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.

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T-3 x T-4 = T-7 Value

TRIOSORB®-131 or TRIOSORB-125

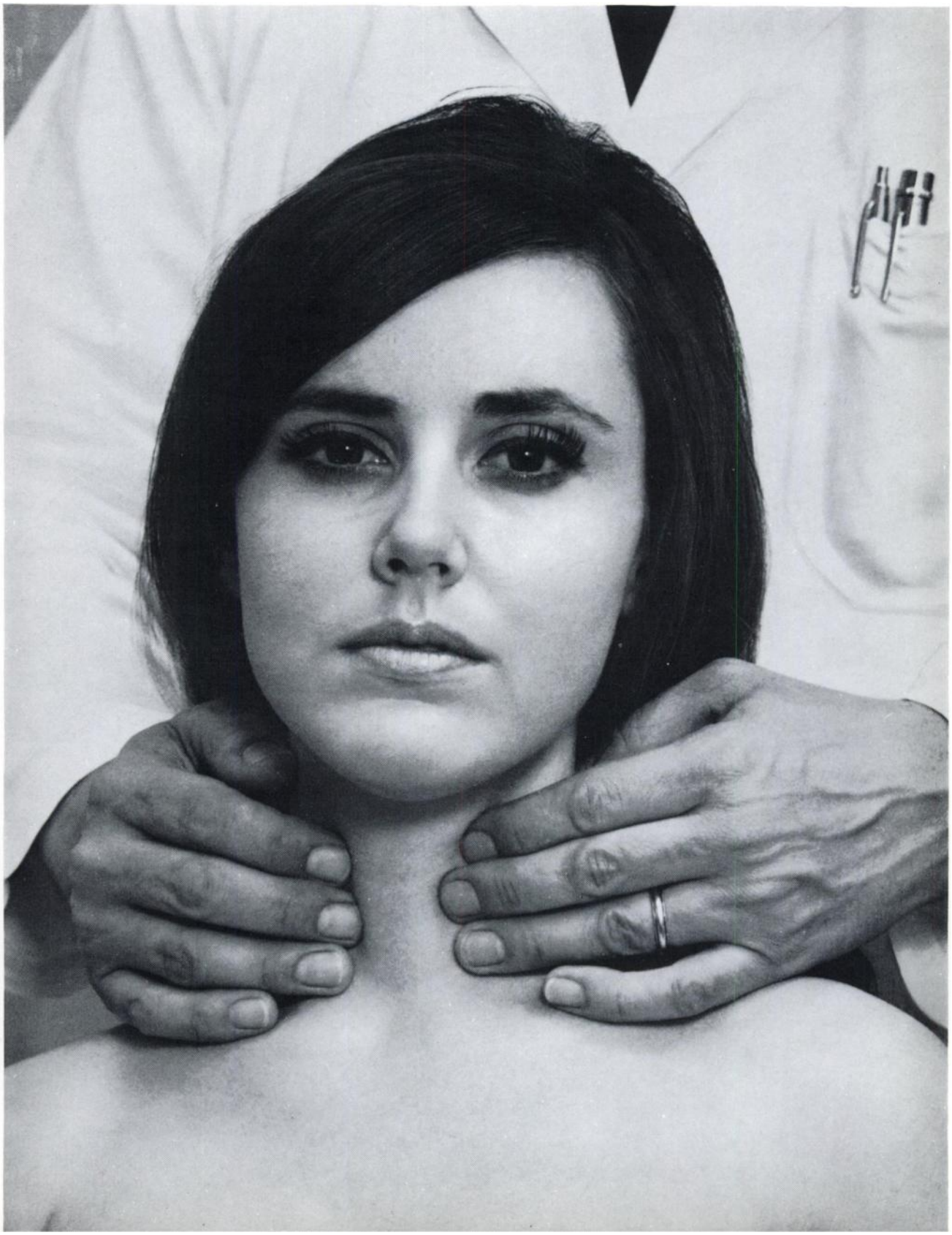
T-3 Diagnostic Kit

TETRASORB®-125

T-4 Diagnostic Kit

001187

Thyroid dysfunction? Pregnant? On the "pill"?



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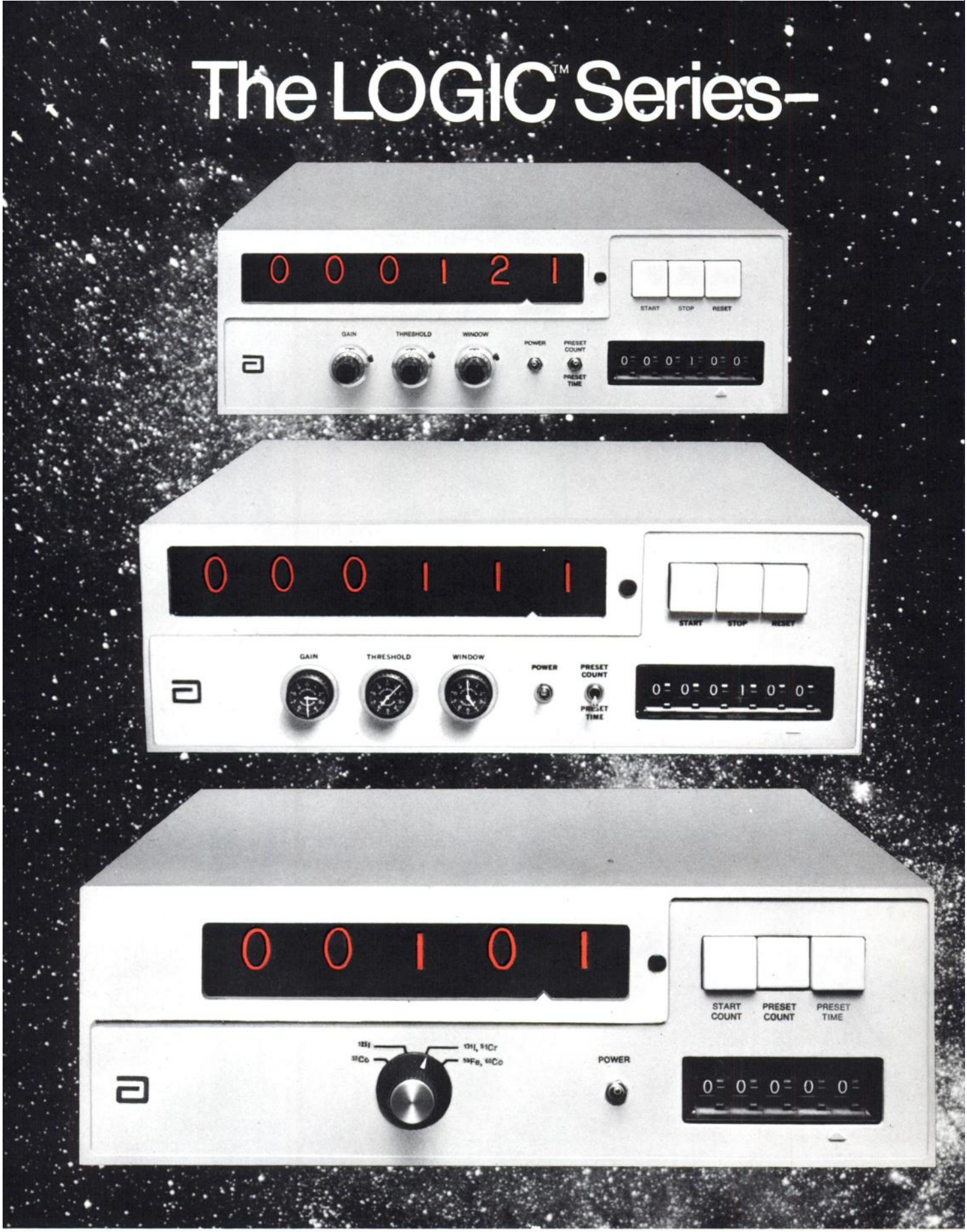

