

ELUTETM GENERATOR TECHNETIUM Tc 99m

A New Addition to Abbott's Radio-Pharmaceutical Products Line

Performance

Built-in 500 ml. saline supply provides 15 to 16 milkings per week.

You have clear, clean eluate from first use. Highly concentrated serial elutions can be made daily.

Low aluminum levels. A special process reduces aluminum levels to make them all but undetectable by normal lab methods. Less trace impurities permit wide diagnostic usage.

Safety

At least 1½ inches of lead lines generator column. Quick milking time lessens exposure.

See-Thru Elution Shield further reduces radiation exposure and simplifies milking. Volume can be measured without lifting vial from elution shield. (Shield is available with first generator.)

Transparent Needle Guard protects fingers.

Convenience

Compact, pre-assembled, and ready to use. Attach needle and you're ready to elute. Saline solution is an integral part of the generator.

Storage compartment on top contains six 30-ml. elution vials, needles, labels, and instructions.

Self-align milking port. Place elution shield in port, and both needle and evacuated vial are automatically aligned.

Pushbutton Elution. Press down to open valve, and a slight turn locks it for automatic elution.

Automatic Disposal Service. Used generators are no longer a problem. Abbott's Elutek service program helps you dispose of them quickly and easily.

Molybdenum and Technetium-99 Decay tables are on front label—can be seen at a glance.

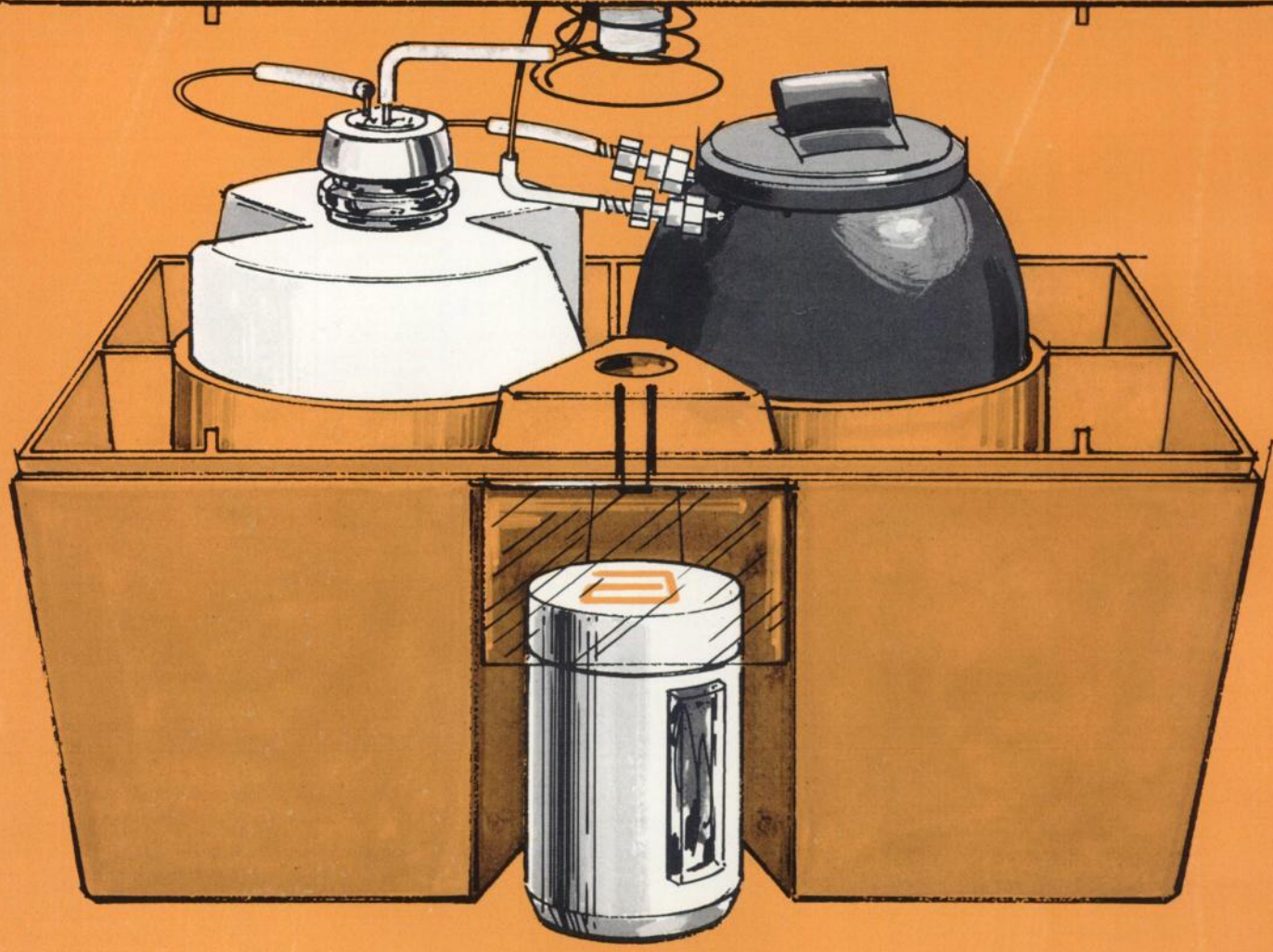
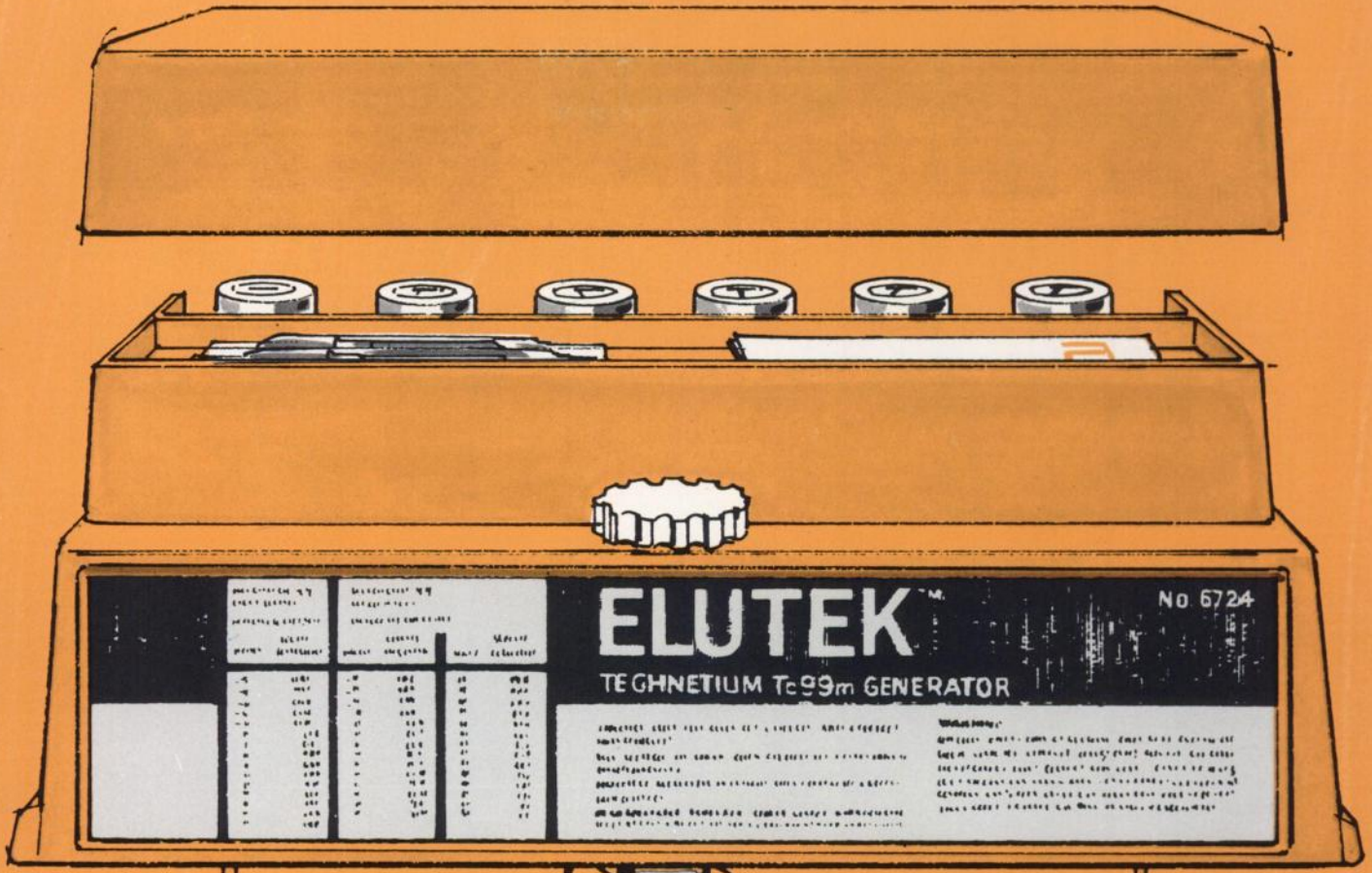
Carrying Handles add to convenience—help you avoid mishaps.

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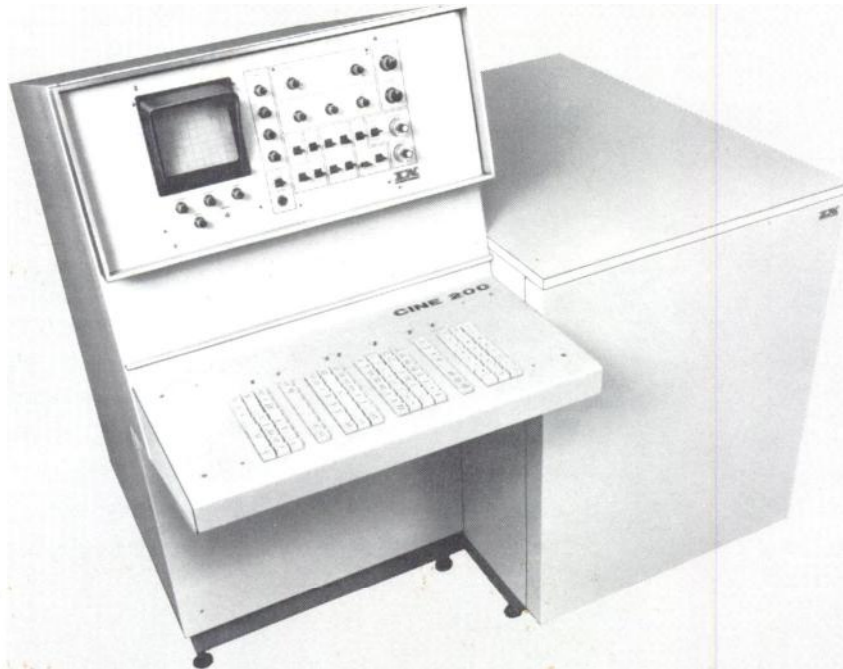
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There's a new way to say simultaneous acquisition and processing.



CINE 200.

And CINE 200 means even more. Simultaneous acquisition from two imaging devices. Clinically useful routines. Human engineering. And prices that put these capabilities within the range of your budget.

There's more to the capability story of the CINE 200. Find out all the details of why it is one of the most versatile image-data processors ever developed — for cameras and scanners. CINE 200 from Intertechnique is sold and serviced in the U.S. exclusively by Raytheon Company. For information, contact Raytheon Company, Medical Electronics, 40 Second Avenue, Waltham, Mass. 02154 (617) 890-3240.

