

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.

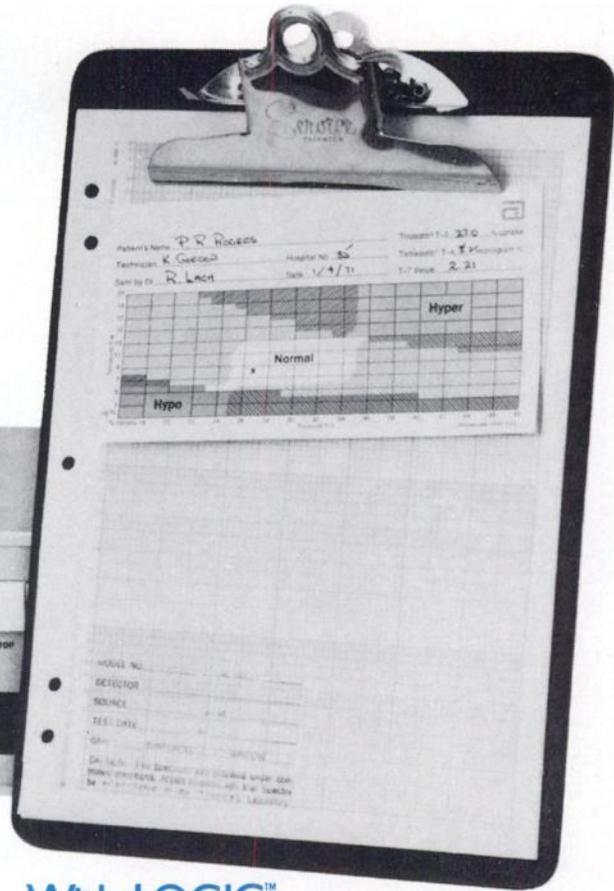
* Also available as Triosorb®-131.



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.

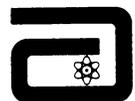
It's the Abbott method for determining the in vitro free thyroxine index.

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.

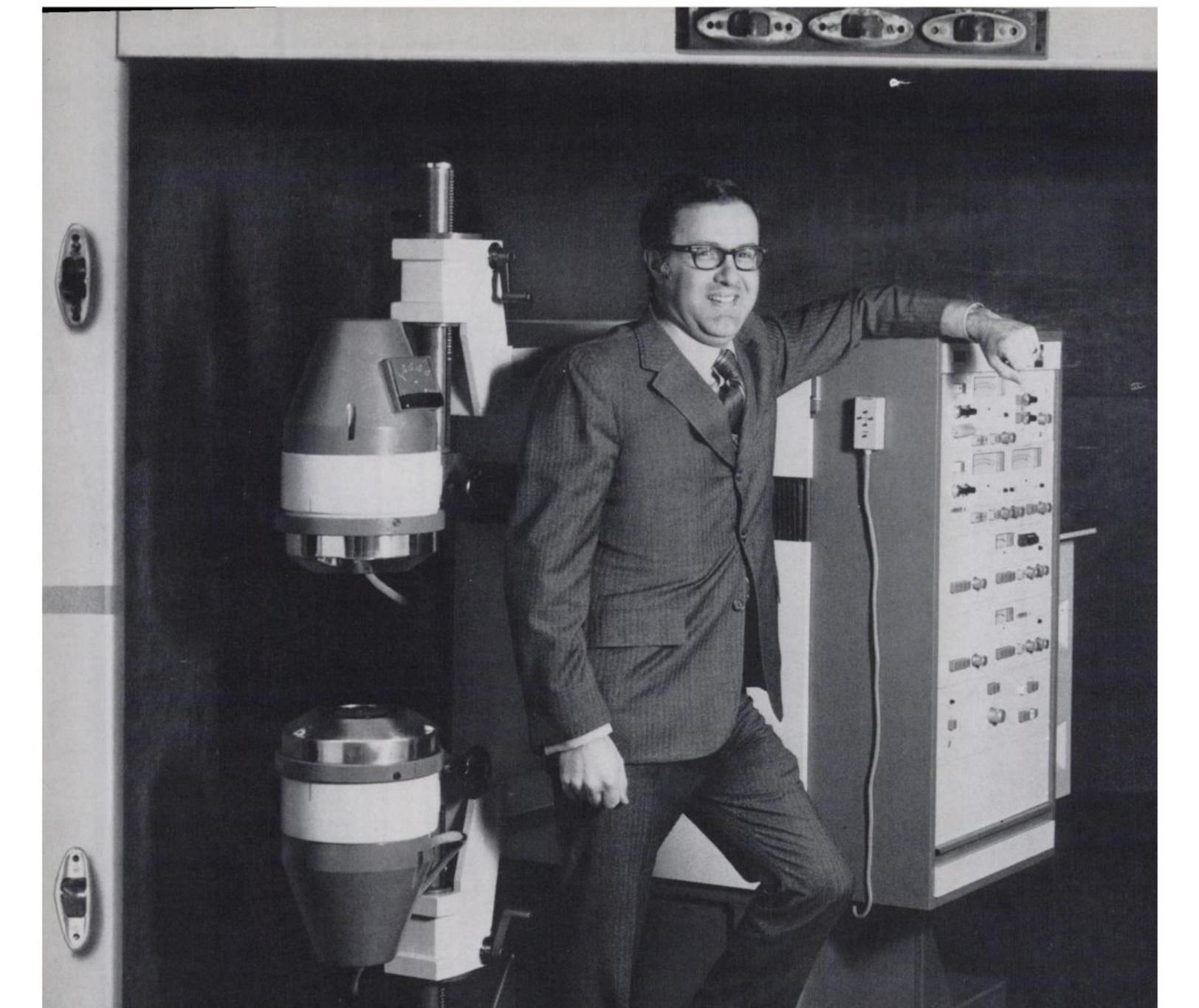
When you provide the Abbott T-3, T-4 and T-7 values you furnish a complete thyroid profile with unparalleled clinical accuracy.

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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**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. Telephone: 617-899-5949.

In medical electronics . . . Raytheon makes things happen.

RAYTHEON

Charge! Elute!



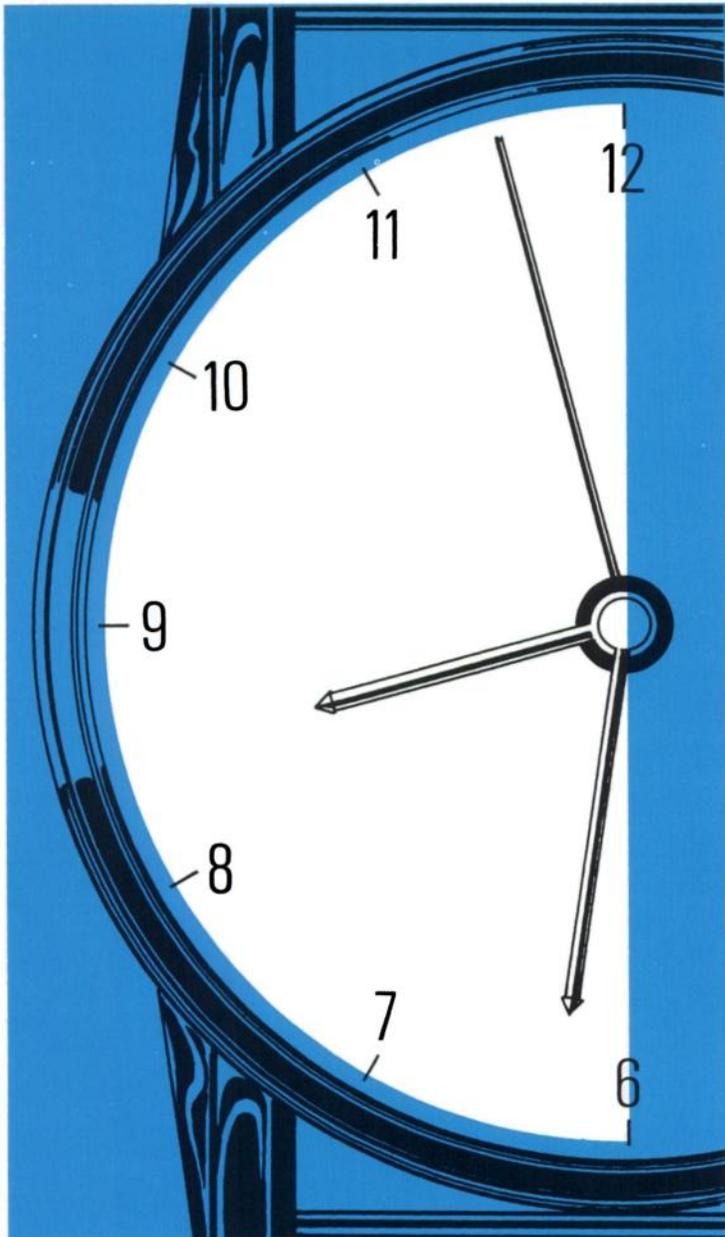
That's all. Using aseptic procedure, place the CHARGE vial in its well and the shielded ELUTE vial in its well. Elution proceeds automatically.

