If you know get to know

Triosorb®-I25 T-3 Diagnostic Kit*

The in vitro test unmatched for reproducibility, convenience and accuracy.

Reproducible. Over 15 million tests conducted over the past eight years have made Triosorb® the standard of T-3 tests.

Convenient. The disposable Triosorb® Kit is ready for immediate use at room temperature making it one of the simplest, most convenient thyroid function tests available.

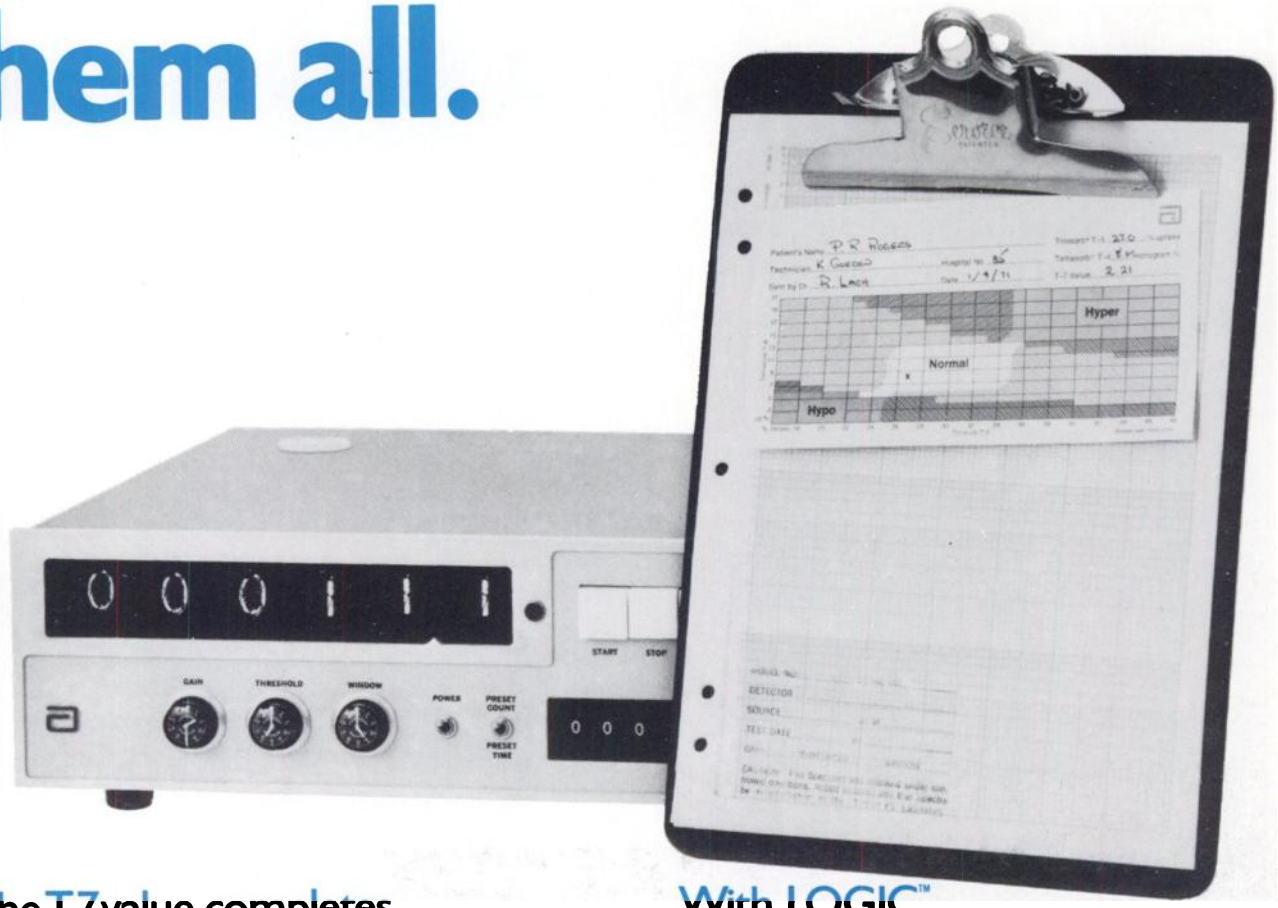
Accurate. Approximately 15 drugs and conditions produce misleading Triosorb®-T-3 test results, compared with over 200 factors which affect PBI.

* Also available as Triosorb®-131.

Tetrasorb®-I25 T-4 Diagnostic Kit

An improved, simplified method for measuring total *serum* thyroxine with diagnostic accuracy equal to or better than any currently used measures of thyroid function. Unlike other tests, exogenous iodines don't affect Tetrasorb® results.

one of these, them all.



The T-7 value completes the thyroid profile.

It's the Abbott method for determining the in vitro free thyroxine index.

T-7 is not a test but a numerical value derived from the multiplication of T-3 and T-4 test values. Because it is a product of two other numbers, the *T-7 value* will *move* only when both the T-3 and T-4 values move in the *same direction.* There are *only* two physiological conditions which cause this to occur, *hypothyroidism* and *hyperthyroidism.* With the exception of those patients receiving liothyronine or d-thyroxine therapy, all other factors which affect thyroid function tests will cause the T-3 and T-4 values to move in opposite directions, and the T-7 value to remain in the normal range.

When you provide the Abbott T-3, T-4 and T-7 values you furnish a complete thyroid profile with unparalleled clinical accuracy.

With LOGIC™ your final step is as easy as 1,2,3.

1. Establish a baseline.
   Pre-set count for 10,000; read the required time from the NIXIE tubes.
2. Take a post-wash reading.
   Pre-set *timer* for the baseline established in step 1.
3. ***Read the percentage uptake*** directly from the NIXIE tubes.
   LOGIC™ provides direct ratio readout in percentage.

   No conversions or calculations needed.
   Minimal chance for error.

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Radio-Pharmaceutical Products Division
World's Leading Supplier of Radio-Pharmaceuticals
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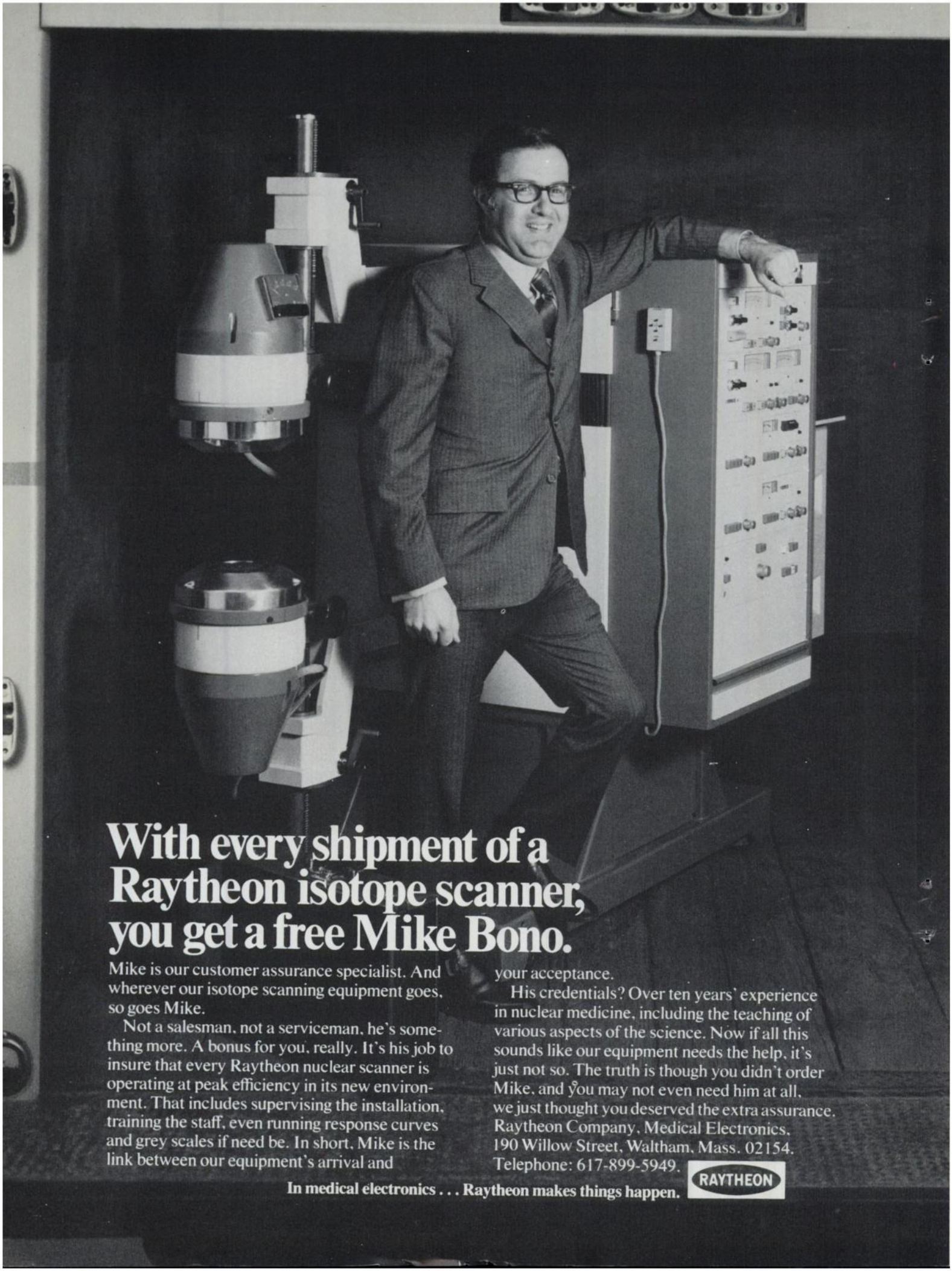

With every shipment of a Raytheon isotope scanner, you get a free Mike Bono.

Mike is our customer assurance specialist. And wherever our isotope scanning equipment goes, so goes Mike.

Not a salesman, not a serviceman, he's something more. A bonus for you, really. It's his job to insure that every Raytheon nuclear scanner is operating at peak efficiency in its new environment. That includes supervising the installation, training the staff, even running response curves and grey scales if need be. In short, Mike is the link between our equipment's arrival and your acceptance.

His credentials? Over ten years' experience in nuclear medicine, including the teaching of various aspects of the science. Now if all this sounds like our equipment needs the help, it's just not so. The truth is though you didn't order Mike, and you may not even need him at all, we just thought you deserved the extra assurance.

Raytheon Company, Medical Electronics,
190 Willow Street, Waltham, Mass. 02154.
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In medical electronics . . . Raytheon makes things happen.

Charge! Elute!

That's all. Using aseptic procedure, place the CHARGE vial in its well and the shielded ELUTE vial in its well. Elution proceeds automatically.

- Ready to use. No pre- or post-assembly of generator parts or accessories
- Evacuated 20ml or 5ml vials for standard or fractional elution
- Every generator shipped is tested for sterility, non-pyrogenicity, Molybdenum-99, aluminum, and alumina and other particulates
- MOLY-CODDLE™ radiation reducer available on request

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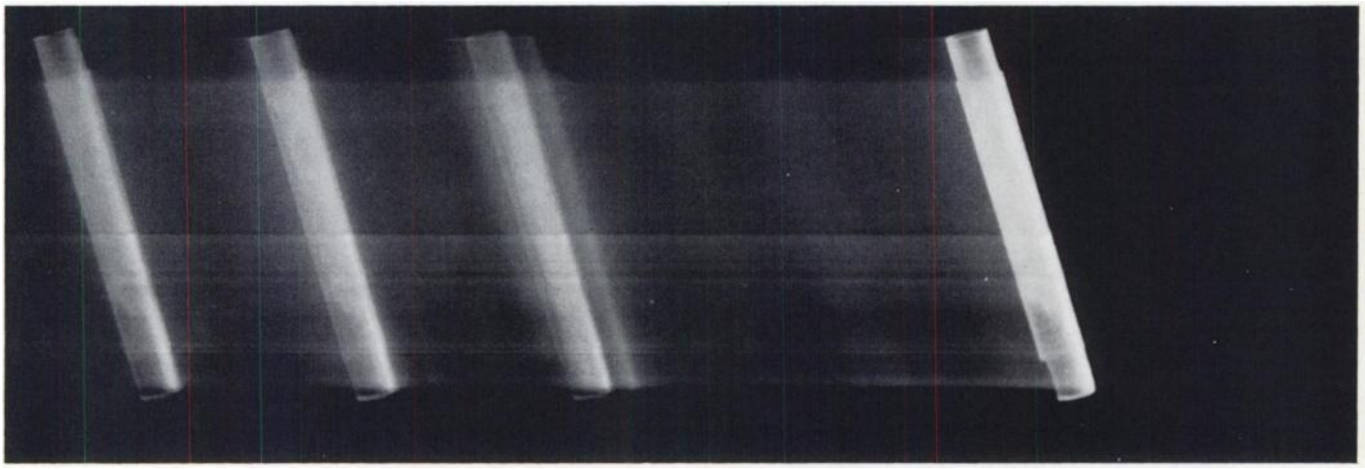
GENERAL DIAGNOSTICS
Division
Warner-Lambert Company



fasT3™

Reagent system for laboratory determination of T3 (TBG) uptake as a measurement of thyroid function

EASY?

1 just add sample and water

2 shake and allow to stand (10 minutes)

3 centrifuge and count

SURE!

GENERAL DIAGNOSTICS, 201 Tabor Rd., Morris Plains, N.J. 07950

☐ 12 TEST VIALS $20.00
☐ 72 TEST VIALS $85.00
(Prices subject to service charge)

☐ STANDING ORDER BEGINNING Date_____
(To be repeated monthly)
☐ HAVE SALESMAN CALL

PURCHASE ORDER NUMBER_____

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CITY _____ STATE _____ ZIP _____

I am familiar with the AEC/State regulations governing my use, storage and disposal of radioactivity.

Signed_____ Date_____

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201 Tabor Rd., Morris Plains, N.J. 07950
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TESULOID™
Technetium 99m-Sul
Caution: NEW DRUG—Limited by United States
READ ENTIRE PROCEDURE BEFORE USE
Package contains
5 vials (3 cc. each) Sterile Sulfur Colloi
Each cc. of aqueous solution pr
thiosulfate, 3 mg. gelatin, 8.5
phosphate and 0.93 mg. dis
no preservative.
5 Pressure sensitive labels.
5 UNIMATIC® disposable syringe
Each cc. of aqueou
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Each cc. of aqueous
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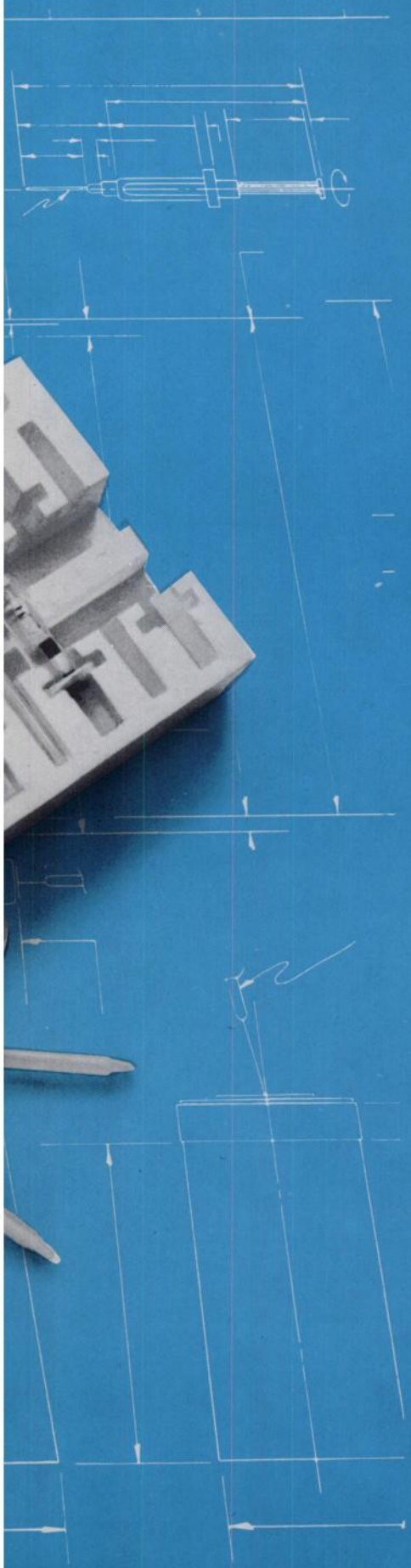
New Brunswick, N.J. 08903
Made in U.S.A.
TECHNETOPE II
Technetium 99m
STERILE GENERATOR
SQUIBB



TECHNETOPE® II

Technetium 99m
STERILE GENERATOR

the generator for preparing a sterile, non-pyrogenic supply of technetium 99m

TESULOID™

Technetium 99m-Sulfur Colloid
KIT

the complete, easy-to-use kit for preparing technetium 99m-sulfur colloid in minutes, as you need it

perfect combination for making ^{99m}Tc-S colloid "when you need it" for liver and spleen scanning

Units designed to complement each other are more likely to produce a better end product. When the Technetope II eluate (with its low concentration of polyvalent cations) is utilized in the Tesuloid Kit, the result is a ^{99m}Tc-S colloid which is well suited for liver and spleen scanning.