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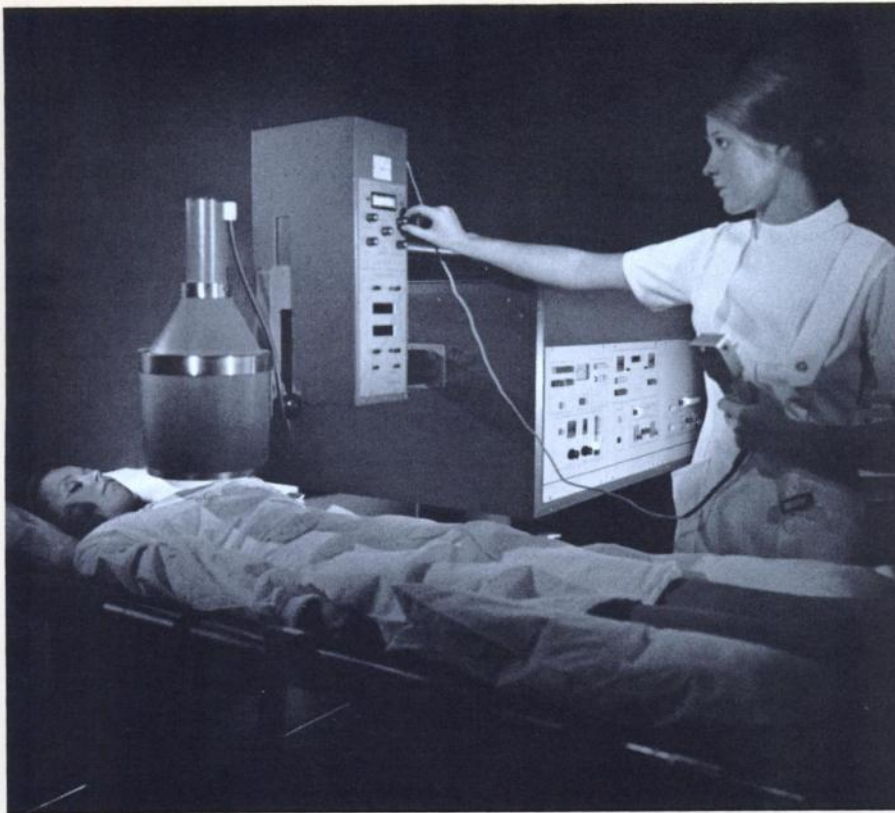
Canada: NEN Canada Ltd., Dorval, Quebec. Tel: (514) 636-4971
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confection:
Pack of 5
labelling kits
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subsidiary in your country



Single probe scanner automatically delivers diagnostic information

A combination of automatic features, preset with simple push button and thumbwheel controls, facilitates operation of General Electric's single probe digital scanner; thus provides less opportunity for technic errors.

Scanning speed is controlled and displayed automatically at the panel meter after desired line spacing and information density settings have been selected and the hot spot located. And, speed can be adjusted manually, if desired.

Other automatic features include: film exposure slit length changes

with line spacing to prevent scan gaps or overlaps; scalloping corrections to align the photoscan display; and, photorecording density settings between preset minimum/maximum values.

The GE single probe scanner also provides a built-in scaler; push button probe positioning; easy-to-read light-emitting diodes; and four collimators as standard equipment.

Scan information is available three ways: standard format includes mechanical dot and photorecording. GE's electronic color Videodisplay and Processing Unit is optional.



Videodisplay Processor extends the diagnostic value of any scanner or nuclear camera. Permits viewing and quantification of patient count information, in black and white or fully functional color. Images are displayed on a videomonitor; can be manipulated long after the patient leaves the department to enhance desired details; aid interpretation and diagnosis. Information remains stored in the VDP's electronic memory, for further manipulations, until erased. Enhanced VDP data may be played back to the detector and recorded on 14 x 17 inch film. Scans can be recorded on cassette tape as well as on photographic film; count information from any scanner or camera can be transmitted to a VDP unit over regular telephone lines.



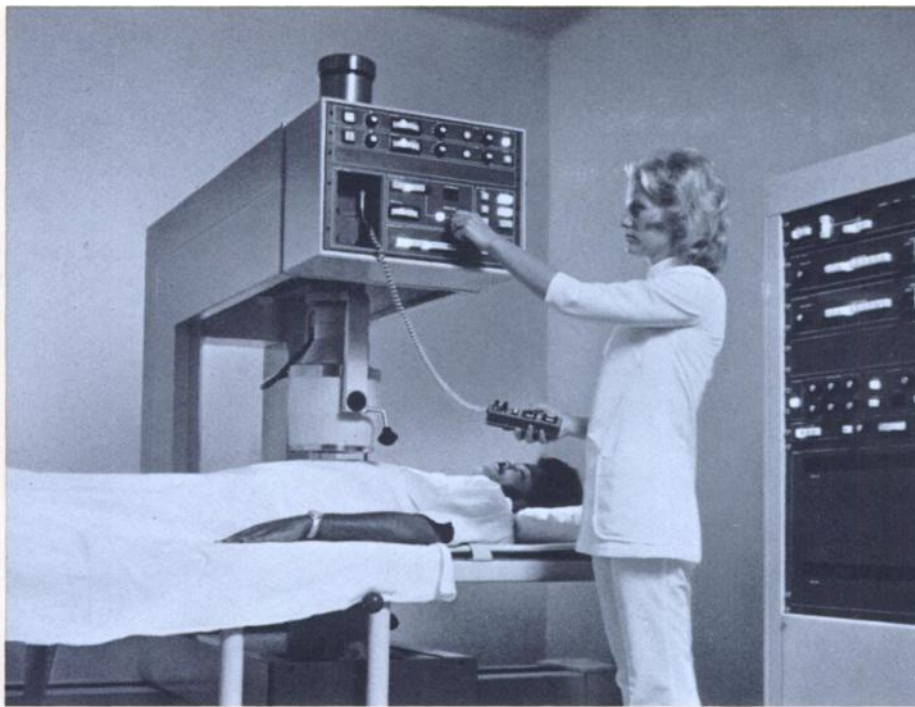
The complete nuclear laboratory. The Nuclear Medicine Accessories & Non-imaging Instrumentation catalog by General Electric offers a complete product listing for the nuclear laboratory.

The featured instrument systems are, for the most part, unique in their ability to provide versatile yet functional diagnostic tools.

In addition to a full line of diagnostic instrument systems, the catalog describes protective equipment, film processors and illuminators, phantoms, tables and other nuclear supplies.

This free catalog and specific product information is available by contacting your GE Medical Systems representative.

information compendium



Scan the whole body or a single organ with equal ease

The value is well established for viewing a full-size nuclear scan of a single organ on 14 x 17 inch film. Yet it's equally easy to scan any patient's entire body and minify the image to fit the same size film, using General Electric's Maxiscan Whole Body Digital Scanner.

The unit's two probes and three scanning directions provide maximum patient count information with minimum technic error and reduced set up time.

Skeletal surveys, for any size patient, can be conducted within a travel range of 2 feet wide by 6 feet 8 inches long. This permits the location and diagnosis of bone metastases beyond a specific organ, without a series of small area scans; such as, prior to radical mastectomy procedures.

In addition to whole body scans, Maxiscan performs local area studies too, all with minimum patient movement. The scanner's two probes and three scanning directions cover the entire lung, top and bottom, without turning the patient. The top probe angulates 270° and has a powered 12 inch vertical

travel. With optional vertical plane scanning, the patient can be seated upright; also, vertex views of the brain can be accomplished with the patient reclining normally.

Rotating switch settings permit selection of full size scans or minifications of 2:1, 3:1, 4:1 and 5:1. This versatility, plus push button quadrant placement controls, precisely segments four different scans on a single 14 x 17 inch film, with no image overlap.

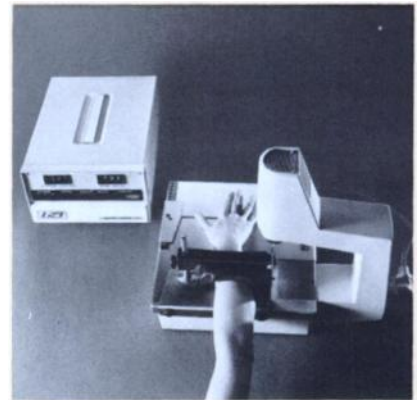
Maxiscan controls are sequentially arranged to minimize the operator's back and forth movement between the electronics console and the gantry. Also, a number of automatic features are controlled with push button and dial settings. For example: scanning speed. After desired line spacing and information density settings have been selected and the hot spot located, scanning speed for the procedure is automatically displayed; no charts, graphs or calculations.

To view and quantify scans in black and white or color, Maxiscan can be combined with GE's Videodisplay and Processing Unit.

Non-invasive technic for diagnosing bone diseases

Gradual decreases in the amount and strength of bone tissue, caused by osteoporosis and other metabolic bone diseases, can now be identified before serious complications set in.

This simple, non-invasive diagnostic unit, available from General Electric, measures changes and losses in bone mineral content and bone width. This permits quantitative assessment of skeletal integrity. Ideal for serial studies to determine therapeutic progress.



The Bone Mineral Analyzer includes a scanner, which automatically transports a closely collimated beam of monoenergetic gamma rays (^{125}I) across the limb in a programmed pattern. The generated data is transmitted to a mini-computer which calculates the mineral content and bone width; displays measurements in digital readouts. This data can be related to normal and specific patient populations.

The system is compact, readily portable and easy to operate. The radioisotope used can be purchased from General Electric.

General Electric Medical Systems,
Milwaukee and Toronto.
In Europe, Elscint GmbH, Wiesbaden;
Elscint France SARL, Buc.

GENERAL  ELECTRIC

**This, one of the three top
scintillation cameras,
weighs 1300 lbs.
less than the
other two.**

**(And if you think
that's trivial, you have
a surprise coming.)**



Now why in the world would anyone ask you to focus your attention on gross weight (of all things!) when considering a piece of sophisticated instrumentation like a scintillation camera?

Because, as we hope you'll soon come to agree, low weight tells you something. As a matter of fact, it really tells you a great deal because technologic progress almost always leads to a diminution of both size and weight (e.g., from vacuum tubes to transistors to integrated circuits). Thus, the functionally equivalent instrument that weighs substantially less than others, bespeaks a newer design. And so it is with the Nuclear Data Radicamera.™ This quite remarkable camera weighs about 1300 lbs. less than the other two fine competitive instruments. (Mind you, only 1300 lbs. as compared to 2600 lbs.—a 50% weight reduction!)

Ah, but what did we leave out? Functionally, nothing. We simply designed out the older technology, both electronic and mechanical, that tends to weigh more and bulk larger. And the newer technology, with its lesser weight and size, is often more reliable. And *that's* a nice bonus.

What else does Radicamera offer? A full capability camera with resolution as good as the best (really), and operating ease that defies comparison. You can actually position it with one finger and, with the appropriate accessory, move it easily to the patient that can't be moved easily. The innovative design yields a more

compact unit that occupies less of your ever-evaporating space. In toto, a superbly designed instrument that is easy to live with and yields diagnostic data second to none.

Finally, we should also mention the following: newer technology not only tends to diminish size and weight. It shrinks cost (and hence, price) too. Check it out.

So, if you're looking at cameras, consider this: we want you to speak to Radicamera users because you really ought to hear our story from someone else, too. Contact us for names and for Radicamera literature.