- 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,

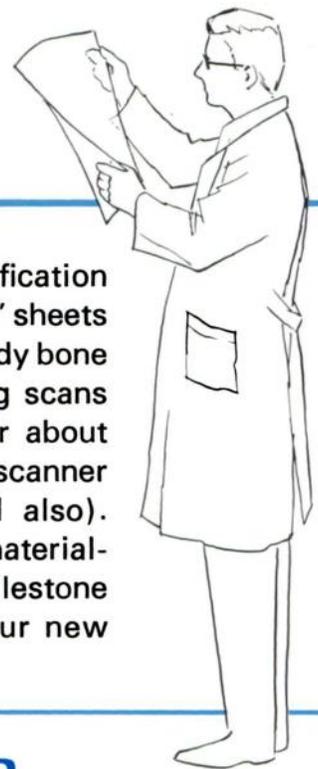
- and alumina and other particulates
- MOLY-CODDLE™ radiation reducer available on request

NEN New England Nuclear
Radiopharmaceutical Division

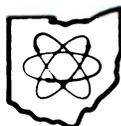
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bone scans
in
30 minutes...
with
scan-
minification



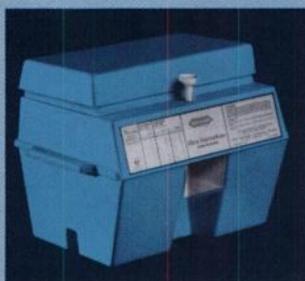
We put it all together in our 5:1 scan minification option. It gives you two complete 14" x 17" sheets of film (AP and PA views) with a whole-body bone scan in 30 minutes. If you're not getting scans that fast now, maybe you'd like to hear about Ohio-Nuclear's Model 84. It's the *only* scanner with 5:1 minification (has 1:1 and 2:1 also). Exclusive, versatile, proven, time and material-saving. Write for "Scan Minification, milestone in nuclear medicine technology," our new brochure.



ohio-nuclear, inc.

7700 St. Clair Ave., Mentor, Ohio 44060.
Phone: (216) 951-0900

Introducing the New Ultra-TechneKow[®] Technetium Generator



with **4** New Features

1. New enlarged lead shield reduces radiation exposure to the operator. With at least 1½ inches of lead all around the generator column this is one of the best shielded generators available today.

2. New "Ion Control" Process (patent applied for) reduces aluminum level to a point where it is virtually undetectable by normal laboratory test methods. The eluate may be used with any of the currently available sulfur colloid kits or with other tagging

procedures requiring low aluminum levels.

3. New 500-ml saline supply allows as many as 15 or 16 elutions per week. The saline supply is built in and factory sealed, an exclusive feature of the new **Ultra-TechneKow**.

4. New self-aligning milking station makes the elution process simpler than ever. When the "Sight Glass" elution shield with evacuated vial is placed into the milking station, the needle is automatically centered over the evacuated vial. Press plunger down, turn slightly to lock into position, and elution proceeds automatically.

It's the most advanced concept in technetium-99m generators.

This all-new, redesigned version of our **Ultra-TechneKow** series is carefully engineered into an attractive, pre-assembled, completely self-contained unit. This model is the culmination of seven years of experience making technetium-99m generators. The **Ultra-TechneKow** Generator is shipped each week complete with evacuated elution vials, needle pack with labels, molybdenum-99

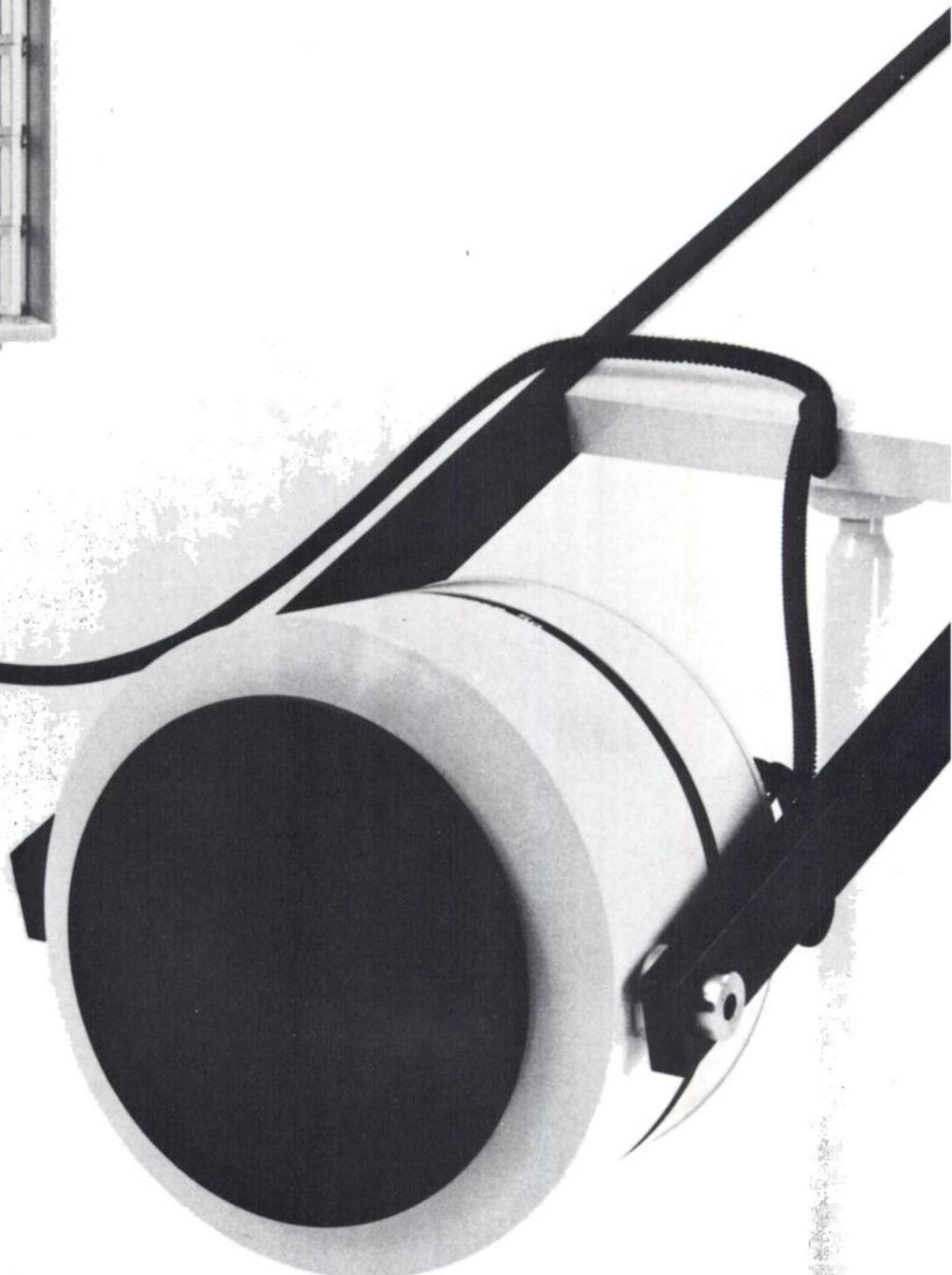
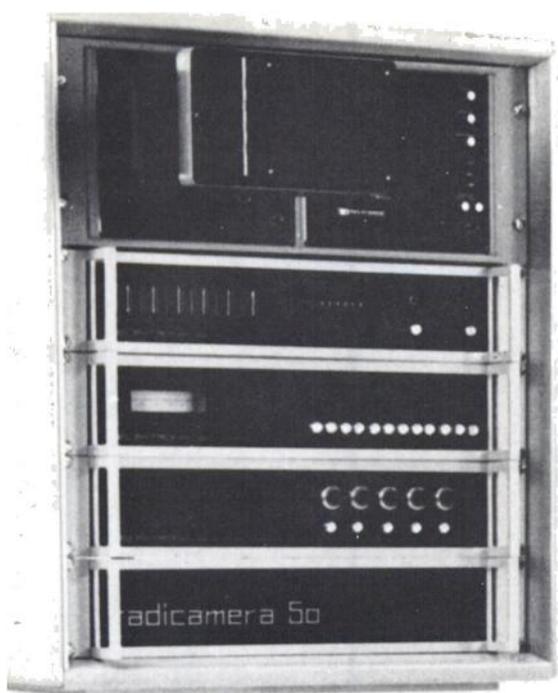
and technetium-99m reference tables, needle guard for operator safety, convenient carrying handles, and package insert with complete information.

Contact your Mallinckrodt/Nuclear representative now for detailed information on this unique new product of Mallinckrodt/Nuclear research.

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NUCLEAR

RADIOPHARMACEUTICALS
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Simplicity... is the natural result of profound thought. — Hazlitt

So we started thinking.

First, we thought about positioning. How could we simplify it: The solution, we decided, was to design a counterbalanced detector assembly. One which a 90 pound female technologist can push around with her finger. And one which doesn't make you wait for motors and gears to bring the detector into place. You merely position it where you want it, when you want it there.

We also thought about the patient. Which is another reason the counterbalanced detector head came into existence. It's quiet. With the Radicamera, your patients remain unperturbed and relaxed during study set-up.

And we designed the detector housing with more in mind than just housing the detector. We wanted to be certain that it wouldn't interfere with the patient's shoulder during lateral brain studies. So we made it more compact. But we still left room for a larger-than-usual 13-inch crystal. (After all, increased field-of-view and uniformity are important too.)

Then we constructed the detector stand so that plenty of room existed under and around it. That simplified patient table positioning.

We were also able to think about controls and circuitry. During the design phase, the Radicamera was free from the inertia of precedent. Consequently, we took full advantage of the technological developments and expertise of the Seventies. The results include easy, error free operation, reliable electronics, and a small space conserving console.

The Radicamera has eliminated many of the complexities of its generic predecessors. At the same time, significant advances have been made in all important clinical performance parameters.

Discover the refreshing simplicity of the Radicamera 50 for yourself.

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Potent combination of eight synergistic surfactants, diluted for use, is effective for all isotopes—whether inorganic or organic; in ionic or non-ionic form.

FOR GLASSWARE: Permits reuse of scintillation sample tubes and counting vials, beakers, pipettes, syringes, etc.

