400 to 700 cm/min.



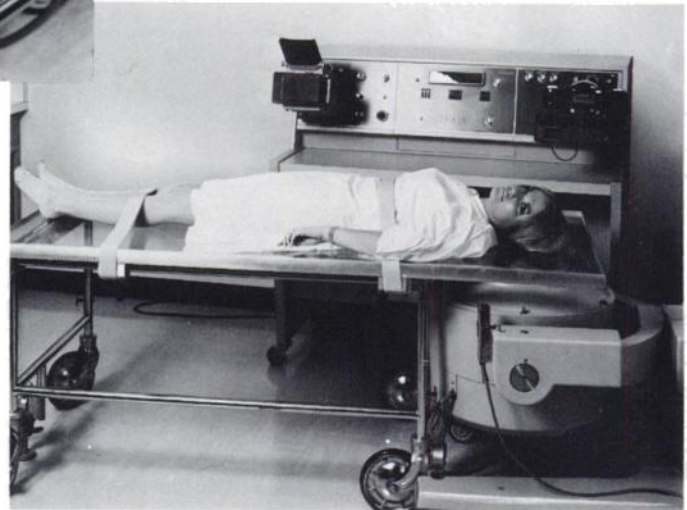
Brain scan:  
1:1 and 2:1 posterior—anterior.  
Contrast enhancement 50%.  
Typical speeds 280 to 350 cm/min.

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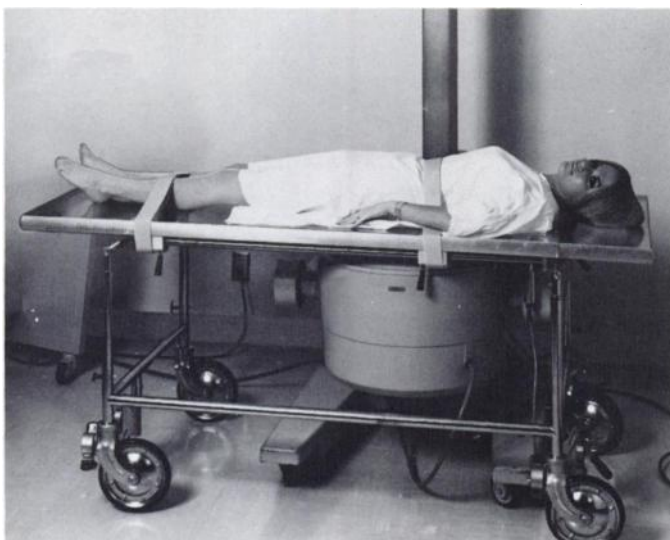


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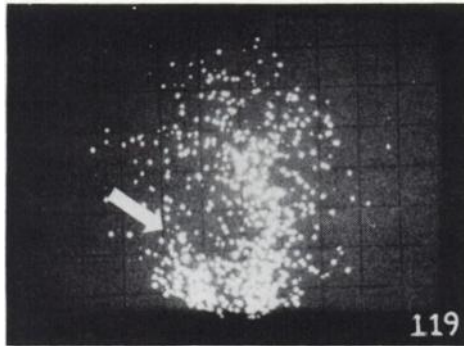
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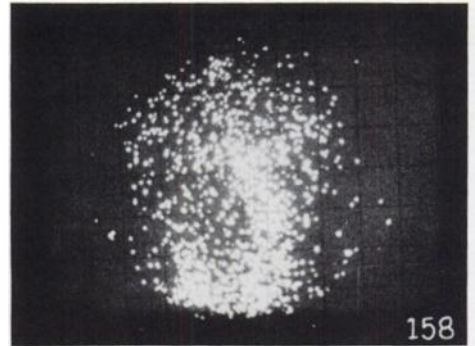
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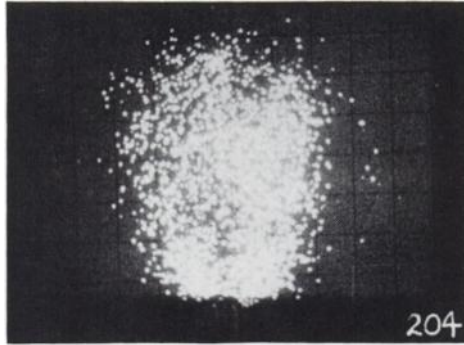
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MOTION-PICTURE  
STUDY.  
SELECTED FRAMES.  
ANTERIOR VIEW.**



