By eliminating the disadvantages of earlier methods, the Triosorb Sponge has achieved a real breakthrough in thyroid testing. **It is an in vitro test unmatched in accuracy, speed and convenience.**

Accuracy: Because factors such as red blood cells and exogenous iodine have been eliminated from consideration in the Triosorb Test, it is unmatched in accuracy.

Speed: With only 3 washes and no need for double pipettings, shakers, or incubators, the Triosorb Test can be more rapidly performed than any other T-3 test.

Convenience: Triosorb is in a disposable kit ready for immediate use at room temperature, making it the simplest and most convenient thyroid function test to perform.

McAdams* reported that "The resin sponge (Triosorb) technique is superior to the erythrocyte method for performing the I^{131} T3 test in terms of simplicity, convenience and elimination of errors characteristic of the erythrocyte procedure."

Triosorb is available to all doctors, hospitals and clinical laboratories–AEC licensing is not required. Because Triosorb will enable far more screenings to be performed, this procedure may soon become as standard as today's blood counts and urinalyses.

*McAdams, G. B. and Reinfrank, R. F., Jrnl. Nuclear Med., 5:112, Feb., 1964.

TRIOSORB®

T-3 DIAGNOSTIC KIT

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Announcing IROSORB-59 Diagnostic Kit

Irosorb-59 is the second in a series of **in vitro** radio-pharmaceuticals tests developed by Abbott Laboratories. The Irosorb-59 sponge consists of a polyether foam in which is embedded a pre-measured finely divided ion-exchange resin. **Irosorb-59 offers a remarkable degree of accuracy and simplicity that makes routine screening a practical matter.**

Accuracy: The diagnostic accuracy of the test is unsurpassed in measuring latent iron-binding capacity. What's more, it can be scheduled where other standard methods may not be applicable. For example, it may be used following the administration of ferrous iron.

Speed: Irosorb-59 can be washed quickly, there being only 3 washes. No incubators or shakers are needed.

Convenience: Irosorb-59 is in a disposable kit form ready for immediate use at room temperature.

Safety: No dilution or pipetting of radioactive material is necessary. Since the patient receives no radioactive material, the test can be used in children, pregnant women, or in adults without any hazard of radioactivity.

Flexibility: The test does not require the presence of the patient for the determination of the radioactivity. The serums can be frozen and saved until a sufficient number has been collected to run a rack full of tubes at one time, or serum samples can be mailed to personnel performing the test.

Irosorb-59 is available to all doctors, hospitals and clinical laboratories—AEC licensing is not required.

IROSORB-59®
DIAGNOSTIC KIT
ABBOTT LABORATORIES NORTH CHICAGO, ILLINOIS

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REPRODUCIBILITY

with TBI from MALLINCKRODT/NUCLEAR

Thyro Binding Index (TBI) from Mallinckrodt/Nuclear delivers a high degree of accuracy in a T-3 test that takes less technician time than any other — almost half.

At each step, TBI minimizes the possibility of error and inaccuracy. The design and procedure of the test give you these benefits:

- Direct measurement of binding site uptake* (to eliminate uncertainty associated with indirect indication).
- An exclusive buffer which assures exceptional reproducibility and stability.
- Elimination of any need for temperature corrections or critical timing.
- Each serum is counted just once, for a minimum of serum handling.
- TBI includes a "matched control" in every kit.
- TBI features rigid quality control from laboratory production through supervised packaging and handling.

TBI costs less, too — TBI cost is less than $1 per test in quantity, permitting its use as a screening test. Write or call for full details.

*In tests performed on over 2200 patients, the TBI test was reported in agreement with final clinical diagnosis in over 90% of the cases. Ref.: Scholer, J. F., J. of Nuclear Med., May '63, p. 192.

Write For This Booklet

Mallinckrodt/Nuclear
Box 6172 Lambert Field, St. Louis, Mo. 63145

Dear Sirs:
Please send a copy of Mallinckrodt/Nuclear's booklet: Thyro Binding Index.

Name (please print)_____

Position or Department_____

Hospital or Laboratory_____

Street_____ City_____

State_____ Zip_____

Name the radioisotope dose you want to calibrate:

Technetium-99m	Mercury-203
Iodine-131	Gold-198
Xenon-133	Chromium-51
Strontium-87m	Selenium-75
Gallium-68	Cobalt-60
Cobalt-57	Cadmium-109
Mercury-197	Iron-59
Radium-226	Cesium-137
Sodium-24	or what have you.

Calibrate them all with Nuclear-Chicago's Mediac® Dose Calibrator.