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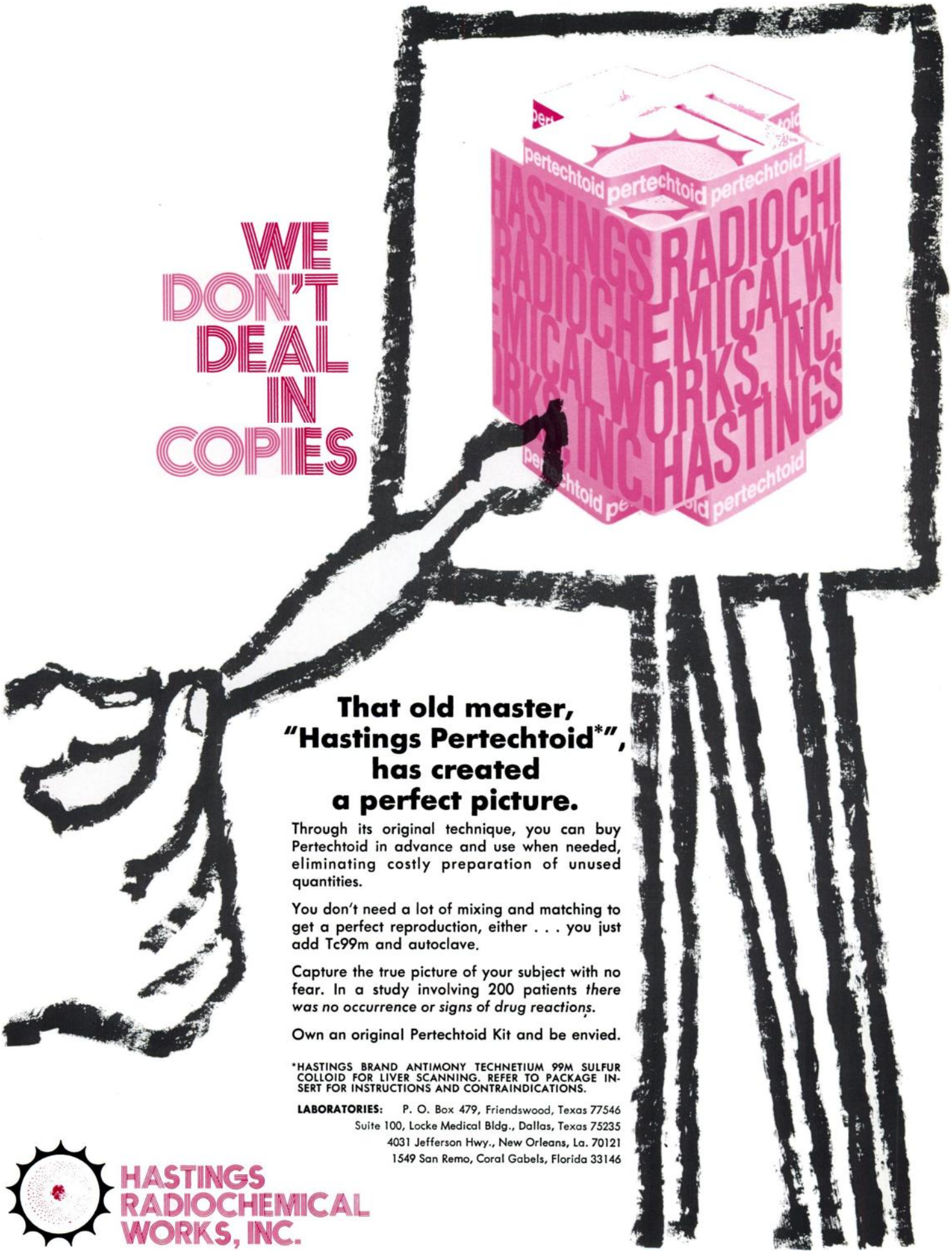

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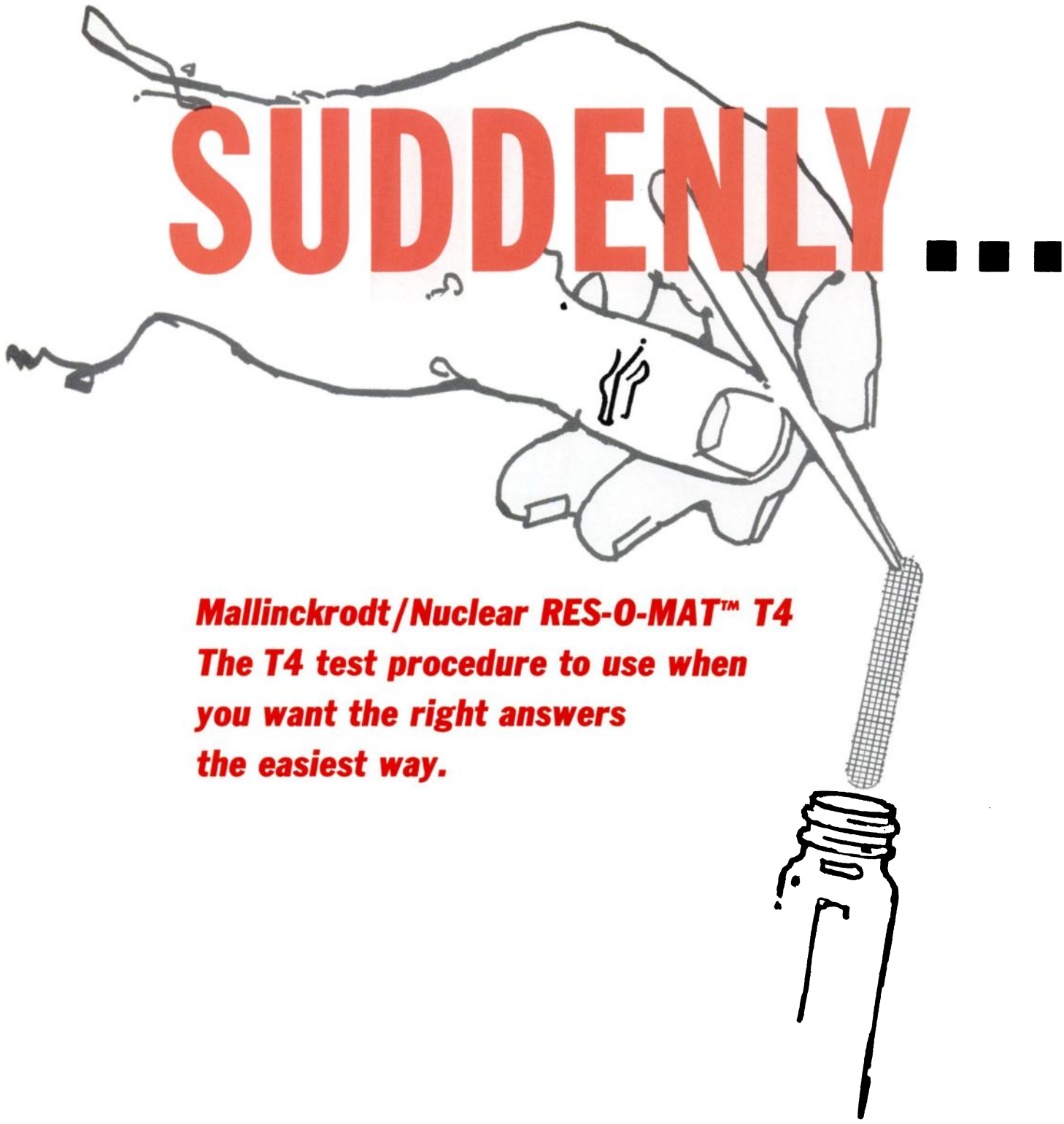

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Macroscan-131 is aseptically prepared and non-pyrogenic. It is ready to use and should not be heated prior to use.