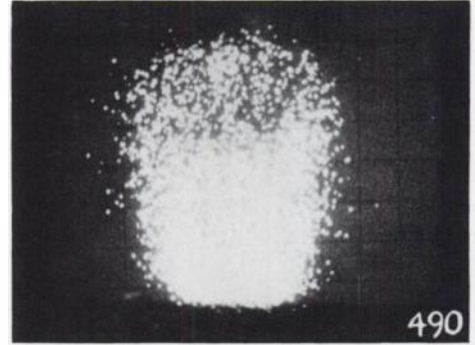
R ~3.4 SEC. FOLLOWING INITIAL  
DETECTION OF ABNORMALITY  
ON PERSISTENCE SCOPE. L



R ~1.2 SEC. LATER. L

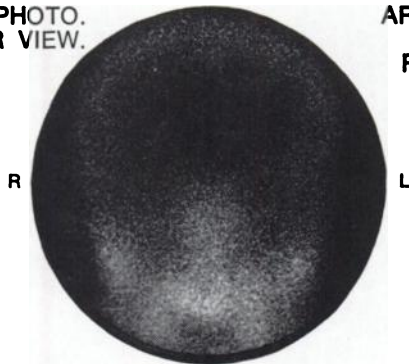


R ~2.7 SEC. LATER. L

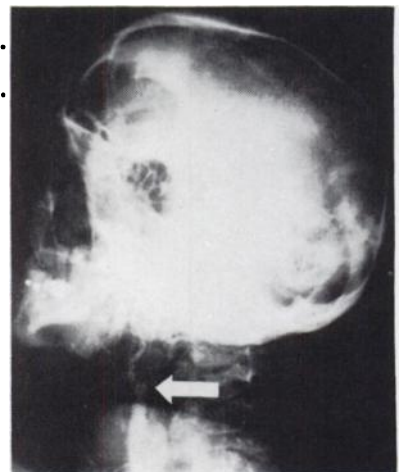


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ANTERIOR VIEW.**



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STUDY.  
RIGHT OBLIQUE  
VIEW.**



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SCINTILLATION CAMERA.**



# The Cerebral "Flow" Study

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

In this technique using <sup>99m</sup>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 mCi of <sup>99m</sup>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.