A word about Med II™

Very revealing fact: Med II is the world's best selling image processing system. And although we're happiest when its coupled to our Radicamera, candor forces us to reveal that it also functions beautifully with those other cameras. This very flexible system does everything a computerized image processing system should do. Things like correcting for non-uniformities, curve smoothing and fitting for cardiac output studies, ejection fraction and xenon ventilation/perfusion computations, acquiring and storing dynamic data from 12 regions of interest to produce 12 curves simultaneously, and much more. And its ready-to-use, conversational and upgradeable software makes it ideal for both routine and investigative dynamic function work. Once again, we invite discussion with current Med II users.

Radicamera: the lightweight that really isn't.



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IN ACCURACY OF
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ABUSCREEN™ Radioimmunoassay for Morphine is a specific and unusually sensitive test for the presence of morphine and its analogs in biological specimens.

The test procedure is based on the competitive binding to antibody of radiolabeled antigen* and unlabeled antigen, in proportion to their concentration in the solution. Unlabeled antigen displaces radioactive antigen from the limited antibody present.

An unknown specimen is added to a test tube containing known amounts of morphine antiserum and radiolabeled antigen. Following precipitation and centrifugation, the supernatant fluid is transferred to test tubes for counting in a scintillation counter. A positive specimen is identified when its radioactivity is equal to or greater than that of the positive control.

Results can be quantified by comparing counts per minute (CPM) obtained from dilutions of the unknown specimen with the average CPM obtained from dilutions of the morphine positive control, plotted as a standard curve.

*Either tritium- or iodine-labeled antigen available

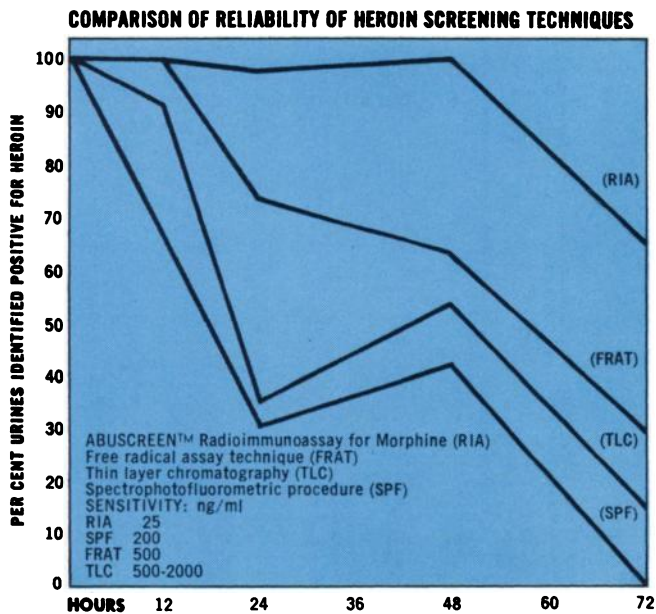
COMPARISON OF MORPHINE SCREENING PROCEDURES

	ABUSCREEN™ Radio-immunoassay	Thin Layer Chromatography (TLC)	Free Radical Assay Technique (FRAT)	Automated Fluorescent Assay	Gas Chromatography
Recommended Level of Sensitivity	¹²⁵ I-labeled antigen 40 ng/ml ³ H-labeled antigen 60 ng/ml	1,000 ng/ml	500 ng/ml	200 ng/ml	500 ng/ml
Labor Thruput (specimens per person per 7½ hour shift)	475 per day*	60/day	500/day†	260/day	60/day
Labor Cost	\$0.15	\$1.17	\$0.15	\$0.27	\$1.17
Instrument Capacity (based on one shift)	500/day	—	450/day*	260/day	20/day
Treatment of Test Specimen	none	pH adjustment extraction hydrolysis column purification concentration	oxidation	none	pH adjustment multiple (Λ,8) extractions hydrolysis

*Exclusive of sample identification and labeling and evaluation of results.
†Manufacturer's claim.

PROVEN: GREATER RELIABILITY THAN COMMONLY USED SCREENING TECHNIQUES

In a study* comparing the reliability of ABUSCREEN™ Radioimmunoassay for Morphine† with three other primary screening procedures, urine samples from 72 known addicts who admitted to heroin use were analyzed by all four methods. Test results are summarized in the accompanying graph.



- **specific heroin assay**—The test utilizes an immunological reaction, and thus is specific for morphine and its analogs, minimizing the problem of false positives.

- **highly sensitive heroin-assay**—The test utilizes a radiochemical method, and thus is highly sensitive, making false negatives rare.

- **results achieved rapidly**—The procedure is simple and rapid, needs no hydrolysis or other pretreatment of urine, and does not require highly skilled personnel. Easily adapted to automated processes, it can be used for large- or small-scale screening as well as *stat* testing.

- **provides objective results**—The nature of the test procedure eliminates subjectivity in interpreting results.

*Catlin, D. H.: Paper presented at the 30th International Congress on Alcoholism and Drug Dependence, Amsterdam, Sept. 4-9, 1972.

†In this study, tritium-labeled morphine was used. Reevaluation of the study, using the same antiserum lot and ¹²⁵I morphine, produced similar results.

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Abuscreen™

Radioimmunoassay for Morphine

F-8

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¹²⁵I label

³H label

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T ₃ -RIA (TRIIODOTHYRONINE)	FT ₄ (FREE THYROXINE-DIALYSIS)	HYPERTHYROID EVALUATION (T ₄ + TBG ASSESSMENT + T ₃ -RIA)	METOPIRONE RESPONSE (CORTISOL + COMPOUNDS)	INSULIN
TBG ASSESSMENT (RT ₃ U)	THYROID SCREEN-T ₄ -RT ₃ INDEX (ADJUSTED T ₄)	ALDOSTERONE	LH (LUTEINIZING HORMONE)	FSH (FOLLICLE STIMULATING HORMONE)
TBG-RIA	(T ₄ + TBG ASSESSMENT)	TESTOSTERONE	LH + T (LH + TESTOSTERONE)	PLASMA RENIN ACTIVITY

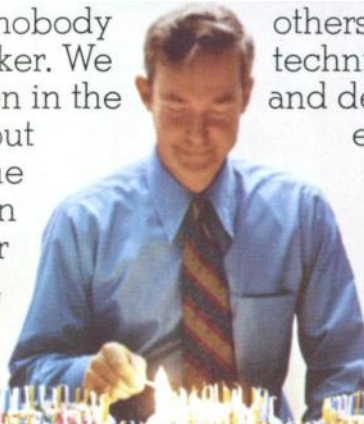
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The new Model IC-1 Intensity Computer removes the guesswork from exposing your Pho-Gamma camera. It assures that the exposure will be Right—the first time and every time after that—even if the camera itself experiences electronic drift. The IC-1 is ideal for Flow Studies since consistently proper exposure eliminates the probability of repeat scans—thereby saving both valuable time and money—not to mention patient inconvenience.

Typical IC-1 benefits include:

- Right exposure every time
- Independent of input power variations
- Eliminates repeat scans
- Eliminates need for 3-lens camera
- Permits 3X-4X larger image on single lens Polaroid

- Simplified, pushbutton operation
- Eliminates need to reset focus
- Eliminates astigmatism on Pho-Gamma camera
- Reduces costs of operation

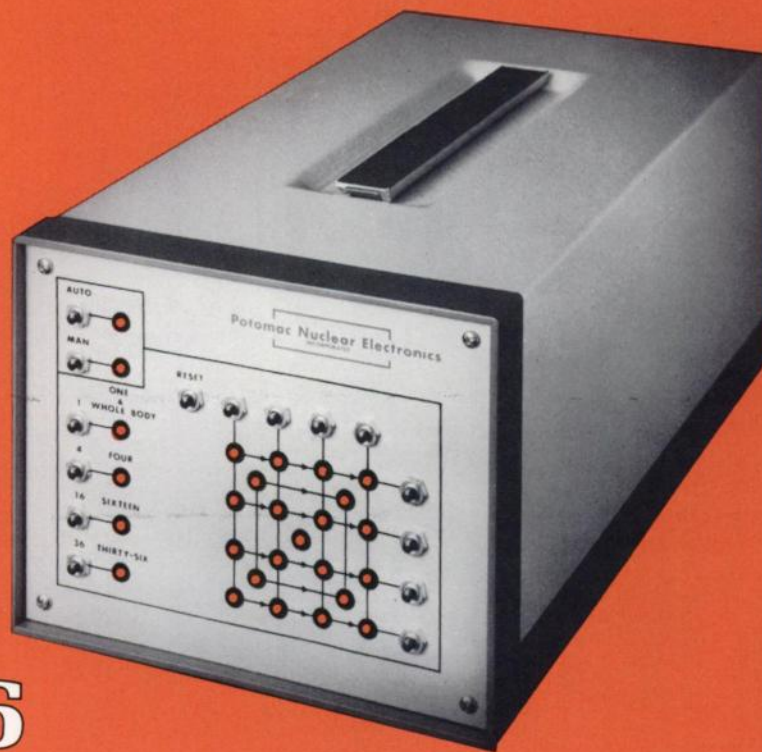
The IC-1 Intensity Computer is virtually fool-proof. Even a new operator can get the exposure right the very first time. The operator merely depresses a few plainly-marked pushbuttons to select: Type of Organ to be studied . . . Number of Counts to be accumulated . . . Relative Size of the patient . . . Type of Film to be used (Polaroid, X-Ray, 35mm) . . . and the number of pictures to be taken (if the unit is used in conjunction with the Model RSI-36 Rapid Sequence Imager*). That's it! Efficient. Easy to use. The right exposure each each time.

**Ask about our Package Offer including the Intensity Computer, Camera and Rapid Sequence Imager.*

To learn more about the Intensity Computer, or to arrange a demonstration, please write or call:

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RSI-36 RAPID SEQUENCE IMAGER

**Saves you up to 90%
in Film Costs . . . and at
least 30% in Time**

The new Model RSI-36 Rapid Sequence Imager operates with any Pho-Gamma camera to permit low cost, highly flexible formatting for either static or dynamic studies. This single unit allows you pushbutton selection of any of four, automatically-framed formats on a single (11" x 14") X-Ray film:

- *Life Size* (1:1)
- *4-Mode* (2:1 minification with 125mm images)
- *16-Picture Rapid Flow* (4:1 minification with 70mm images)
- *36-Picture Rapid Flow* (6:1 minification with 35mm images)

The RSI-36 readily adapts to your existing Pho-Gamma camera. Its unique operation using only one standard X-Ray sheet lets the system pay for itself within a very short time. Consider. Instead

of Polaroid film at 30¢ per photo (or \$4.80 for a 12-picture cerebral flow plus 4 additional static brain images), the RSI-36's 16 picture rapid flow sequence would cost you only 40¢! A savings of \$4.40! A bone study using the 36-Picture Rapid Flow format would cost you only 40¢ compared to \$10.30 using Polaroid film—*A Savings of 95%!*

And, with the RSI-36, there is no imaging dead time between frames of a flow study . . . no film advance . . . no shutter bar . . . and no moving parts to cause problems. Couple this with standard RSI-36 features such as: Auto Upright Imaging, Pushbutton selection for Manual or Automatic Advance with the unit slaved to the camera, and user selection of starting points anywhere on the film image area—and you have better diagnostic studies at tremendous cost savings.