Other sources of technetium having a higher concentration of polyvalent cations may produce an unsuitable non-colloid preparation, evidenced by a flocculent precipitate.

Thus, the Technetope II Generator and the Tesuloid Kit provide the perfect combination that gives reproducible results time after time.

See next page for brief summary.

MADE FOR YOUR INDEPENDENCE

now you can make your own ^{99m}Tc-sulfur colloid when you want it...

- utilize ^{99m}Tc eluate from your Technetope II (Technetium 99m) Sterile Generator
- make as many doses as you want when you want

with ease, convenience, and economy...

- keep dollar loss from product decay to a minimum
- store kit anywhere—it's not radioactive

for liver and spleen scanning

- on the basis of 350 case reports from 11 investigators,[1] the technetium-sulfur colloid prepared in this manner was found to be highly satisfactory, and produced liver and spleen scans of good diagnostic value
- no side effects or adverse reactions occurred in any of the cases reported; there was no evidence of pyrogenic or other reactions

the colloid contains no dextran... no rhenium nor other added cation material

Reference: 1. Unpublished data on file at The Squibb Institute for Medical Research.

TECHNETOPE II (TECHNETIUM 99m) STERILE GENERATOR provides a means of obtaining a sterile, nonpyrogenic supply of Technetium 99m (^{99m}Tc), a versatile scanning agent that can be administered intravenously or orally. ^{99m}Tc, the short-lived daughter ($T_{1/2}$ = 6 hours) of Molybdenum 99 (^{99}Mo, $T_{1/2}$ = 67 hours), is obtained from the generator by periodic elution. The amount (in millicuries) of ^{99m}Tc obtained in the initial elution will depend on the original potency of the generator, while the activity obtained from subsequent elutions will depend on the time interval between elutions.
Warning: Proper radiation safety precautions should be maintained at all times. The column containing ^{99}Mo need not be removed from the lead shield at any time. The radiation field surrounding an unshielded column is quite high. Solutions of ^{99m}Tc 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 II.
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, the elution tube, the evacuated collecting vial, and both rubber closures in the generator column should be swabbed with a suitable germicide before entry. All entries into the generator column must be made aseptically. 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 the ^{99m}Tc must be sterile. Do not administer material eluted from the generator if there is any evidence of foreign matter.
Contraindications: Radiopharmaceuticals should not be administered to pregnant women or patients under 18 unless the indications are very exceptional. Since Technetium may be excreted in human milk, it should not be administered to nursing mothers.

TESULOID (TECHNETIUM 99m-SULFUR COLLOID) KIT contains 5 vials (3 cc. each) Sterile Sulfur Colloid Reaction Mixture, 5 Unimatic® Disposable Syringes (2 cc. each) containing Sterile 0.25N Hydrochloric Acid Solution (Syringe A), and 5 Unimatic Disposable Syringes (2 cc. each) containing Sterile Buffer Solution (Syringe B). Each cc. of the Sterile Colloid Reaction Mixture provides 4 mg. sodium thiosulfate, 3 mg. gelatin, 8.5 mg. potassium phosphate, and 0.93 mg. disodium edetate. Each cc. in Syringe A provides 9 mg. hydrochloric acid. Each cc. in Syringe B provides 35 mg. sodium biphosphate and 10 mg. sodium hydroxide.
Warnings: The contents of the syringes (A and B) are intended only for use in the preparation of the ^{99m}Tc-S colloid and are **NOT** to be directly injected into a patient.

As with all radiopharmaceuticals, ^{99m}Tc-S colloid should not be administered to women who are pregnant or who may become pregnant, during lactation, or to patients under the age of 18 years unless the indications are exceptional and the need for the agent outweighs the possible potential risk from the radiation exposure involved. It should be noted that although radiopharmaceuticals are not generally used in individuals under 18, procedures using such agents are occasionally necessary in young patients. Because of the low internal radiation dosage of ^{99m}Tc-S colloid, it should be used in preference to other agents when the liver or spleen scans are necessary.

Formula feeding should be substituted for breast feeding if the agent must be administered to the mother during lactation.

Radiopharmaceuticals should be used only by physicians who are qualified by specific training in the use and safe handling of radioisotopes and whose experience and training have been approved by an individual agency or institution already licensed in the use of radioisotopes.

Note: The Tesuloid Kit is not radioactive. However, after the eluted ^{99m}Tc is added, adequate shielding of the resulting preparation should be maintained.
Precautions: As in the use of any other radioactive material, care should be taken to insure minimum radiation exposure to the patient as well as to all personnel directly or indirectly involved with the patient.

Note: The Tesuloid Kit was designed to be used with the sodium pertechnetate eluate obtained from a Technetope II (Technetium 99m) Sterile Generator. The low concentration of polyvalent cations in the Technetope II eluate results in a ^{99m}Tc-S colloid which is suitable for liver-spleen scanning. Use of other sources of sodium pertechnetate having a higher concentration of polyvalent cations may produce an unsuitable ^{99m}Tc-S preparation which is not a colloid; this is evidenced by the formation of a flocculent precipitate. If such a precipitate occurs, the preparation should not be used. It is, therefore, recommended that only Technetope II be used as the source of sodium pertechnetate with Tesuloid unless the user has demonstrated that other sources of ^{99m}Tc are consistently compatible and meet the standards of Technetope II.

For further information, contact your Squibb Representative or the Manager of Customer Service, E. R. Squibb & Sons, Div. of Nuclear Med., Georges Rd., New Brunswick, New Jersey 08903.

Medatopes
SQUIBB Squibb Division of Nuclear Medicine
New Brunswick, New Jersey 08903

Important notice to all Dynacamera™ 2 owners.

(And anyone else interested in a scintillation camera.)

Whether you now have a Dynacamera 2—or just contemplate the purchase of a scintillation camera—we have news for you. And an offer.

The Dynacamera 2 is now being widely used for an impressive variety of both static and dynamic studies. Picker is working with many of the institutions using Dynacamera 2 and is assembling a collection of "application data sheets" showing the versatility and usefulness of this instrument. These data sheets outline in detail the techniques currently being used for many important studies including: static views of brain, lung, liver, thyroid, and kidney; dynamic function studies of brain, heart, lung, kidneys.

We want all Dynacamera 2 users to see what others are doing, and we also want all prospective scintillation camera owners to be fully familiar with the capabilities of this impressive device. Accordingly, fill in the coupon below so that we can fill you in. Or, write Picker Corporation, 333 State Street, North Haven, Connecticut 06473. Thank you.

Picker Corporation, 333 State Street, North Haven, Connecticut 06473

Please send the Dynacamera 2 applications data sheets.

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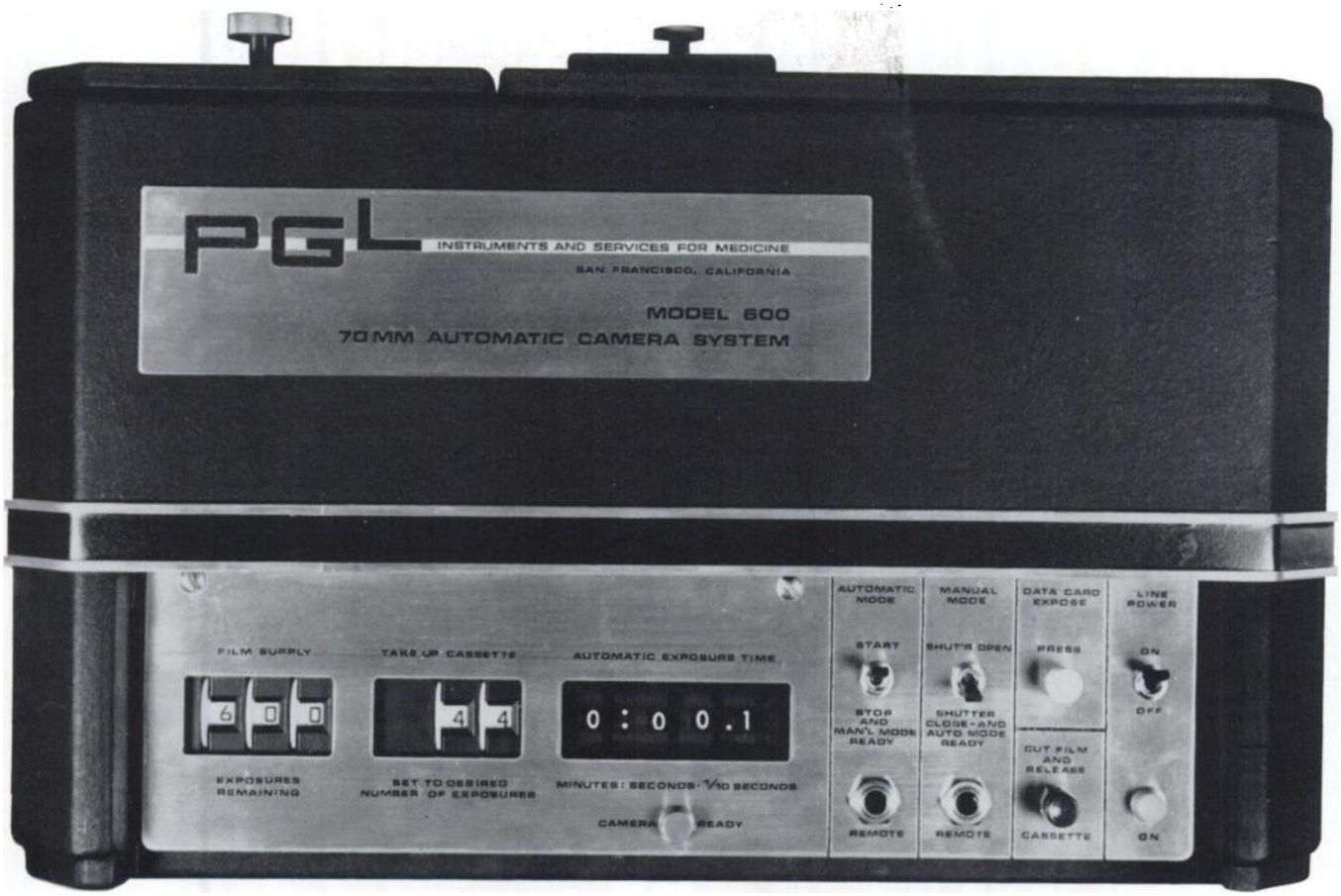
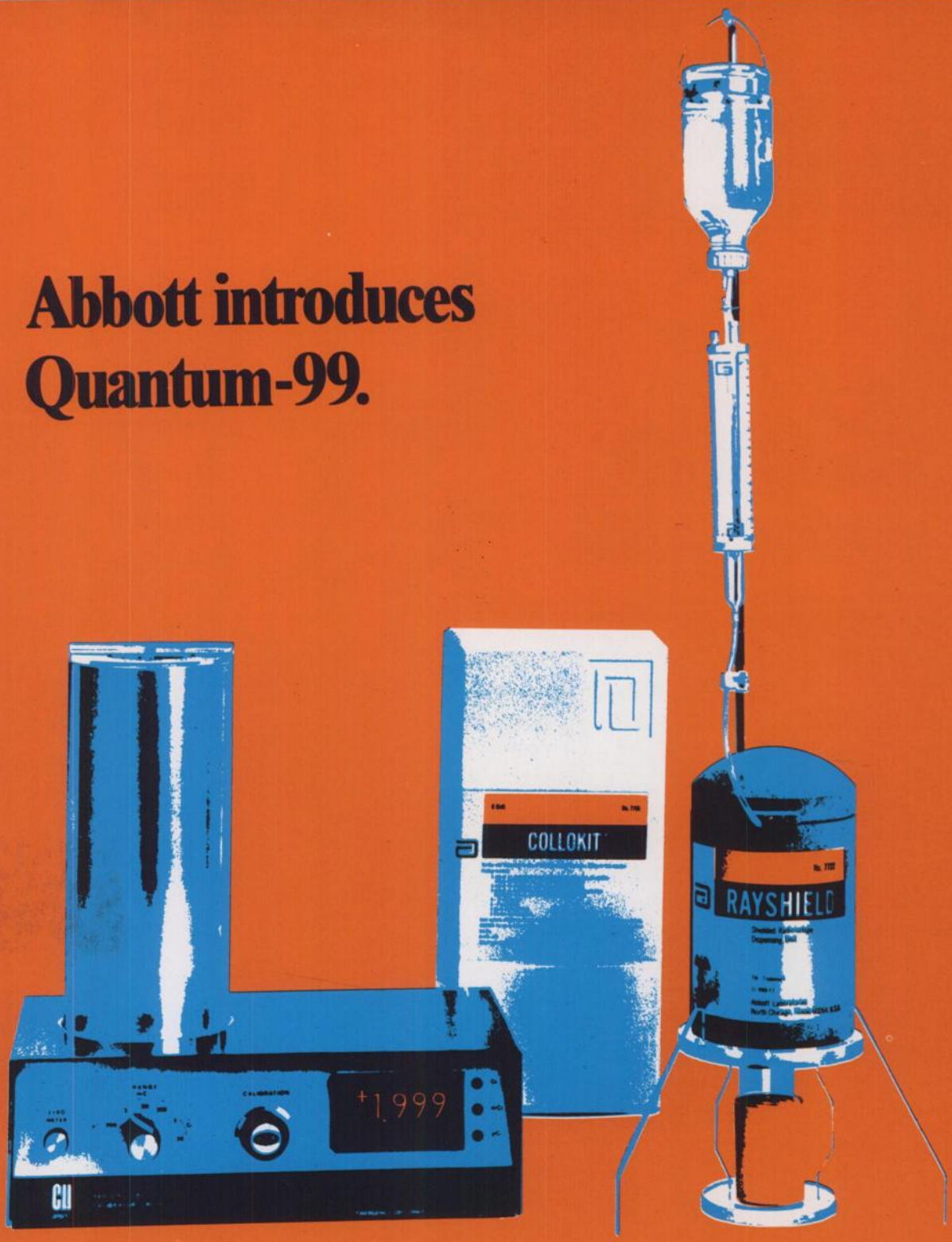
PGL Model 600: A Modest Revolution

If we told you that the PGL Model 600 was specifically designed for Nuclear Medicine, each component from inception specifically designed to fulfill the exact requirements of clinical scintiphotography by combining camera, lens, timer, power supply and bezel mount in one integral unit, would you call this a modest revolution? How about daylight loading of 70 mm film, 150 feet of it, 720 exposures, automatic threading —advancing—cutting—releasing, up to 10 exposures per second, film advance and shutter time of 30 milliseconds, two exposure counters? Are we reaching you? How about direct viewing of 70 mm film without a projector, or the view port for direct viewing of CRT, or the data card for on-film recording of patient information? The high speed film transport is 10 times faster than the 35 mm Nikon, 25 times faster than the 70 mm Hasselblad. Modest revolution? If we're reaching you, reach us at PGL.