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.

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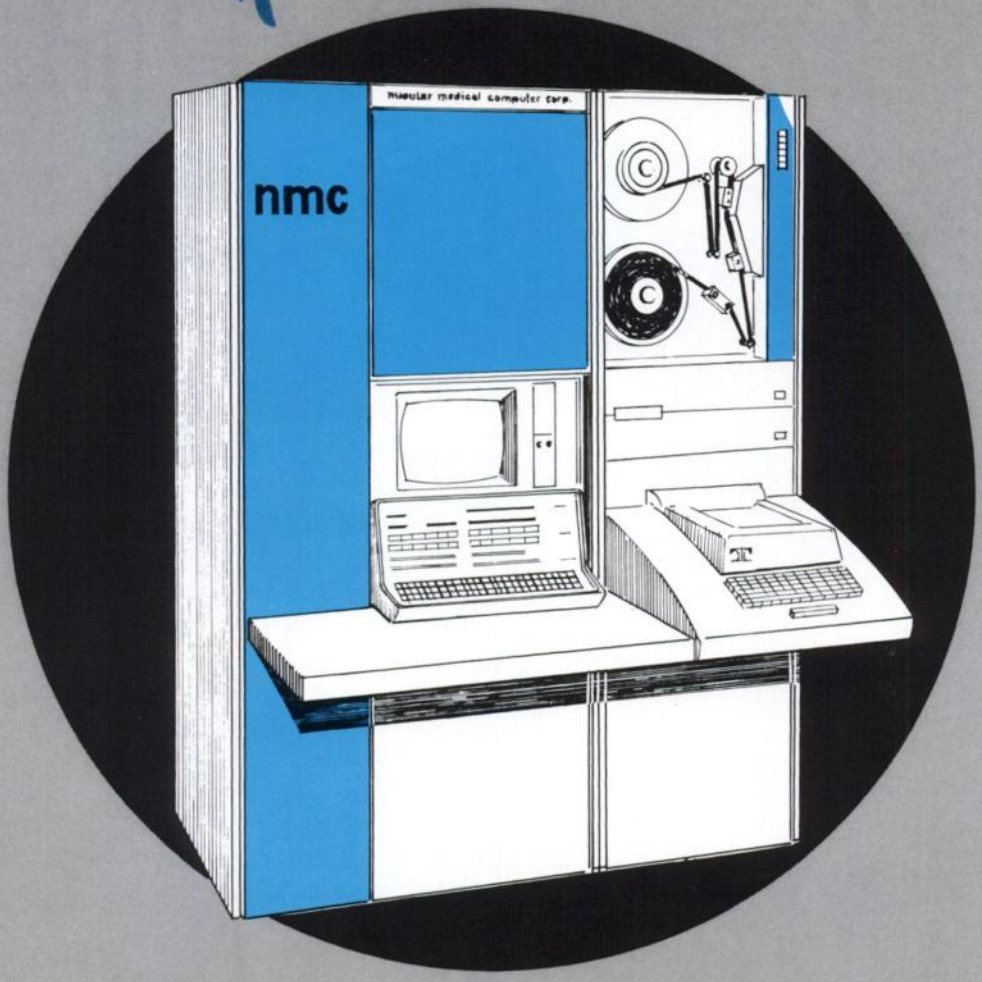

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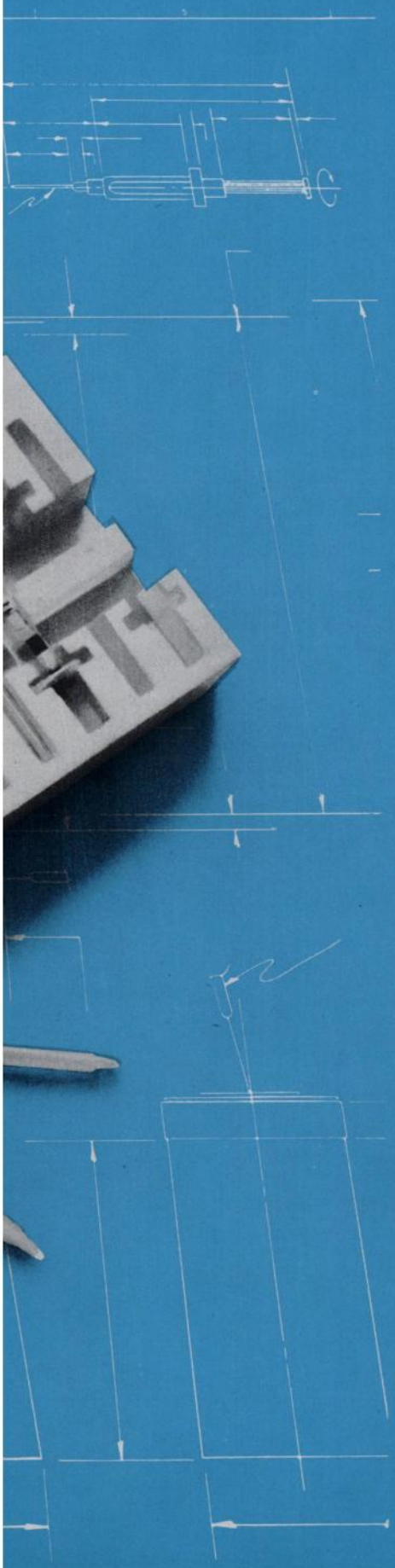

TECHNETOPE® II

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.

Mediotope

SQUIBB Squibb Division of Nuclear Medicine
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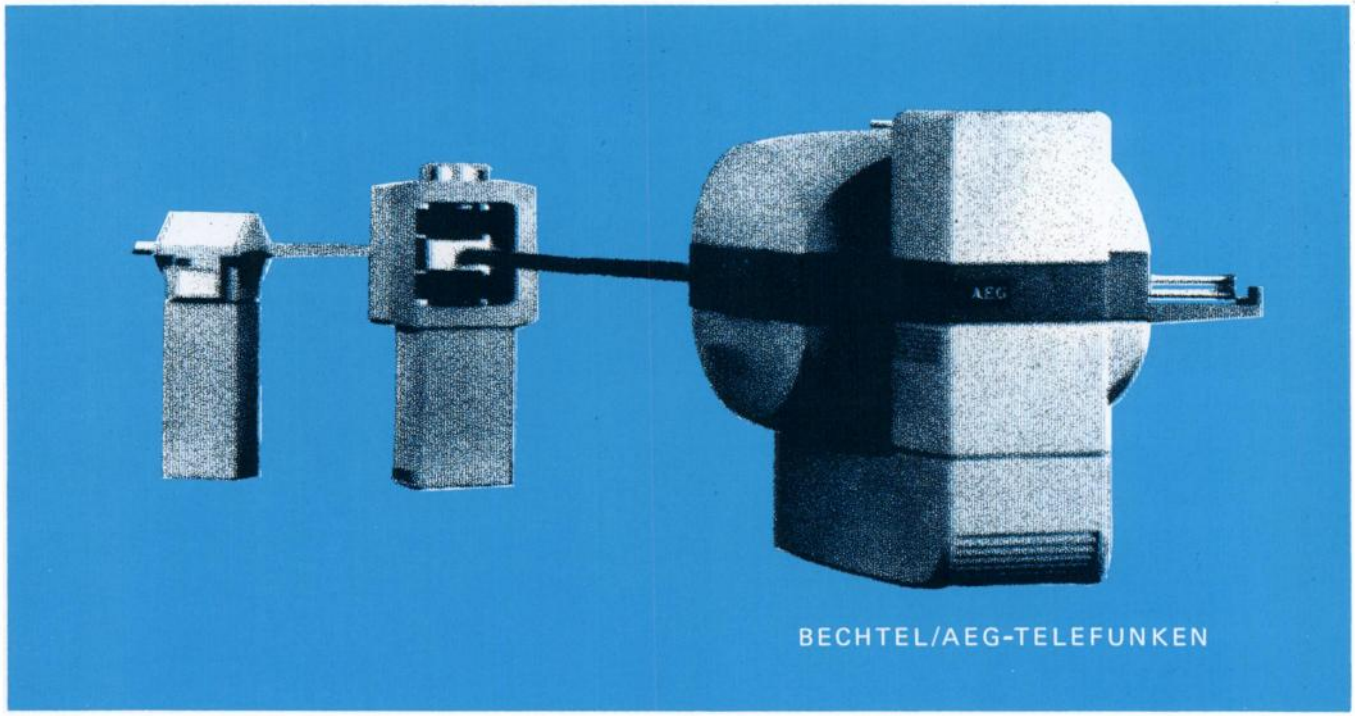