And read the amount of radioactivity, in microcuries or millicuries, on the lighted digital display. Sensitivity ranges from 0.05 microcurie (background) to 99.9 millicuries (999 millicuries for Tc-99m). Use any standard vial or syringe. Routine calibration with gamma-ray energies as low as 75 Kev. Backed by nation-wide, world-wide Nuclear-Chicago service.

Please write for the Mediac Dose Calibrator Brochure or consult your local Nuclear-Chicago sales engineer.

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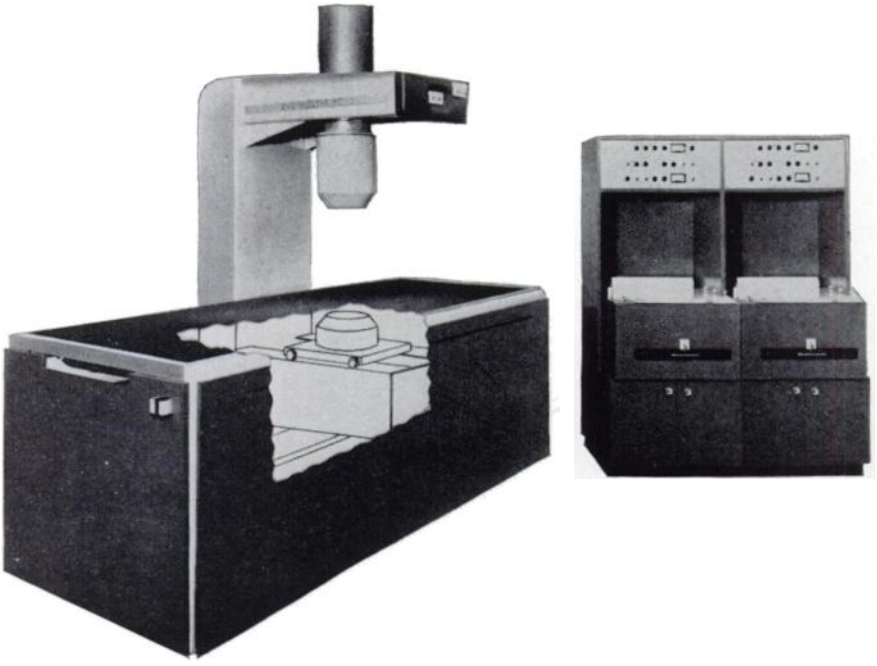
RADIOISOTOPE SCANNER

MODEL 54-FD
DUAL, OPPOSED, 5-INCH CRYSTALS



The demonstrable advantages of a dual 5-inch crystal scanner should be investigated by all those with a high clinical load who desire high resolution, rapid scans of both large and small organs or of the whole body.

The two scanning heads, exactly opposite each other, have separate, and complete electronics and print-out so that the data collected by each crystal may be used separately, in coincidence, or additively.

Mechanical and electronic specifications are the same as for our other large-crystal radioisotope scanners Models 54F and 54H: Scanning speeds continuously variable to 200 inches per minute (500 cm/min.); adequate shielding even for high energy gamma emitters (up to 3 inches lead and 1 inch steel); high resolution crystals (9 per cent or better); accurate, reproducible scanning speeds and line spacing; no scalloping at any speeds; low background crystals (2 inch thick pure NaI light pipe); Gammagraphic (patent pending) or slit mask photoscans; unequivocal one year warranty anywhere in USA or Canada.

This unparalleled radioisotope scanner is priced at $28,750 with delivery in 90 days guaranteed.

OHIO-NUCLEAR, INC.

1725 FALL AVENUE CLEVELAND, OHIO

216 - 621-8477

Name the kind of *T3 test you plan to use:

*$T3_{RBC}$ U (Iodine-131)
*$T3_{RESIN}$ U (Iodine-131)
*$T3_{TBI}$ U (Iodine-131)
*$T3_{RESIN}$ U (Iodine-125)

Use any or all of them with Nuclear-Chicago's Mediac®*T3 Counter.

And read the per cent thyroid uptake directly, in digits. Panel-mounted cards show step-by-step procedure for all *T3 tests. Lighted display tells you what Mediac is doing and when to go to next step. Simple, two-button operation. Electronic normalizing. Plus dependable Nuclear-Chicago service—everywhere.

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James Picker Foundation

On behalf of the James Picker Foundation, the National Academy of Sciences—National Research Council is accepting applications for postdoctoral awards of fellowships and grants in the field of radiology and nuclear medicine for the year 1968-1969. Awards are made in four categories:

The *Advanced Fellowships in Academic Radiology* reflect the primary interest of the James Picker Foundation in the development of students for careers in academic radiology. Emphasis is placed upon the acquisition of a broad background in the basic sciences related to radiology. Preference will be given to applicants under 34 years of age. Completion of clinical training in radiology ordinarily will be a prerequisite. The candidate should be prepared to devote a minimum of two years to course work in the basic sciences and to the application of the techniques and methods of these disciplines to radiological research. Applications will be accepted upon nomination by a clinical adviser, who should be a member of the staff of a department of radiology in a medical school.