Write to PGL, 1280 Columbus, San Francisco, Ca 94133, Phone (415-474-6338)

Abbott introduces Quantum-99.



The coordinated Tc-99m generator, Dose Calibrator, and Sulfur Colloid Kit that clears up any doubts you may have about contamination, proper dosage, and Alumina or Moly breakthrough.

With Collokit™ there's never any doubt - the suspension's clear.

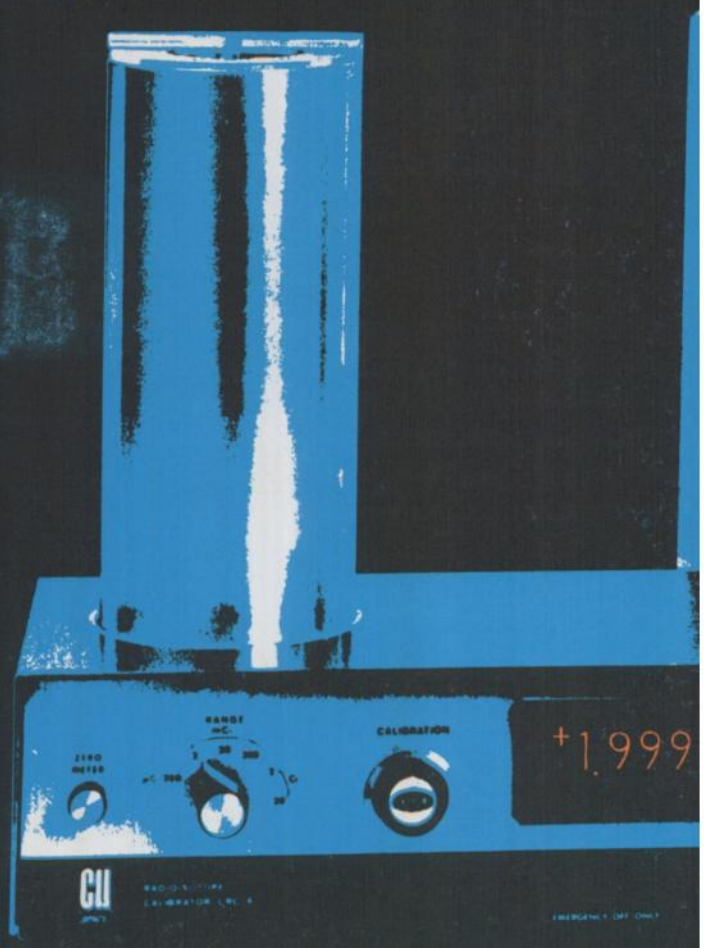
Unlike other Sulfur Colloid Kits, Collokit™ produces a cloudy suspension only when Alumina breakthrough or other contamination occurs. There's never any doubt whether the suspension is good.

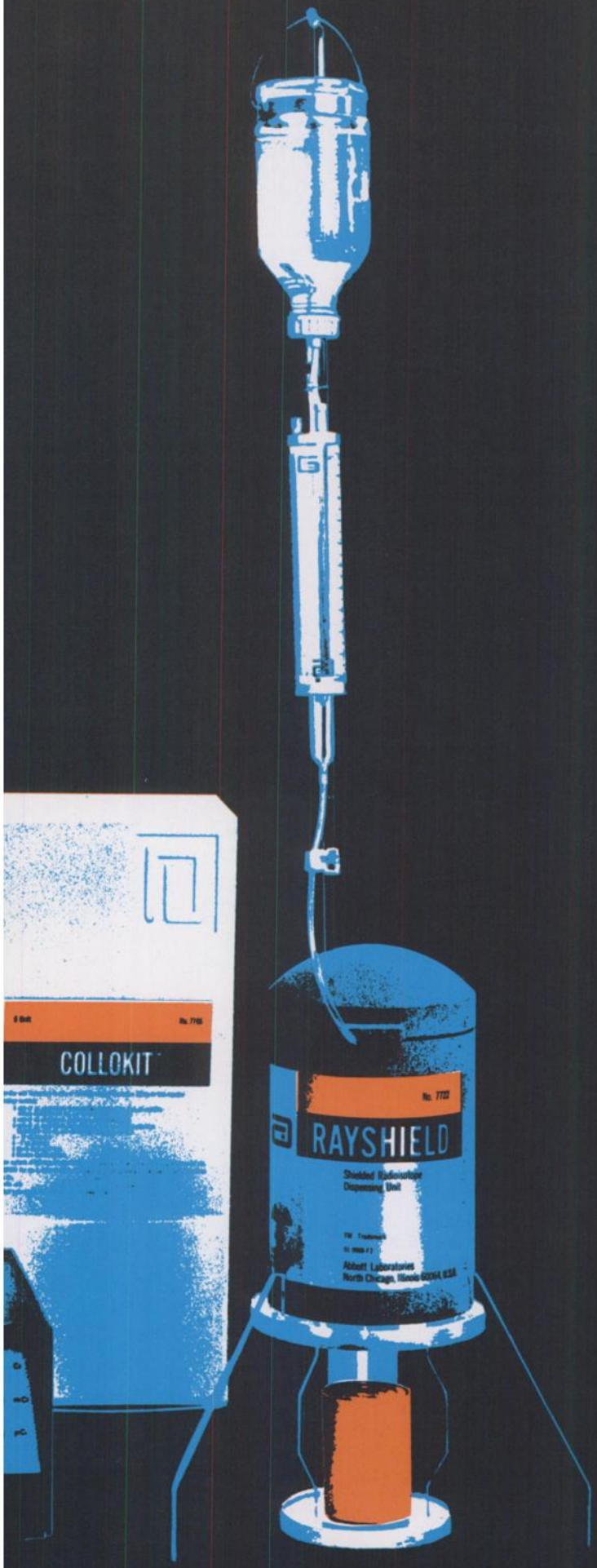
And Collokit™ offers other advantages. There are fewer entries into the reaction chamber than with competitive products and this means the procedure is safer. The suspension is not vented during the heating/cooling cycle, so no outside air is drawn in and the product remains sterile. Convenient, economical individual units contain the components needed for one day's use.

Collokit™ is not recommended for systems with eluates containing oxidizing agents such as sodium hypochlorite. It is intended for use with the PERTGEN®-99 Technetium Generator Kit.

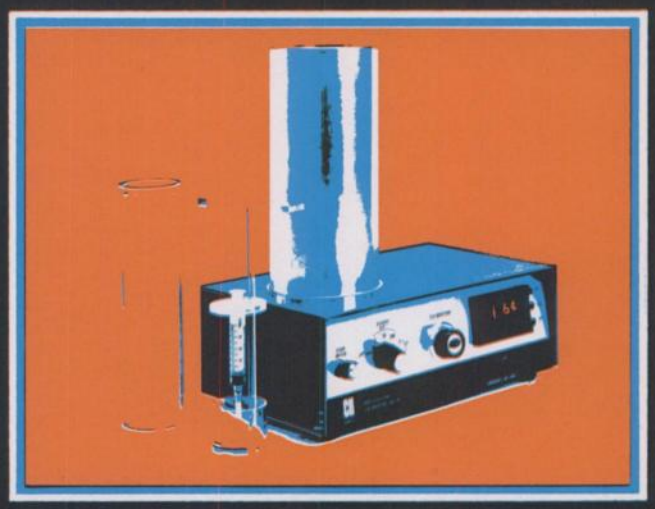
PERTGEN® is now shipped on Sunday and calibrated for the following Friday to give you all the activity you pay for, when you need it.

PERTGEN® is a "Think Thursday" program product, so you save duplicate shipping charges when you order it together with pre-filled, pre-calibrated in vivo "Think Thursday" diagnostic products.





The Capintec CRC-4, the ultimate Dose Calibrator.



Like most Dose Calibrators, the Capintec CRC-4 eliminates the two most common problems, determination of Mo-99 breakthrough and accurate measurement of Tc-99m activity. The similarity ends there.

The CRC-4 offers more features than any previous Dose Calibrator to make it more accurate, more reliable, and easier to use. For instance, a ten turn digital readout potentiometer gives almost unlimited isotope capabilities.

The CRC-4 offers the most advanced Mo assay system currently available, and it handles whole vial assay.

To make it more accurate, an individual background suppression control is built-in to allow you to eliminate background. And your results read out in microcuries, millicuries, or curies on an easy-to-read four digit display panel.

We've designed Quantum-99 to give you more accuracy, convenience and value than any other Tc-99m generator system available. If you want to clear up your doubts about contamination, dosage or breakthrough, talk to your Abbott representative about Quantum-99.

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Volume 12, Number 7

Sigma 2. The only spectrometer that automatically computes statistical error.

Sigma 2, Model 200, automatically provides direct readout of net counts per minute... plus statistical error within a 95% confidence level.

The Model 200 is simple to operate, with upper and lower levels calibrated directly in KEV. Just pre-set any of six data accumulation periods from 0.1 to 20 minutes and background subtract in counts per minute. No manual calculations of counts per minute are required... accuracy of measurement is assured. An audible tone signals completion of the measurement.

Raytheon also offers the Model 210, which is similar to conventional spectrometers with one important difference: automatic calculation of 95% confidence error. Its six-decade scaler and 5-decade timer allow a direct percent ratio of sample to a standard.

Both the Model 200 and 210 mate with Raytheon's unique 3-way well counter that accommodates test tubes, syringes, and 1000 ML beakers.

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190 Willow Street, Waltham, Mass. 02154

☐ Please have a representative call.
☐ Please send your new brochure describing Sigma 2 clinical spectrometers and well counter.

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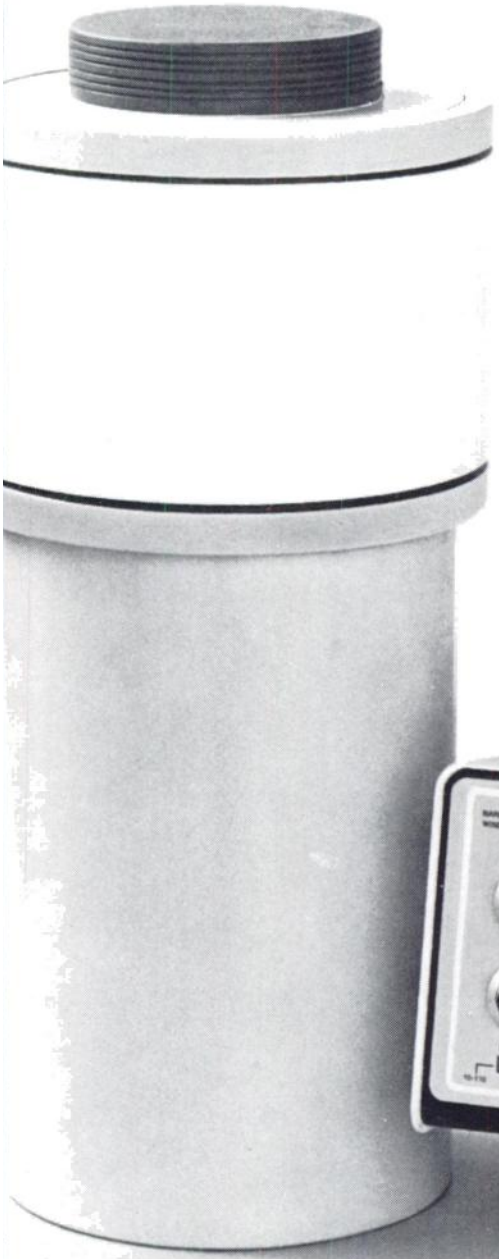

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Lung and Liver study done with Rectilinear Scanner, TcSc injection and TFS*.

Lung study done with Rectilinear Scanner, Tc99m in TFS.

Heart Flow Study done with Gamma Camera, Tc99m injection and TFS.

THESE STUDIES WERE DONE WITH THE AID OF AN $85 TFS.™

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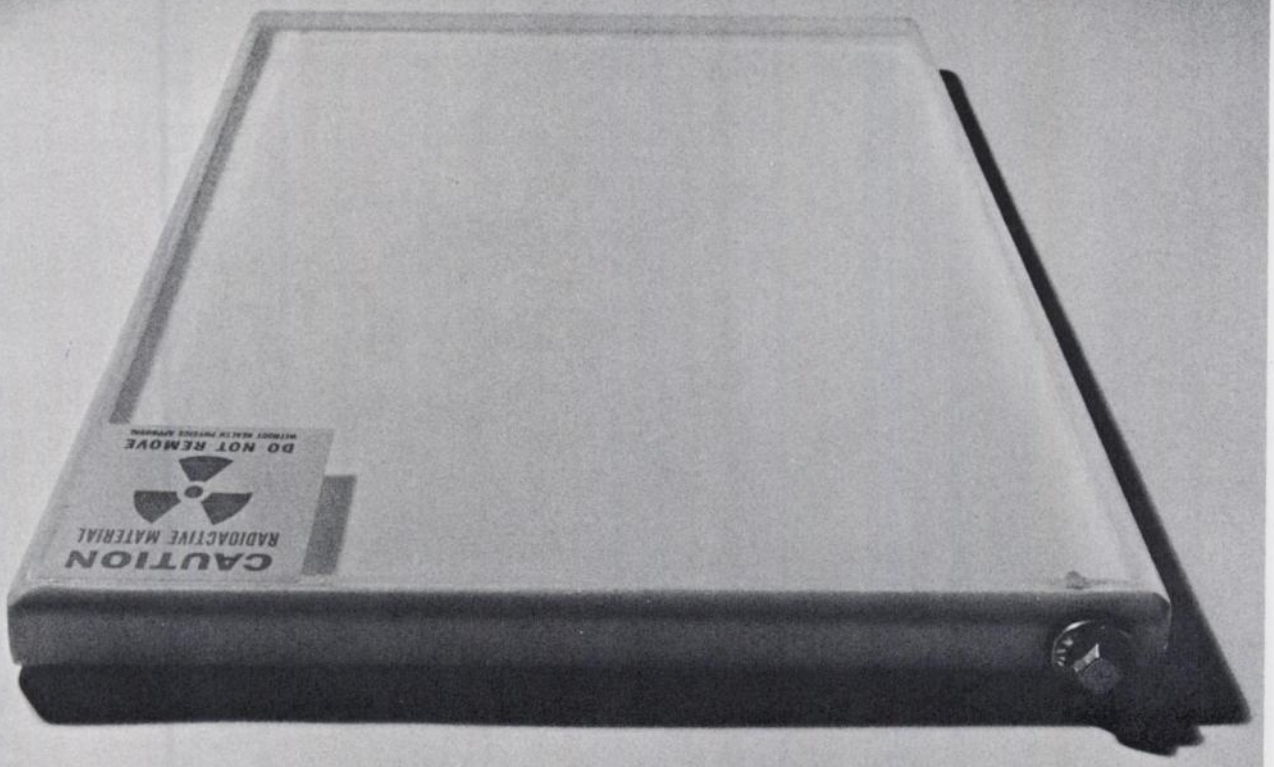

