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### Important questions to consider before you computerize your scintillation camera.

1. Which is the only company that actually makes its own scintillation cameras and medical computers? (Nuclear Data)
2. Who is the most experienced producer of computerized image storage and processing systems in the world? (Nuclear Data)
3. Which company has the most such systems in routine clinical use? (Nuclear Data)
4. What one computerized image storage and processing system has done away with the typewriter keyboard and is operated totally by simple pushbuttons? (Med Stor)
5. Which company has the most experience in interfacing computers with cameras? (Nuclear Data)
6. Which modestly-priced image storage and processing system is a real computer and not just a hard-wired multichannel analyzer? (Med Stor)
7. Which company can be described in these words: "...The most sophisticated developer of software in this field and who has been doing it for a longer time than anyone else and who has more clinical software than anyone else in this field..."? (Nuclear Data)
8. Which computerized image storage and processing system can actually be mastered in about two hours? (Med Stor)
9. Which computerized image storage and processing system can be readily and most inexpensively upgraded to Nuclear Data's advanced MED II? (Med Stor)
10. Who has an active user's group that exchanges and develops clinical software? (Nuclear Data)
11. Which computerized image storage and processing system has been successfully interfaced with every major scintillation camera? (Med Stor)
12. Which computerized image storage and processing system is accompanied by a Nuclear medical computer application specialist? (Med Stor)

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Nuclear Medicine Clinician: How does Mednet work?
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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 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
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.

To learn more about the new RSI-36 Rapid
Sequence Imager, or to arrange a demonstration,
please write or call:

POTOMAC NUCLEAR ELECTRONICS
Incorporated
2600 Commonwealth Avenue
Alexandria, Virginia 22305
Phone: (703) 836-0996
In New Jersey: (609) 443-4144
IC-1 INTENSITY COMPUTER

Assures the Right Exposure 
"Every Time" on your 
Gamma Camera— 
Regardless of Electronic Drift

The new Model IC-1 Intensity Computer removes 
the guesswork from exposing your 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 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:

POTOMAC NUCLEAR ELECTRONICS 
Incorporated

2600 Commonwealth Avenue 
Alexandria, Virginia 22305 
Phone: (703) 836-0996 
In New Jersey: (609) 443-4144
Typical X-Ray Formats using the RSI-36 Rapid Sequence Imager

Life Size (1:1)

Four-Mode (2:1 minification)

16-Picture Rapid Flow (4:1 minification)

36-Picture Rapid Flow (6:1 minification)

Now . . . you can UPGRADE YOUR CRT RESOLUTION FREE!

Potomac Nuclear Electronics Incorporated has developed a technique whereby the CRT resolution of virtually any Gamma Camera can be significantly enhanced. Essentially, our technique both reduces and clarifies the individual dots without damage or modification to the actual matrix itself. This results in a much sharper and better defined image—both easier to view and to interpret. Now, as a service to our customers, we are offering to perform this modification to your Gamma Camera—AT NO CHARGE—if you purchase either our RSI-36 Rapid Sequence Imager or IC-1 Intensity Computer before September 15, 1973.

For complete information on our systems, or to arrange a demonstration at your facility, please write or call:

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Incorporated
2600 Commonwealth Avenue
Alexandria, Virginia 22305
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In New Jersey (609) 443-4144

All you do is feed exposed film into the RADX M-3 Roll-A-Matic. In just 42 seconds, the first frame is ready for viewing. Develops all sizes of roll film up to 5". From 4 frames to a full roll, with provision for feeding to a take-up spool.

The Roll-A-Matic goes where you need it, too. No darkroom. No external plumbing. Fully self-contained. Just put it on any convenient table or counter and plug it in. Also adaptable to chemical replenishment where usage volume is high.

The RADX Roll-A-Matic has everything going. RADX quality and dependability. Fastest cycle time of any processor. And a price that will surprise you—under $3700!

Call RADX for details.
THIS REALLY DOESN'T LOOK LIKE AN OSCILLOSCOPE CAMERA!