Research Fellowships are open to recent graduates who desire investigative experience and training in radiology or nuclear medicine. While persons from closely related disciplines are eligible to apply, candidates with some training in radiology or nuclear medicine or both will receive preference. Applicants must hold the M.D., Ph.D., or Sc.D. degree or the equivalent. Awards are for a period of one year, but requests for renewal will be considered.

Grants for Scholars are offered to assist medical schools, hospitals, and other research institutions in supporting and developing junior staff members in radiology and nuclear medicine. This is a transitional form of support, designed to bridge the gap between the completion of the conventional type of postdoctoral research experience and the period when the young scientist has thoroughly demonstrated his competence as an independent investigator. The application is submitted by the institution on behalf of the prospective scholar. The grant is made directly to the institution as a contribution toward the scholar's support, or his research, or both. Initial grants are made for two years, but renewal for a third year may be recommended.

Research Grants are designed to encourage investigations in radiology and nuclear medicine that offer promise of improvement in methods of diagnosis or treatment of disease. In line with the interests of the Foundation, the program is oriented toward, but not limited to, the diagnostic aspects of these fields. Studies involving the use of radioisotopes fall within the scope of this program. Research grants are awarded to institutions, rather than to individuals. Initial awards may be made for two years.

Applications in these four categories will be reviewed by the Committee on Radiology of the Academy—Research Council's Division of Medical Sciences. Final determination of awards is made by the James Picker Foundation upon recommendation of the Division. Support is not restricted to citizens of the United States or to institutions within this country.

Applications for the fiscal year 1968-1969 should be submitted by *October 1, 1967*. Application blanks and further details may be obtained from the *Committee on Radiology, National Academy of Sciences—National Research Council, 2101 Constitution Avenue, N.W., Washington, D. C. 20418.*

How can you prove the engineering excellence of an Eberline Instrument

Take it apart!

The quality features of an Eberline Instrument are obvious from any angle . . . compact, sturdy, usable! But have a look inside where engineering excellence really counts. Take this instrument for example. A single etched board holds and connects all components. Result . . . minimum soldered joints to insure reliability.The etched board connects to diecast aluminum cover, forming a completely operational instrument with controls and test points exposed for easy calibration or service. The O-ring cover seal forms a rugged, weatherproof housing. Note all the excellent features in any Eberline instrument then prepare for a pleasant surprise . . . while obviously superior, your Eberline is economically priced!

MODEL E-120

PORTABLE BETA-GAMMA SURVEY METER

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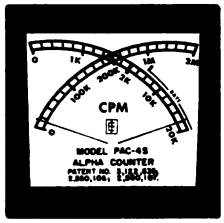

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The new Lin-Log, designed and manufactured exclusively by Eberline, provides four color coded decades of count rate for continuous readout from lowest to highest. Insures against error . . . just read the needle that is on scale. Lin-Log is adaptable to all pulse type detectors. Accessories include headset and audio speaker. A new quality product at the price of counterparts.

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This all-transistorized instrument, a revised version of the reliable RM-3A, incorporates an adjustable high level alarm and interchangeability of detectors. Lightweight and portable, it provides alpha or beta-gamma measurements on surfaces, clothing and samples. Its audible high frequency alarm can be set at any warning level. Accessories include a complete range of detectors capable of monitoring Alpha, Beta and Beta-Gamma radiation, anywhere.

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This is the business end of a simple, self-contained unit[1] that provides sterile,[2] pyrogen-free[3] technetium.[4] Quickly.[5] Safely.[6] Reliably.[7]

1. Simple, self-contained unit – Nothing else needed. Nothing.

2. Sterile – Every generator is autoclaved before shipment and each eluate is forced through a final 0.22 micron sterilizing filter as an extra precaution. Further: user is notified before calibration time if there is any bacterial or mycotic growth.

3. Pyrogen-free – *Every* generator is tested for pyrogenicity before shipment.

4. Technetium – As the pertechnetate ion. And we *guarantee* the amount of technetium obtainable from each generator. No vagueness about "yield".

5. Quickly – The entire elution and assay process takes only a few minutes. And speaking of time: because of a simple, logical sequence, and a profusely illustrated, refreshingly simple, instruction manual, only a few minutes are needed to master the entire procedure – even without any relevant prior experience.