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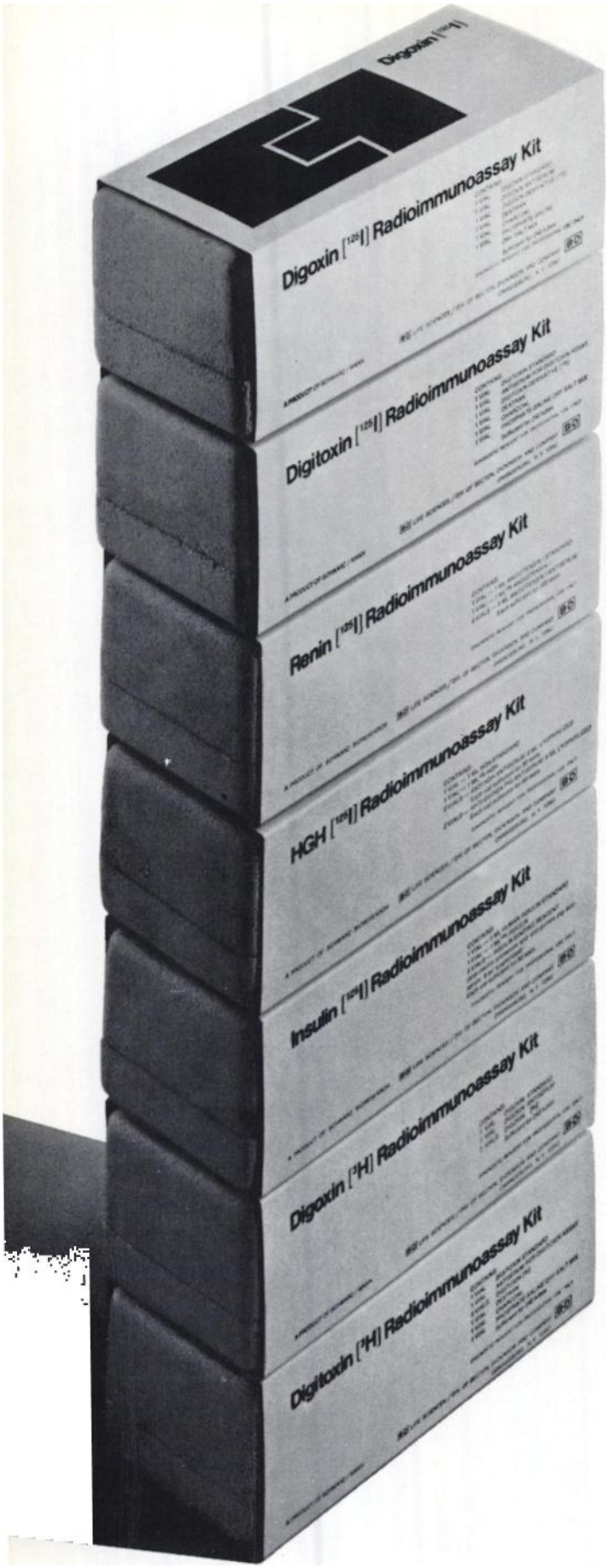

Schwarz/Mann– the major factor in radioimmunoassay– announces an impressive array of new kits.

[What's in it for you?]

Radioimmunoassay: a quantum leap forward

Radioimmunoassay is being properly heralded as an analytical tool with a "high degree of specificity and exquisite sensitivity." How specific? How sensitive? These *in vitro* radioimmunoassay techniques permit measurement of less than one micromicrogram (yes, micromicro) in the presence of (normally) interfering substances at concentrations several *billion* times higher. And beyond this exceptional sensitivity and specificity, radioimmunoassay also offers rapidity, precision, and low cost.

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Schwarz/Mann has developed radioimmunoassay into a practical, convenient tool suitable for routine research and clinical use. Today. Our involvement and expertise in this field is a natural outgrowth of our position of leadership in the development of research products for the life sciences. (To be specific: our current Radiochemical Catalog fills 60 pages, while our current Biochemical Catalog fills 106 pages.)

Radioimmunoassay: kits available now

Digoxin [^{3}H]
Digoxin [^{125}I]
Digitoxin [^{3}H]
Digitoxin [^{125}I]
These four kits provide a very sensitive and practical monitoring system for digitalis therapy.

Renin Activity
Insulin
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(And please note that Schwarz/Mann kits provide a maximum of convenience by including all necessary reagents.)

Radioimmunoassay: kits available soon

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Radioimmunoassay: would you like detailed information?

Now for the complete story, call your local Schwarz/Mann representative, or complete the coupon below, or write directly to Schwarz/Mann, Orangeburg, New York 10962 (Telephone 914-359-2700), Division of Becton, Dickinson and Company.

Schwarz/Mann, Orangeburg, N.Y. 10962 B 1

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- ☐ Angiotensin II Kits
- ☐ Human Placental Lactogen Kits
- ☐ Vitamin B_{12} Kits
- ☐ Plasma Cortisol Kits
- ☐ Gastrin Kits
- ☐ Thyroxin Kits
- ☐ Colon Cancer Antigen Kits
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☐ I would be interested in radioimmunoassay workshops if available in my area.

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Department_____

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FIGURE 1. SERIAL SCINTIPHOTOS. ANTERIOR VIEW.

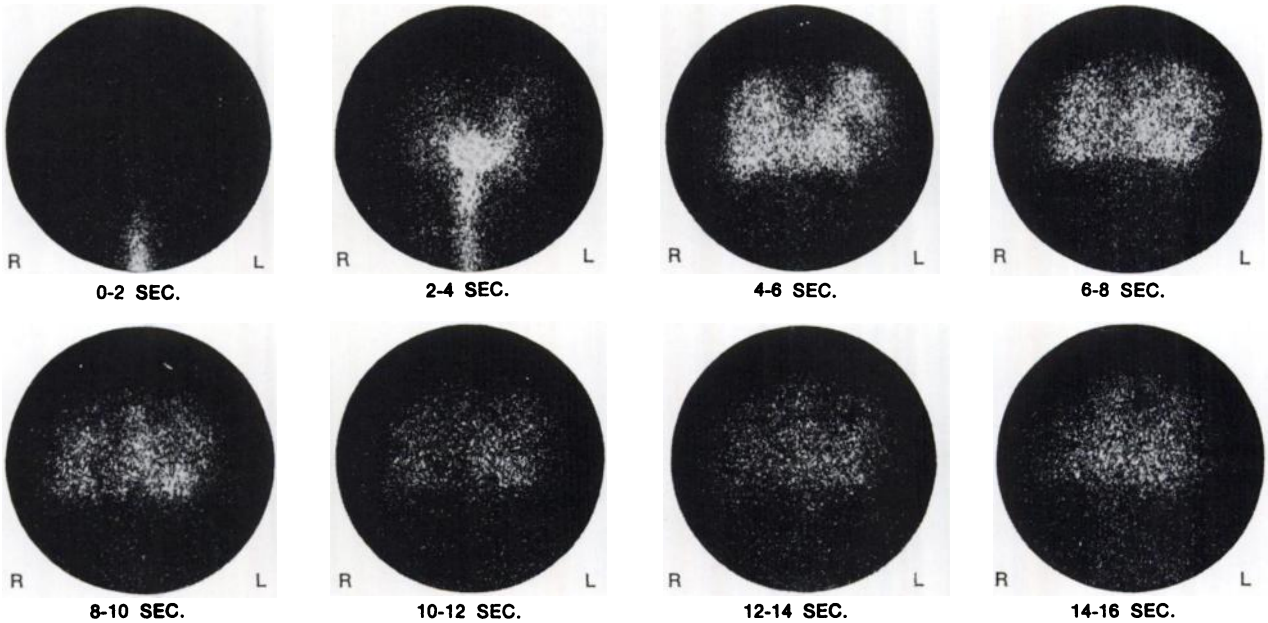

FIGURE 2.
AREAS-OF-INTEREST.
ANTERIOR VIEW.

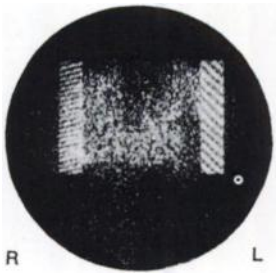

FIGURE 3. PULMONARY DILUTION CURVES, ABNORMAL.
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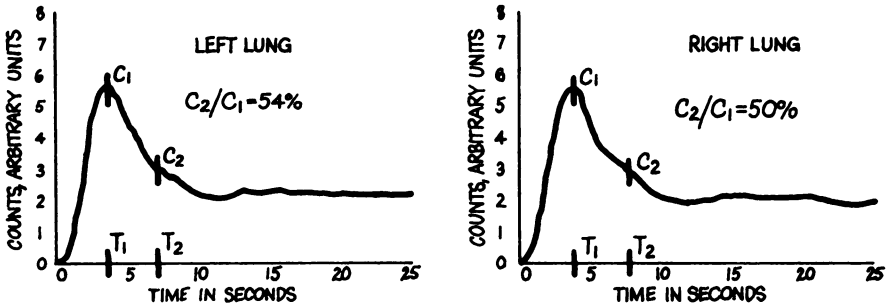
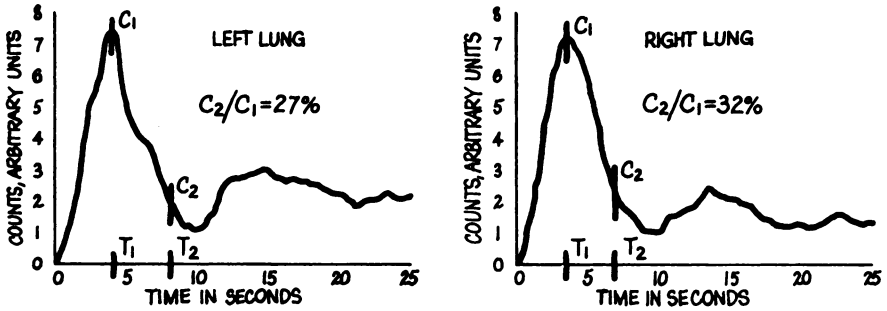


FIGURE 4. PULMONARY DILUTION CURVES, NORMAL.
Traced from original chart recordings for clarity of reproduction.



The Cardiac Dynamic Study

A Dynamic Technique Using the Nuclear-Chicago Pho/Gamma® Scintillation Camera and Data-Store/Playback System

This study combines serial scintiphotos of the circulation of ^{99m}technetium pertechnetate through the heart and lungs, photographed from the Pho/Gamma Scintillation Camera, with a time-concentration curve of the pulmonary circulatory dynamics using the Data-Store/Playback Accessory and a dual-channel ratemeter/dual-pen chart recorder.

SETTING UP. The patient is positioned beneath the Pho/Gamma detector so that the heart and lungs are included within the field of view. For adults, a central venous catheter is inserted and the tip is advanced to the superior vena cava. For children, a percutaneous femoral venous puncture is performed.

ISOTOPE AND DOSE. 50 microcuries/lb. of ^{99m}Tc pertechnetate are injected as a bolus. This is followed by a sterile saline "flush." It is imperative that the tracer be administered as a bolus for proper interpretation of the pulmonary dilution curve.

DATA ACCUMULATION. Since the ^{99m}Tc pertechnetate is injected so close to the heart, serial hand-pulled scintiphotos are started immediately. Each exposure is for 1-2 seconds and no more than eight films are necessary. Alternatively, the automatic-sequencing 35mm camera may be used to obtain precisely timed sequential images.

The Data-Store/Playback Accessory plays an important role in the examination. The entire sequence is recorded in a high-resolution digital format (256 x 256 matrix) on the magnetic tape recording system. Subsequent replay of the tape allows reconstitution of the serial images at any desired frame rate and permits correction of film exposure factors to provide excellent scintiphotos. The study may be viewed on the system's variable-persistence oscilloscope during both original recording and upon tape replay.

The pulmonary dilution curves are obtained by choosing two separate areas-of-interest, one corresponding to the right lung field, the other to the left lung field. With this system's variable controls, these areas-of-interest may be rectangular or oval in shape. It is important, however, that these areas-of-interest correspond only to the lung fields, and no portion of the heart or great vessels should be included. Time-activity curves are generated with the dual ratemeter/recorder with a time constant of 0.5 seconds and a chart speed of 12 inches/minute.

CASE HISTORY. The clinical study on the opposite page is that of a seven-year-old child suspected of having a small left-to-right intercardiac shunt based on the characteristics of a systolic murmur. The child was not cyanotic. Following the diagnostic nuclear-medicine procedure, the patient was catheterized. A ventricular septal defect with a 1.2-to-1 left-to-right shunt was revealed as determined by standard dye dilution curves. In addition, there was a supervalvular obstruction of the pulmonary artery. Systemic pressures were observed in the right ventricle suggesting the diagnosis of an "Acyanotic Tetralogy of Fallot."

EVALUATION. The serial two-second images (Fig. 1) were produced upon replay of the Data-Store/Playback Accessory. The bolus of ^{99m}Tc pertechnetate is clearly seen in the inferior vena cava (0-2 sec.), having been injected into the right femoral vein. The tracer, thereafter, flows into the right atrium (2-4 sec.), then into the right ventricle and out through the pulmonary artery into both lung fields (4-6 sec.). Later frames show the return of the tracer to the left atrium, the left ventricle, and then out the aorta.

The pulmonary dilution curves were produced by adjusting the area-of-interest controls of the Data-Store/Playback Accessory, causing the areas-of-interest to correspond to the right and left lungs as indicated by the intensified areas seen on the representative scintiphoto (Fig. 2). The resulting pulmonary dilution curves (Fig. 3) show a rapid rise in count rate to a peak count rate C_1 at time T_1. $T_1 - T_0$ is the interval from time of rise onset to time of peak activity. At time T_2 $(T_2 - T_1 = T_1 - T_0)$, count rate C_2 is determined from the curve. As shown, C_2 is 50 - 54% (C_2/C_1) of count rate C_1. These curves are abnormal and suggest the possibility of a left-to-right shunt. Normally, C_2/C_1 is less than 40% as shown by normal curves (Fig. 4).

CONCLUSIONS. The diagnosis of a left-to-right shunt was confirmed in this case, both at cardiac catheterization and at surgery.

An abnormal pulmonary dilution curve, it should be noted, does not indicate the anatomical location of the defect, nor does it indicate the severity of the left-to-right shunt. This cardiac dynamic study should be considered only as a screening procedure. In the event of an abnormal radionuclide pulmonary dilution curve, further diagnostic procedures are indicated.

O-241

An exchange of information on topics related to nuclear medicine, sponsored by NUCLEAR-CHICAGO which has more than a passing interest in the field and the people who work in it.

A SUBSIDIARY OF G. D. SEARLE & CO.