THIS IS THE OTHER HALF OF THE 750 MULTI-FORMAT SYSTEM. THE 750-02 X-RAY FILM CAMERA.

It's the 750-01 Electronic Programmer, one-half of the radically new 750 Multi-Format Camera System. The half that makes our system the only oscilloscope camera appropriate for all your needs. Our Programmer electronically minifies the image displayed on the CRT. It manipulates the image in size, location, duration and number. Select 1 through 16 frames per film, manually or electronically advanced on the CRT. The size can range from full display, (full use of the CRT diameter), to 1/16th. Because our system moves the image on the CRT and not the film, there are no moving parts. Hence, the 750 is highly reliable and easy to operate.

Dunn Instruments
1280 Columbus
San Francisco, Ca. 94133
(415) 776-7033

It optically enlarges the image onto 11” x 14” X-ray film. By combining the Programmer and the X-ray Camera, the 750 allows you multiple choice: the choice of image size and the choice of X-ray film. X-ray film has a proven acceptance for organ imaging. It's available in a wide range of contrasts and grey scale latitudes. The large film is easy to view, especially by large groups, and is inexpensive and easy to store. If you already have an X-ray film camera, such as the Nuclear Chicago Photoscope, all you need now is the Electronic Programmer. The two part 750 System will cost you less than $3,000. And it will pay for itself in six months in film cost savings. Write or call collect for “Economic Justification” and complete details.
HERE IS WHAT THE 750 MULTI-FORMAT CAMERA SYSTEM WILL GIVE YOU.

Static Brain Views—
750-01 Program: 4 manual, Dynacamera 2C, Digital Mode, with profiles.

Cerebral Flow—
750-01 Program: 16 auto.—2 secs. per view. Pho/Gamma H.P.

Liver, Anterior View
750-01 Program: Camera ("full size")—Pho/Gamma H.P.
Because it's just good business to keep the costs of xenon-133 studies to a minimum. And that's where the DX-133 Disposable administration and collection system comes in. This inexpensive device is used to administer the Xenon-133 and to collect the expired gas. Made entirely of plastic, the DX-133 is used for 1 patient only, and then discarded. No need to sterilize. The price is only $9.95, with quantity discounts available.
RADIOIMMUNOASSAY...IS FOR EVERYBODY

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 ensure 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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1948 East Forty-Sixth Street, Los Angeles, California 90058 Telephone (213) 232-3531
Three Westchester Plaza, Elmsford, New York 10523 Telephone (914) 592-4060
Fibrinogen is the simplest of all current diagnostic methods; unlike phlebography, which requires complex, expensive equipment and movement of the patient, the fibrinogen technique is economically and practically viable in any hospital, from the large metropolitan establishment to the small cottage unit.

Fibrinogen is not only simple both to apply and interpret - it can be readily used to screen large numbers of patients at risk, and involves minimum discomfort for patients during their immediate, and often difficult, post-operative period. The need for rapid, reliable diagnosis is crucial if the sequelae of deep vein thrombosis are to be avoided.

"There can now be no doubt about the importance of deep vein thrombosis and its sequelae." And there can now be no doubt about the importance of fibrinogen in the control of this potentially fatal condition.

Iodinated ($^{125}$I) Human Fibrinogen Injection (IM.53P)
for the early detection of post-operative deep vein thrombosis

The Radiochemical Centre Limited, Amersham, England.
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In W. Germany: Amersham Buchler GmbH & Co., KG., Braunschweig.
Not available in the USA or Canada.
Abbott's Total Service Commitment keeps you running smoothly day after day.

Ten or 1000 Radioimmunoassay or other in-vitro tests, we have the manual or automatic counters you can rely on.

TOTAL SERVICE COMMITMENT: If problems occur with our gamma counters, a comprehensive service system goes into action to make your unit operational again—fast! First, we start with a symptom describing service manual allowing you to pinpoint most problems yourself in minutes. A toll free call to our technical advisor confirms or corrects your diagnosis immediately. And our nuclear instrument consultants, radio-pharmaceutical representatives, and field service engineers can help solve training and installation problems for you quickly.