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	INTERNAL BEAM		EXTERNAL BEAM	
Particles	Energy [MeV]	Intensity [μA]	Energy [MeV]	Intensity [μA]
Protons	1 — 22	1000	22	100
Deuterons	0.5 — 11	1000	11	100
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He^3	3 — 29	50(100)	29	25(50)

*Variable energy version is also available

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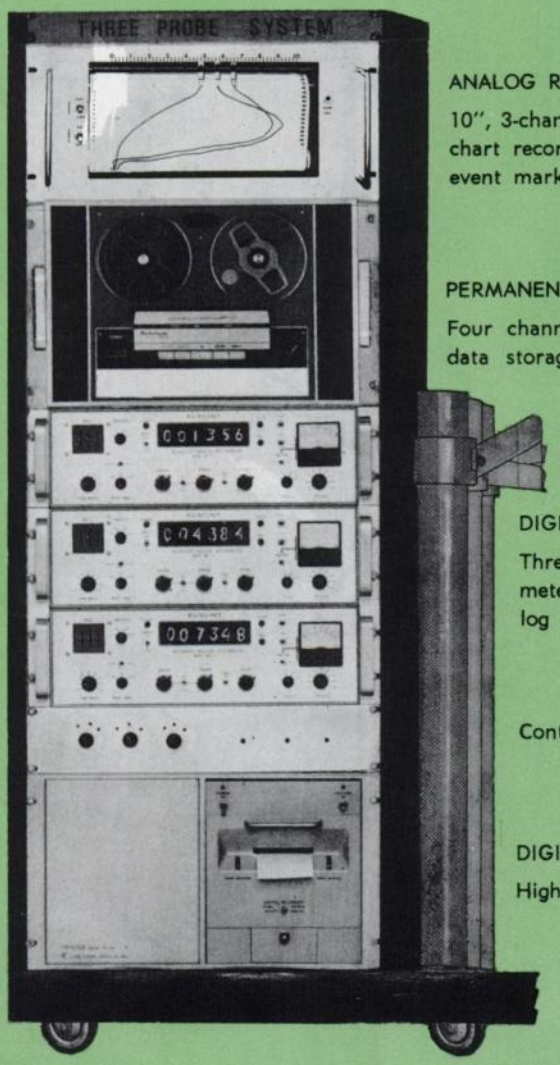

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Edited by Charles A. Leone

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This book is based on eighteen papers presented at an international symposium of immunologists, protein chemists, physiologists, geneticists and other medical and biological scientists who met to exchange information and views upon a subject of the greatest current significance. The topics of the papers centered around the effects of ionizing radiations on immune processes, and the available and possible means for the remedy of "radiation sickness." In this volume the articles dealing with fundamental radiobiological concepts at the molecular level are presented first, followed by those which discuss cellular, tissual, organ, and whole-animal considerations of the subject. The closing chapter reviews the literature on recent Soviet advances in this field. The authors of this book are twenty-five distinguished scientists representing many different countries, and each actively engaged in research in this vitally important subject.

CODE NUMBER: 1030

MATHEMATICAL THEORY OF RADIATION DOSIMETRY

By J. J. Fitzgerald, G. L. Brownell and F. J. Mahoney

1967 — Text $14.50
746pp. — Reference $38.00/Prepaid $30.40

During the last decade there has been a rapid growth in the use of radioactive materials and radiation. With the increased use of ionizing radiation sources, there has been a corresponding increase in the need for the recruitment and education of health physicists, radiological engineers, and radiological health specialists to evaluate the hazards and to provide for the safe use of these sources. This text should help these radiological specialists in developing the understanding necessary to properly analyze potential hazards and should also be of interest to nuclear physicists, nuclear engineers, reactor-shielding specialists, and medical physicists, as well as to first and second-year graduate students in these fields.

This book includes some original equations and formulas developed by the authors' research at U.S. Atomic Energy Commission installations and while teaching at Harvard and Massachusetts Institute of Technology. They have brought together in this text what is believed to be the largest number of dose and dose-rate equations in any single text.

CODE NUMBER: 1091

TECHNOLOGICAL INJURY:

THE EFFECT OF TECHNOLOGICAL ADVANCES ON ENVIRONMENT, LIFE AND SOCIETY

Edited by J. Rose

1969 — *Professional $10.00/Prepaid $ 8.00
244pp. — Reference $19.50/Prepaid $15.60

Technological advances in this century have been of immense benefit to mankind: they have also resulted in grave dangers, affecting the very fabric of life and society. Thus, the higher standard of living is accompanied by the catastrophic pollution of our environment, cities in distress, populations under stress and an economy based on waste. But man has a choice of keeping this planet healthy or of dying with it.

This book is a collection of 15 chapters contributed by experts in various fields relating to the effect of technology on environment, life and society. The aim of this work is to present to an intelligent public a sober and fair account of the potential and actual dangers of technological advances. *Technological Injury* points out these dangers, impartially discusses their implications, and shows what steps should be taken to counteract the existing and potential effects. The contents of this book are divided into 2 sections: POLLUTION OF THE ENVIRONMENT and EFFECTS ON SOCIETY AND LIFE. All who care about the world they live in will welcome this book.

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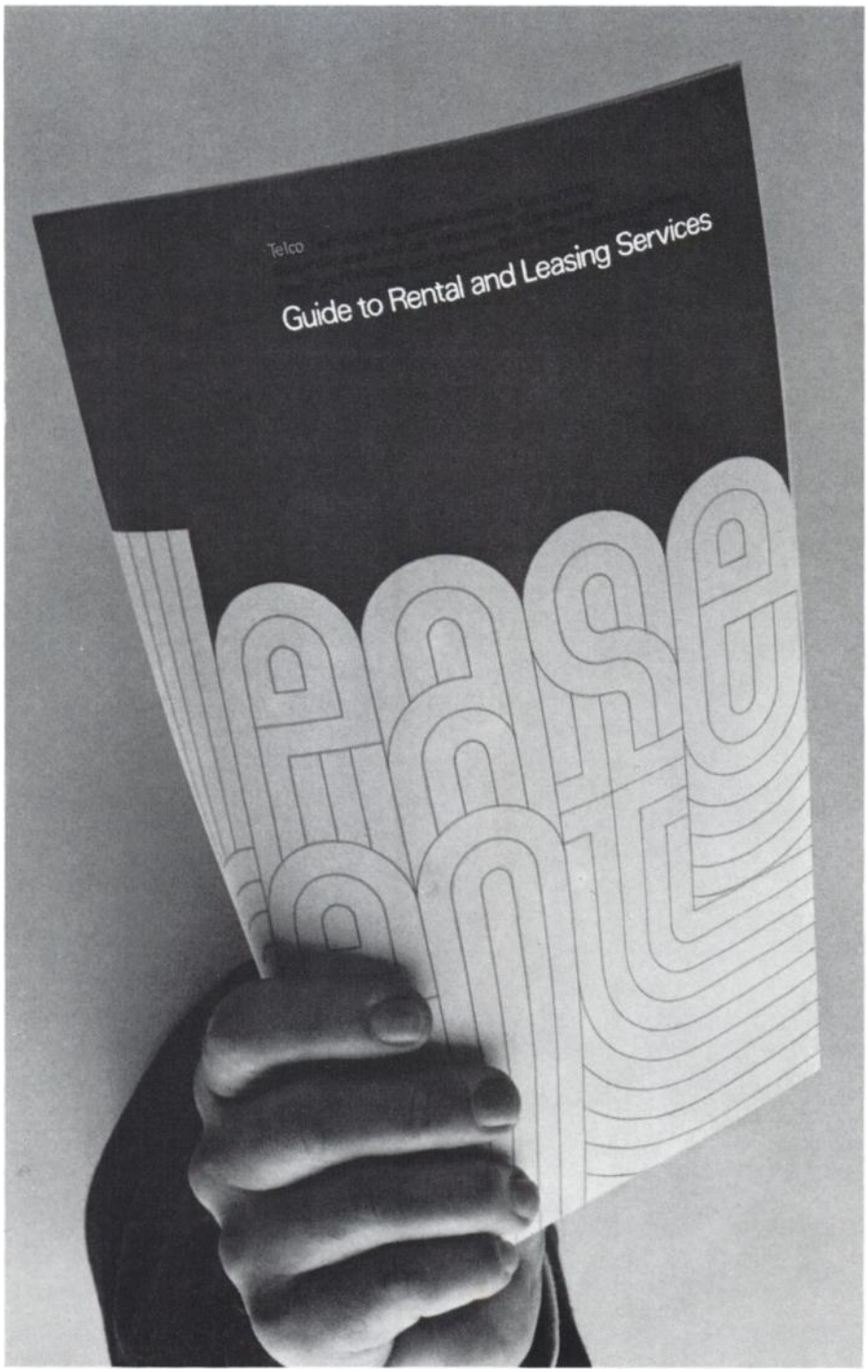