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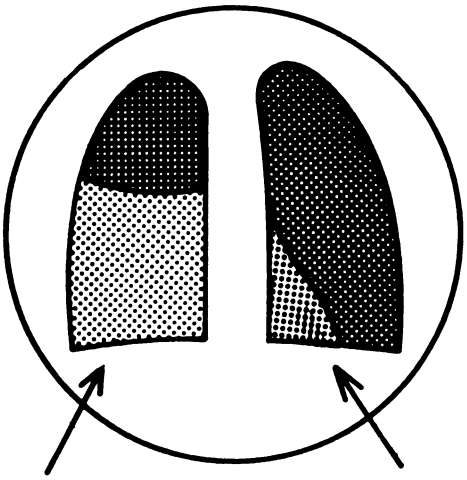
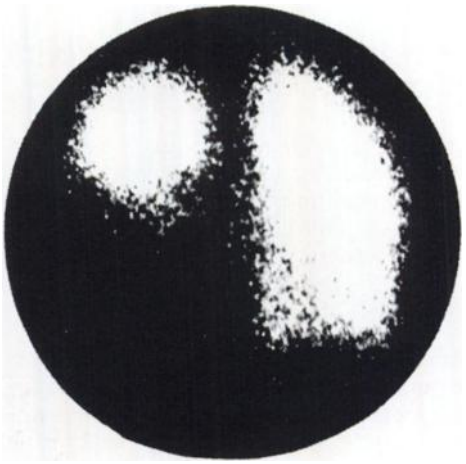
CM-184

Pulmonary Embolism?

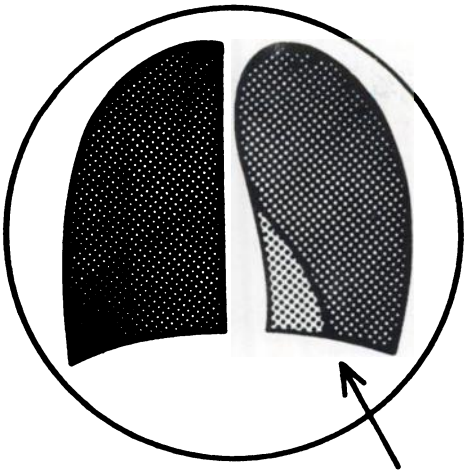




ANTERIOR PERFUSION

"Although perfusion lung scanning has proved clinically useful in the diagnosis of pulmonary embolism, many other disorders that affect ventilation can produce abnormalities of regional pulmonary blood flow. Therefore, some additional test is required for a specific diagnosis of pulmonary embolism." ①

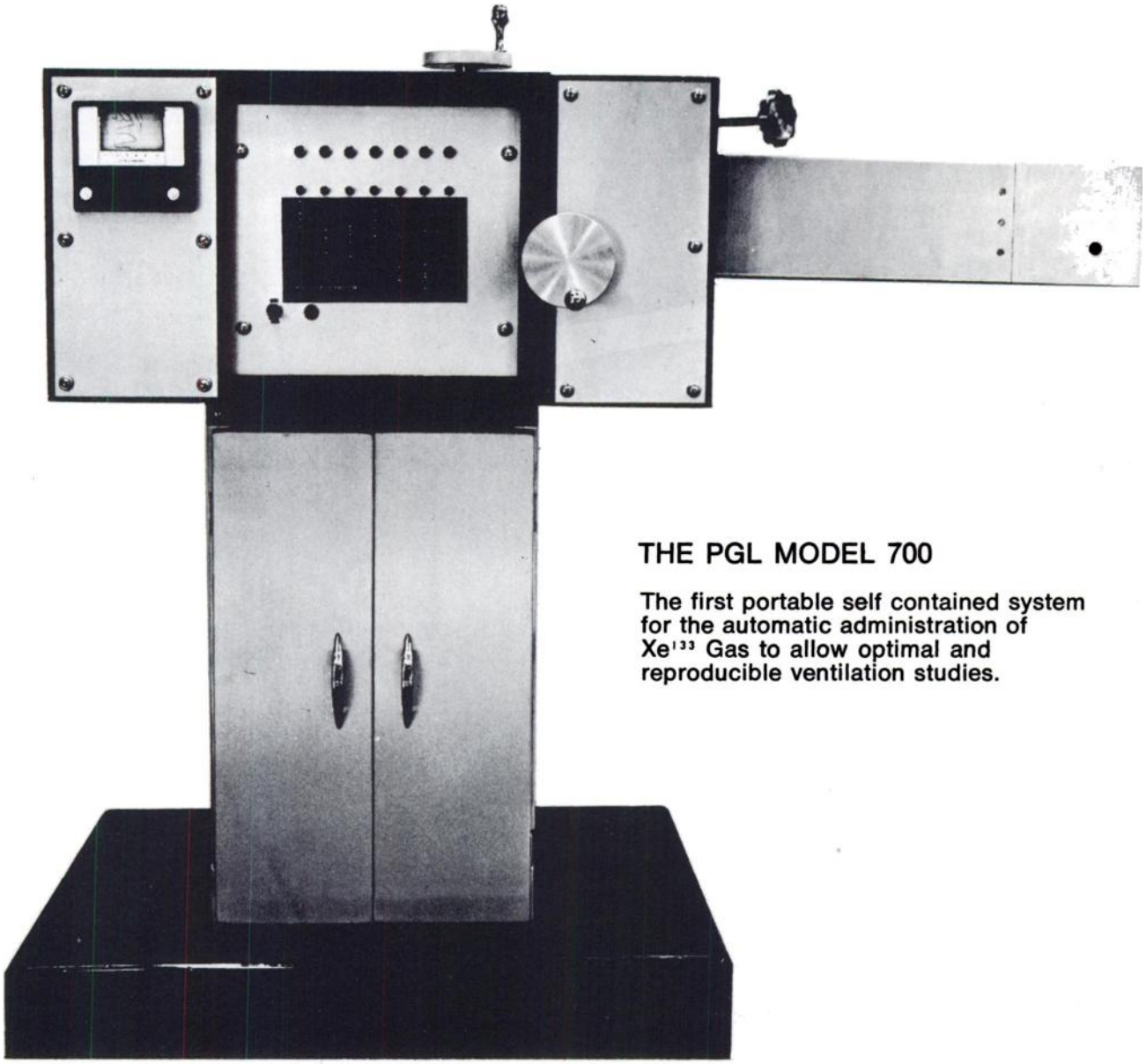
There's one way to be sure....



ANTERIOR VENTILATION

"The Xe^{133} ventilatory lung scan is a simple and sensitive method of distinguishing pulmonary embolism from other causes of perfusion abnormality. In embolism without infarction, the embolic area of the lung appears underperfused but well aerated. This is reflected on lung scans by relatively normal ventilation in association with appreciable perfusion abnormalities. In other pulmonary diseases, the ischemic regions are also poorly ventilated." ②

But how do you administer Xe^{133} Gas accurately, safely and conveniently?



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The first portable self contained system for the automatic administration of Xe^{133} Gas to allow optimal and reproducible ventilation studies.

Unique clinical features:

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- Designed for single technician operation.
- Versatility in programming allows you to vary the clinical regimen (for example, tidal volume inspiration, maximum inspiration, rebreathing, etc.)
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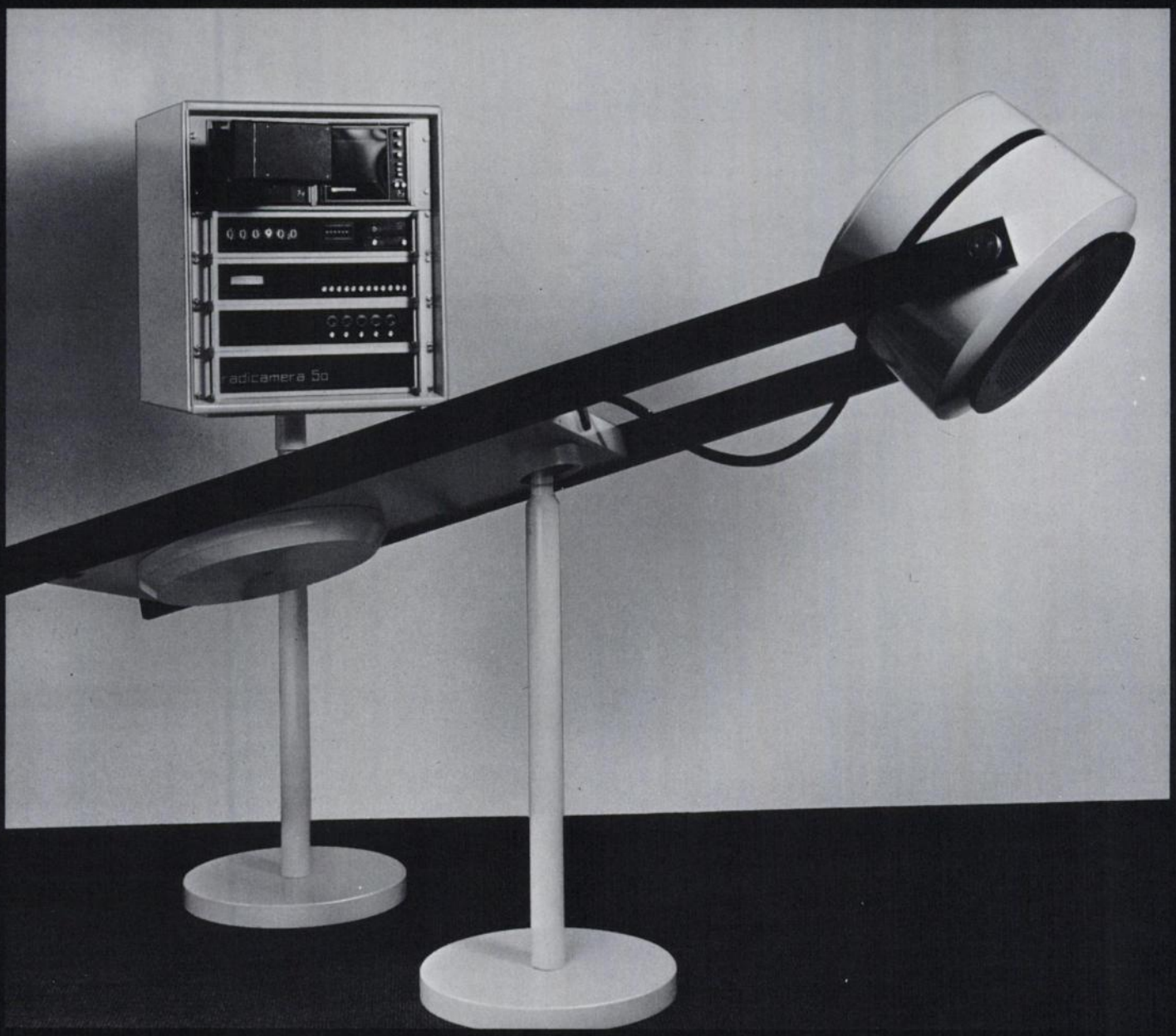
SIMPLEX RATIO

*Simplicity is the language of truth (CICERO)



NUCLEAR DATA INC.
Post Office Box 451
Palatine, Illinois 60067

VERITATIS*

Often, when a simpler way of doing things is developed, it is also a better way. Electronic and mechanical simplicity are important attributes of the Radicamera 50. They mean less probability of down-time, faster study set-up and consistent, stable performance.

The complex, leviathan gamma cameras of the Sixties, with their geared, motor-driven detector heads and several cubic feet of components, belong to a bygone decade.

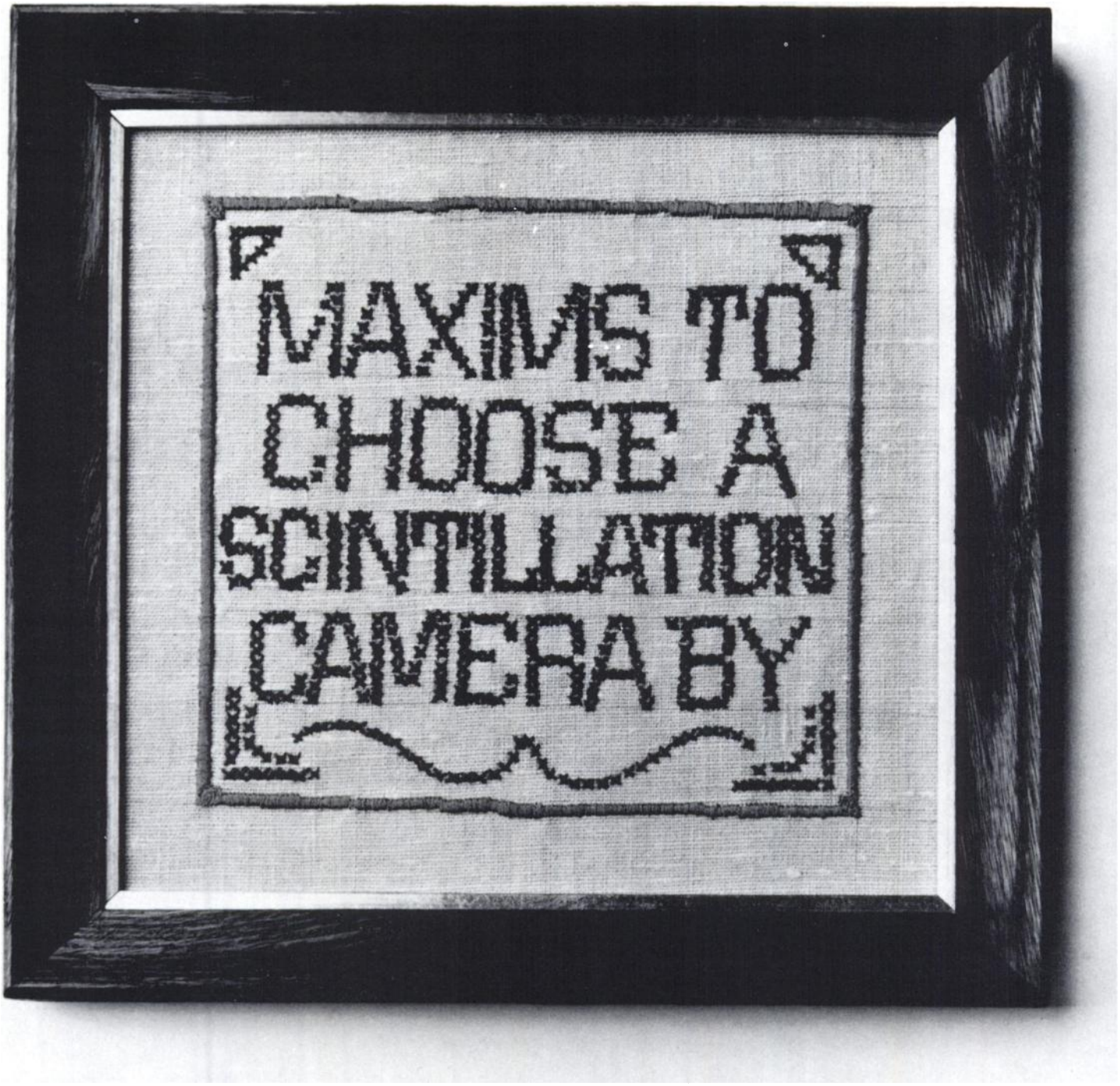
Radicamera 50 has been developed with the circuitry and components of the Seventies. It has been designed to more than meet the growing demands of today's Nuclear Medicine clinician... for clean, crisp analog scintiphotos and optimal digital compatibility. Spatial resolution, uniformity of resolution, and field uniformity are consistent with the most challenging contemporary standards. Field-of-view is a full 10.2 inches.

Standard features include persistence oscilloscope, five individually adjustable isotope calibration push-buttons, built-in ratemeter, push-button window selection and true division ratio normalization circuitry which eliminates dot position errors due to energy variations. Energy optimized collimators are available for all clinical applications and include high resolution ^{99m}Tc, low, medium, and high energy plus pinhole and diverging models.

Radicamera 50 has also exploited the materials and mechanical principles of the Seventies. Its counterbalanced detector head can be raised or lowered with one finger. With the large amount of free space made available by the Radicamera detector stand, patient positioning flexibility is increased significantly.