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The Ultra-TechneKow® Generator provides every feature you need. Uniformly high yields help you maintain scanning schedules. The "Ion Control" process keeps aluminum levels at almost undetectable levels. A minimum of 1½" of lead shielding and short elution time safeguard the technician, by providing minimum

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film. That's the essence of our system. Making it "multi-format" and revolutionary. Use the 750-01 Programmer with your existing cameras. Select 1 through 16 frames per film, manually or electronically advanced on the CRT. The size can range from full display (full use of CRT diameter) to 1/16th. Add our 750-02 8 x 10 X-ray Camera which records as many as 16 frames of dynamic flow information on each sheet of 8 x 10 film. Or the 750-03 Back which permits simultaneous

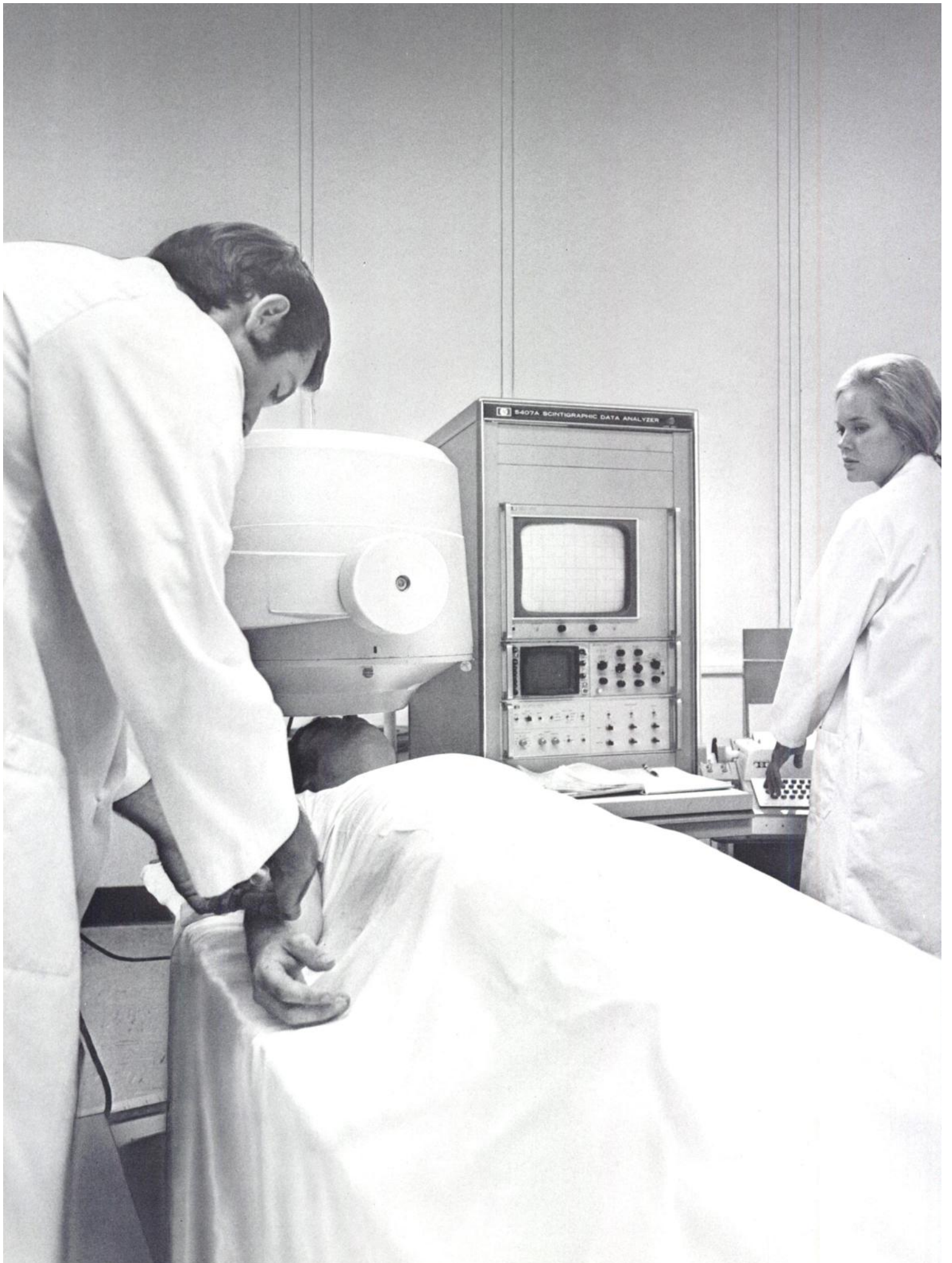
recording on 4 x 5 cut film, Polaroid, and/or microfiche. Using the microfiche camera back, as many as 80 frames can be placed on a single microfiche 4 x 5" film, then enlarged for reading with the 750-04 desk top viewer.

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High Data Rate. It records up to 100 frames per second in our unique List Mode, or 300,000 counts per second in Histogram Mode. It handles the highest speed studies currently being investigated.

List Mode. The unique List Mode, provided in addition to the Histogram Mode, offers many innovations. For example, you store *all* the original raw data from your study. Later you can decide how to frame or otherwise manipulate it *without losing raw data*. You can store your manipulated data, too. Even at rates up to 100 frames per

second, you get all these features:

1. Data resolution of 128×128 .
2. A Physiological Trigger to synchronize data framing.
3. Multiple Isotope capability that lets you record data from three isotopes simultaneously (two with the Physiological Trigger).
4. Image Expansion with which you can enlarge data from a small organ either before or after your study.

Whole Libraries of Programs. The simple, versatile HP BASIC language makes curve analysis easier than ever. BASIC is extensively documented and widely used in computer time share systems. And, if you ever wish to go even farther with the built-in general purpose HP computer whole libraries of other languages, (Fortran, Assembly and Algol) are available from HP.

Remembers Your Protocols. With just several keystrokes it'll automatically execute your previously entered protocols.

It does everything you expect a system to do, too.

It displays contours, isometric views and slices. You can define areas of interest with joystick markers or an optional light pen, and store 16 areas for later recall and curve generation.

Just several keystrokes give you complete Time Function and Frame (Image) Arithmetic. You can smooth, add, subtract, divide, multiply, using either images or constants. Complex images

such as lung ventilation-perfusion ratios are yours with just several keystrokes. And it normalizes images for non-uniform camera responses.

You don't have to worry about service.

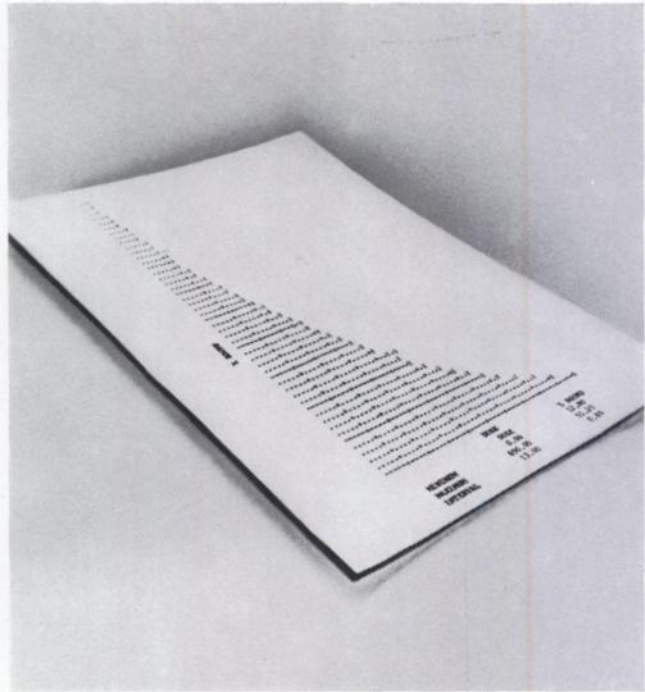
Hewlett-Packard, an international leader in measurement, analysis and computation, makes all major components of the Model 5407A system, including the computer, and tape and disc memories. The company has 172 offices throughout the world ready to give you service and technical assistance.

HP is well known in the medical field. Its other products include ECG's, VCG's, patient monitoring systems, electromyographs, diagnostic ultrasound, fetal monitoring, and computer-assisted cardiac catheter labs.

There's a book that tells you all about it.

The title is "HP's Total System Approach to Nuclear Medicine." In 22 pages, it covers all the advantages of the new HP 5407A Scintigraphic Data System. For your copy, simply call your nearest HP office or write the Hewlett-Packard Company, 1501 Page Mill Rd., Palo Alto, California 94304; Europe: P.O. Box 85, CH-1217 Meyrin 2, Geneva, Switzerland.

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MEDICAL INSTRUMENTATION



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Systems that automate the entire radioassay procedure—from analyzing RIA/CPB samples to printing out immediate, meaningful results. You only load standards and samples, establish assay protocol, start the system, and retrieve final, hard copy answers. Our systems do all the rest!

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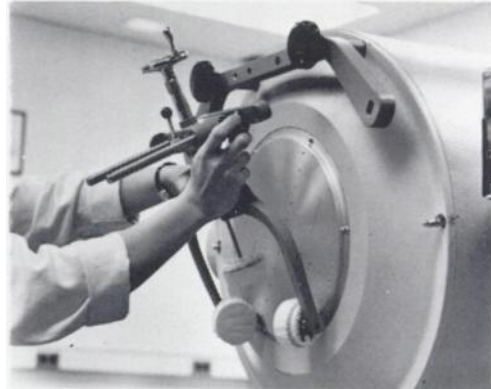
Whatever the demand—raw RIA/CPB data, spectrometer systems for any use, or the right systems for your particular lab—we provide complete answers. You'll find your questions answered in our free brochure, *RIA/CPB Data Systems*. Write to us today.

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Two We're ~~One~~ Steps Ahead With The Head Holder That Really Holds

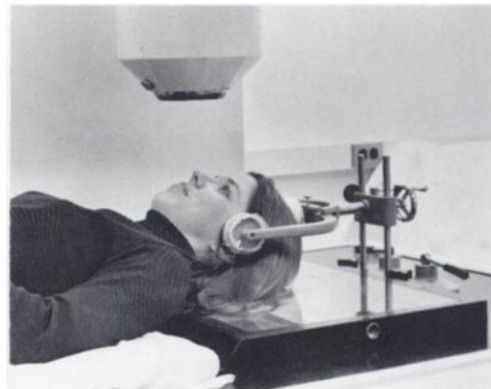
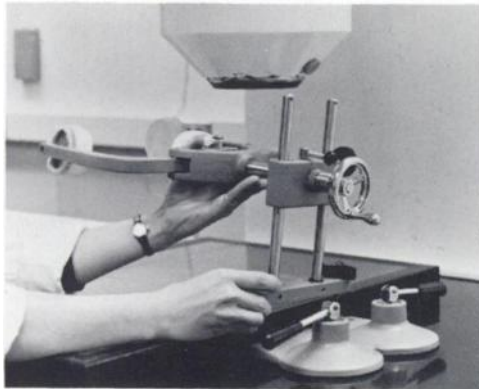


These Scholz Head-Holders utilize the same head clamp with a single hand-wheel which opens and closes the padded jaw in unison. The jaws can be rotated and locked through 360° and raised and lowered as desired.

The Vacuum Base Unit (for Camera and Scanner tables) can be attached securely to a plexi-glass surface in seconds.

The Gamma-Camera version* utilizes a mounting bar (for both Picker and Nuclear / Chicago Cameras) which can remain on the camera head without interfering with other procedures. The clamp portion can be attached or removed from the mounting bar in seconds.