O-225

## Nuclear Reviews

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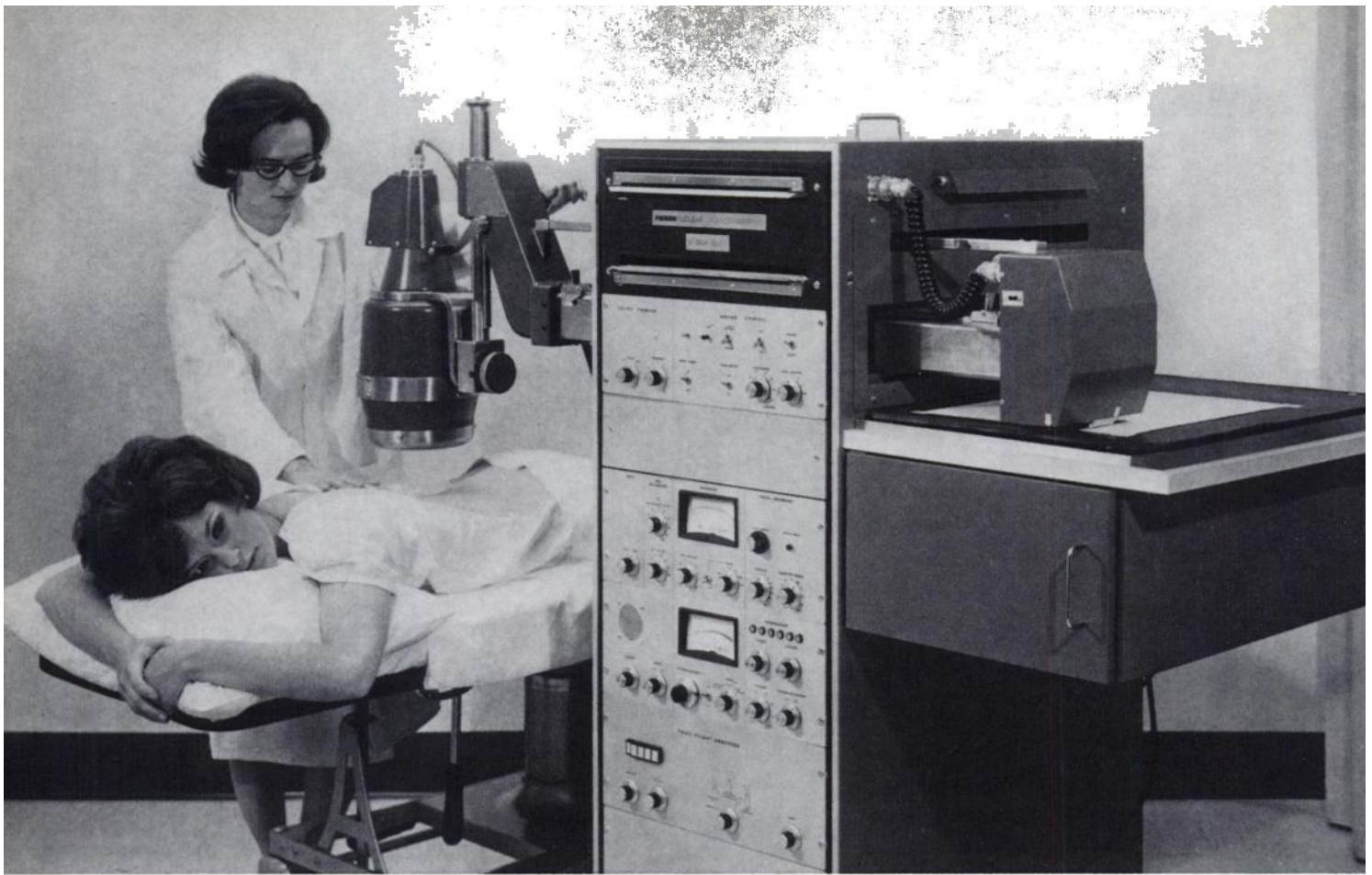
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## The case for the classical radioisotope scanner, or...