We'd like to tell you the whole story about the new Radicamera 50. Once you have reviewed the many ways in which it has reduced the complex to the simple, we think you'll concur that...

Simplicity is, indeed, the language of truth.



1. Be not dissuaded: diagnostic certitude is to be cherished above all.

2. Before you diagnose the patient, be sure you can diagnose the machine.

3. First, diagnostic confidence. Everything else, second.

4. Choose not a scintillation camera that asks you to accept its output on faith.

5. Sacrifice diagnostic certainty *last*.

6. Be not kidded: resolution is not the be-all, and end-all. (Ask about uniformity, ask about linearity, ask about speed, for example.)

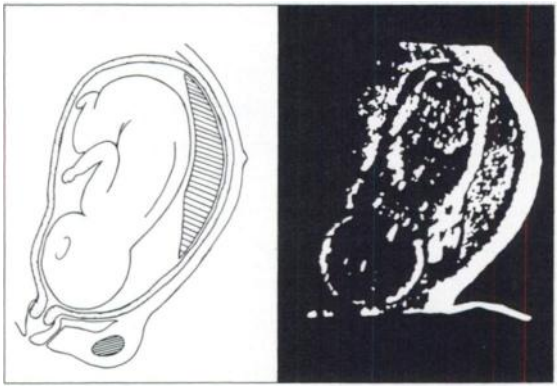
7. Resist not the temptation to take a good, hard look at the Dynacamera™ 2 for it is the one that provides good, hard information.

For elaboration—and for detailed Dynacamera 2 "application data sheets"—contact your local Picker man or write Picker Corporation, Dept. C12, 333 State Street, North Haven, Connecticut 06473.

PICKER

How can soft tissue structures be visually scanned without radiation?

Ultrasonically.

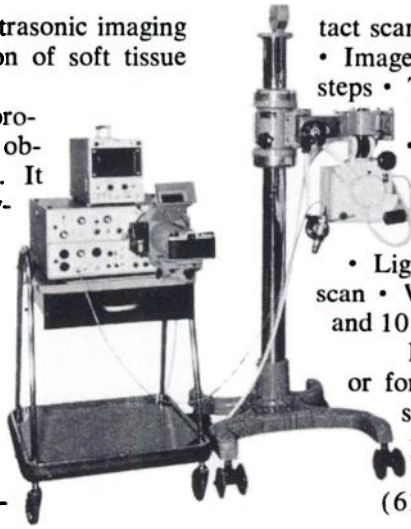


Raytheon's Sonascan is an advanced ultrasonic imaging device for two-dimensional visualization of soft tissue structures . . . without radiation.

This unique contour scanning device provides rapid cross-sectional imaging in obstetrical and gynecological applications. It can determine placental localization, hydatidiform mole, ectopic and multiple pregnancy, and solid or cystic ovarian tumors. It also can provide continuous monitoring of fetal development.

Other applications include differentiation of cystic and solid masses, as well as mapping of the liver, kidney, spleen, gall bladder and the carotid artery for blocks and occlusions.

Sonascan features a rugged, direct-contact scanner mounted on a movable stand, plus • Image minification and magnification in seven steps • Transverse to longitudinal scanning accomplished without moving the patient • Patient's name and pertinent information recorded on Polaroid film automatically • Camera mounting for 35 mm or Polaroid back as desired • Light beam marker to illuminate plane of scan • Wide frequency response — 1, 2.25, 5 and 10 megahertz.



For additional information and pricing, or for the name of your nearest Raytheon sales office, contact Raytheon Company, Medical Electronics, 190 Willow St.,Waltham, Mass. 02154. Telephone (617) 899-5949.

In medical electronics . . . Raytheon makes things happen.

RAYTHEON

nm/PLACEMENT

POSITIONS OPEN

A BACHELOR'S DEGREE WITH EXperience, either in Nuclear Medicine or Clinical Laboratory for an immediate opening in a well-equipped, very active Nuclear Medicine Department at San Francisco General Hospital, University of California, School of Medicine, 22nd & Potrero Avenues, San Francisco, California 94110. Send resume to: Myron Pollycove, M.D.

NUCLEAR MEDICINE TECHNICIAN: Modern, 663 bed teaching hospital with University and Junior College affiliations. Extensive professional activities require Registration and minimum of two years experience with nuclear medicine procedures and equipment. Excellent salaries and benefits. Send resume to Miss Norma Ederer, Director of Personnel, Mount Sinai Hospital, 4300 Alton Road, Miami Beach, Florida 33140. Equal Opportunity Employer.

CHICAGO'S LARGEST PRIVATE VOLuntary hospital located in the world's largest medical center has immediate openings for registered nuclear medicine technicians. To prepare for the opening of our medical school, several departments have been expanded. One of the initial areas affected by this expansion is our Department of Nuclear Medicine—in this area new positions have been budgeted, challenging assignments have been programmed. To those with the right background, we can offer an ideal salary, based on recent budget increases and many excellent benefits including four weeks paid vacation and tuition aid. Associate yourself with some of the finest personnel in the country by calling collect or writing: Mr. Jerry Olson (312) 733-5161, Presbyterian-St. Luke's Hospital, 1753 West Congress Parkway, Chicago, Ill. 60612.

FOR SALE, 2½ YR. OLD NUCLEAR Chicago Pho/Gamma camera including persistence scope and diverging collimator —$25,000. Contact James Wilson, Radio Isotope Dept., Herbert J. Thomas Memorial Hospital, South Charleston, West Virginia 25309. Tel.: (304) 768-3961.

POSITIONS WANTED

RADIOPHARMACIST: M.S. IN RADIOpharmacy, also has M.S. in hospital pharmacy, desires position in nuclear medicine which will combine teaching and the development of radionuclides into radiopharmaceuticals with particular interest in radioimmunoassay. Military service completed. Available September 1971. Box 701, Society of Nuclear Medicine, 211 East 43rd St., N.Y. 10017.

REGISTERED NUCLEAR MEDICINE technologist, SNM, ASRT interested in obtaining a position in New England or Midwestern states. For resume contact James R. Haney, R.T., 30 S. Mulberry Street, Hagerstown, Maryland 21740.

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Salary $631 per month. Good fringe benefits in accredited hospital with progressive, expanding department; new facilities recently added. Apply

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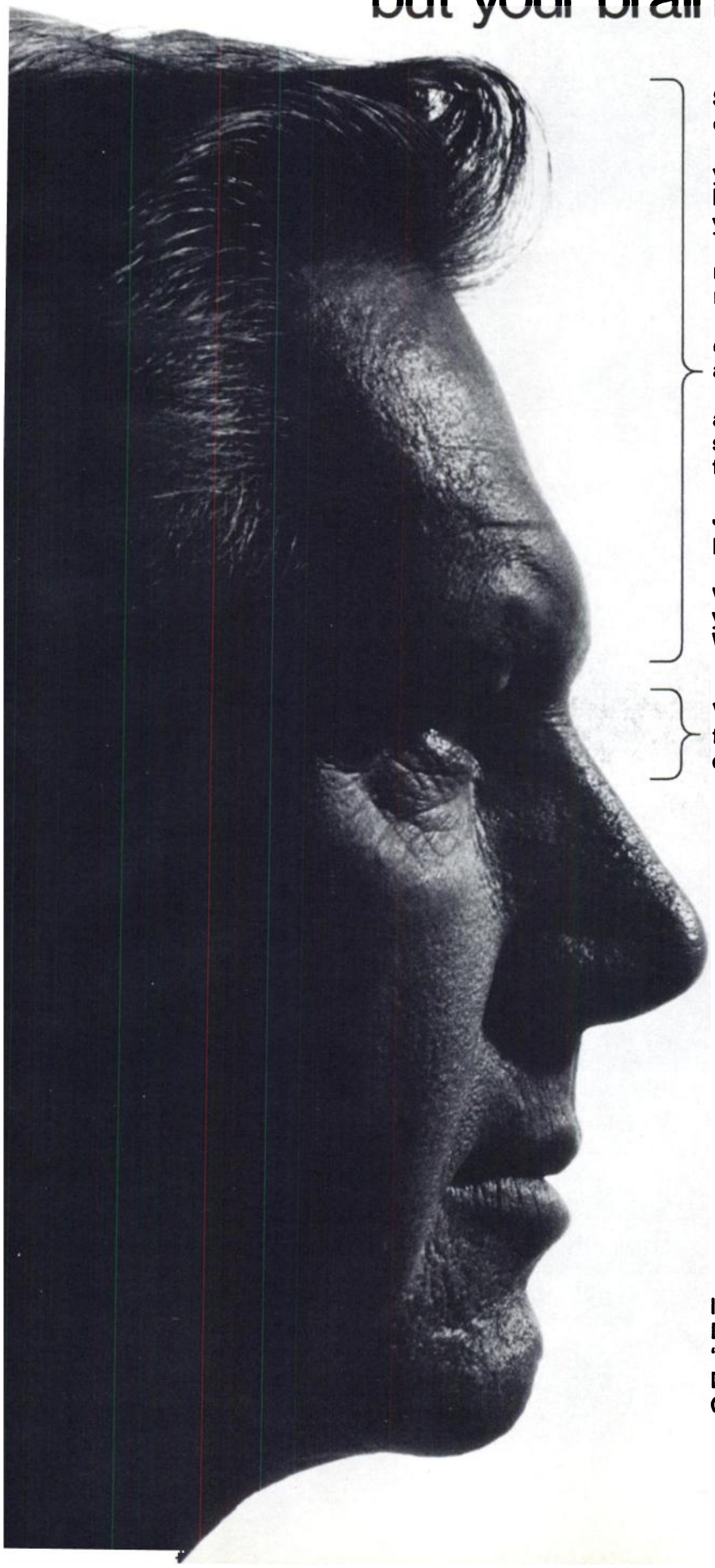
Become a vital part of our Nuclear Medicine team working towards excellent patient care. Our team, consisting of doctors, residents and technicians specializing in this progressive field, uses the most modern laboratory procedures and up-to-date equipment. Our 5 scanners provide diagnosis for one of the heaviest patient loads in the country.

Qualifications include A.R.R.T. registry or at least 2 years on-the-job training as a Nuclear Medicine technician and eligible for registry. Must be able to work flexible hours and overtime when necessary.
Benefits include Blue Cross/Blue Shield/Major Medical, free life insurance and tuition reduction at Northwestern University.

Call Miss Boyd for an appointment or information at (312) 337-6500.

Chicago Wesley Memorial Hospital
222 East Superior St.

Your eyes are great but your brain is better.



Staring at a supposed lesion on a scintigram is one thing; knowing its count rate is quite another.

Some scintillation cameras ask you to base your diagnosis exclusively on a picture. Dynacamera™ 2 goes far beyond this and gives you the numbers.

You can precisely determine lesion count *vs.* normal surrounding tissue count. Or count one region *vs.* another. With Dynacamera 2.

You can provide a referring physician with comparative quantitative data. (Ideal for eyes not as expert as yours in judging scintigrams.)

Such quantitation is the inevitable next advance in confident diagnosis with a scintillation camera. And it's available now with the Dynacamera 2. No one else offers it.

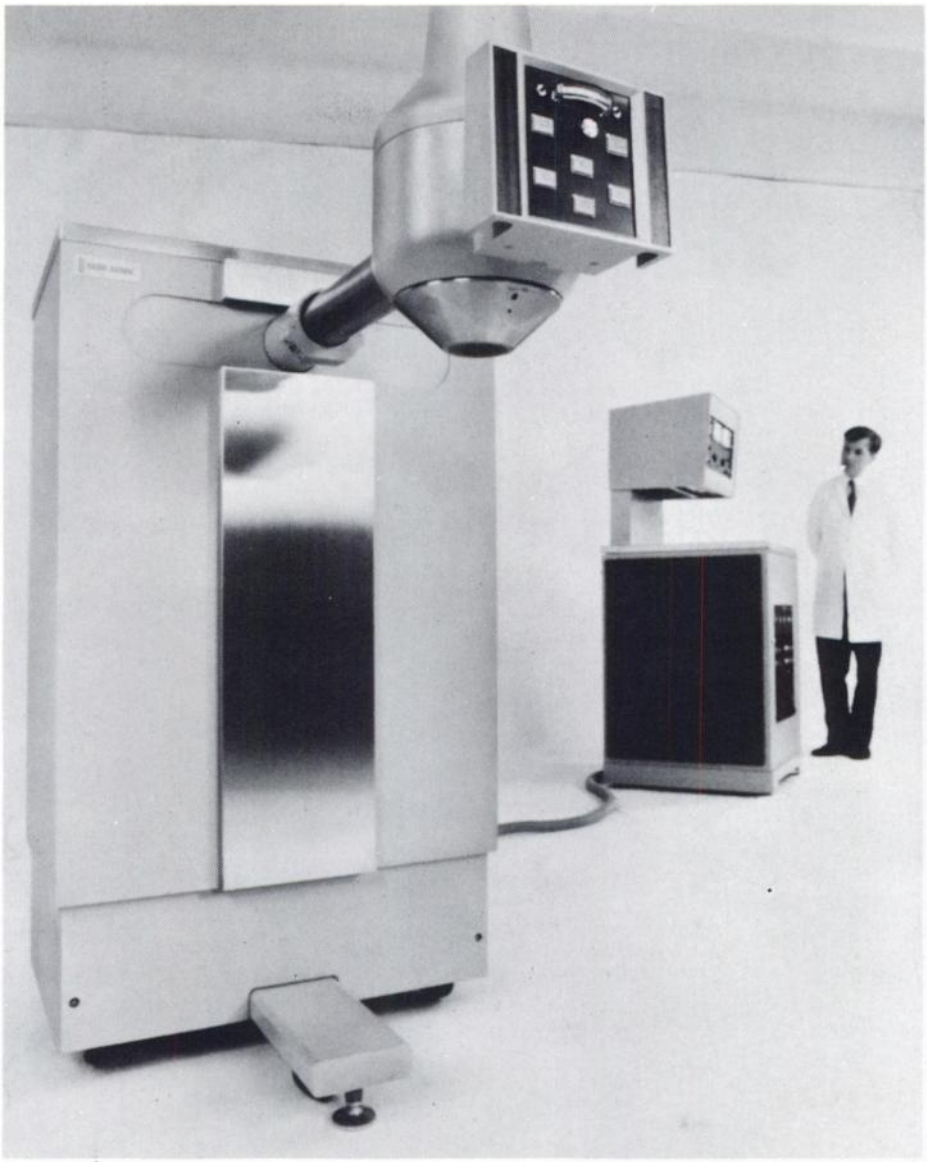
Obviously we quarrel not with Dr. Sam Johnson who said: "...to count is a modern practice, the ancient method was to guess."

Finally, this is just one of many ways in which the Dynacamera 2 provides you with what you want most: *maximum diagnostic certainty.* What else, after all, is there?

Very valuable for looking at scintigrams. Except for the situations when one's eyes may be deceived.

Speak to your local Picker man or drop us a line. We'll forward detailed information on the Dynacamera 2 and a series of Dynacamera 2 "application data sheets." Picker Corporation, Dept. A12, 333 State Street, North Haven, Connecticut 06473.

PICKER



The Baird-Atomic Scanner. It bends over backward.

To speed patient through-put.

And promote patient comfort.

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Scan speeds up to 500 cm/min. in steps of 10. New departures in collimation and minification bring portal to portal time – including 5 scans – down to that of a dual detector, but with no misleading artifacts. All views can be performed without repositioning the patient. Also available: vertical scanning.