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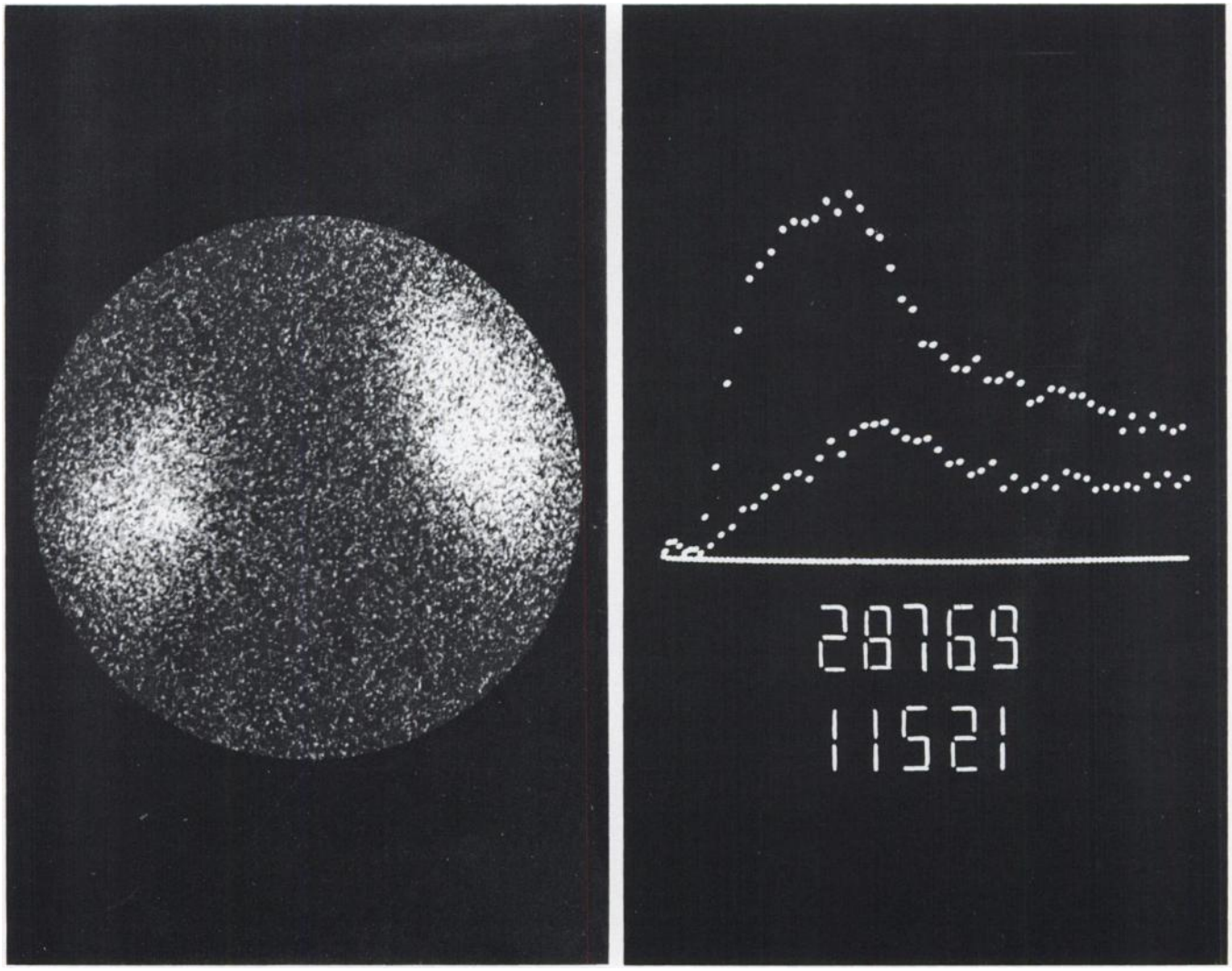

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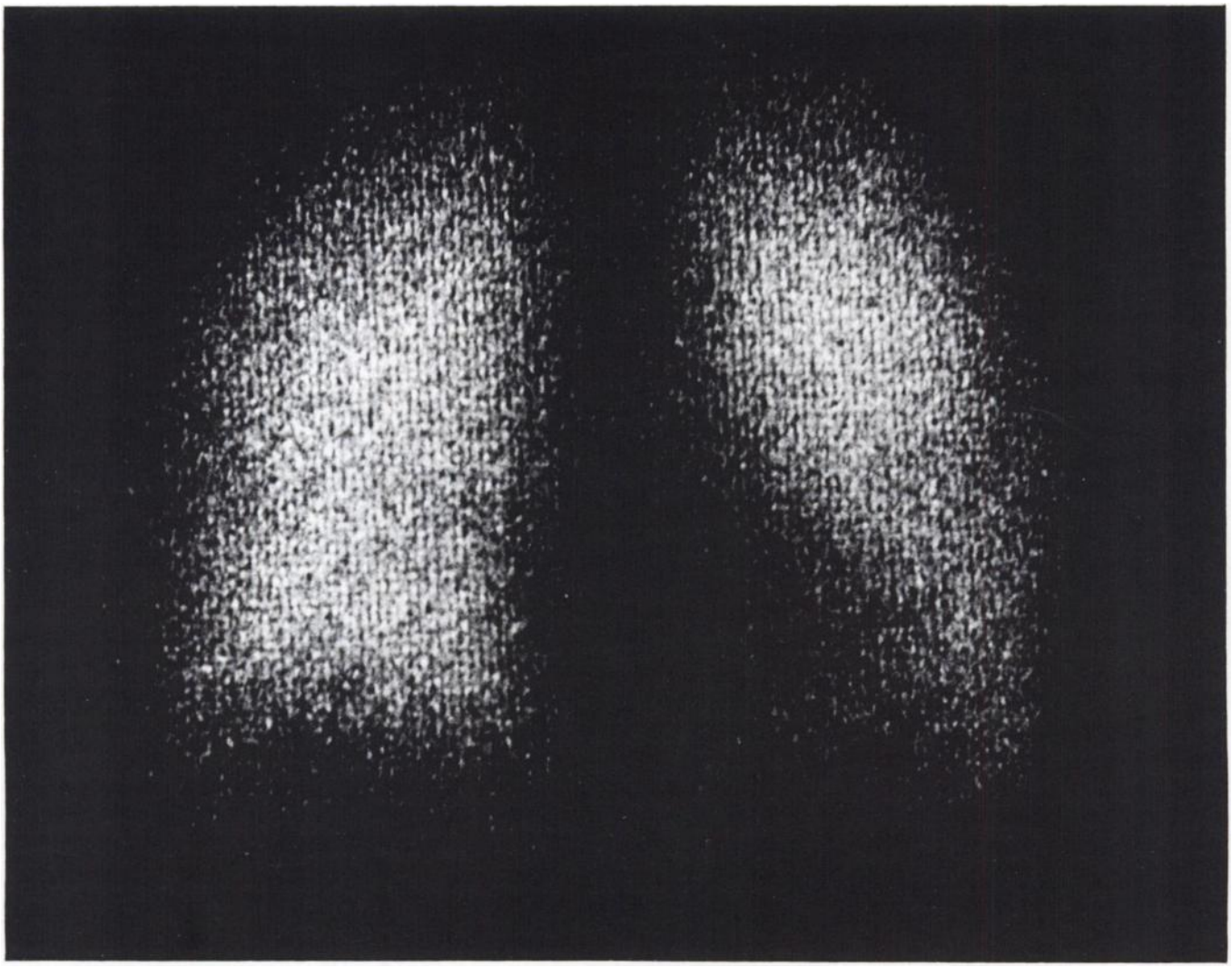