6. Safely – *Patient* safety derives from points 2 and 3 above and this: *every* elution is easily and precisely checked for possible molybdenum breakthrough; simple, accurate radioassay materials are included for testing all elutions. *Hospital personnel* safety is related to point 5 above since speed reduces exposure, and: the generator never leaves its ¾" lead shield or its 6 inch diameter can; and the construction is unbreakable.

7. Reliably – Semi-automatic operation eliminates the risk of improper elution with the wrong solvent, the wrong volume of solvent, or at the wrong rate. (See also: most other points above.)

For more information, contact any Picker Nuclear office or write for file 131N.

PN67-131

Picker Nuclear, 1275 Mamaroneck Ave., White Plains, N.Y. 10605

PICKER NUCLEAR

SQUIBB

a research concept in radiopharmaceuticals

The first sterile generator for Technetium-99m

The new Technetope Sterile Generator is a unique development in the field of radiodiagnostics and reflects the broad Squibb experience and technical know-how in this area. It offers a simple means of obtaining a sterile, non-pyrogenic supply of the radiopharmaceutical-Technetium-99m (Tc^{99m}) – a versatile scanning agent used for visualizing the brain that can be used both orally and intravenously. Tc^{99m} is the decay product of Molybdenum-99 (Mo^{99}) and is produced by separation from its parent isotope. The relatively simple operation involves allowing the Mo^{99} parent to decay and generate Tc^{99m}, then removing the Tc^{99m} from the generating column by selective elution.

non-pyrogenic and sterile, with important safeguards
For the first time the physician can be assured of a supply of Tc^{99m} that is both sterile and non-pyrogenic, since the Technetope generator is prepared with non-pyrogenic materials and sterilized by autoclaving. It consists of a specially designed lead shield containing an alumina-packed glass column that releases Tc^{99m} upon elution. The lead shield has two access ports to the rubber closures at the top and bottom of the glass column, allowing aseptic elution and storage under conditions of constant shielding. (See Figure 1.) Additional shielding during shipment and during the elution procedure is provided by a removable lead sleeve that surrounds the entire assembly.

Eluting the generator every 24 hours will provide optimal amounts of Tc^{99m}. Most laboratories, therefore, will find it convenient to elute the generator at a specific time each day. However, the generator may be eluted whenever sufficient amounts of Tc^{99m} have accumulated within the column.

available with four different quantities of Mo^{99}
The quantity of Tc^{99m} eluted from the generator is, of course, dependent upon the quantity of Mo^{99} present in the column. Technetope sterile generators contain either 50, 100, 200, or 300 millicuries of Mo^{99} at the time of assay, depending on which activity has been requested. The activity obtained from subsequent elutions will depend on the time interval between elutions. (See Fig. 2.)

Warning: Proper radiation safety precautions should be maintained at all times. The glass column containing Mo^{99} need not be removed from the lead shield at any time. The radiation field surrounding an unshielded column is quite high. Solutions of Tc^{99m} withdrawn from the generator should always be adequately shielded. The early elutions from the generator are highly radioactive. For radiation protection, a lead shield for the collecting vial is included with Technetope.

Precautions: Radiopharmaceuticals should not be administered to pregnant women or patients under 18 unless the indications are very exceptional.

This sterile and non-pyrogenic generator is a Squibb first. Of course, others may emulate it, but none can offer the body of experience that made it possible.

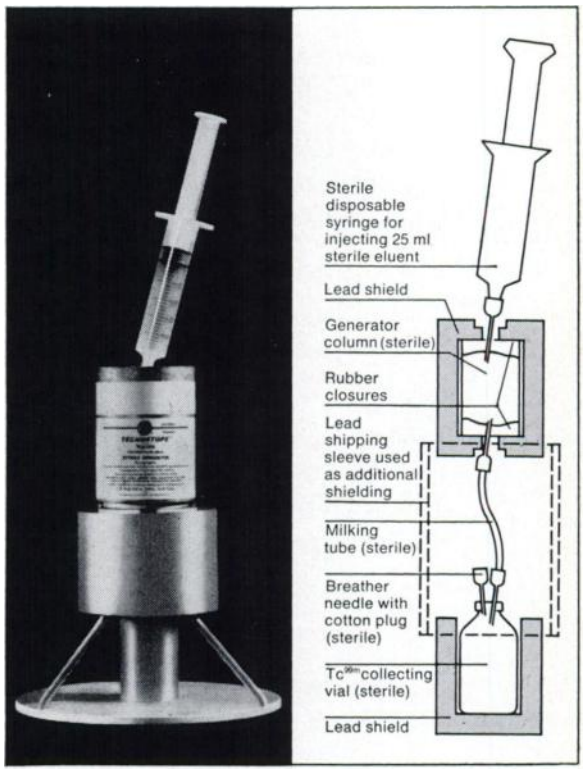


Figure 1. Sterile generator set up for use.