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Baird-Atomic Limited, Braintree, Essex, England
Baird-Atomic (Europe) N.V., The Hague, The Netherlands

Why stop with a scintigram when there's more information down the road?

The typical scintillation camera gives you a scintigram that helps indicate the presence of a lesion. And only that. But one camera (and only one) has a built-in system to help *characterize* the lesion.

By offering this built-in "lesion characterization capability," Dynacamera™ 2 yields more diagnostic information than any other camera.

And lesion characterization can be achieved at the same time the static study is being done.

This capability permits functional comparisons of one region *vs.* another. And the comparisons are quantitative. (Output includes histogram plots of both regions.)

The Dynacamera 2 also permits imaging of two different radiosotopes simultaneously. Plus quantitative data in the form of histograms.

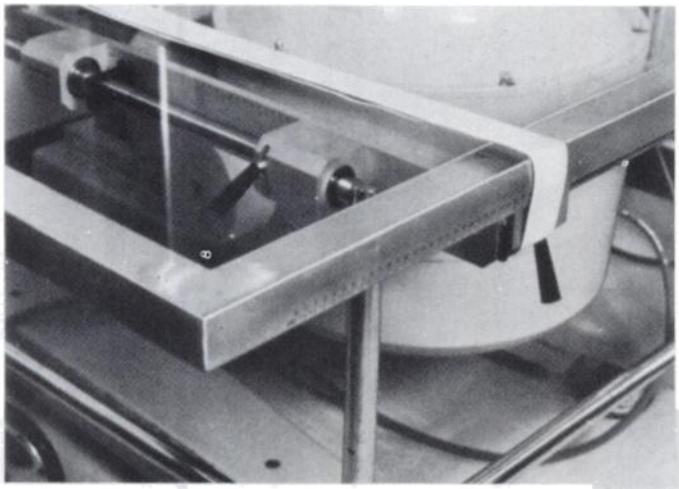
What we're saying is: why stop short of lesion characterization when the name of the game is *information*? Why, indeed?

For maximum diagnostic information, for maximum diagnostic confidence, nothing touches the Dynacamera 2.

For further information and a series of Dynacamera 2 "application data sheets," speak to your Picker man or write Picker Corporation, Dept. D12, 333 State Street, North Haven, Connecticut 06473.

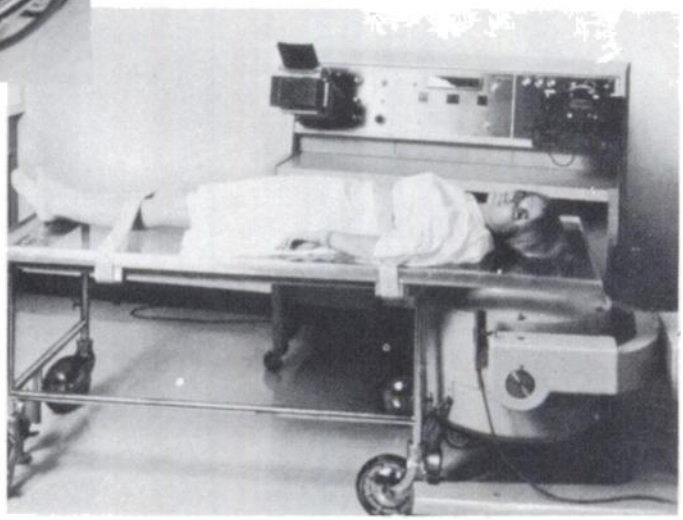
PICKER

Finally.. THE PGL MODEL 500 A Table for Imaging With a Movable Top

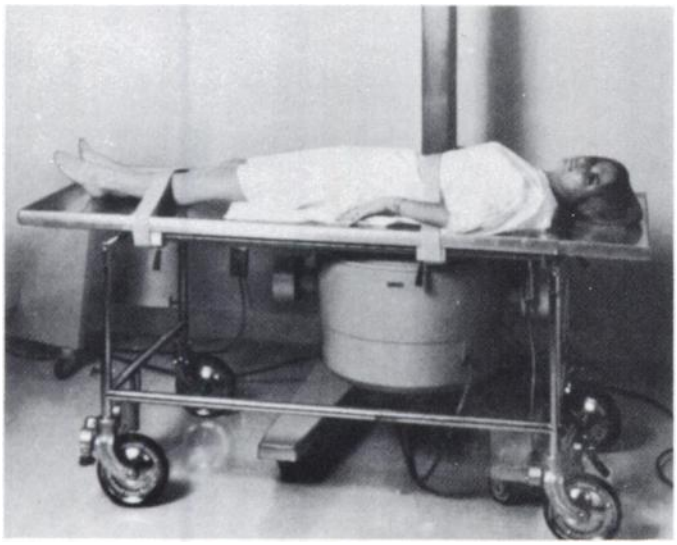


Graduated calibration scale and positive cam locks assures reproducible positioning.

The "floating" top overhangs to allow supine posterior brain views. Ten inches of travel in both longitudinal and lateral planes.



No crossmembers or support bars to interfere with placement of probes, scanner heads, or camera detectors.



WE WILL ARRANGE FOR YOU TO SEE ONE IN CLINICAL USE

WRITE OR CALL COLLECT

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INSTRUMENTS & SERVICES FOR MEDICINE

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Which of these scintillation camera features are you willing to do without?

They all do one thing: increase your diagnostic certainty.

1. Lesion count *vs.* surrounding tissue count. (Such quantitation goes far beyond a mere picture by giving you "hard data" to work with.)

2. "Lesion characterization capability" that takes you to the next logical diagnostic step. (Such characterization goes far beyond mere identification by helping to determine the type of lesion you're confronting.)

3. Large field size achieved with a large crystal. (Avoids the image distortion typical of diverging collimators.)

4. Simple uniformity check, easily, anytime. (Provides assurance that what you see is of clinical significance and not a result of instrument malfunction.)

5. Isotope push-button selection. (More reproducible, more dependable, much faster.)

6. Image enhancement system option. (With contrast enhancement, background suppression, and readout in color—all of which simplify discernment of small lesions.)

If you're unwilling to forego any of these features that serve to improve your diagnostic certainty, look to Dynacamera™ 2. It is the only scintillation camera that puts your diagnostic needs above all other considerations. For further information and a series of "application data sheets," speak to your local Picker representative or write Picker Corporation, Dept. E12, 333 State Street, North Haven, Connecticut 06473.

PICKER

Only One Scintillation Camera Data System Does Everything You Require (It Even Communicates in English)

The ND Series 5000

Totally New! The dramatic result of ND's 3 years of growing clinical computer experience.

Designed exclusively for the Nuclear-Medicine diagnostician.

Comes "pre-programmed" to *record* dynamic and static studies, to *enhance* obscure boundaries and contours, to *produce dynamic function curves* for up to eight areas-of-interest (simultaneously!), to *produce profile histograms*, to *quantify* area-of-interest data . . . and to perform several additional tasks which elaborate basic camera images and provide improved documentation for referring physicians.

Interfaces with all gamma cameras.

Can be used "off-line" as an easily programmable (but very able) general purpose computer. With modest practice, the clinician can be developing his own programs to augment those supplied with the Series 5000 Data System.

Disc memory provides millisecond access to any given frame or frame sequence specified.

To instruct the Series 5000 Data System, the clinician types two letter designators at the CRT control terminal shown. The full verbal equivalent of the two letter instruction appears automatically. If further data is required to complete the given command (for example: which frames specify the beginning and end of an area integration), then the verbal instruction appearing on the CRT terminal pauses to allow entry of required supplementary instructions at the appropriate points.

ND NUCLEAR DATA INC
POST OFFICE BOX 451, PALATINE, ILLINOIS 60067

This particle of difference in TRESITOPE®

makes a big difference in your in vitro thyroid function tests*

Magnification 10X

Now the resin powder is granulated for more reliable, reproducible results than ever before

The new resin particles in our Tresitope Diagnostic Kit provide a more effectual secondary binding site for the T_3 hormone.

The resin uptake powder uniformly absorbs the serum-buffer solution, facilitates simplicity of test procedures and is a key factor in yielding reliable, reproducible results.

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

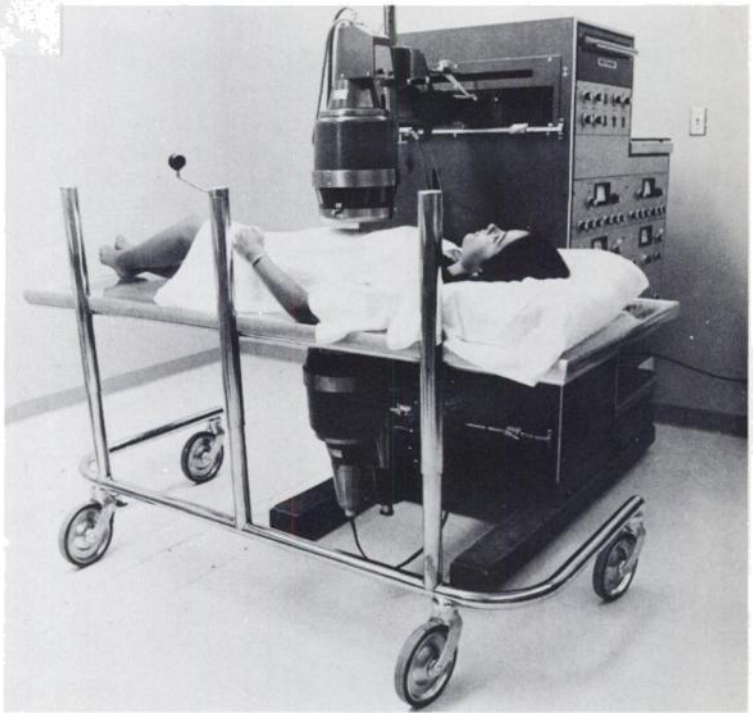
REVIEW FOR BOARD EXAMINATION IN NUCLEAR MEDICINE

This symposium under the auspices of the Central Chapter of the Society of Nuclear Medicine will be held at Indiana University Medical Center, Indianapolis, Indiana, on Wednesday, Thursday, and Friday, September 15–17, 1971. The curriculum will stress the basic sciences including physical principles, instrumentation, radiobiology, and radiopharmaceuticals, as well as review the common therapeutic and diagnostic procedures with radionuclides. The fee for the course, which does not include housing, will be $75.00 for physicians. Because of the general nature of the course, a limited number of technologists can be registered at a reduced fee. For further information contact:

Office of Post Graduate Medical Education
1100 West Michigan Street
Indianapolis, Indiana 46202

pgl

Another new table designed specifically for Gamma Imaging from PGL.



IDEAL FOR ALL IMAGING SYSTEMS:

1) Scintillation & Positron Cameras (Pho/Gamma, Dyanacamera, etc.)
2) Single & Dual Headed Rectilinear scanners (Nuclear Chicago, Picker, Baird Atomic, Ohio Nuclear, Raytheon, etc.
3) Multidetector Scanners (Dynapix, etc.)
4) Diagnostic X-Ray units.

UNIQUE FEATURES & CLINICAL BENEFITS

CONTINUOUS VERTICAL HEIGHT ADJUSTMENT

- Allows vertical height adjustment with patient on table — convenient & accurate patient positioning.

LUCITE IMAGING TOP

- Transparent — detector head easily positioned below patient for posterior views. Strong—accommodates 400 lbs. and still raises & lowers smoothly. Low-Density—maximum transmission with low energy nuclides.

PHYSICAL SPECIFICATIONS

- Lucite Top: 72"x30"x½"
- Vertical Height Adjustment: 24" to 36"
- Lower Frame: 64½" long, 28½" wide
- Wheels: 8" diameter chrome finish with conductive rubber tread.
- Finish: Brushed aluminum and chrome.
- Accessories provided: Restraining belt and polyurethane mattress with conductive vinyl cover.

UNOBSTRUCTED FRAME DESIGN

- No crossmembers or support bars to interfere with proper placement of probes, scanner heads, or camera detectors.

MOBILITY

- Large diameter casters to facilitate moving patients to and from department.

FOR FORMAL QUOTATION & ORDERING INFORMATION, CONTACT:

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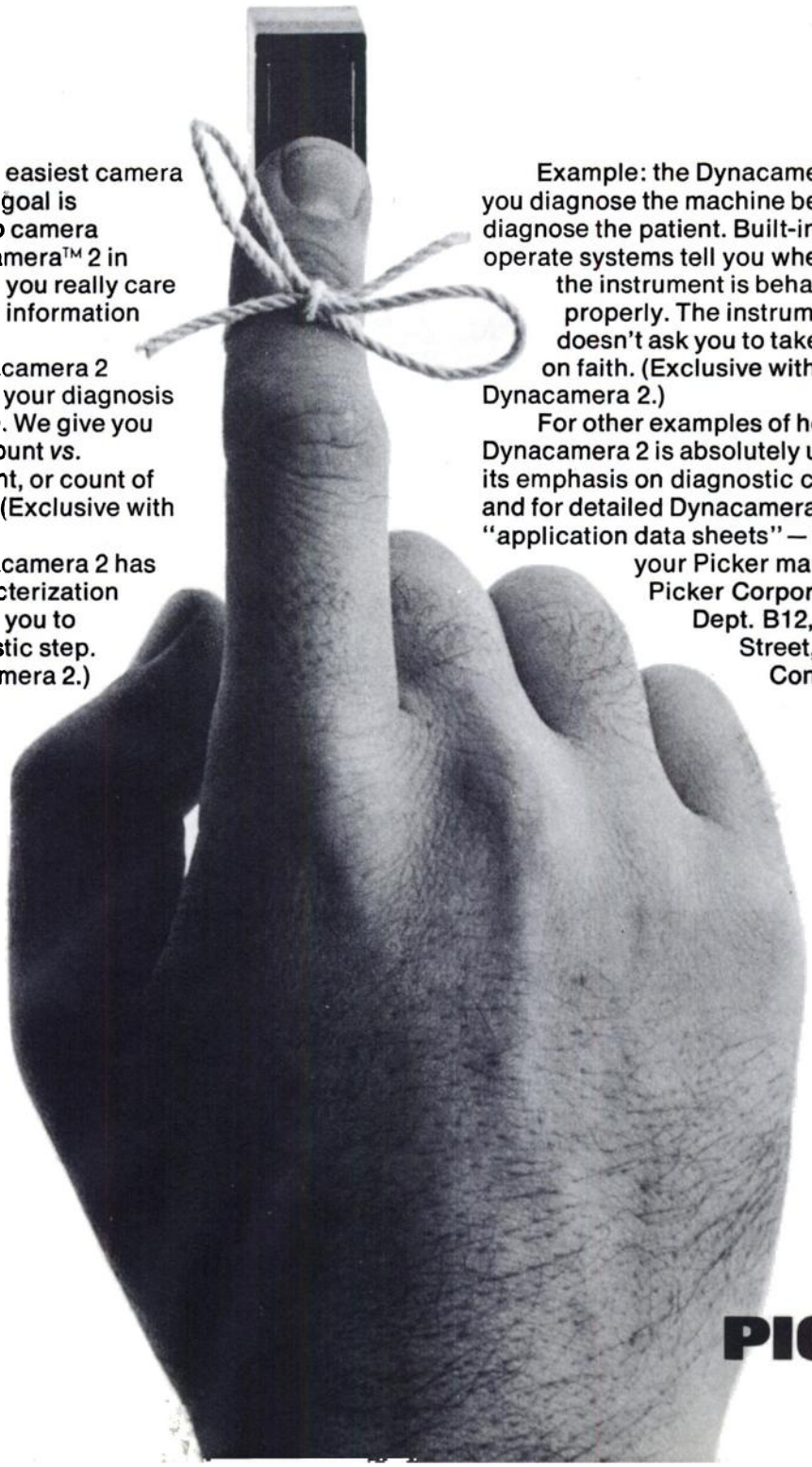
INDEX TO ADVERTISERS

Forget that our scintillation camera is easy to operate.