FOR METAL OBJECTS: Isoclean decontaminates syringe needles, forceps, shielded containers, and stainless steel trays.

FOR PLASTIC COMPOSITIONS: Isocleaned benchtops, floors, utensils, and rubber gloves are wipe-test activity-free.



Available from offices of Amersham-Searl, Nuclear Associates, Picker Corporation, or directly from Isolab.

Request Isoclean product data folder.



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than offered by BRAND X--and
we are doing something
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Our photographic results are UN-MATCHED by any other 70mm system. Ask us to send you sample studies to convince you!

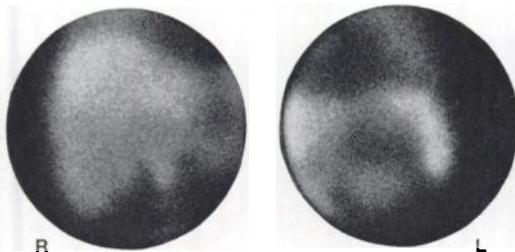
Call us (collect) or write NOW—We will not disappoint you!

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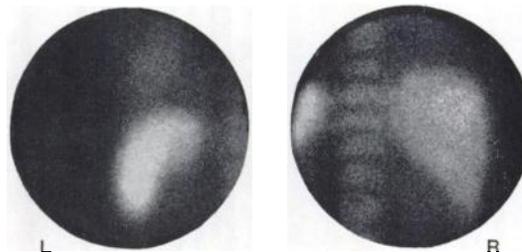
CASE STUDY NO. 1. CIRRHOSIS WITH FOCAL NECROSIS.

STATIC SCINTIPHOTOS.

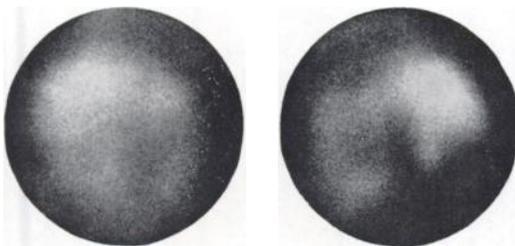
ANTERIOR VIEW.



POSTERIOR VIEW.



LATERAL VIEWS.



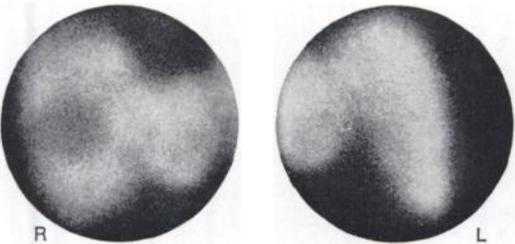
RIGHT PELVIS.



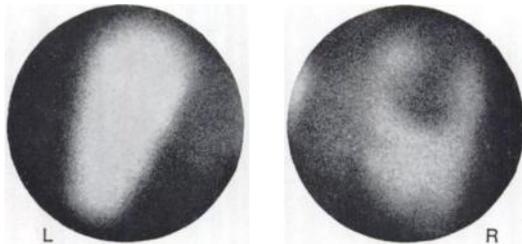
CASE STUDY NO. 2. LEIOMYOSARCOMA METASTATIC TO LIVER.

STATIC SCINTIPHOTOS.

ANTERIOR VIEW.



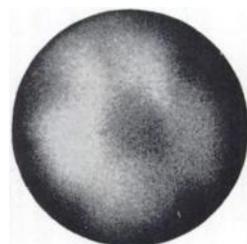
POSTERIOR VIEW.



**RIGHT ANTERIOR VIEW
(WITH MARKER).**



RIGHT LATERAL VIEW.



The Liver Study

Evaluation of Reticuloendothelial System Labelling in the Liver with the Nuclear-Chicago Pho/Gamma® Scintillation Camera

Liver scintiphography employing ^{99m}technetium sulfur colloid and the Pho/Gamma Scintillation Camera offers extremely high resolution images of reticuloendothelial-system distribution in the liver, spleen and bone marrow.

PRELIMINARY DISCUSSION. In the normal liver, the reticuloendothelial system is uniformly distributed, with areas of decreased labelling showing only in the region of the porta hepatis, gall bladder fossa, and in intersegmental fissures.

Abnormal regional decreases of liver labelling may be recognized as either (1) *irregular decrease of labelling* in the whole liver or an area of it or (2) *focal decreases of labelling* with discrete margins and clear definition in comparable scintiphoto views.

SETTING-UP. Liver scintiphography is usually best performed with the high-resolution, low-energy Pho/Gamma collimator appropriate for ^{99m}Tc. The patient is positioned touching the collimator, and is examined in the recumbent position to reduce respiratory and other motions. In circumstances where the entire liver and spleen area are to be visualized in one view, the diverging collimator may be used.

ISOTOPE AND DOSE. An intravenous injection of 3 or 4 mCi of ^{99m}Tc sulfur colloid is administered.

DATA ACCUMULATION. Twenty minutes after injection, a series of static scintiphotos of the liver, spleen and bone marrow is obtained. A non-enlarged spleen is best imaged in left posterior and oblique views. Useful marrow views include upper sternal area, and left pelvis, hip and femur.

Data densities of 500,000 counts for an anterior view of the liver are desirable. Preset exposure time is kept constant throughout examination of the liver and spleen so that exposure intensity will be comparable in all the scintiphotos of these organs. For marrow scintiphotos, increased dot density and 2-minute exposures are normally used.

CASE HISTORIES. Case Study No. 1: Male, 60 years old. Known cirrhosis probably due to chronic alcoholism. Admitted for evaluation of low-grade fever.

Case Study No. 2: Female, 62 years old. Admitted for evaluation of abdominal cramping and liver enlargement. Seven years earlier, partial gastrectomy

yielded the diagnosis of "leiomyoma, ulcerated stomach." Two years prior to this admission, laparotomy had revealed leiomyosarcoma in the left lobe of the liver.

EVALUATION. The purpose of these Pho/Gamma liver studies is to evaluate (1) shape, position, and general outline of the liver as imaged on the scintiphotos and (2) the nature of any labelling decrease, whether uniform, irregular or focal. Labelling in the spleen and marrow is compared with liver labelling to assess the possibility of portal-systemic shunting (indicated by greater spleen and marrow labelling, relative to the liver) or hypertrophy of the bone marrow.

In the clinical scintiphotos shown at left, examples of uniform decreased labelling, irregular labelling, and focal defects of labelling are evident.

The patient with cirrhosis (Case Study No. 1) has generalized decrease and irregularity of labelling consistent with that disease. Furthermore, a focal defect of labelling exists in the left lobe of the liver and is best seen in the left lateral view. (This defect was subsequently found by local surgical biopsy to be the site of focal necrosis which had been responsible for the patient's low-grade fever of unknown origin.) Also typical of a cirrhotic are the bright labelling of the slightly enlarged spleen and bone marrow (with marrow extension into the right femur).

The patient with leiomyosarcoma (Case Study No. 2) is an excellent example of focal metastatic lesions causing some decrease of liver labelling, as well as enlargement of the liver that is so common with metastatic disease of the liver. Giant splenomegaly also exists on a congestive basis.

CONCLUSIONS. Liver scintiphography with the Pho/Gamma Scintillation Camera and ^{99m}Tc sulfur colloid appears to be a markedly improved liver-imaging technique and sensitive diagnostic test for liver disease.

This form of scintiphography provides a large amount of specific information about liver structure and hemodynamics and is an accurate guide for the selection of biopsy sites. When combined with other special procedures, such as liver scintiphography during rose-bengal excretion or liver-blood-flow evaluation, the Pho/Gamma liver study with ^{99m}Tc sulfur colloid offers many other diagnostic possibilities.

O-232



An exchange of information on topics related to nuclear medicine sponsored by

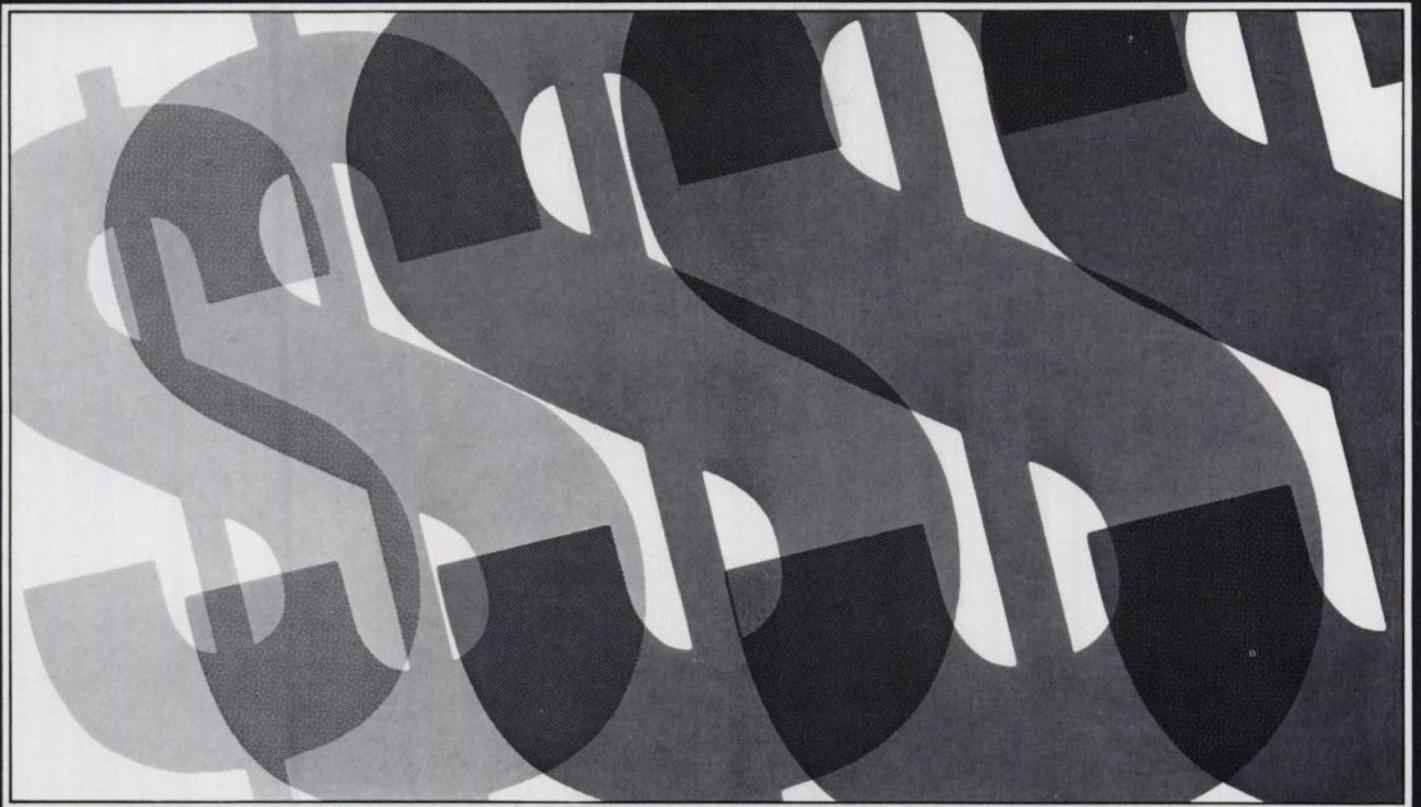
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A SUBSIDIARY OF G. D. SEARLE & CO.