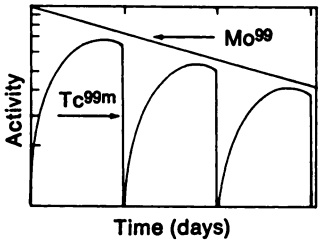


Figure 2. Mo^{99} decay and Tc^{99m} growth after daily elutions.

Technetope®
Squibb Technetium-99m
Sterile Generator

SQUIBB 'The Priceless Ingredient' of every product is the honor and integrity of its maker.

LOCATION: **The Manitoba Cancer Treatment and Research Foundation**

CONTACT: **Dr. R. J. Walton,** Executive Director,
The Manitoba Cancer Treatment and Research Foundation,
700 Bannatyne Avenue, Winnipeg 3, Manitoba, Canada

POSITION: **Physicist—Nuclear Medicine**

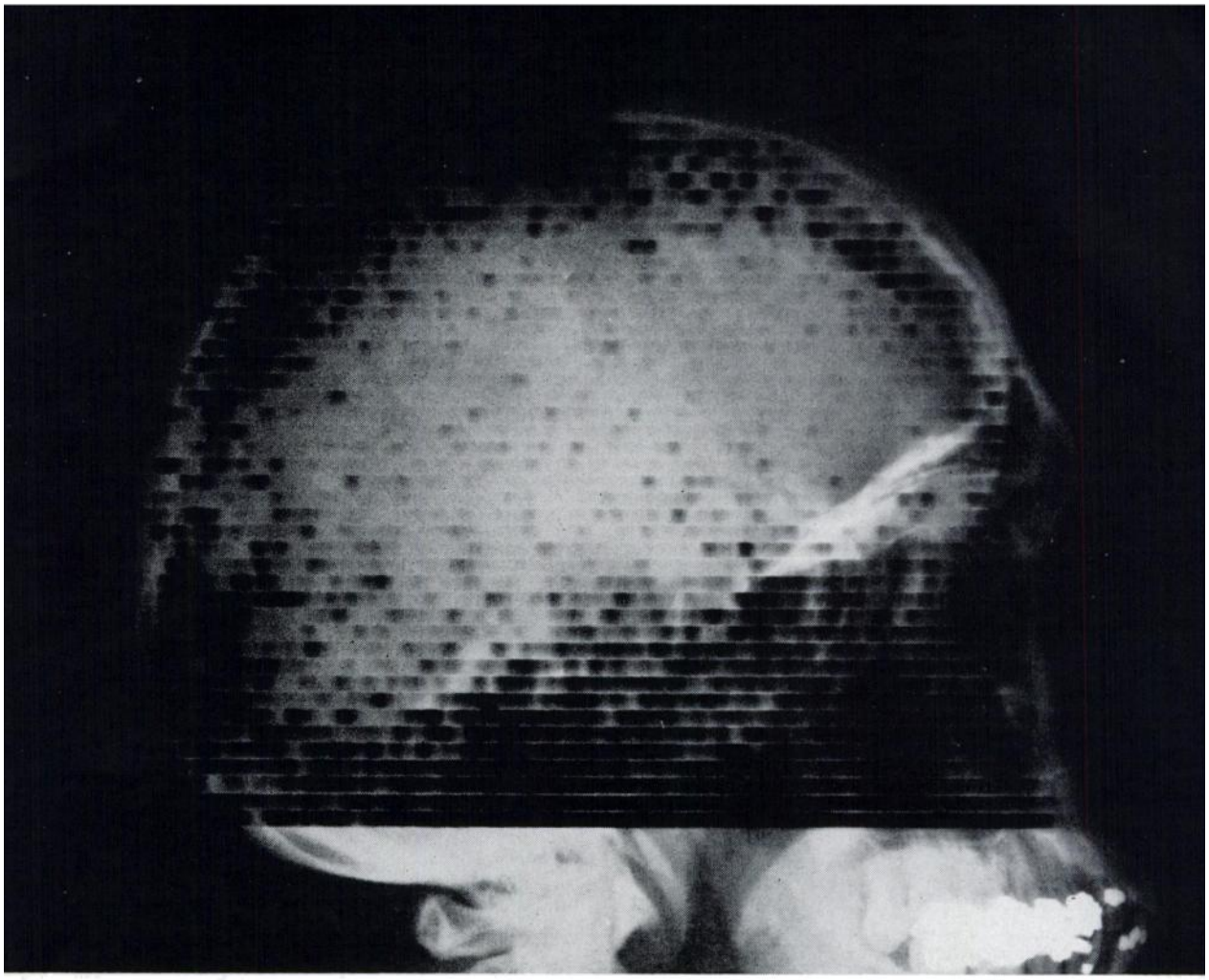
SALARY: Negotiable, depending on qualifications and experience.