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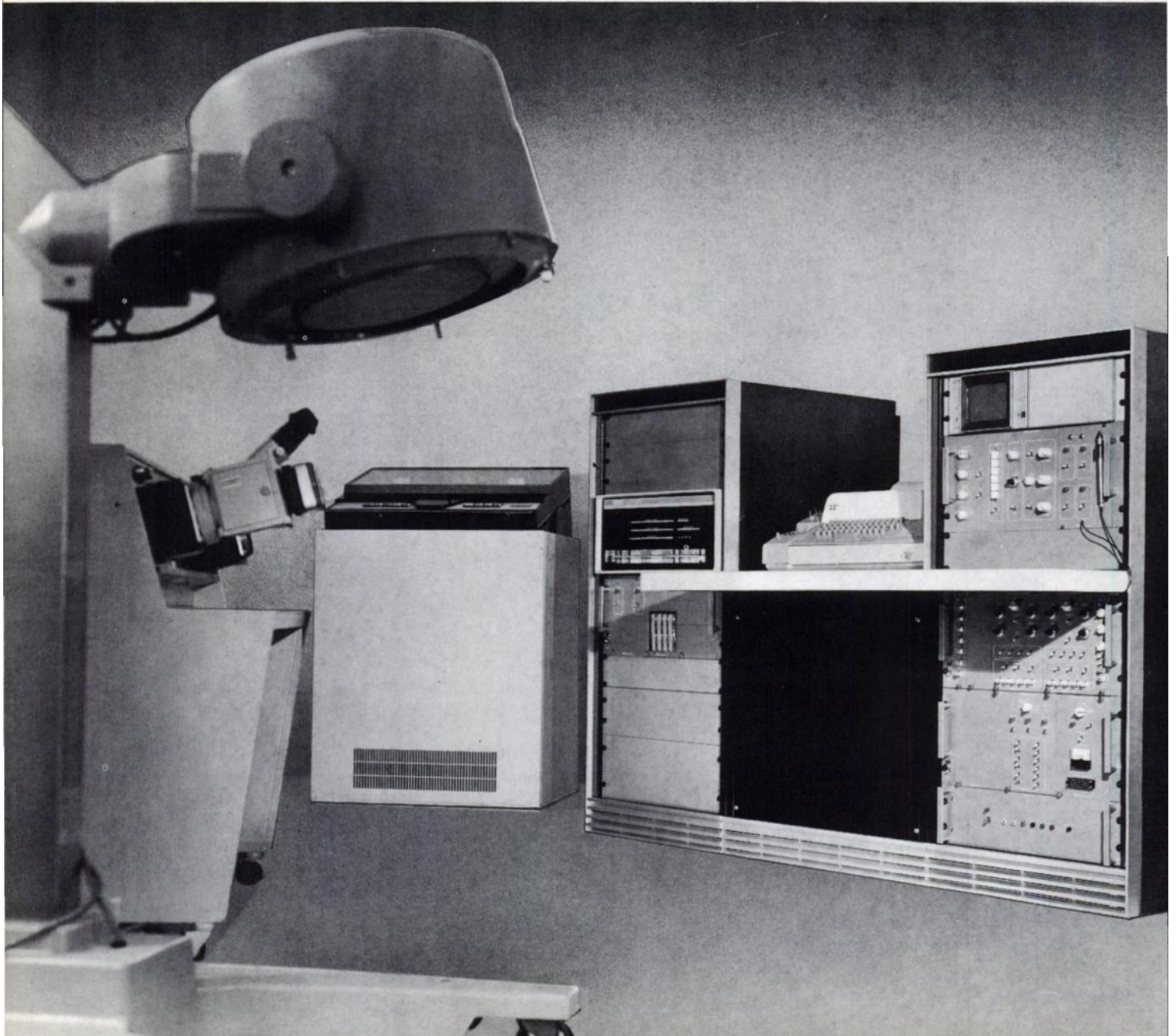
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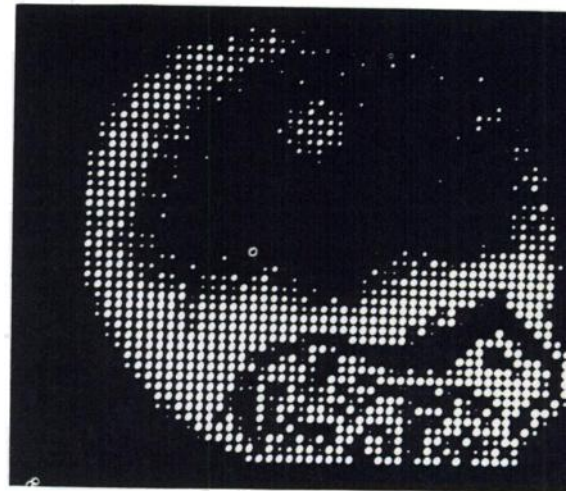
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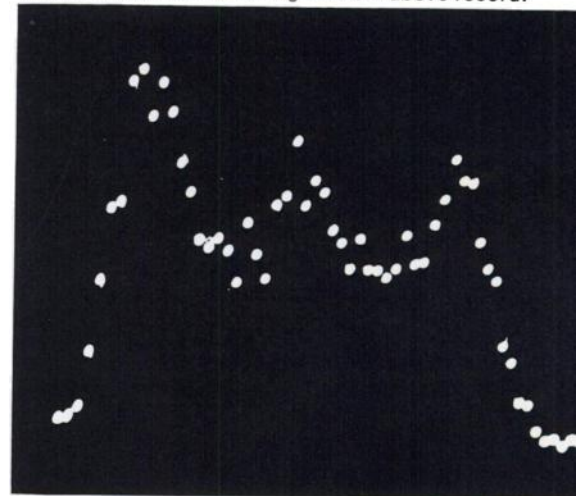


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*Intensity modulated record of abnormal brain.*