which has more than a passing interest in the field and the people who work in it.

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Jim Dunn has 8 years experience in the field of Nuclear Medicine and in 1969 he formed a partnership that successfully designed and manufactured

six new and advanced products in just two years. So most of the challenges that face a new business in a high technology field have been overcome.

But the job isn't finished yet . . . there are new systems needed.

Two are already completed and are advertised in this issue, the DI 650 Automatic Film Processor and the DI 800 Triaxial Table,

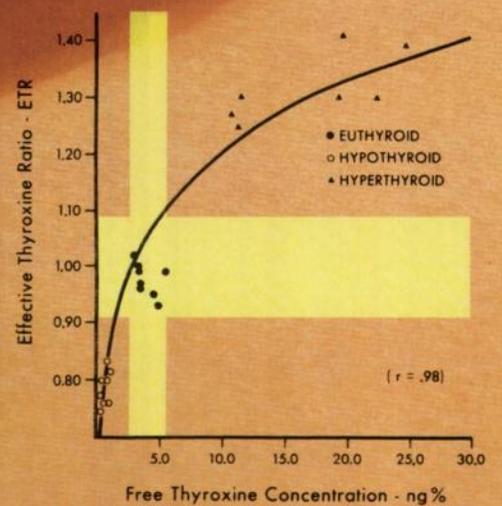
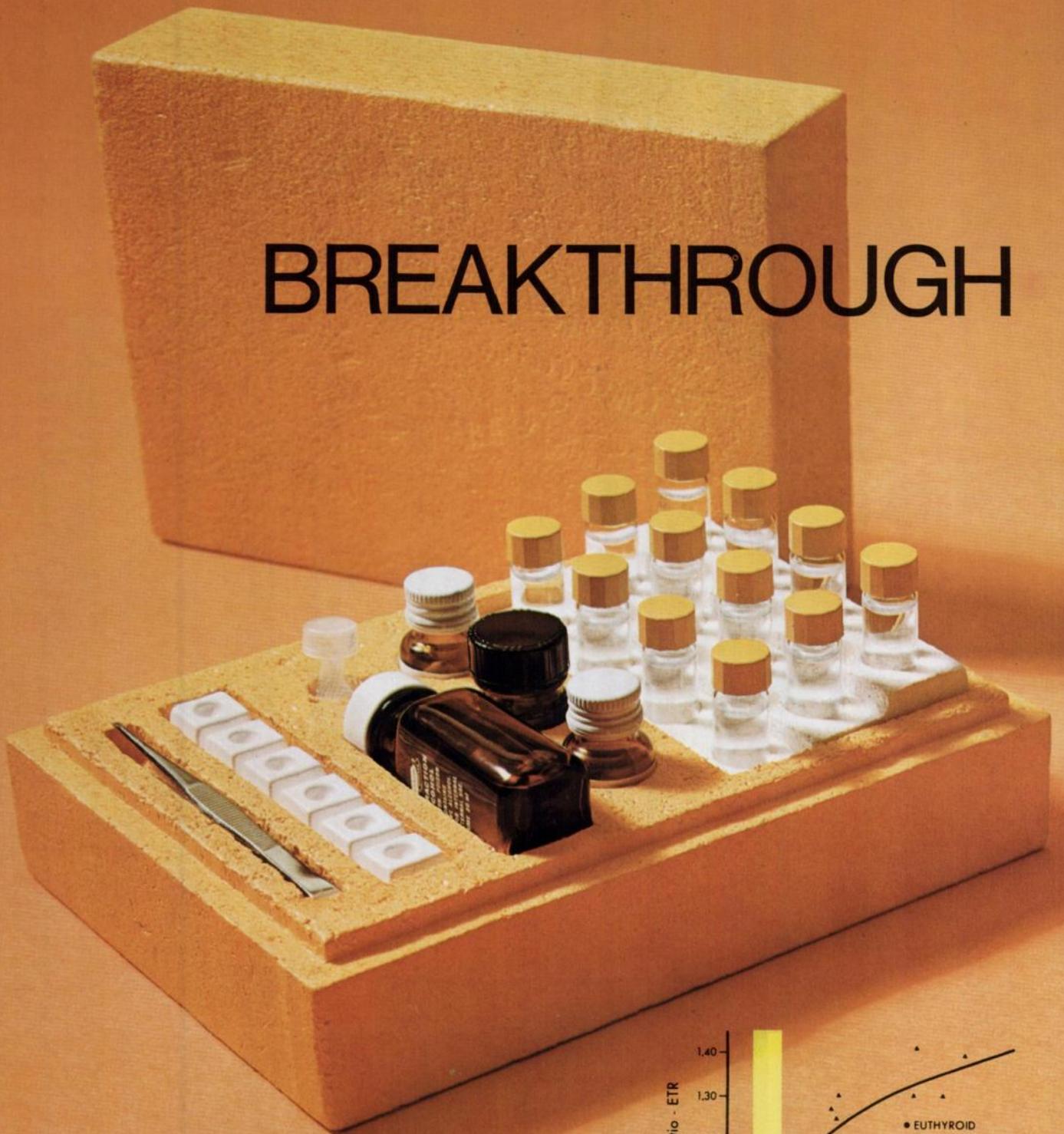
and three new products will be released by December 31st. So Dunn Instruments isn't really new . . . just a fresh and imaginative approach.

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BREAKTHROUGH



Graph showing (1) distinct separation between hypothyroid, euthyroid, and hyperthyroid states, and (2) correlation between effective thyroxine ratio and free thyroxine concentration. Shaded horizontal area shows euthyroid range for effective thyroxine ratio. Vertical shaded area shows euthyroid range for free thyroxine concentration. S. C. Thorson, M. D., private communication.

Mallinckrodt announces ...

Res-O-Mat[®] ETR[™] Test

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With the **Res-O-Mat ETR** test you can now assess the level of metabolically active thyroxine in a single test. Separate determinations of serum T3 uptake and T4 are no longer necessary.

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Effective Thyroxine Ratio is the first direct, single-test measurement having a clinically proven² correlation with the level of metabolically active ("free") thyroxine. Send in the coupon for detailed

supporting information about the new test of choice for determination of thyroid function.

Availability

Res-O-Mat ETR Test Kits are available in 12- and 60-test sizes.

- 1 Mincey, E. K. and Brown, J. L., Thyroid Function Testing: a New Approach. *Submitted for publication.*
- 2 Mincey, E. K. and Thorson, S. C., et al.: A New Parameter of Thyroid Function—the Effective Thyroxine Ratio. *Submitted for publication.*

*Patent applied for.



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Simplify your life a little.

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The new DI 650 Automatic Film Processor: Clearly, an inside design job.