Physicist with Ph.D. or M.Sc. and training in nuclear physics, electronic instrumentation, mathematics, use of radioisotopes and radiation safety. Duties and opportunities include planning, in co-operation with the Medical Director of the department, a comprehensive programme of research, diagnosis and therapy in the field of nuclear medicine, supervision of proper use of radioactivity detection and counting equipment; help in design of new apparatus not commercially available; teaching of radiology residents and student technologists in Nuclear Medicine; technical supervision of clinical and research procedures in expanding Radioisotope Services provided by the Foundation in two hospitals; carrying out own research programme, university affiliation available.

Advertising Index

Journal of Nuclear Medicine

July, 1967



Abbott announces Pertscan™-99m

SODIUM PERTECHNETATE Tc 99m

For brain scanning, Pertscan-99m provides more information with less radiation to the patient than any other related cerebral test — whether other radioisotopes or x-rays.

SPEED: Gives each projection fast — 15 minutes or less with rectilinear scanners, 2 to 4 minutes with a camera.

CONVENIENCE: Supplied in a ready-to-use single dose vial.

SAFETY: Carrier-free, non-pyrogenic, sterile, and isotonic.

FLEXIBILITY: Oral or intravenous administration in two sizes: 10 millicuries in 4 ml. and 15 millicuries in 6 ml.

SHIPMENTS: Monday through Friday—and Sunday . . . allows scheduling of brain scans 6 days a week—Monday through Saturday.

INDICATIONS: Adjunctive diagnostic aid in detecting and localizing intracranial neoplastic (primary or metastatic) and non-neoplastic lesions.

CONTRAINDICATION: Radio-pharmaceutical agents should not be administered to pregnant women or to persons less than 18 years old unless the indications are very exceptional.

PRECAUTIONS: Care should be taken to ensure minimum radiation exposure to the patient as well as all personnel; to prevent extracranial contamination because this can lead to erroneous interpretation; and to differentiate areas of abnormal activity from areas of normal vascular activity. 704391

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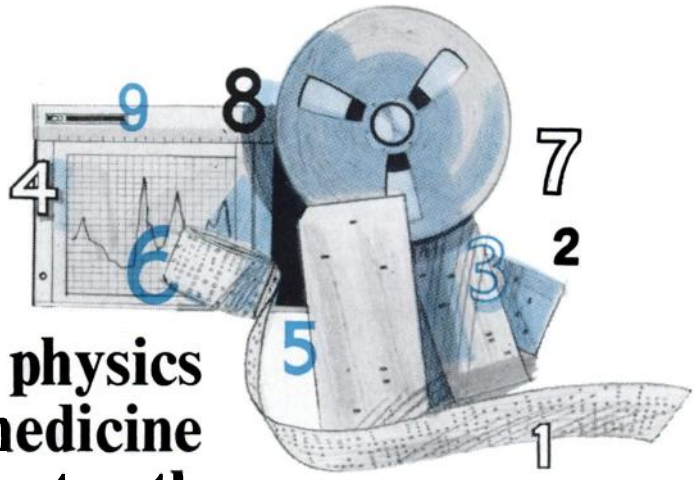

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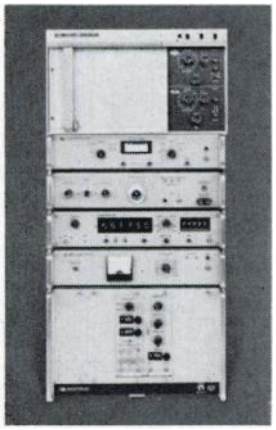

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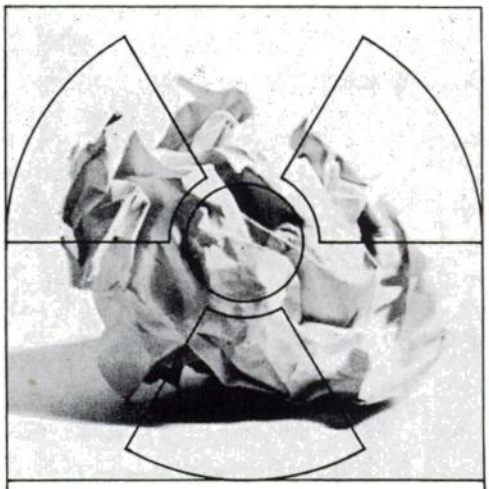