*Developed by R. A. Berke, M.D., Nuclear Medicine Laboratory, BRH, FDA, DHEW, and E. L. Saenger, M.D., University of Cincinnati. J. Nucl. Med. 12:305, 1971.



PRICE:

COMBINATION UNIT	\$290.00
(Includes Scanner base, Camera base and interchangeable head clamps)	
CAMERA HEAD UNIT	\$265.00
(Camera base only and Head Clamp)	
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Our system consists of the Image Recorder, the Dual Channel Ratemeter/Recorder, the Variable Persistence Monitor and the Dual Area Generator.

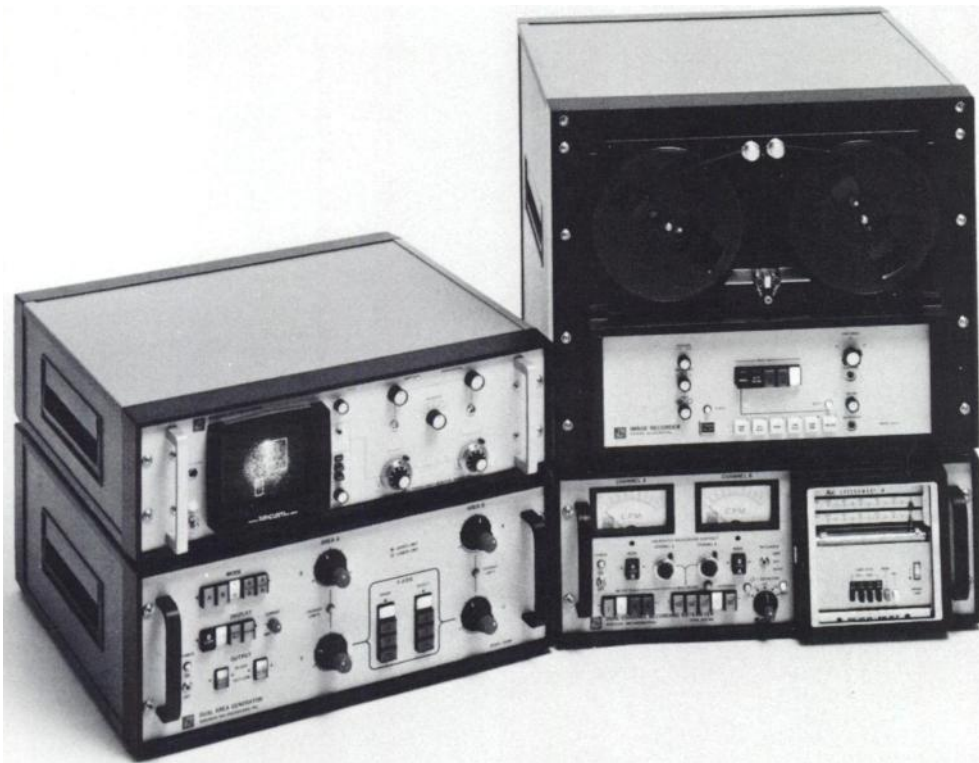
Our Image Recorder utilizes standard 1/4 inch audio tape as its recording medium, resulting in a savings in money, time and storage space.

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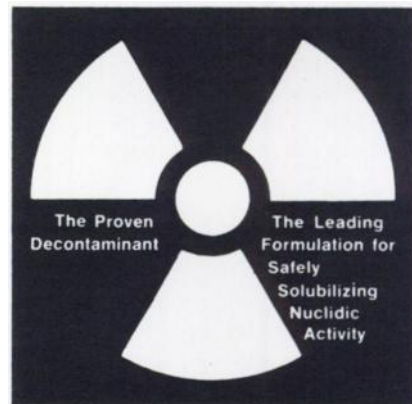
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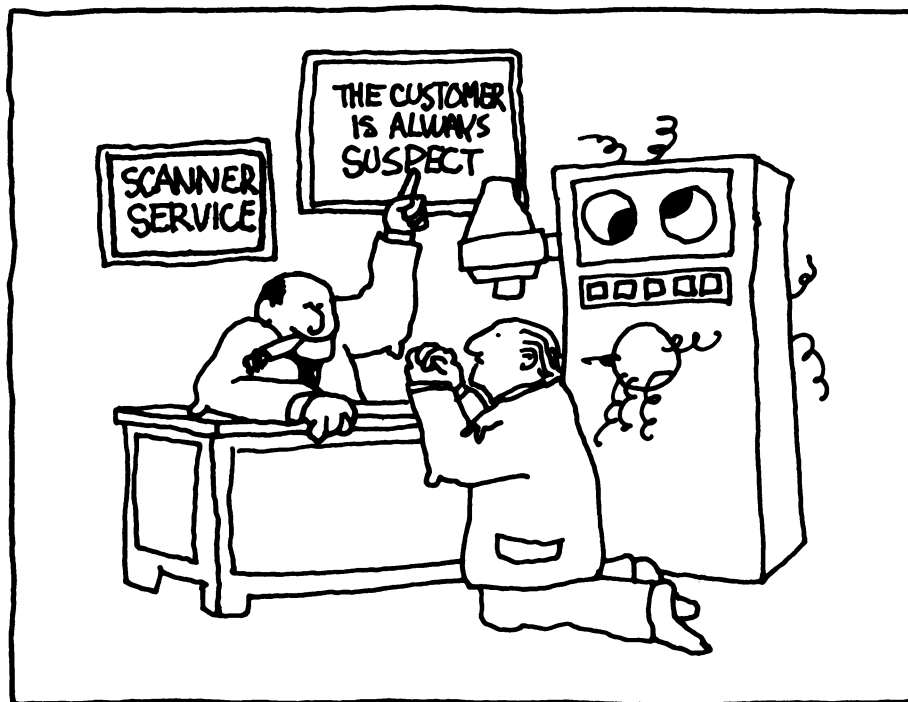
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(Anywhere RIA kits are used)

B₁₂

New Vitamin B₁₂ Kit

Schwarz/Mann, the world's leader in RIA kits, now announces a superior vitamin B₁₂ radioassay kit. Why superior? Because this simple assay requires far fewer manipulations (e.g., pipetting and centrifuging). Result: you'll spend from 30 to 60 minutes less at the bench... and you'll get results 120 minutes sooner. So when seeking vitamin B₁₂ deficiency data in pernicious anemia or whatever, this is the kit to seek it with. Kit for 100 tubes is only \$98.50. (Please note that every price we show on this page is for an individual kit. Quantity orders enjoy interesting discounts.)



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Clearly the digitalis glycosides have been a mixed blessing. Their potential for good is inevitably coupled with the possibility of harmful effects due to inadequately low or toxically high blood levels. And then, as if the narrow margin of safety weren't enough, we also began to realize that there are variations in bioavailability of these glycosides. From glycoside to glycoside. From company to company. From one route of administration to another. From dosage form to dosage form. Sometimes even from lot to lot.

Accordingly, many physicians and researchers are concerned with over and under digitalization problems and we're telling them that you can help. We supply four fine kits:

Digoxin [³ H] for 240 tubes	\$121.90
Digoxin [¹²⁵ I] for 240 tubes	111.20
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Prices are subject to change without notice.



Insulin Kit An accurate, sensitive, reproducible radioimmunoassay. For insulin concentrations in small volumes of serum or plasma of diabetics. Kit for 400 tubes—\$58.30.

Cyclic AMP Kit A kit for the radioimmunoassay of this intermediary in many hormone systems. Kit for 200 tubes—\$84.25.

HGH Kit For determinations of Human Growth Hormone. Kit for 200 tubes—\$63.60

HPL Kit Assays Human Placental Lactogen and helps to monitor fetal health. Kit for 200 tubes—\$79.50.

Cortisol Kit A competitive binding method for measuring the adrenal cortex output of cortisol. Kit for 200 tubes—\$79.50.



New RIA Hot Line

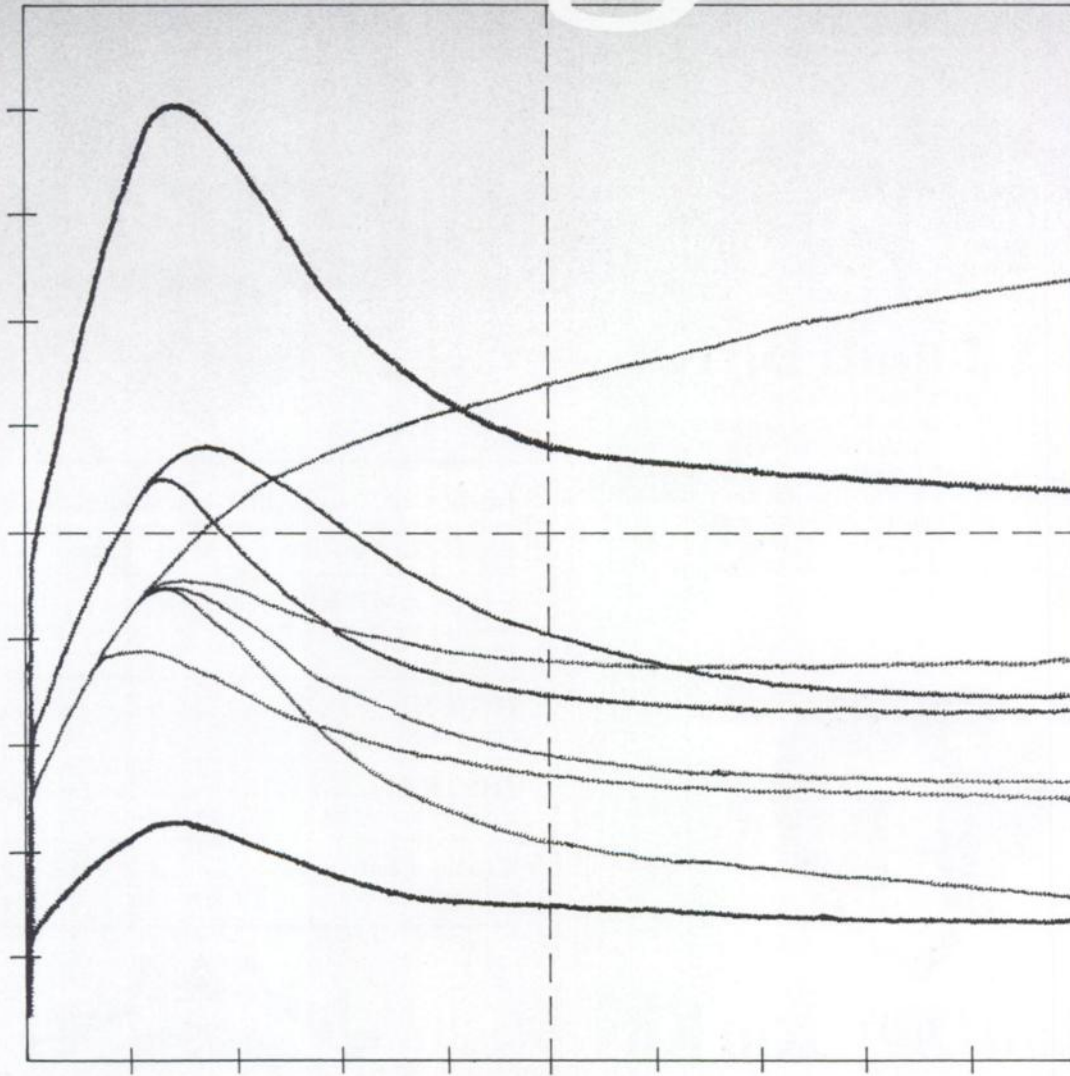
Schwarz/Mann has established an RIA (Rapid Informative Answers) hot line for RIA (radioimmunoassay) technical questions. Whenever (i.e., between 8:30 AM and 5:00 PM Eastern time on business days) you need such assistance, just call 914/358-4555, collect. Someone will respond with a ready answer or a way to get it for you promptly. Life gets simpler.