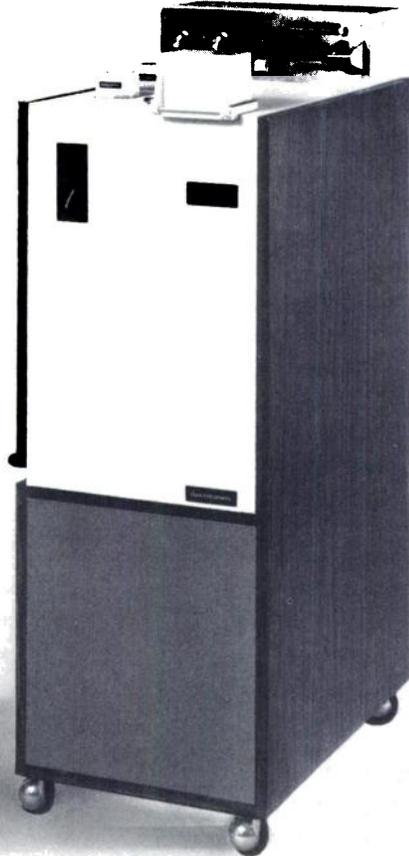
Nuclear Medicine is why the DI 650 exists. It's the only film processor conceived and dedicated to serving the specific needs of nuclear medicine. That makes the DI 650 unique. Because its design was an "inside" job. Only those intimately acquainted with your needs could understand the importance of daylight loading. (No more dark-room problems.) Or the

flexibility and convenience of being used either as a desk model or a portable "on-the-floor." Or the fact that the DI 650 needs no plumbing hook-up. It may, but need not, be batched. This processor has its own built-in heater. It's also self-cleaning. With the DI 650 you will not have to depend on the developing facilities of other departments. All these DI 650 attributes point up to a new

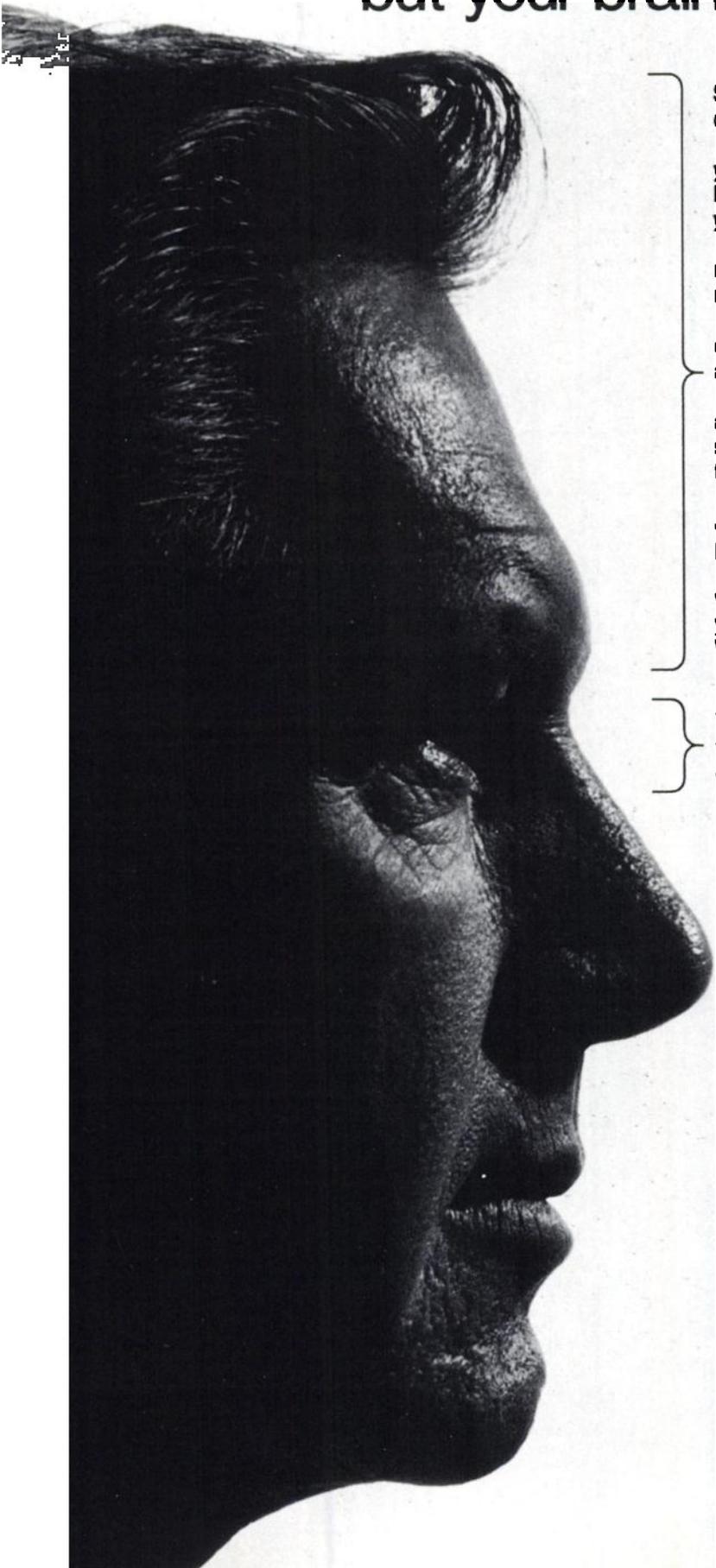
capability: you can choose the proper developer, regulate its temperature, and optimize film travel speed for maximum image quality. Clearly, the DI 650 Automatic Film Processor is an inside design job.

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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?

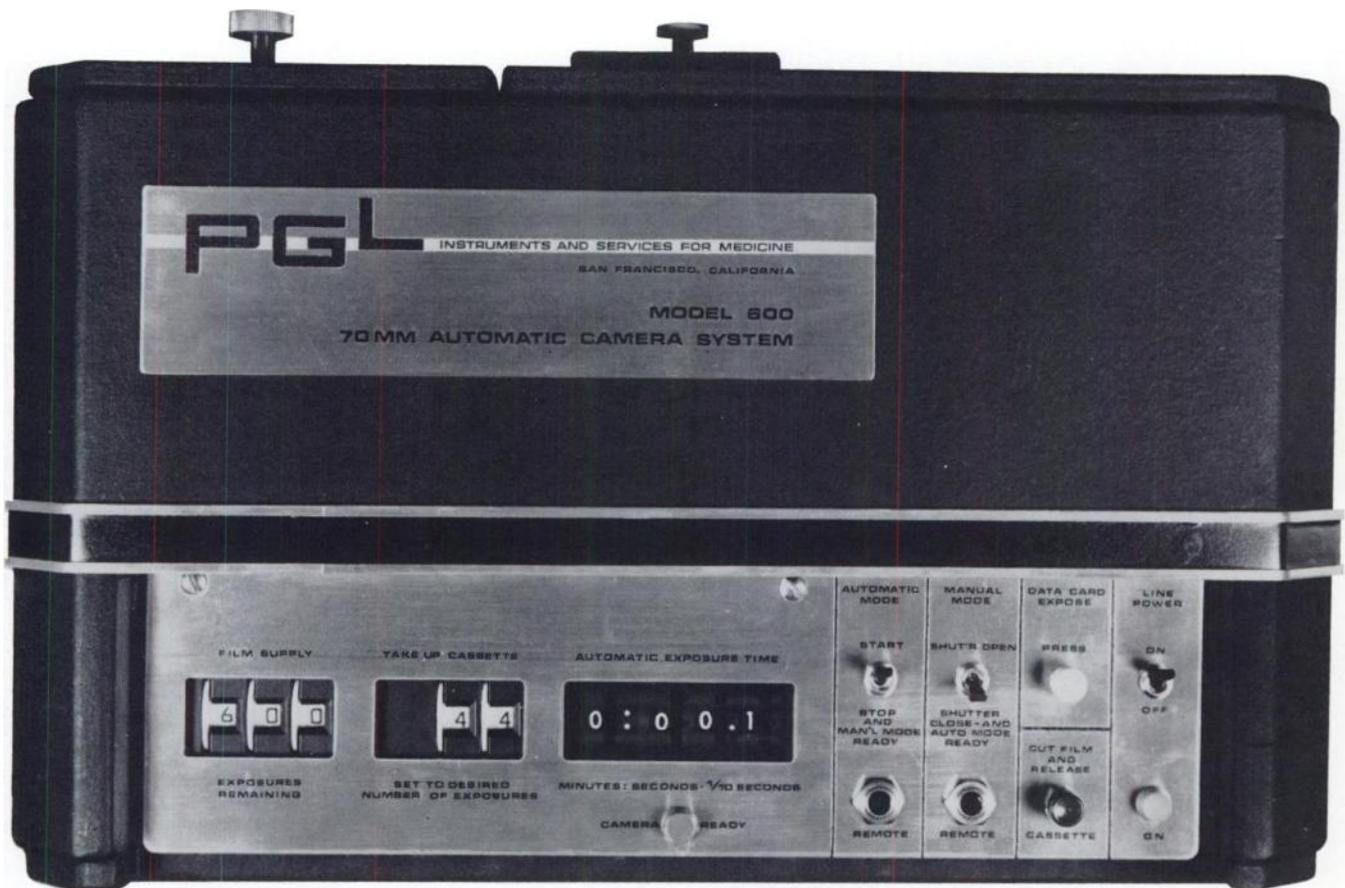
Very valuable for looking at scintigrams. Except for the situations when one's eyes may be deceived.

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

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NUCLEAR MEDICINE TECHNICIAN to assume responsibility for growing department in large multi-specialty clinic and hospital with Gamma camera and Rectilinear Scanner, located in Big Ten university town. Salary commensurate with qualifications and experience. Contact: R. A. Baylor, M.D., Department of Radiology, Carle Clinic and Hospital, Urbana, Illinois, 61801. Area Code 217-337-3279.

NUCLEAR MEDICINE TECHNOLOGIST: Active and progressive nuclear medicine section of 450 bed hospital. Requirements: acceptable training, capability of performing broad range of nuclear medicine procedures, registered NMT or registry-eligible. Good salary, benefits. Contact: Marchant E. Tulloh, M.D., Mary Hitchcock Memorial Hospital, Dartmouth-Hitchcock Medical Center, Hanover, New Hampshire 03755.

NUCLEAR MEDICINE TRAINEESHIP. 2-year program, VA Hospital Buffalo, available July 1, 1972. Program oriented toward academic Nuclear Medicine career, emphasizing acquisition of research skills. Coordinated with Nuclear Medicine Residency of SUNY/Buffalo, Merrill A. Bender, M.D., Head. Minimum requirements: Internship and 2 years' residency, US citizen or eligible for citizenship within 4 years. Contact: Marguerite T. Hays, M.D., Chief, Nuclear Medicine Service, VA Hospital, 3495 Bailey Avenue, Buffalo, N.Y. 14215.