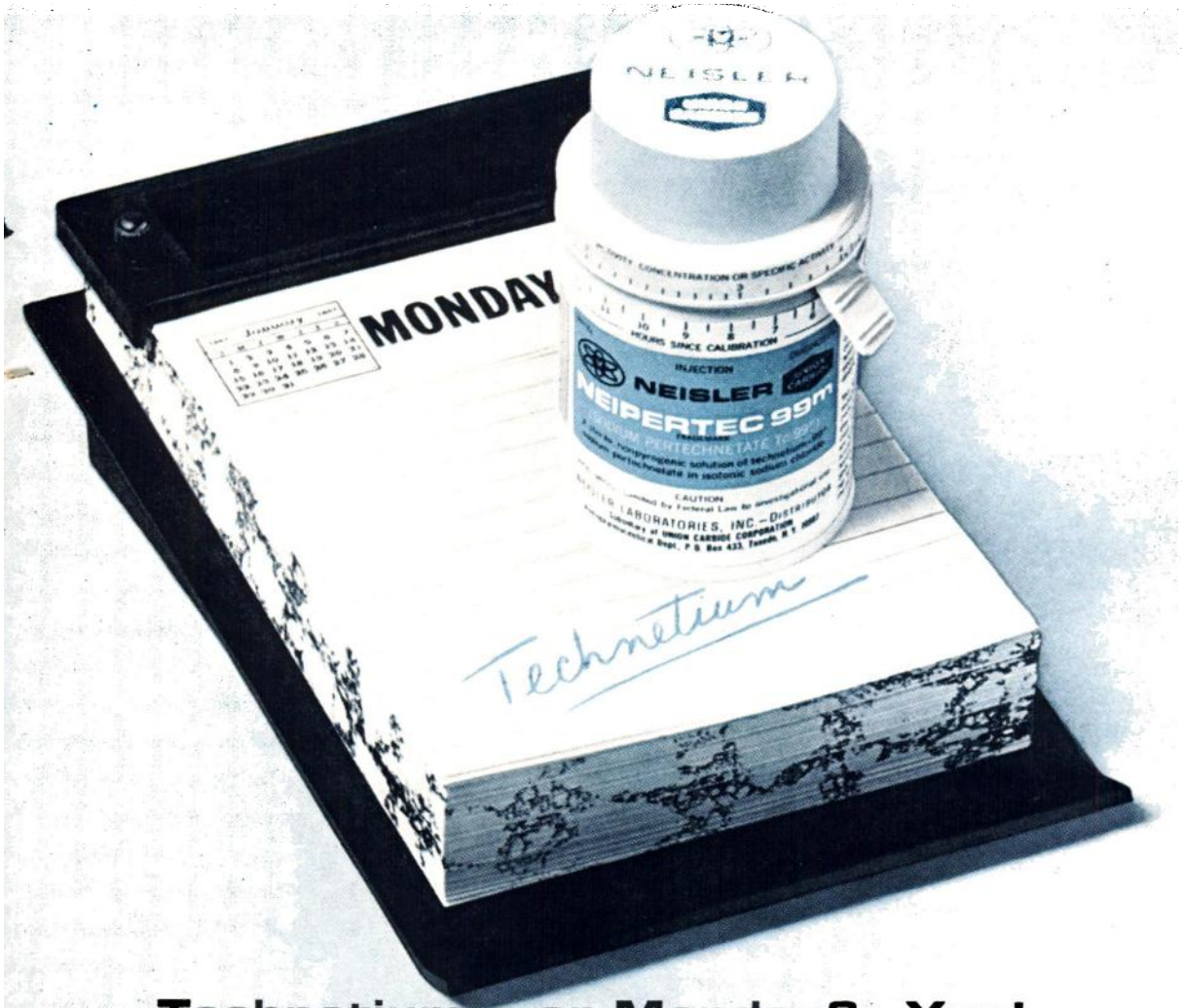

Technetium...on Monday? Yes!

Now available in ready-to-use form directly from our nuclear reactor to your radioisotope laboratory Monday through Friday

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(SODIUM PERTECHNETATE Tc 99m)

the radionuclide with "...ideal physical characteristics..."[1] for brain scanning

- 6-hour half-life, clean 140 keV gamma-ray emission
- the photons you need for rapid scanning, excellent resolution
- with minimal radiation dose to the patient

sterile, pyrogen-free...precalibrated...ready-to-use...

with unique, new packaging feature—the COMPUTERCAP[T.M.]—for automatic computation of activity and concentration at any time after calibration

Precautions: Proper radiation safety precautions must be maintained at all times. Physicians should familiarize themselves with available literature on the use of ^{99m}Tc before administering the radioisotope to patients. The administration of radioactive materials to pregnant or lactating women, or to patients under the age of 18 years, requires careful evaluation by the physician of the potential benefits and risks involved.