And for additional information on our kits

Drop us a line. Schwarz/Mann, Orangeburg, New York 10962.

Schwarz/Mann 
Division of Becton, Dickinson and Company B-D

Renogram



Nine renograms, identical perfusion to each kidney.

<i>Parameter Breakdown</i>	{	Initial distribution of injected dose	3
		RENAL	6
		Radiation background	4
		Dynamics of red blood cell binding	2
		Cross-coupling of instrumentation	2
		Observation	12
		<hr/>	total 29

There are 29 parameters which affect the shape of a renogram; only six of them relate directly to kidney function.

Roulette.

Renograms are not always reliable. To demonstrate this fact we simulated, on a computer, nine renogram curves, each with identical perfusion to the kidney. Since only six of the twenty-nine parameters which shape the renogram relate to the kidneys, very wide variations occur in the shape of the renogram. Your gamma camera is looking at fractional portions of several organs simultaneously; changes in isotopic distribution in any of the non-renal areas affect the renogram shape. In addition, nuclide binding to RBC's, cross-coupling of instrumentation and even patient positioning alter the results.

One unaccounted input from any of the 23 non-renal parameters can distort your renogram and the information you need for an accurate, reliable diagnosis.

That's why we developed the RP/ED.

Renal Perfusion/Excretion Determination (RP/ED) is not a computerized renogram. The RP/ED replaces the renogram by calculating all 29 parameters and reporting on only those relating directly to renal function.

It is the first safe, convenient and non-invasive (split function) clinical test and requires no patient preparation. It can be performed in approximately one hour on an outpatient basis.

RP/ED provides specific and accurate physiological determinations of total and fractional blood supply to the kidneys, total and fractional urine output from the kidneys, plus several other values (i.e. OIH Urine Concentration Ratio) previously not measured.

RP/ED works. Over 1500 patient studies have been performed in Nuclear Medicine Departments throughout the country. When used in conjunction with sequential renal scintiphotos, RP/ED information has proven highly reliable in predicting many pathologic conditions that cause renal dysfunction. Verification of these findings with direct comparisons of the Stamey-Howard split function catheterization technique are yours upon request.

```
***MEDNET***
RENAL PERFUSION/EXCRETION DETERMINATION
(ISOOTOPE SPLIT FUNCTION TEST)

FOR: PACIFIC STATES HOSPITAL          PRIORITY: ROUTINE
REFERRING PHYSICIAN: J. SMITH        DATE: 10 APRIL 73

PATIENT: R.Y.                        I.D.#: 38-52-98
AGE: 28                               SEX: MALE
WEIGHT: 76 KG.                       HEIGHT: 175 CM.
HCT: 38.2                            URINE FLOW: 1.63 ML/MIN

RESULTS
..... NORMAL RANGE=( ) PRECISION=*** VALUE=X ABNORMAL=A

EFFECTIVE RENAL PLASMA FLOW(ML/MIN), NORMALIZED TO 1.73 SQ M.
TOTAL 0-----(------*X*-----)-----1000    721.0 ML/MIN
LEFT 0-----(------*X*-----)-----500     322.6 ML/MIN
RIGHT 0-----(------*X*-----)-----500     398.4 ML/MIN
RATIO 0-----(------*X*-----)-----1.0     0.82 (L/R)

URINE FLOW FRACTIONS
LEFT 0-----*X*-----(------)-----100     16.2 %    A
RIGHT 0-----(------)-----*X*-----100     83.8 %    A
RATIO 0-----*X*-----(------)-----1.0     0.19 (L/R) A

OIH URINE CONCENTRATION RATIO
RATIO 0-----*X*-----(------)-----1.0     0.24 (R/L) A

SUMMARY COMMENTS
.....
THE PATTERN OF REDUCED URINE FLOW FROM THE LEFT KIDNEY, ASSOCIATED WITH BALANCED PERFUSION, IS TYPICAL OF PARTIAL BLOCKAGE OF THE LEFT URETER.

REFLUX ASSOCIATED WITH THE RIGHT KIDNEY OCCURRED AT APPROXIMATELY 10 MINUTES, POST INJECTION. RIGHT KIDNEY AND BLADDER DATA ARE BOTH CONSISTENT WITH SUCH REFLUX.

***MEDNET***
```

RP/ED is available only through Mednet, the medical communications and computational service that provides computer-aided analysis of clinical data. Mednet takes raw data from your scintillation camera, formats it, transmits it to Mednet computers for processing and returns the test results to your Nuclear Medicine Department in clinical report form in 24 hours or less.

Mednet RP/ED service is available nationwide. All that's needed is a scintillation camera and a phone. Hospitals pay only a one time installation charge (typically \$200) and then a per test fee.

With RP/ED there's no gamble because of unreliable information. No chance of Renogram Roulette.

For information on RP/ED and Mednet, call or write ADAC (Analytical Development Associates Corporation), 10300 Bubb Road, Cupertino, CA 95014, (408) 255-6353.

Ask Mednet.

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MODEL XY-101
Permits 10" of table top travel in both X and Y directions with graduated calibration scales for accurate re-positioning.

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Curtis Nuclear Corporation's RIA diagnostic test kits are ideal for Pediatrics (HGH, Vitamin B12) to Geriatrics (Digoxin, Insulin, Vitamin B12). Micro sera sampling plus a highly specific polymerized protein antibody run at room temperature, reduces total test time without altering the precision, specificity, accuracy or reproducibility of the test.

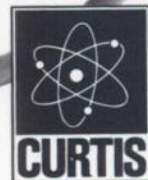
Curtis instruments, pipettes and lyophilized serum standards further insure reliable test results.

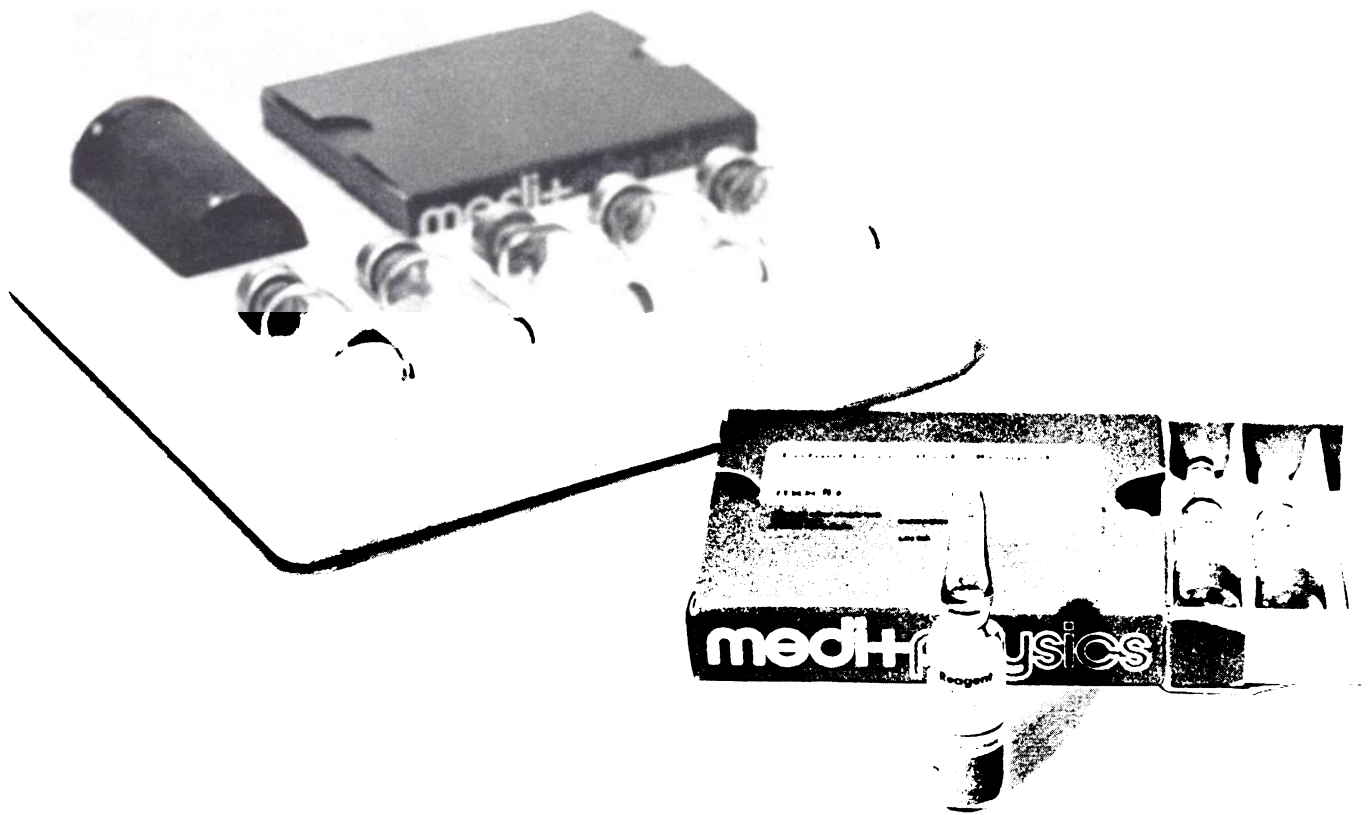
Regardless of the family needs, Curtis has radioimmunoassay diagnostic test kits for the assessment of hematological and hormonal problems.



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additional modules may be added at any time. Updating is simple and economical.

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Before you're blinded by
computer glitter—



look at a practical alternative

THE RAMTEK SCINTIGRAPHIC DISPLAY SYSTEM

For about one third the cost of dedicating a computer to your scintillation camera or scanner, Ramtek gives you all the picture quality and diagnostic flexibility you want. And, you don't have to add a programming staff, or go through the headaches of elaborate budget justification.

The Scintigraphic System converts data from your scintillation camera or scanner—any make or model—into digital information, and displays it, in microseconds. Your data is presented in up to 64 shades of gray or in 8 distinct colors, each representing specific counts of the organ being studied. That's a major improvement over systems that rely on photography of a cathode ray tube.

In addition, you can rotate the image to four different positions, and adjust the orientation to suit yourself. And, you can select any one of 10 persistence rates and use the display as a persistence device for positioning information. There's also a switch that lets you digitally enhance image contrast.

A full range of Scintigraphic systems to choose from further increases convenience and diagnostic flexibility. One model, for example, has two regions of interest for obtaining precise, accurate patient histograms and computer compatible tape for storage and playback of patient data. Still another model has tape cartridge capability. This gives you a convenient way to retain information in a patient's file.

Among other things, these features allow you to use the Scintigraphic display remotely, without interrupting camera operation. You can then review the data and make diagnoses at your convenience, in the lab or in your office.

So, if you've been dazzled by computer glitter, but floored by the staff and budget problems that go along with it, look at the Ramtek Scintigraphic Display System. It's a practical alternative that gives you better pictures. Systems start at \$6,500.

For some eye opening facts and/or a demonstration, call or write.



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Recent published reports ^{1,2} have outlined the problems associated with radioimmunoassay for plasma renin activity. NEN has considered these problems carefully in developing this kit. As a result we believe it offers greater sensitivity and reproducibility than other commercially available Angiotensin I RIA kits.