SECOND YEAR FELLOW IN Nuclear Medicine, board eligible in Nuclear Medicine and Internal Medicine, desires group or hospital based position in Nuclear Medicine preferably on the West Coast. Write Box 102, Society of Nuclear Medicine, 211 East 43rd St., New York, N.Y. 10017.

FOREIGN MEDICAL GRADUATE, University trained in Nuclear Medicine, Ph.D. in Medical Physics, experienced in teaching and research in Nuclear Medicine. Publications. Desires teaching and research position with some clinical participation in Nuclear Medicine. Please reply to Box 103, Society of Nuclear Medicine, 211 East 43rd Street, New York, N.Y. 10017.

POSITIONS WANTED

RADIOBIOCHEMIST, Ph.D., 30, Experience in R & D, marketing, health physics, technical service, technical writing and management. Expertise in labelled organic compounds and liquid scintillation counting. Challenging medical/clinical, teaching/research preferred. Employed. No agencies please. Write Box 101, Society of Nuclear Medicine, 211 East 43rd Street, New York, N.Y. 10017.

NUCLEAR MEDICINE SCIENTIST. Graduate with M.S. in nuclear engineering (1971) and B.S. in physics (1969) capable of assuming responsibilities of instrumentation, technical training, teaching, and research. Broad background in radiation applications, detection systems, and spectrometry. Industrious, personable and well recommended. Write Joel Cehn, PO Box 254, Dover, N.H. 03820.

NUCLEAR MEDICINE RESIDENCY

The Division of Nuclear Medicine and Radiation Biology, of the University of Arkansas Medical Center announces the availability of resident positions beginning 1 July 1972. The training program is an integrated program which includes Nuclear Medicine Services of the University Hospital, the Little Rock Veterans Administration Hospital, and the Baptist Medical Center. The teaching staff includes three M.D.'s (one internist, two radiologists), four Ph.D.'s (Radiologic Physics, Radiation Biology, and Biophysics), a Health Physicist, an Electronics specialist, and a large number of experienced technologists. Items of capital equipment include four scintillation cameras (two with magnetic tape units), a whole body counter, a Van de Graaff accelerator, plus completely equipped Nuclear Medicine—Radiation Biology Research Laboratories. For qualified (and interested) individuals, graduate training leading to the M.S. and Ph.D. degree is available.

For further information contact:

Glenn V. Dalrymple, M.D.
Head, Division of Nuclear Medicine
Professor of Radiology (Nuclear Medicine),
Biometry, Physiology-Biophysics
University of Arkansas Medical Center
Little Rock, Arkansas 72201

The classified placement service section in the Journal of Nuclear Medicine contains "Positions Open" and "Positions Wanted." Nondisplay insertions by members of the Society are charged at 20¢/word for each insertion with no minimum rate. Nondisplay insertions by employers or nonmembers are charged at 50¢/word with a minimum of \$15. Display advertisements are accepted at \$35 for 1/8 page, \$65 for 1/4 page, \$115 for 1/2 page and \$210 for a full page. The closing date for each issue is the 20th of the second month preceding publication month. Agency commissions and cash discounts are allowed on display ads only. Box numbers are available for those who wish them.

THE SOCIETY OF NUCLEAR MEDICINE

19th ANNUAL MEETING

July 11-14, 1972

Sheraton-Boston Hotel

Boston, Mass.

ANNOUNCEMENT AND CALL FOR ABSTRACTS FOR SCIENTIFIC PROGRAM

The Scientific Program Committee welcomes the submission of abstracts of original contributions in nuclear medicine from members and nonmembers of the Society of Nuclear Medicine. Papers will be considered on the following subjects:

Basic Science Aspects of Nuclear Medicine	Nuclear Instrumentation
Clinical Diagnosis	Radiation Biology
Clinical Investigation	Radioisotope Therapy
Education and Administration	Radiopharmaceuticals

Papers will be selected for presentation at plenary sessions as well as at scientific section meetings. In addition, there will be a few papers selected for brief works-in-progress reports. The deadline for receipt of these will be announced at a later date. All regular abstracts must be postmarked no later than February 5, 1972.

GUIDELINES FOR SUBMITTING ABSTRACTS:

Abstracts must be submitted in the following format to receive consideration. Abstracts are to be typed on the official abstract form which can be obtained by writing The Society of Nuclear Medicine, 211 East 43rd Street, New York, New York 10017. The instructions on the forms must be followed exactly if the abstract is to be considered. The original and five copies must be submitted.

Each abstract must contain the name(s) of the author(s), the institution(s) and the mailing address of the author presenting the paper. Underline the name of the author who will present the paper.

Each abstract must contain the following information in this order:

1. Purpose of the study
2. Methods used
3. Results with pertinent supporting data
4. Conclusions.

Abstracts that are accepted will be published in the June 1972 issue of *The Journal of Nuclear Medicine*.

So that each work will receive maximum consideration, authors are urged to submit to the Scientific Program Committee supplementary data (charts, graphs, figures, tables, etc.) supporting their abstracts. This material will not be published.

Send the official abstract form and the five copies to:

C. Douglas Maynard, M.D.
Chairman, Scientific Program Committee
Department of Radiology (Nuclear Medicine)
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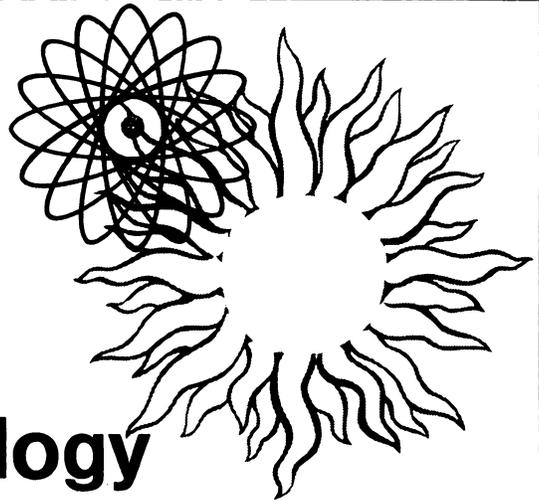
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Part 2, Clinical Nuclear Medicine, forms a procedural manual which outlines the physiological principles and interpretation of nuclear medicine principles in general use. These include such recent advances as pulmonary ventilation/perfusion studies, and isotope cisternography studies.

Emphasizing key points and pitfalls, this manual is arranged so that the factual material appears on one side of the page, with explanatory remarks or questions to be answered on the other side.

By D. BRUCE SODEE, M.D., F.A.C.P., F.A.C.G., Director, Nuclear Medicine Institute, Cleveland; and PAUL J. EARLY, B.S., Physicist, Nuclear Medicine Institute, Cleveland. March, 1972. Approx. 608 pages, 7" x 10", 410 illustrations. About \$11.00.

Early et al

TEXTBOOK OF NUCLEAR MEDICINE TECHNOLOGY

The first text on this subject specifically for the radiologic technologist, this clear, accurate presentation is now further strengthened by its correlated manual. Well illustrated discussions explain the essential concepts of nuclear physics and nuclear chemistry, followed by clinical theory and applications to body systems. This approach stresses principles and understanding rather than technical detail.

By PAUL J. EARLY, B.S.; MUHAMMAD ABDEL RAZZAK, M.B.B.Ch., D.M., M.D.; and D. BRUCE SODEE, M.D., F.A.C.P., F.A.C.G. 1969, 378 pages plus FM I-X, 7" x 10", 241 illustrations. Price, \$15.75.

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IONIZING RADIATION AND LIFE An Introduction to Radiation Biology and Biologic Radiotracer Methods

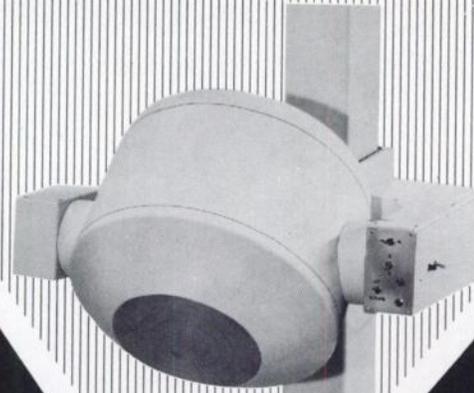
This is the first text to integrate and systematize radiation's biologic effects and research applications. The first half of the book fully explains atomic, nuclear, and radiation physics, demonstrating their implications for radiation biology. This clear presentation requires a minimal background in mathematics. The second section then examines the effects of various types of radiations on living systems, and the use of radioactivity in the study of living organisms.

By VICTOR ARENA, Sc.D. August, 1971. 543 pages plus FM I-XIV, 7" x 10", 271 illustrations. Price, \$13.50.

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Q: *I'll bet it has a small field of view.*

A: Wrong. The useful diameter is 11.4 inches—that's 29 cm. This gives you an area that's 40% larger than the most popular camera now in use.

Q: *Resolution is probably terrible.*

A: Well, it's not as good as an angiogram, but then no other camera is, either. We check resolution by placing a lead phantom in direct contact with the crystal and then irradiating the crystal through this phantom. The phantom has alternate bars and spaces ranging in width from $\frac{1}{2}$ " (12.5 mm) to $\frac{3}{16}$ " (4.7 mm). With ^{99m}Tc and counting until 500,000 counts have been accumulated, we clearly see the $\frac{1}{4}$ "

(6 mm) bars and spaces. Using ^{203}Hg and collecting 500,000 counts, we see the $\frac{3}{16}$ " bars and spaces.

Q: *You probably have no accessories.*

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A: We had a service department before we had a camera. The service manager designed major parts of the ICON II. So he knows what's in it.