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POSITION IN NUCLEAR MEDICINE

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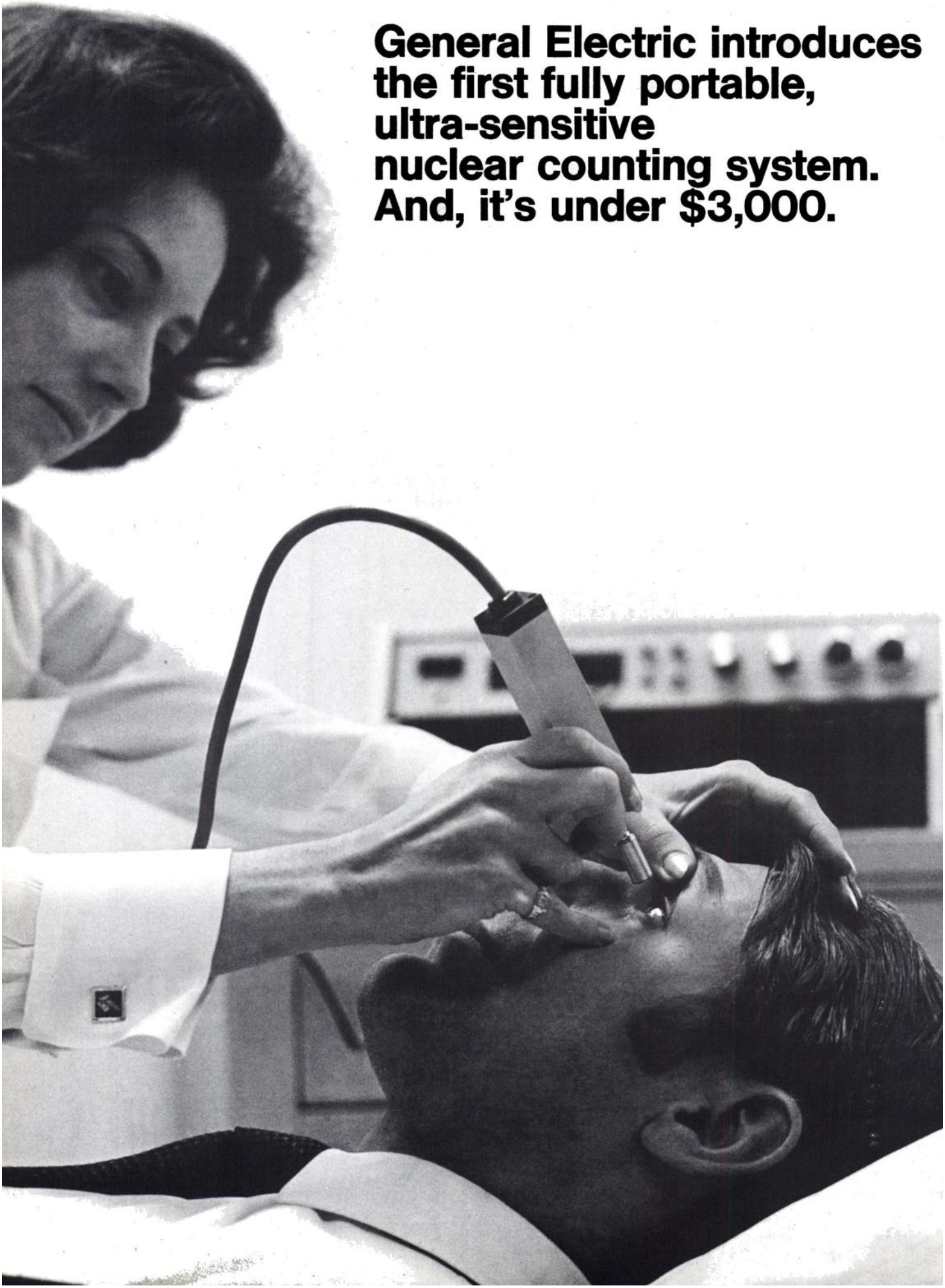

A brand new system with advanced capabilities . . . that's General Electric's NUCLE EYE(TM) Monitor.

You can use this amazing system for in-vivo probing, x-ray fluorescence scanning and analysis, bone density scanning, carbon-14 research, tumor detection and many other applications.

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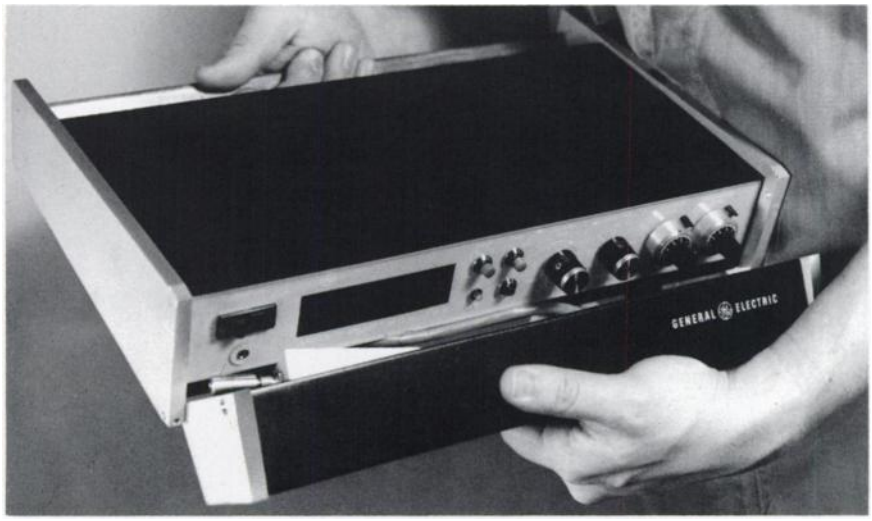
All of these capabilities, and many more, result from the Monitor's silicon avalanche diode and high-speed tunnel diode circuitry. The system detects radiation almost as fast as a nuclear particle creates a signal in a solid. The result? Background noise is virtually eliminated. Fact is, it can be held to a minimal four counts per hour.