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¹Viol, G.W., *et al*, Clin. Biochem., 5, 251 (1972).

²Abe, K., *et al*, Jap.Circulation J. (Eng. Summary), 36, 697(1972).

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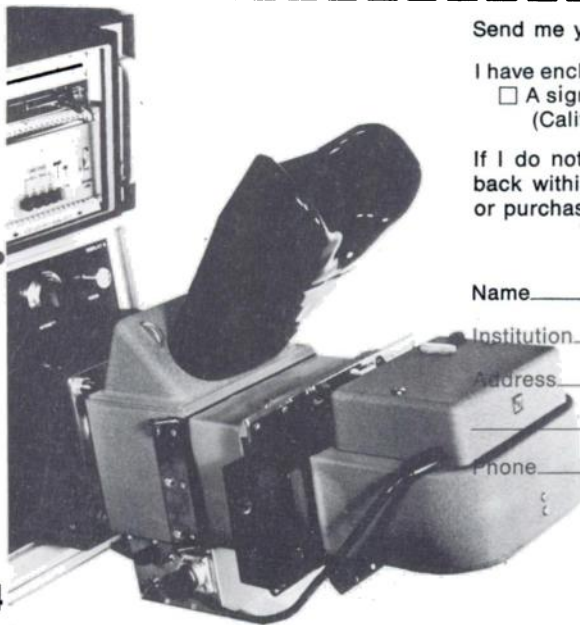
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RAYTHEON

Clinical Newsletter

from Bio-Rad

If you could find an isotopic T-4 test that is linear in the physiological range would you try it?

Then look at TETRA-COUNT™, Bio-Rad's new straight-line T-4 test that is linear over the entire physiological range —for better accuracy and sensitivity.

Figure 1 shows graphically just what we're talking about — linearity all the way from 1.5 to 15 μg thyroxine/100 ml. This means no tedious calculations. You simply read the value from the curve prepared in your own laboratory. Standardization? That's done against true secondary standards in serum, run in parallel with the patient sample. Precise accuracy all the way.

Tetra-Count's linearity alone is enough to recommend it, but there's more: Tetra-count is also fast, simple to use, accurate, sensitive and inexpensive. No solvent extraction step, therefore no solvent evaporation step.

Speed: You can run a total assay in just 20 minutes. You can run 20 assays, including standards, in less than one hour. And you don't need any specialized equipment other than a gamma scintillation well counter, sensitive to I^{125} .

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Sensitivity: Tetra-Count is sensitive down to 0.2 μg thyroxine/100 ml.

Price: Compare the cost per test in your own laboratory. When you figure test cost and time saved you will be pleasantly surprised.

Interested? Give us a call at: (415) 234-4130. Ask for Howard Willner or Paul Rogers. They can tell you about this new isotopic competitive protein binding method for T-4 assay and also about its companion test, Tri-Count isotopic T-3.

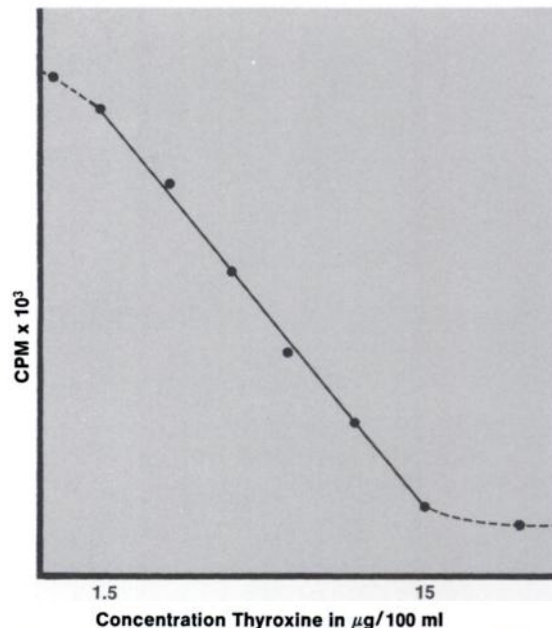


Fig. 1. Plot of thyroxine concentration vs. counts per minute for 0.1 ml of 6% Human Albumin Fraction V in saline containing various concentrations of thyroxine at ambient temperature.

BIO-RAD Laboratories

32nd & Griffin Avenue, Richmond, CA 94804
Phone (415) 234-4130

- Please send me more information on your new linear isotopic T-4 test, Tetra-Count.
- Please send me information on Tri-Count, your isotopic T-3 test.

Name _____

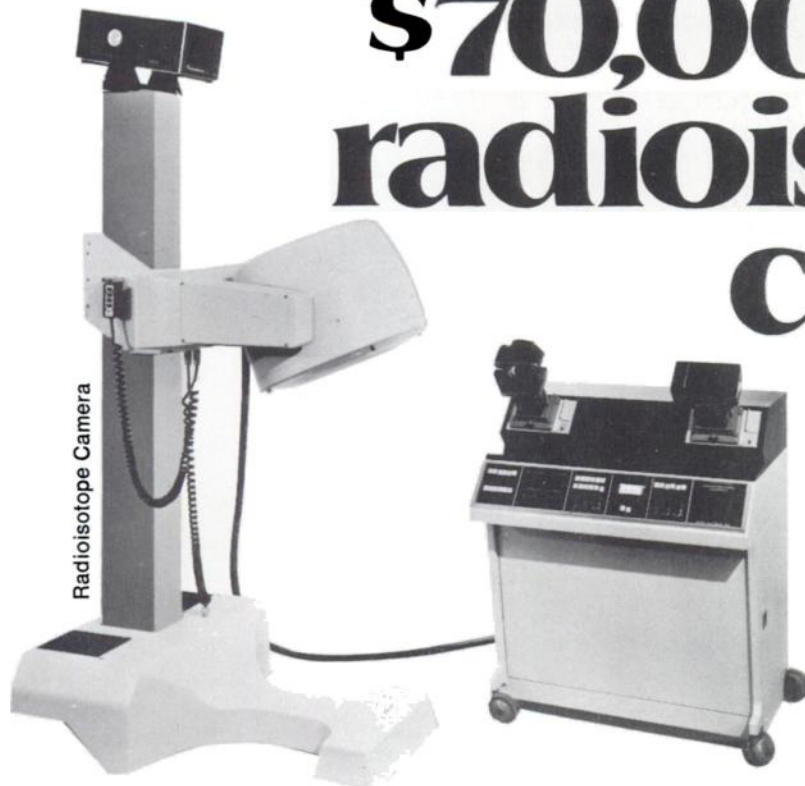
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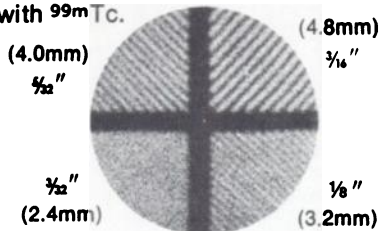
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- 128 x 120 (16K) matrix (8 bits deep), or
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Speed	Resolution
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Available options provide:

39 frames/sec	32 x 30 (1K)
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3 frames/sec	128 x 120 (16K)

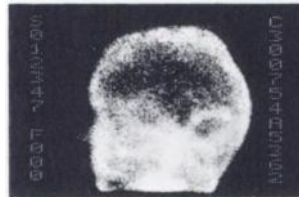
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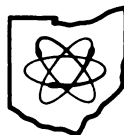
Alphanumeric Display. Patient study number always displayed on left of image. Six digit time of storage (in hundredths of a second) and dynamic study frame number displayed on right; or six digit count and four digit

area within an area of interest (or the total count of the area) can be displayed on the right.

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October 25-27, 1973**

Atkinson Hotel, Indianapolis, Indiana
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FOR SCIENTIFIC PROGRAM**

Approximately one-half of the program will consist of invited speakers discussing specific topics on "Controversy in Nuclear Medicine." The remainder of the meeting will include a technologist program and simultaneous presentations of submitted papers.

Abstracts are now being accepted for the scientific program of the Central Chapter, SNM Fall meeting. Original contributions in any aspect of nuclear medicine will be welcomed.

Submitted abstracts should be 300 or less typewritten words. 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 presenting the paper.

DEADLINE FOR ABSTRACT SUBMISSION IS SEPT. 1, 1973

Send the abstract to:

Henry N. Wellman, M.D.
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Nuclear Medicine Division
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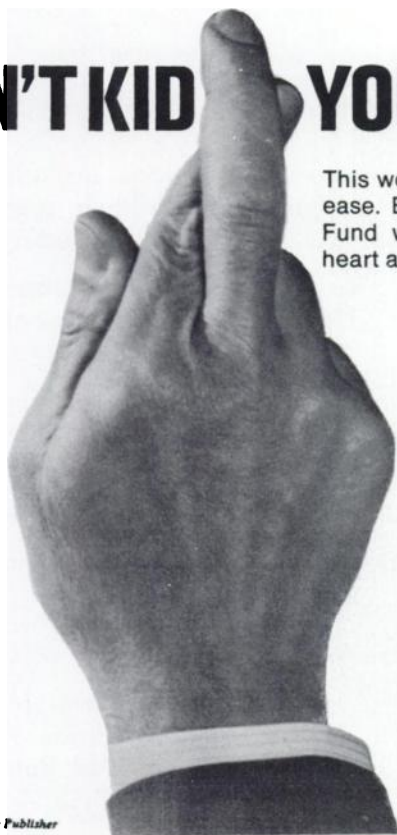
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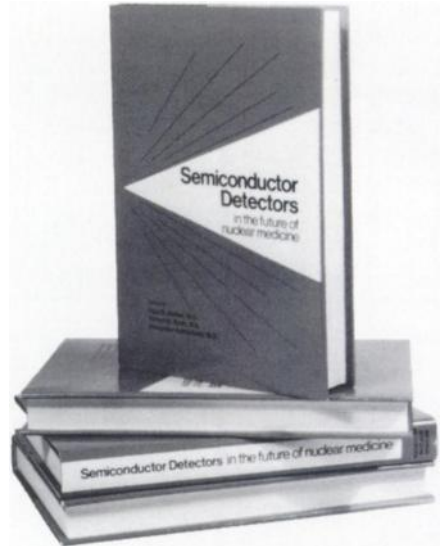
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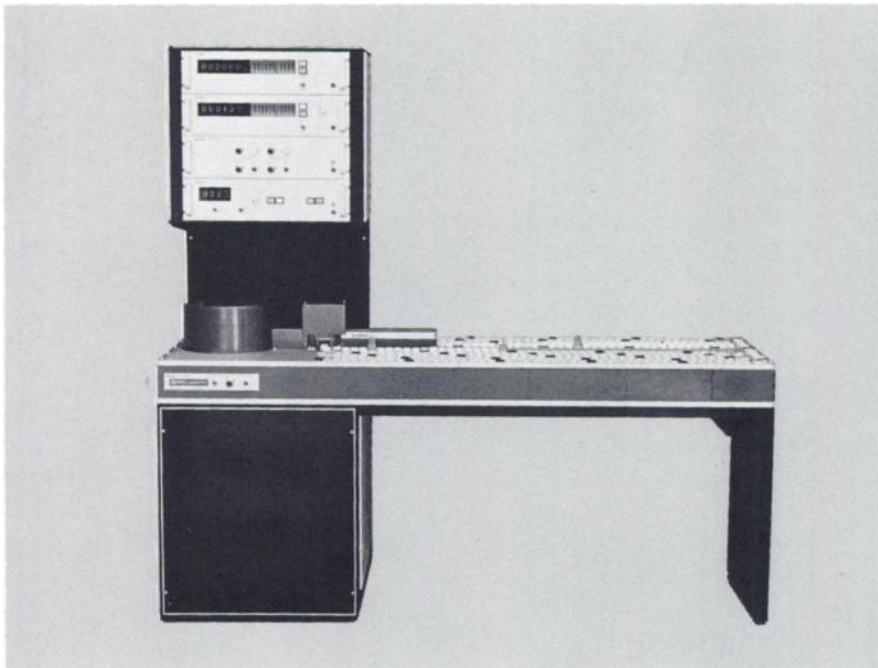
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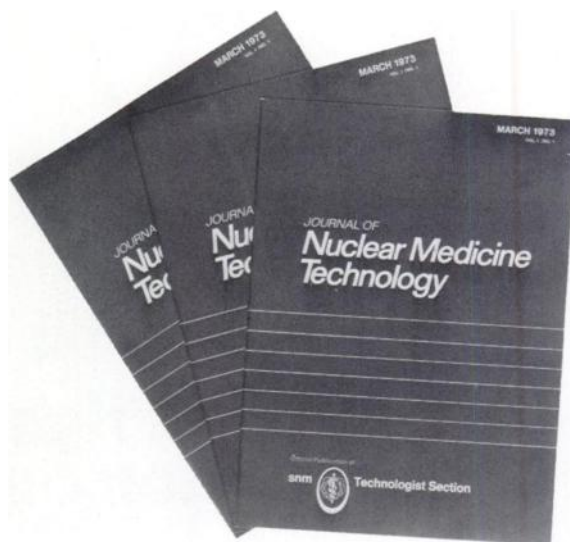