Q: *And the price?*

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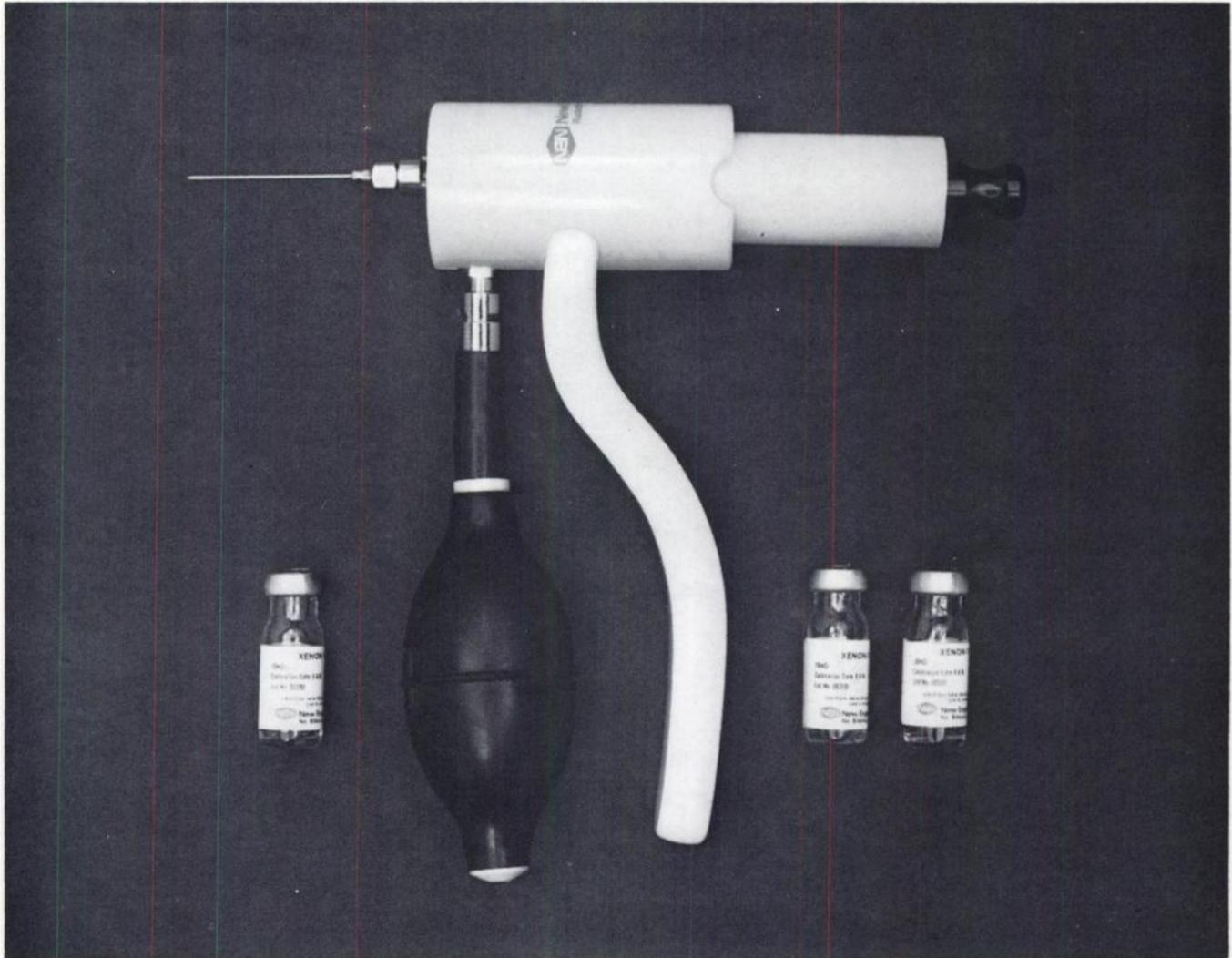
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These new Magnascanners are fast instruments because they're computerized. The implication of this is that the entire setting-up procedure has been radically simplified and

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Suppose that you wish to set the scan parameters individually for a specific application. Simple. An alternative manual control overrides the computer and provides maximum flexibility.

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Consistent scans: with the scan parameters automatically optimized, overall scan quality and consistency are superior and interpretation is improved.

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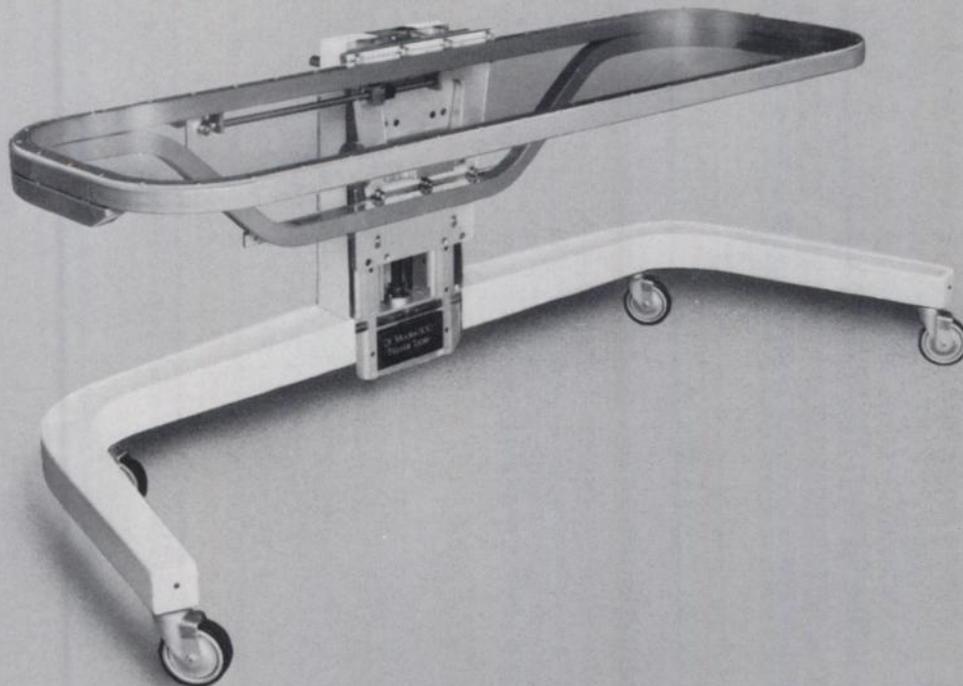
Two: Long axis adjustment in the horizontal plane; and Three: Short axis adjustment in the horizontal plane. These actions allow a precise control over the patient's position so that the entire organ of interest can be encompassed within the limited field of view of the detector.

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MEDICAL WORLD NEWS

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 turning to scans first." And Dr. Quinn adds, "If I've got a \$10,000 instrument sitting around the department, I feel an obligation to get some work out of it."

Meanwhile, research efforts continue to churn out new ideas in radionuclide scintigraphy at a furious pace. Some investigators are concentrating on the elements themselves—trying to find uses for new radionuclides or ways to hook old nuclides to compounds that will do new things in the body.

"You never know what's sitting in the nuclide table that you just don't see," remarks Argonne's Dr. Harper. "Most of the human biological information on radioactive materials was accumulated through fallout studies when measurements were taken at intervals of days and weeks. Very little is known, however, about the biological activity of many nuclides during their first few hours in the body," according to Dr. Harper.

During the upcoming meeting of the Society of Nuclear Medicine, June 27 to July 2 in Los Angeles, his research group will present two studies involving nuclide research. One report involves carrier-free gallium-67, a radionuclide that is being tested widely by cancer researchers because it localizes in many types of tumors. The Argonne hospital investigators have been using gallium scans to study lymphomas, and find "an exceedingly good correlation between the scanning images and staging," says Dr. Harper. If this relationship holds up, the clinical evaluation of lymphomas would be significantly simplified. And Professor Lathrop says that indium-113m actually concentrates in the human placenta rather than staying in the circulation as does ^{99m}Tc. Thus, ^{113m}In should provide better images of placental localization in women who might have placenta previa.

Scientific interest is also focusing on ultra-short-lived radionuclides having physical half-lives measured in minutes or seconds. Although few of these isotopes could be obtained from generators, the majority of radionuclides such as carbon-11, nitrogen-13, and oxygen-15 must be made in a cyclotron. "And at this point in time, the cyclotron..."