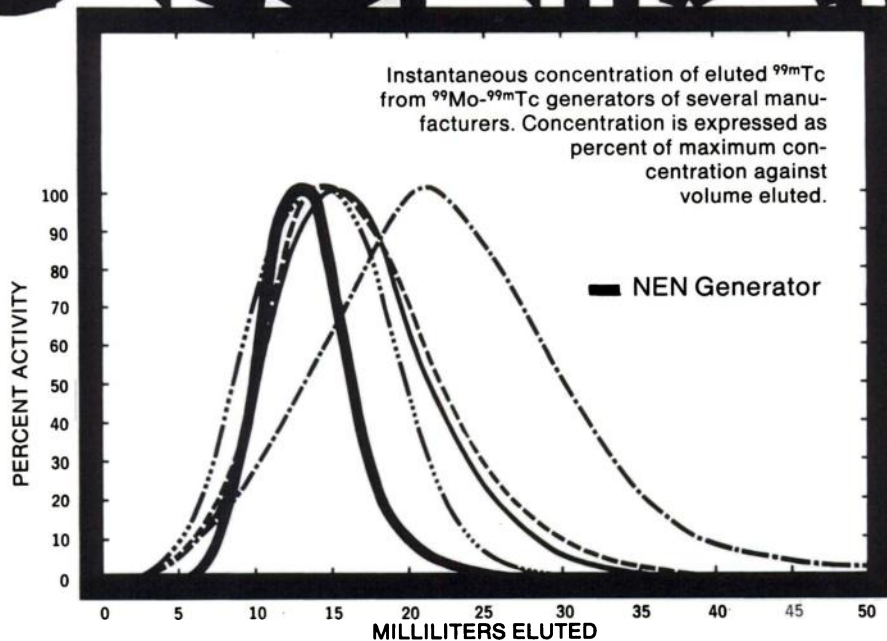
*Profile view of abnormal region from above record.*





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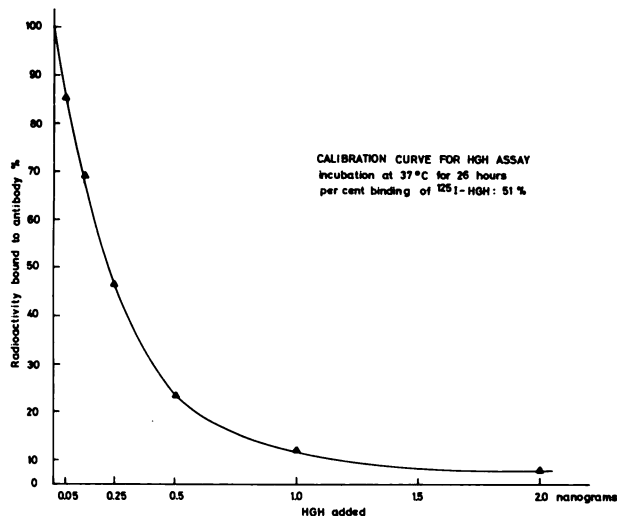
Selection of the preliminary note shall be on a competitive basis for each issue. One will be selected after careful screening and review by the Editors. Those not selected will be returned immediately to the authors without criticism. Authors may resubmit a rejected or revised preliminary note for consideration for publication in a later issue. The subject material of all rejected manuscripts will be considered confidential.

The text of the manuscript should not exceed 1,200 words. Either two illustrations, two tables or one illustration and one table will be permitted. An additional 400 words of text may be submitted if no tables or illustrations are required. Only the minimum number of references should be cited.

Manuscripts should be mailed to the Editor, Dr. Belton A. Burrows, 720 Harrison Avenue, Boston, Mass. 02118. They must be received before the first day of the month preceding the publication month of the next issue, e.g., preliminary notes to be considered for the January issue must be in the hands of the Editor before December 1.