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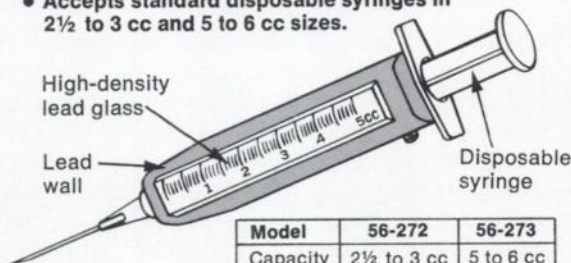
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Indium-111
Potassium-43**



These cyclotron produced products are now available daily, Monday thru Friday from Medi+Physics. For further information, please contact the Medi+Physics Laboratory nearest you. In San Francisco our main office is at 5855 Christie Ave., Emeryville, California (415) 658-2184. In Los Angeles phone (213) 245-5751, in Chicago (312) 671-5444, or in New York/New Jersey (201) 757-0500.

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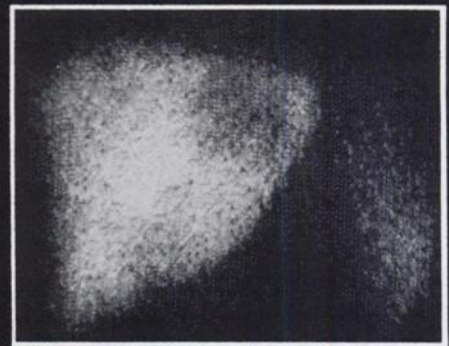
Statics



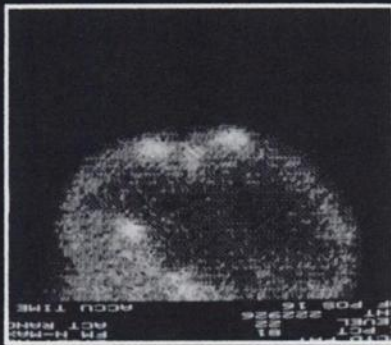
Abnormal Liver Scan — ant. view
(Metastatic Disease)
Study Time — 224 sec.
Isotope — 4mCi ^{99m}Tc Sulfur Colloid
Total Counts — 2,676,795



Abnormal Brain Scan — right lat. view
(CVA)
Study Time — 80 sec.
Isotope — 12mCi ^{99m}Tc
Total Counts — 806,899

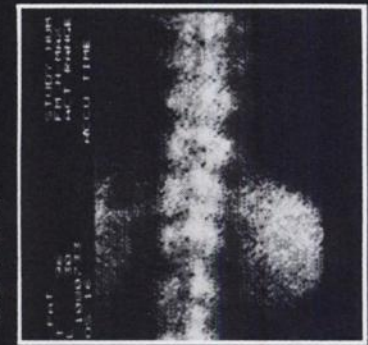


Abnormal Liver Scan — ant. view
Study Time — 320 sec.
Isotope — 2mCi ^{99m}Tc
Total Counts — 445,502

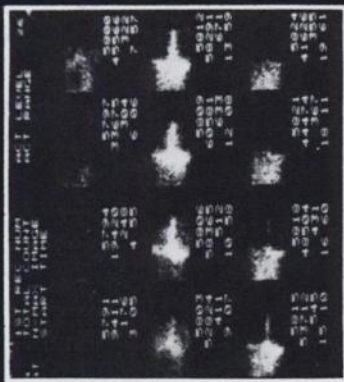


Brain-Bone Scan — left lat. view
(abnormal foci in the convexity and orbit)
Study Time — 240 sec.
Isotope — 6mCiTc Polyphosphate
Total Counts — 222,926

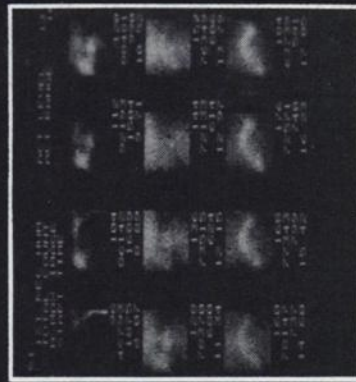
Normal Thoracic and Lumbar Spine Scan
— post. view
Study Time — 480 sec.
Isotope — 6mCiTc Polyphosphate
Total Counts — 1,000,733



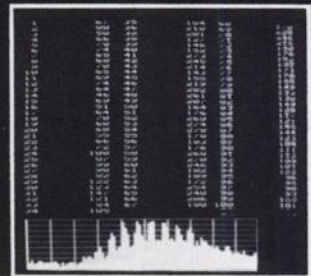
Dynamics



Abnormal Cerebral Blood Flow —
post. view
(decreased perfusion left cervical area)
Accumulation Interval — 0.5 sec.
Display Interval — 2 sec.
Peak Counts per sec. — 17,283
Isotope — 15mCi $^{99m}\text{TcO}_4^-$

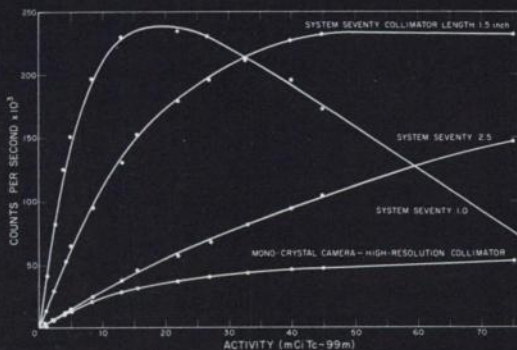


Normal Cardiac Blood Flow — ant. view
Accumulation Interval — 0.1 sec.
Display Interval — 1.0 sec.
Peak Counts per sec. — 78,147
Isotope — 15mCi $^{99m}\text{TcO}_4^-$



Normal Left Ventricular Quantitative
Histogram
Each double vertical line represents a
1.0 sec. time interval.
The entire histogram is 10.0 sec. long
and consists of 100, 0.1 sec. count
accumulations. This area-of-interest
histogram took less than 1.0 min. to
produce from end-of-study.
Note — definition of sinus rhythm of left
heart.

Performance



These curves provide a useful calibration of System Seventy. The observed count rate for 15 mCi of ^{99m}Tc for the 1.0, 1.5, and 2.5-inch thick collimators is 230,000, 150,000, and 45,000 cps respectively.

The count-rate curve obtained from a mono-crystal camera using the high-resolution collimator shows an efficiency about equal to that of the 2.5-inch thick collimator

at low count rates and exhibited a saturation rate of about 40,000 cps. The same saturation rate has also been observed with the other collimators available for this type of system.

The efficiencies of the parallel-hole collimators are such that the saturation rate of 230,000 cps is observed with 15, 45, and 180 mCi of ^{99m}Tc with the 1.0, 1.5, and 2.5-inch thick collimators respectively.

System Seventy

Or...

(how the unique combination of a programmed computer and a matrix detector allow you to practice the NOW and FUTURE art of nuclear medicine consistently, simply and reproducibly.)

Diagnostic Superiority

That's what you're really looking for. We routinely obtain 3-4mm. static resolution scans — regardless of energy. Dynamic studies can now be accomplished at high frame rates with count/unit time accumulations (at low dose rates) that are not achievable on any other gamma camera, and the results can be displayed or printed-out in histogram or numerical form within seconds of the end-of-study. That's diagnostic superiority!

Operation Simplicity

Our unique "back-lit" front panel reduces each operation to a logical-computer assisted-series of steps. Select the mode; i.e. Static/Dynamic, and only those buttons or controls necessary to complete the study will be illuminated. That's operation simplicity!

New Standard!

The New Standard in diagnostic nuclear medicine. The only words that can describe a camera that is easy to use, delivers the greatest patient throughput, and provides the most technically superior diagnostic data while doing it.

No ONE of these terms really describes SYSTEM SEVENTY.

SYSTEM SEVENTY offers the highest spatial resolution, and that's why our static images are the best. This means that you can choose to increase patient throughput by selecting the best clinical measurement which optimizes spatial resolution and efficiency.

The system's high count rate capability (>200,000 cps) enhances the time resolution of dynamic studies which is a

scientific necessity to achieve diagnostically meaningful evaluations of physiological time parameters. Stop thinking about the eventual possibility of more meaningful dynamic procedures and do them *now*, with SYSTEM SEVENTY.

And, the operational functions we've wired into the system and the software support we provide leave very little for you or your technician/operators to learn in putting SYSTEM SEVENTY to

work and realizing the technically superior results.

So, looking back on them, certainly ALL of those terms apply, though no one of them really does SYSTEM SEVENTY justice.



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We have two new names to serve you.

Nuclear-Chicago proudly announces its new signs of growth: **Searle Analytic** and **Searle Radiographics**.

For seven years we have had two separate sales organizations; now we have two separate companies.

Together, they share the work and responsibilities of the former Nuclear-Chicago. They continue our world-wide reputation as the foremost name in nuclear medicine. And they bring the future of medical technology even closer. As our new names suggest, Searle Analytic and Searle Radiographics concentrate all our expertise on two major fields.

We've given both fields many outstanding products to work with. Like our analytic line of Isocap™ and Mark II® Liquid Scintillation Systems, Automatic Gamma Counting Systems, and complete Radioassay Data Systems (now under Searle Analytic) for the researcher and clinician. And our Pho/Gamma®,

Pho/Dot®, and Clincom™ Data System (now under Searle Radiographics) for the physician performing gamma imaging. They're today's bench mark systems for tomorrow's specialized needs. And they're the solid groundwork for our companies' growth to meet your new demands.

And just as at Nuclear-Chicago, every serviceman appreciates the importance of your work—and realizes how vital it makes his. Our total service organization will continue to dedicate their combined expertise and knowledge to both Searle Analytic and Searle Radiographics customers.

So watch us grow. We've been productive in your field for 27 years. Now that we've made two names for ourselves, we'll serve you better than ever.