For more information on this amazing new system, contact Space Technology Products, P.O. Box 8439, Philadelphia, Pa. 19101. Phone (215) 962-8300. 162-51

The eight-pound NUCLE EYE Monitor is fully portable —take it with you from laboratory to laboratory and even to patient bedside. Nickel-cadmium batteries give six hours of continuous operation before recharging.



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GRATUITOUS
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The facts are rather surprising. When you order 1 mCi of MAA I 131 from Company X you actually receive approximately 67% more MAA I 131 than you ordered. (But that extra 67% is not a gift.)

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And on and on. As far as we've been able to determine, you usually receive more than you've ordered—and presumably *need*. Often substantially more. And you pay for that gratuitous override.

Now Picker-Hoechst introduces a Remarkable Innovation: you get and pay for the precise quantity you order. No more. No less.

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(1.) The first benefit is, perhaps, emotional. The existing confusions arising from current multiple calibration dates and activities are eliminated. You get what you want on the day that you want it. (No complex formulas to remember and to try to compare.)

(2.) Since you get the activity you specify, you avoid excess activity (i.e., the gratuitous override) and the cost that goes with it.

(3.) You are no longer forced to lose activity over weekends since we calibrate on a daily basis.

(4.) Finally, if you suddenly find that you've underestimated your need, a fill-in order from us will be at the specified activity level on the day desired. It will not be a package that has lost part of its gratuitous activity.

So Picker-Hoechst now invites you to join us in our campaign to "Help Stamp Out the Gratuitous Override." Write for your membership button and literature. Thank you. Write: Radiopharmaceutical Department, Picker Nuclear, 1273 Mamaroneck Avenue, White Plains, N.Y. 10605.

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If lung scanning interests you, consider MAA I 131.

The MAA I 131 Story

The Use: Scintillation scanning of the lungs for information on pulmonary vasculature is a valuable complement to other diagnostic procedures for the detection (early) of pulmonary emboli, lung malignancy, and other pulmonary disorders.

The Procedure: Briefly, after blocking the thyroid with an iodine preparation, macroaggregated albumin I 131 is injected intravenously and the lung scanned shortly thereafter. (For actual use information, consult the detailed package insert and applicable literature.)

The Mechanism of Action: The blood stream rapidly delivers the macroaggregates to the lung wherever pulmonary blood flow is unimpaired. Mechanical entrapment of the aggregates in the lung capillary beds permits visualization of normal pulmonary vasculature. Subsequent splitting of the large aggregates yields particles sufficiently small to leave the capillary bed and enter the blood stream. Liver and spleen reticuloendothelial cells then remove these smaller aggregates, and proteolytic enzymes digest the albumin returning free and protein bound I 131 to the general circulation.

The Advantages of the Method: This is a simple, safe, fast method which provides the information obtained by pulmonary arteriography but without the need for radiopaque material or cardiac catheterization. All evidence to date suggests freedom from cardiovascular, immunologic, and radiation hazard. (Nevertheless, see comments immediately below.)

The Risks of the Method: The thyroid is subject to unnecessary radiation exposure unless blocked with an appropriate iodine preparation. Although macroaggregated albumin I 131 appears to be free of antigenic properties, the possibility of this exists and the usual precautions should be exercised. Although not clinically observed, some investigators have postulated the possibility of untoward hemodynamic effects. (See package insert for further details.)

The Necessary Cautions: As with all radiopharmaceuticals, MAA I 131 should not be administered to pregnant or lactating women, or to persons under 18 years unless the circumstances specifically justify the risk. Radiopharmaceuticals should be used only by physicians familiar with the procedures, precautions, and equipment.

If MAA I 131 interests you, consider the new Macro/Stat 131.

The Macro/Stat™ 131 Story

The Product: Macro/Stat 131 is Picker-Hoechst's aggregated radioiodinated (I 131) albumin (human). It has been available worldwide since 1965 and is now being made available in the United States.

The Advantages of Macro/Stat 131:

1. Exceptional particle size specifications:
   A. No particles smaller than 5 microns or larger than 70 microns.
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2. Less than 50% of the total injected activity is detectable in the lungs 4 hours after injection.
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4. With Macro/Stat 131 you get (and pay for) precisely the activity you order. No more. No less. Write for details on this new calibration program and its implications.

The Company: Picker-Hoechst was recently formed by Picker Nuclear (the world's largest manufacturer of nuclear medicine instrumentation) and American Hoechst Corporation (a subsidiary of Farbwerke Hoechst AG, the leading manufacturer of radiopharmaceuticals on the European continent). Picker-Hoechst products are marketed in the U.S. by the Radiopharmaceutical Department of Picker Nuclear.

The Final Comment: For further details on Macro/Stat 131 write Radiopharmaceutical Department, Picker Nuclear, 1273 Mamaroneck Avenue, White Plains, N.Y. 10605.

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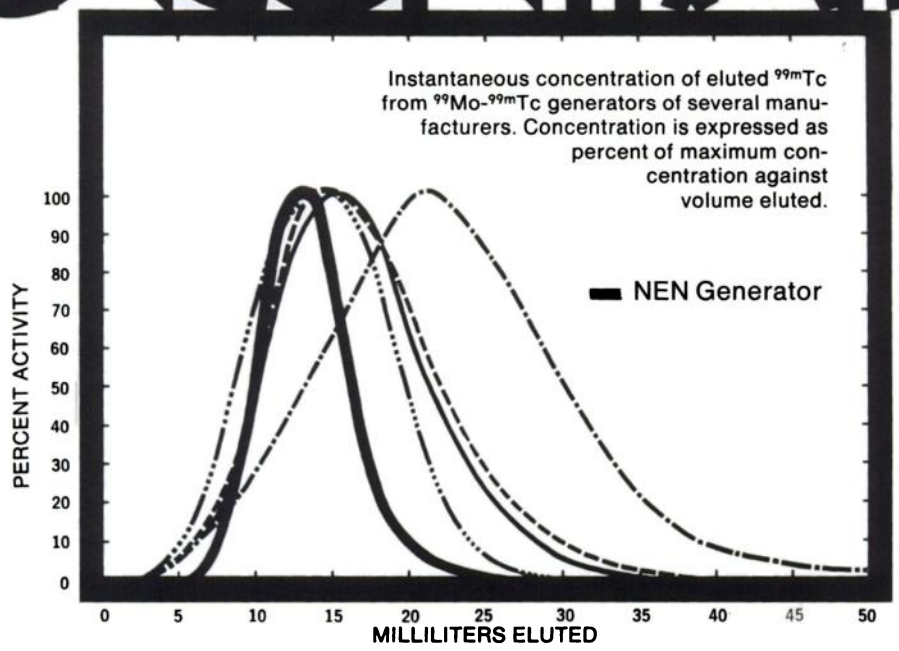

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*Roger D. Tippets and Gordon N. Kenney, "Elution Parameters of the 99Mo-99m Tc Generator," *Journal of Nuclear Medicine*, Vol. 10, No. 8, August, 1969.