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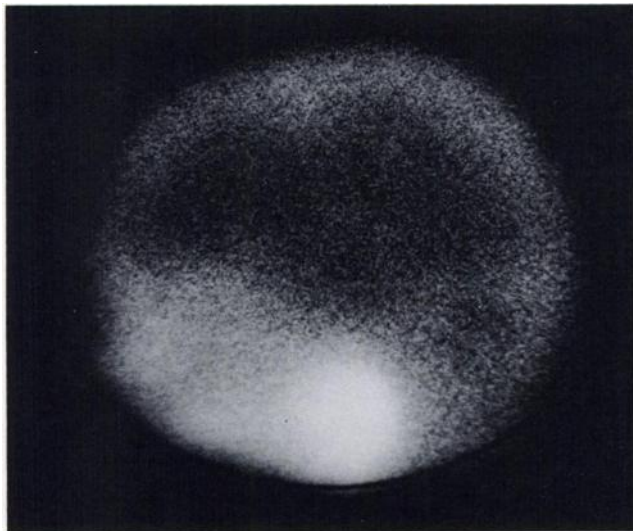
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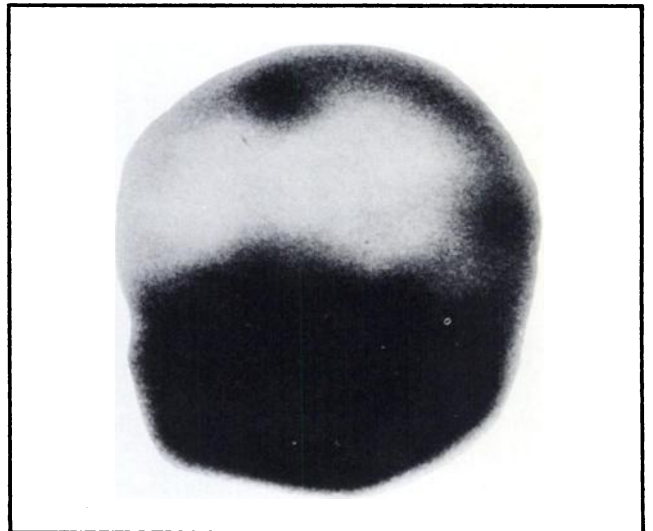
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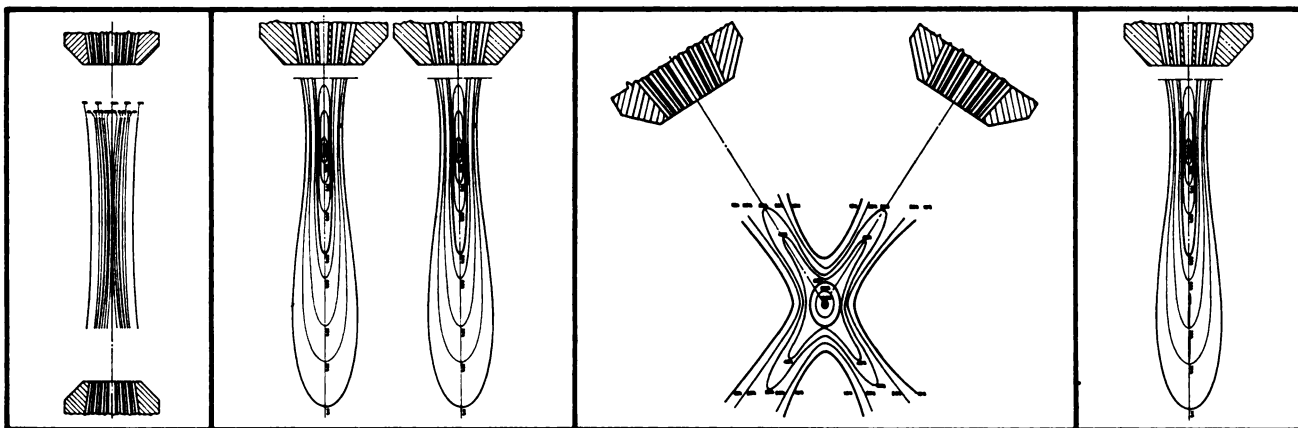
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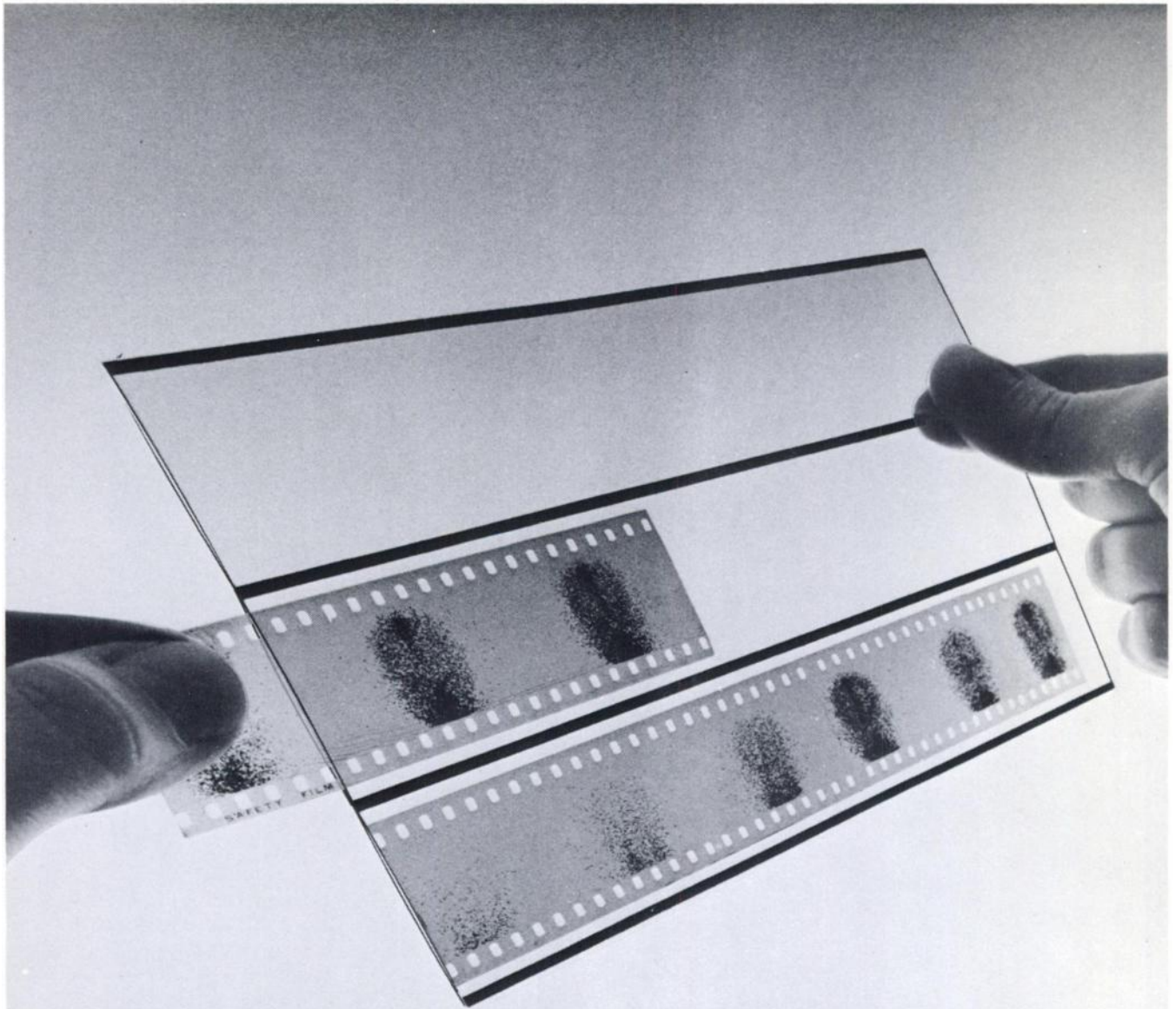
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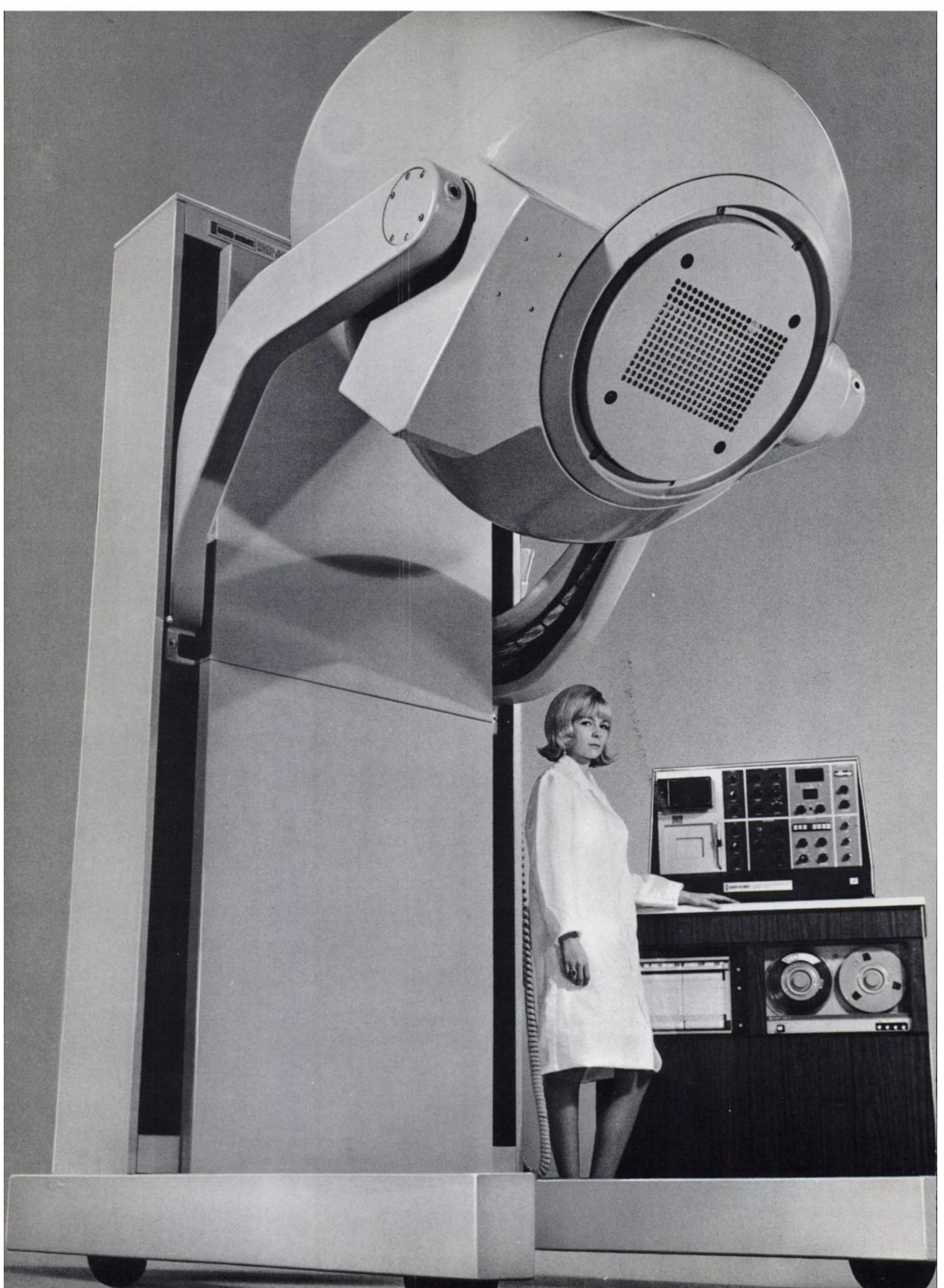
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Note that we've given the current Pho/Gamma detector a significantly

increased range of positioning. We've also improved the electronics and arranged everything to fit into a human-engineered desk console.

And, perhaps most importantly, no Pho/Gamma III will ever become obsolete. Because its performance can be continuously enhanced through an always-widening array of accessories. Recently added to this array are the Data-Store/Playback Accessory, the Super-8/Persistence Scope Accessory, and the CDS-4096 Clinical Data System. Which join the following accessories: 35-mm automatic time-lapse camera for sequential scintiphotos; dual-pen recorder/dual-channel rate-meter; Photo/Scope III attachment for 1-to-1 scintiphotos; and high-speed digital printer.

The proof of Pho/Gamma's experience is in the hands of your Nuclear-Chicago sales engineer. Please call him or write to us.

You'll find that we're the people who successfully marketed the first and, consequently, the most experienced scintillation camera—the Pho/Gamma III.

And experience, after all, is the best teacher.

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**NUCLEAR-CHICAGO**

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