Dr. Harper adds that

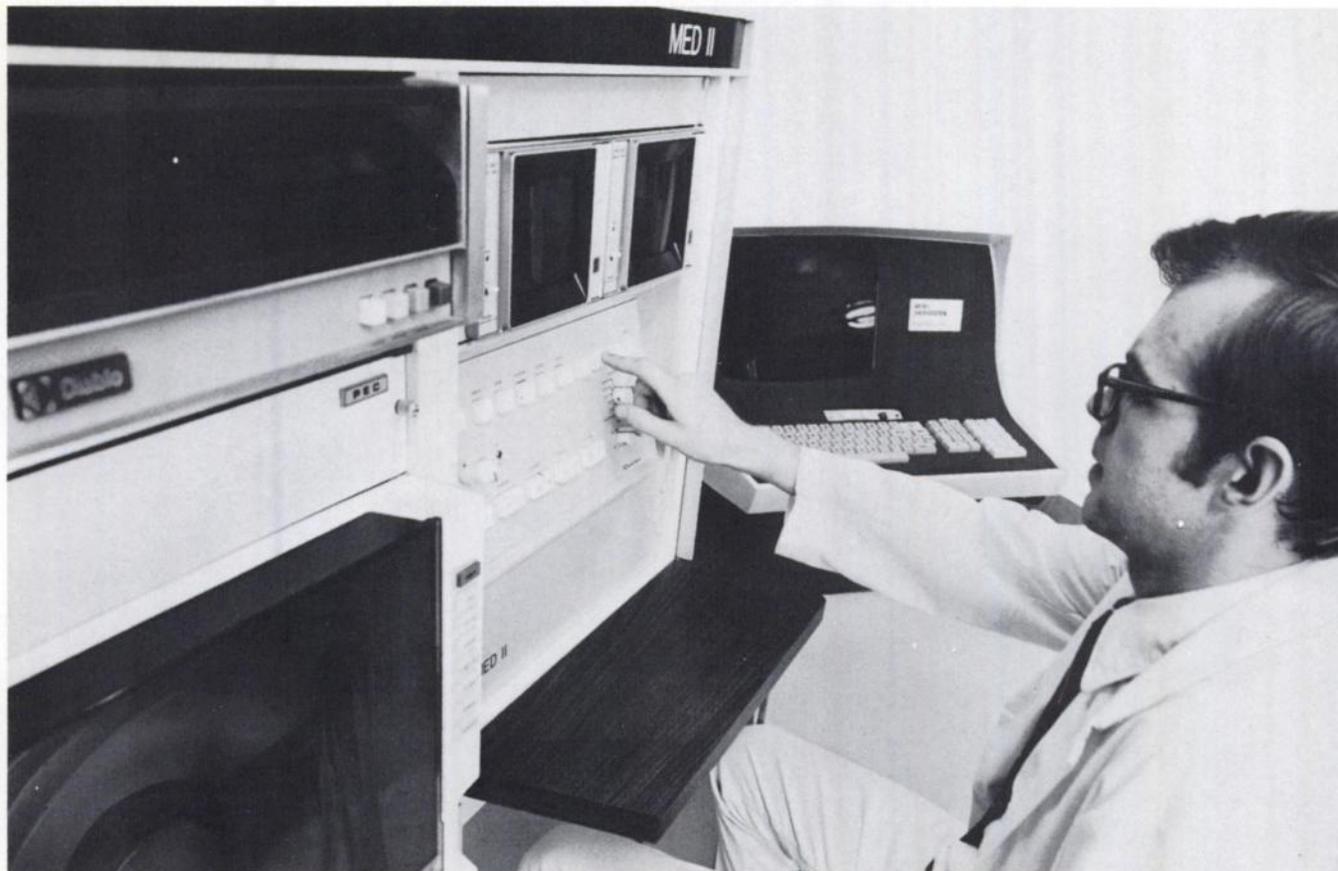
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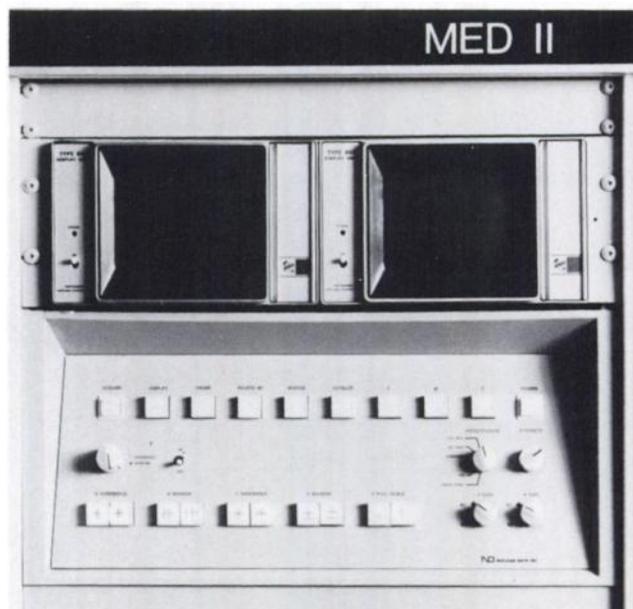
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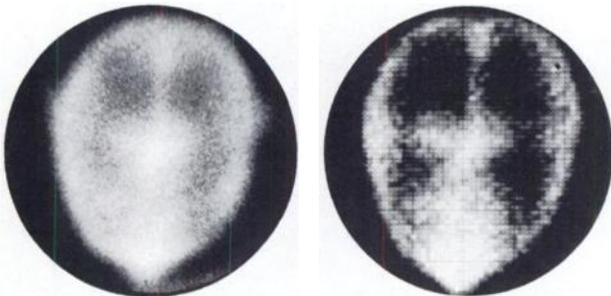
Fourth, the comprehensive image data analysis capability available in Nuclear Data's earlier systems has been extended still further with the MED II. Extraction of exponentials, normalization, curve smoothing and the many additional data analysis routines available with MED II are more refined than ever. And they are easier to execute.

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MED II as a static image processor

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Contact: Albert J. Gilson, M.D., Director, Division of Nuclear Medicine, Mount Sinai Hospital, 4300 Alton Road, Miami Beach, Florida 33140.

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2 who
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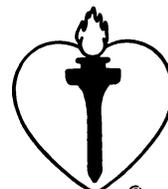
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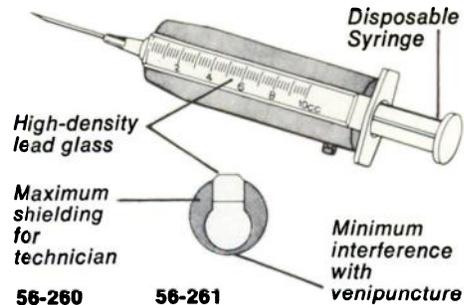
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56-232 Vial Shield with 1/4" lead wall; ideal for low-energy gammas. Accepts vials up to 3½" high x 1½" D. Measures 4" high x 2" O.D. 3 lbs.....\$75.00

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For more details, ask for Bulletin 451-B



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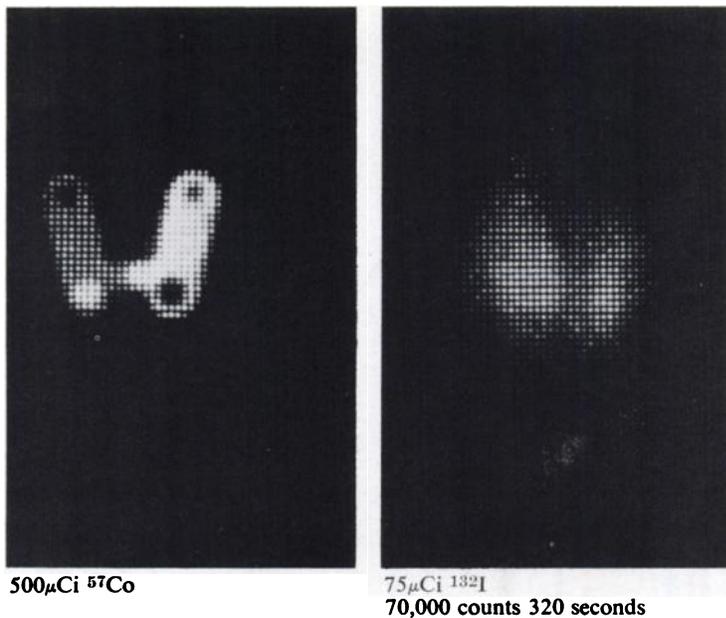
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*Patent Pending

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This is Baird's new image.



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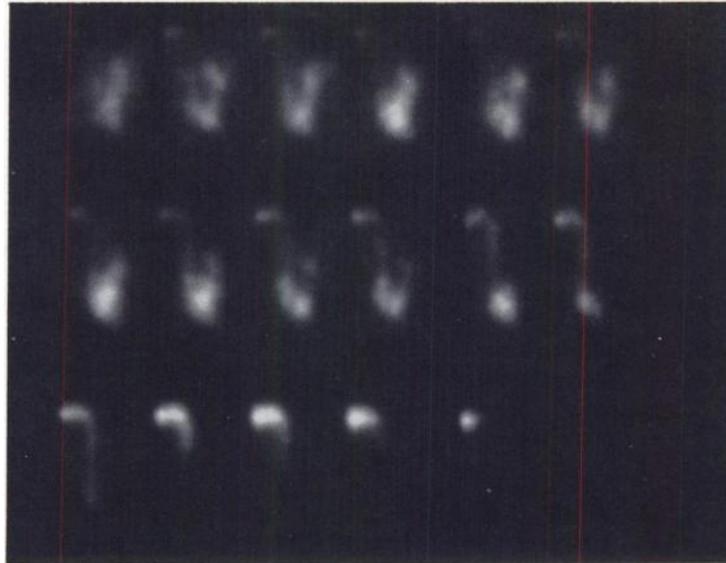
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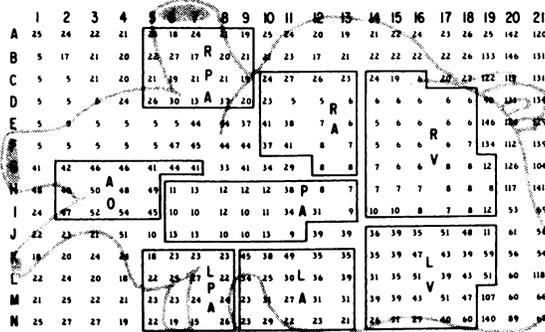
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This is more of Baird's new image.

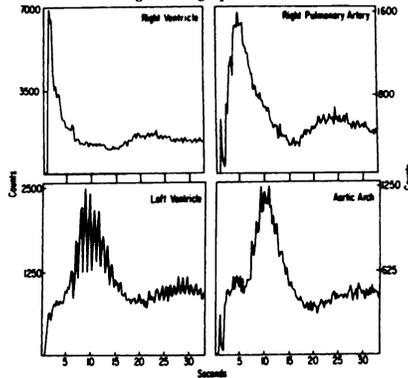


Actual CRT image of a IV injected bolus of 12.4mCi ^{99m}Tc passing through the right heart and pulmonary arteries. Average counting rate during this study was 24,000 counts per second.

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