Remember something more important.

START



More important: it's the easiest camera to work with when your goal is diagnostic certainty. No camera approaches the Dynacamera™ 2 in providing the only thing you really care about: as much reliable information as possible.

Example: the Dynacamera 2 doesn't ask you to base your diagnosis exclusively on a picture. We give you hard numbers: lesion count *vs.* surrounding tissue count, or count of one region *vs.* another. (Exclusive with Dynacamera 2.)

Example: the Dynacamera 2 has a built-in "lesion characterization capability" which takes you to the next logical diagnostic step. (Exclusive with Dynacamera 2.)

Example: the Dynacamera 2 lets you diagnose the machine before you diagnose the patient. Built-in, easy-to-operate systems tell you whether the instrument is behaving properly. The instrument doesn't ask you to take anything on faith. (Exclusive with Dynacamera 2.)

For other examples of how the Dynacamera 2 is absolutely unique in its emphasis on diagnostic certainty and for detailed Dynacamera 2 "application data sheets" — speak to your Picker man. Or write Picker Corporation, Dept. B12, 333 State Street, North Haven, Connecticut 06473.

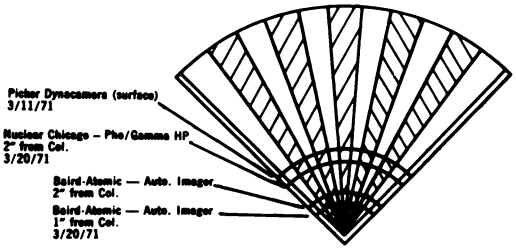
PICKER

The Camera with the Scanner image.

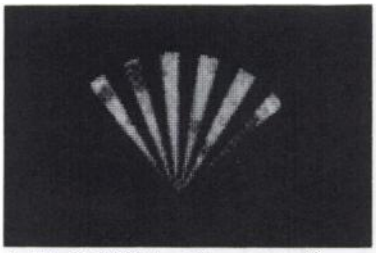
A closer look at the old image surrounding Cameras, and at the new images being generated at Baird-Atomic.

By Johan Govaert and Frank Troiani

Star Phantom^{57} Co 1 mc



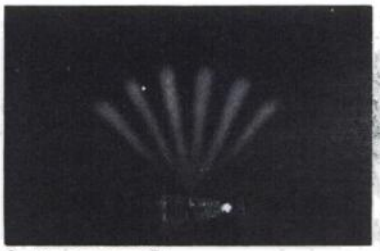
Drawing of Star Phantom
(Separation of radiants imaged all the way down to the separation of 2 to 2.5mm by Autofluoroscope)



1. Model 5700 Autofluoroscope®
140,000 counts, 80 seconds
2 inches from Standard Collimator
(All defects — bubbles — are accurately imaged. Separation of radiants imaged by Autofluoroscope at 2 to 2.5mm)

4. Model 5700 Autofluoroscope
Positive Mode: lungs

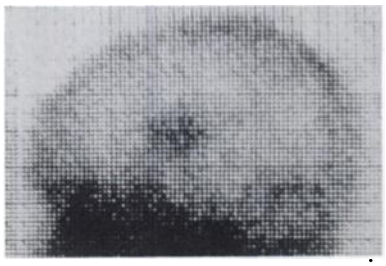
2. Pho/Gamma-HP
50,000 counts, 70 seconds
2 inches from High Resolution Collimator



3. Dynacamera™
On surface of Collimator

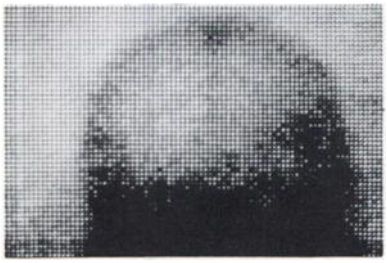
5. Model 5700 Autofluoroscope
Positive Mode: liver/spleen

Positive Brain Study



1. Model 5700 Autofluoroscope
Left lateral 0% BS

3. 5 inch Rectilinear Scanner
Left lateral



2. Model 5700 Autofluoroscope
Anterior 0% BS

4. 5 inch Rectilinear Scanner
Anterior

Patient: 66 year old male. CVA. Isotope: 10mc ^{99m}Tc.

Traditionally, of course, Cameras have been valuable because of their through-put capabilities. That certainly is not an insignificant contribution to nuclear medicine. But one which we here at Baird (and no doubt elsewhere) have not been willing to leave alone. After all, there is a lot more to the picture — if you will — than that.

All of which has led B/A to several years of intensive and extensive work. Our Camera, the Autofluoroscope®, has always done a satisfactory job in the area of statics. But there, too, we were far from satisfied.

What we wanted was better image. Or, if possible, a whole new kind of image. We became determined to make our Camera produce images which were a significant order of magnitude better. We wanted images that could approach those obtainable by the Scanner.

And as of now, we've got it.

This comparative Star Phantom study shows that. Picture number 1 shows Baird's Model 5700 Autofluoroscope's image compared to those of the

Nuclear Chicago Pho/Gamma HP® and the Picker Dynacamera™ in pictures 2 and 3, respectively.

One thing which you'll notice right off is the accuracy with which the Autofluoroscope has imaged all defects — eg bubbles. And that the star radiants are imaged all the way down to the separation of 2 to 2.5mm.

Now take a look at pictures number 4 and 5. They show the Autofluoroscope's ability to image large organs — lungs and liver/spleen — in the positive mode.

All right. From there, let's pass on to a Positive Brain Study. This is of a 66 year old male, CVA. The isotope dosage is 10mc ^{99m}Tc. Pictures 1 and 2 are made by the Model 5700 Autofluoroscope. Pictures 3 and 4 are of the same man, same data, but made by the 5-inch Rectilinear Scanner.

Quite frankly, we never expected the Camera to come along quite this far. We're getting the imaging capability, the clarity, the resolution from the *Autofluoroscope* that you'd only expect from the Scanner. With none of the narrow-focus problems. None of the concern for missing a lesion by being at the wrong depth.

Study the definition. Especially in the posterior fossa area. See how the skull shows up.

Quality of image. Depth of image. All the way through the head. The implications are fantastic.

But that's not all.

Finally, let's look into serial imaging. We have proven capability in quantitative function studies. Now, as you can see, we also offer exceptional clarity visualization of dynamic events. This cardiac study pretty much speaks for itself. It's a radio isotopic angiocardiogram, anterior view, of a normal subject.

It represents a Camera advance that's almost too good to be true. And, as a matter of fact, we could hardly believe it ourselves when we saw what we'd done.

But it *is* true.

What this means is that Baird-Atomic has taken the Autofluoroscope and compounded its value by giving it imaging capabilities like those of the Scanner. In both statics and dynamics.

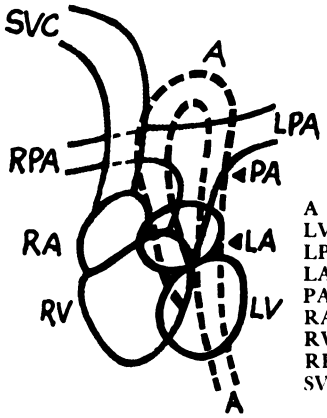
And the whole point is that, as of now, the Autofluoroscope isn't like any other Camera. It's virtually a new kind of instrument (incidentally, all the capabilities that we've talked about here can be readily installed in existing Autofluoroscopes).

Write us, or call us. Because there's a lot more to be said.

BAIRD-ATOMIC, INC.

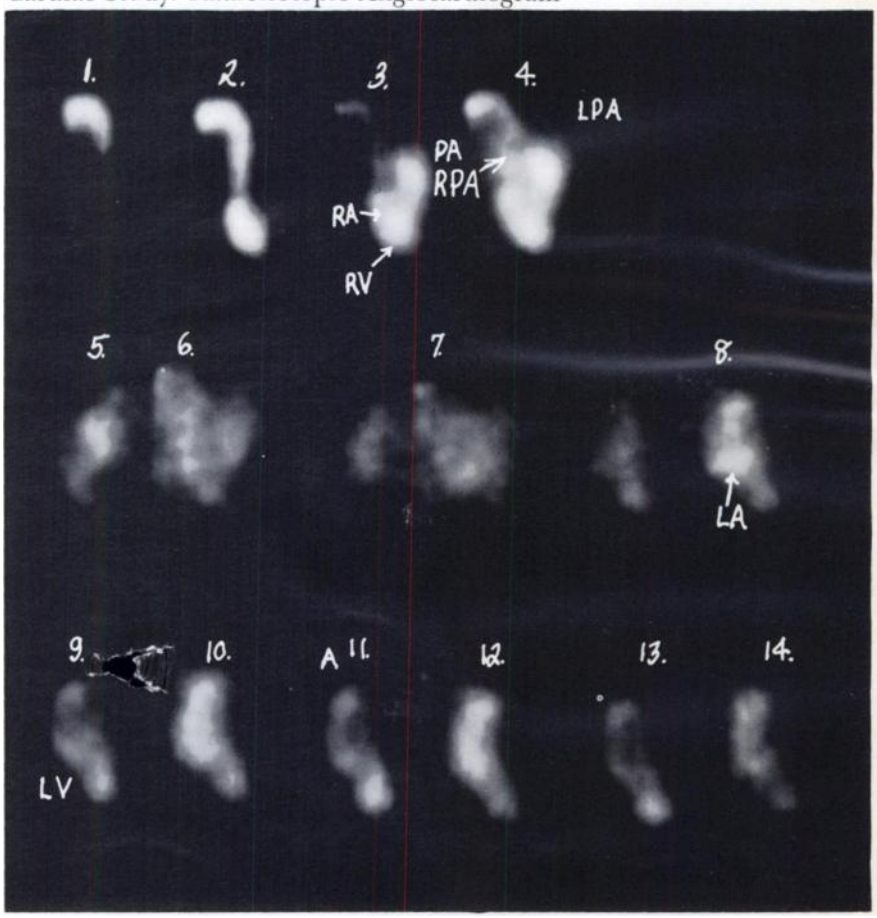
125 Middlesex Turnpike
Bedford, MA 01730. (617) 276-6208

Baird-Atomic Limited, Braintree, Essex, England. Baird-Atomic (Europe) N.V., The Hague, The Netherlands.



A — Aorta
LV — Left Ventricle
LPA — Left Pulmonary Artery
LA — Left Atrium
PA — Pulmonary Artery
RA — Right Atrium
RV — Right Ventricle
RPA — Right Pulmonary Artery
SVC — Superior Vena Cava

Cardiac Study. Radioisotopic Angiocardiogram



1. Radioactive bolus enters superior vena cava. Frames 157-160, .0-.8 secs. 2. Bolus continues onto right atrium and right ventricle. Frames 161-164, .8-1.6 secs. 3. Clear visualization, right atrium, right ventricle and main pulmonary artery. Frames 165-168, 1.6-2.4 secs. 4. Bolus branches into right and left pulmonary arteries. Frames 169-172, 2.4-3.2 secs. 5. & 6. Bolus completes passage from heart to lung. Frames 173-176, 3.2-4.0 secs; frames 177-180, 4.0-4.8 secs. 7. Bolus in the lung field. Frames 185-188, 5.6-6.4 secs. 8. Bolus, now strung out, enters left side of heart (left atrium) clearly visualized. Frames 193-196, 7.2-8.0 secs. 9. Bolus in left ventricle, and passing up aorta. Frames 197-200, 8.0-8.8 secs. 10, 11, 12, 13, 14. Continuing passage of the activity through left atrium, left ventricle and aorta. Increased activity in left ventricle (11 and 13) and corresponding activity-increase in aorta (10 and 12) suggest delineation of heart contractions. Frames 201-220, 8.8-12.8 secs.

Anterior view, normal subject. 12.4 mc 99m Tc. I.V. Accumulation time .2 sec. per frame.

Isotope tomography is here.

Here's what Nuclear-Chicago's Pho/Gamma® Tomocamera™ System offers you (in addition to full, conventional capabilities of the Pho/Gamma Scintillation Camera):

Four equally spaced, in-focus planes simultaneously displayed.

Variable spacing of equally separated focal planes—from 1/2 to 1-1/2 inches.

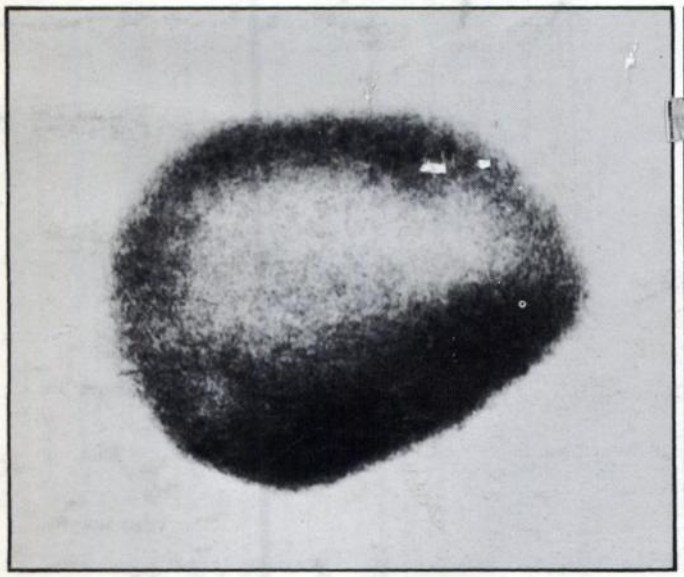
Distance from collimator to farthest focal plane is variable to 7-3/4 inches.

Pho/Gamma tomographic images can be recorded, replayed, and analyzed with the Pho/Gamma Data-Store/Playback System.

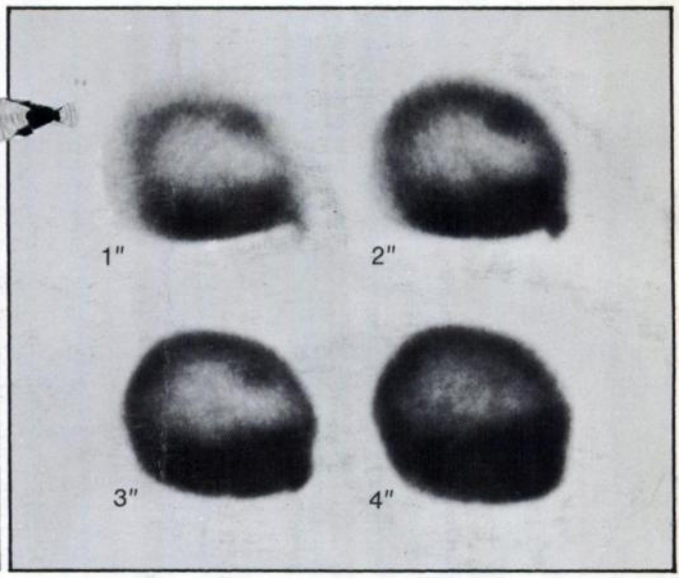
Obscuring events above and below each plane of focus are effectively "tuned out."

And much more.

Your Nuclear-Chicago Sales Engineer has all the details. Or write us. 0-240



Brain, right lateral view. Standard scintiphoto.



Brain, right lateral views presented simultaneously in a single tomographic scintiphoto. Lesion in right frontal region is delineated best at 2- and 3-inch depths. Surgery revealed well differentiated adenocarcinoma.

NUCLEAR-CHICAGO
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