1. J. G. McAfee, C. F. Fueger, H. S. Stern, H. N. Wagner, Jr. and T. Migita: Tc^{99m} pertechnetate for brain scanning, *J. Nucl. Med.*, 5:811, 1964.

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A New Name in Nuclear Medicine

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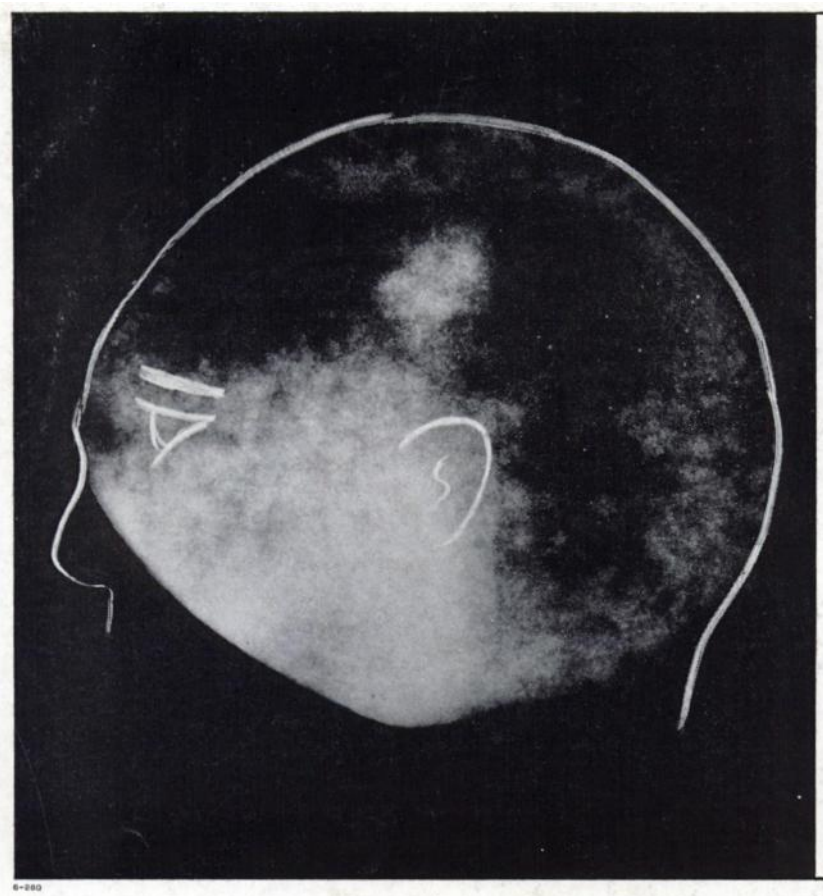

ORGAN: Brain.
DOSE: 2 millicuries technetium-99m pertechnetate.
VIEW: Left lateral.
EXPOSURE TIME: 2 minutes, started 15 minutes after injection.
DIAGNOSIS: Abcess.

Taken with Pho/Gamma Scintillation Camera.

Two minutes.

Greatly reduced exposure time helps solve the problem of the uncooperative patient.

The picture shown above is a scintiphoto—a record of isotope distribution made by Nuclear-Chicago's Pho/Gamma® III Scintillation Camera. Consider the advantages of Pho/Gamma for your work.

First of all, Pho/Gamma's continuously sensitive view of all of the organ, all of the time, gives you high-speed, high-resolution isotope imaging. The benefits: Maximum patient comfort. Accommodation of heavy patient case loads. Minimal distortion from respiratory and other motions. True dynamic visualization of in-vivo processes by means of rapid-sequence, stop-motion scintiphotography.

And Pho/Gamma has a motorized, omnidirectional detector head for fast, versatile positioning. You can easily obtain multiple views of organs and body areas in all orientations.

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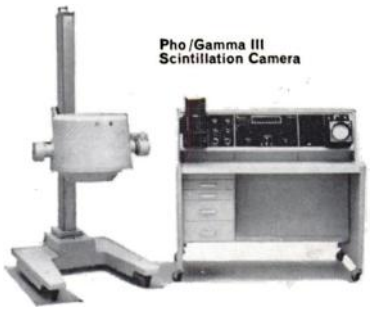
Your colleagues in nuclear medicine may well know the advantages of Pho/Gamma—why not ask them? Consult your local Nuclear-Chicago sales engineer, too, or write to us.



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