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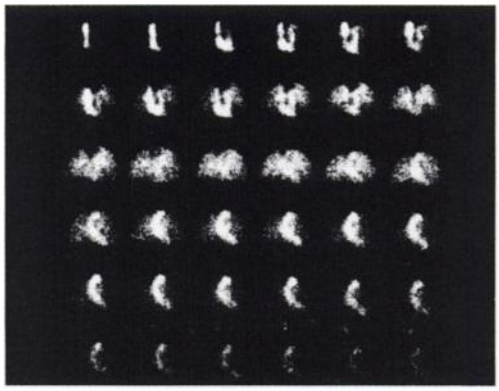
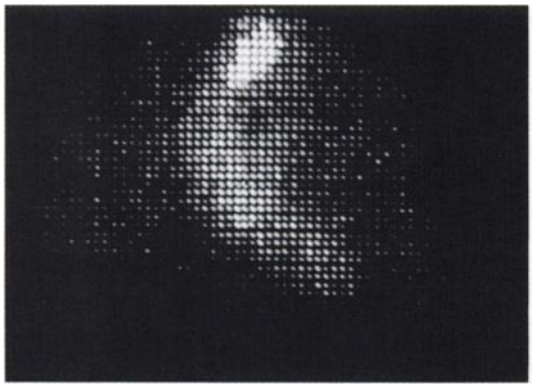
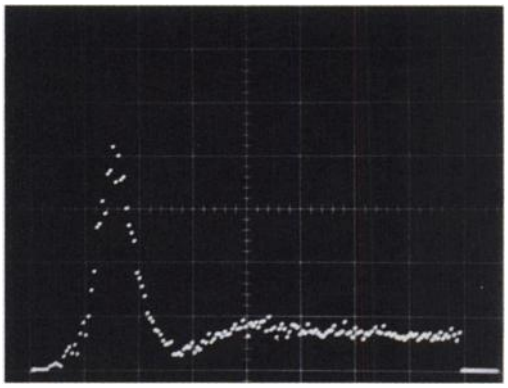


36 frame sequence showing cardiac circulation.



Intensified area of interest corresponding to aortic arch.



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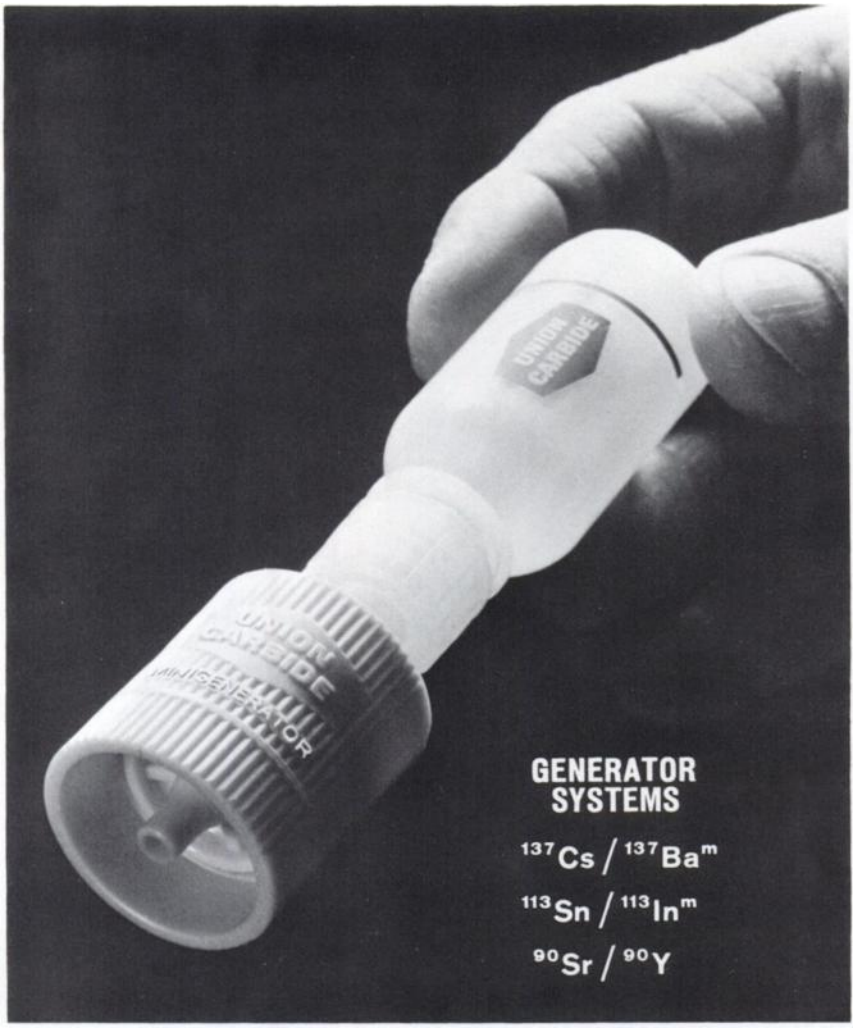

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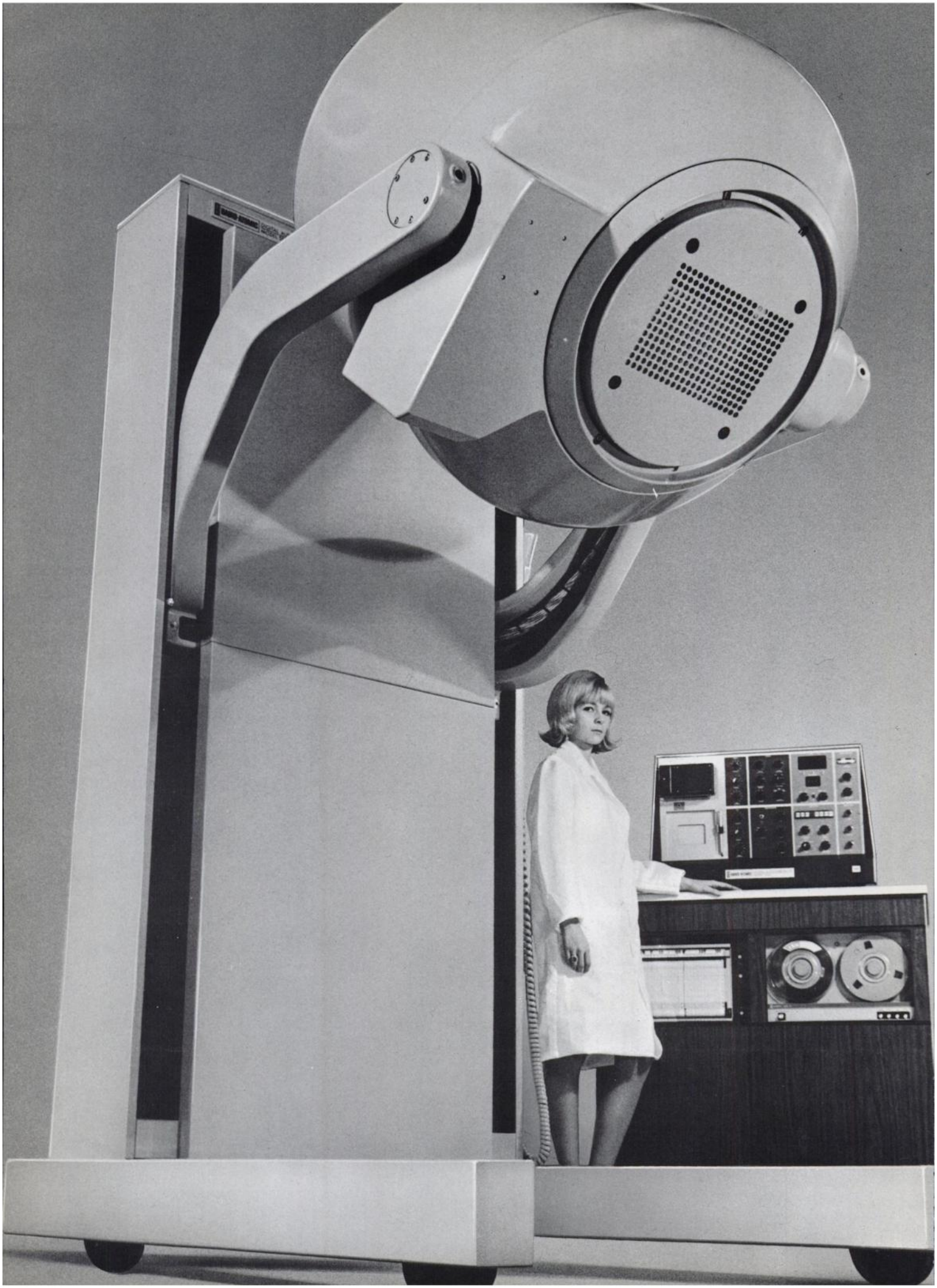

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