Abbott gamma counters work hard for you because of these unique features.

LKB-WALLAC MODEL 80000
- Sample transfer time is only 10 to 15 seconds...43% faster than most other systems.
- Pneumatic operation makes all sample movement soft, smooth and continuous.
- Binary coded caps—several technologists use system simultaneously. Initiate computer programs.
- Good counting geometry.
- Printed and punched tape data readout.
  Teletype
  Addo-X Tape Printer

LOGIC® SCINTILLATION WELL COUNTER
- Saves time and money.
- Fewer and simpler controls.
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☐ The Logic scintillation well counter.

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Address__________________________________________________________
City________________________State__________Zip_______________________

Mail to: Abbott Laboratories, Radio Pharmaceutical Products Division, Nuclear Instruments Abbott Laboratories Dept. 572 — Building AP-6B North Chicago, Illinois 60064

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North Chicago, Illinois 60064
Health Care Worldwide
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If you're performing or should be performing four or more ventilation studies per week—consult with Cambridge Nuclear.

If you want the simplest and most economical Xenon-133 system available—order from Cambridge Nuclear.

**GENERAL PROPERTIES AND CHARACTERISTICS RADIATION EMITTED**

<table>
<thead>
<tr>
<th>DECAY (β⁻)</th>
<th>GAMMA (γ)</th>
<th>INTERNAL CONVERSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENERGY (Mev) %</td>
<td>ENERGY (Mev) %</td>
<td>%</td>
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<td>0.061</td>
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<table>
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<tr>
<th>T (r/hr/mCi/cm²)</th>
<th>Kβ (gm-rad/µCi)</th>
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<tbody>
<tr>
<td>0.3</td>
<td>0.0041</td>
</tr>
</tbody>
</table>

**GAMMA SPECTRUM**

![Gamma Spectrum Chart]

The Cambridge Nuclear Xenon-133 System can be an enormous help in measuring regional ventilation. And when combined with conventional lung scanning, it aids in the differential diagnosis of pulmonary embolism and obstructive pulmonary disease.

There are many advantages in using this system. Xenon-133 is not used or produced by the body. It diffuses easily through cell membranes and freely exchanges through blood and tissue. And it's physiologically inactive when inhaled in small doses and also is readily excreted by the lungs.

Because the Cambridge Nuclear Xenon-133 System is so simple, it's easily installed and is easy...and safe...to use. The gas, with a half-life of 5.27 days, is available daily from stock, with radioactivity ranging from 100 to 1,000 mCi per cylinder in breathing air.

Contact us today. We'll be pleased to send you further information and work with you in designing and installing this efficient and economical system.

Cambridge Nuclear Radiopharmaceutical Corporation
A subsidiary of N L Industries, Inc.,
575 Middlesex Turnpike, Billerica, Mass. 01821  •  617/935-4050
P.O. Box 528, Princeton, New Jersey 08540  •  609/799-1133
THE CAMBRIDGE NUCLEAR XENON-133 SYSTEM

Xenon-133 gas tank and regulator.

9-liter anesthesia bag containing patient dose at prescribed radioactivity.

3-way Rudolph or Sierra "Y" valve.

Disposable plastic mouthpiece and nose clamp to assure optimum inhalation.

Spent gas vented to outside atmosphere via wall exhaust port.

Typical cost to hospital of equipment required for patient administration system (Exclusive of gas tank and regulator): $110.
PSSSST.

Xenon-133 V.S.S. for Lung Ventilation Imaging

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The complete Xenon Ventilation Study System, including Inhalation Unit, Shielding and Waste Disposal. For information on licensing and clinical use of our products call toll free (800) 227-0483 or in California (800) 772-2446.
Gone is the guesswork when you photoscan with Pho/Dot. Because Pho/Dot incorporates a number of significant advances in electromechanical design and engineering, to bring you the highest order of fidelity and convenience in clinical isotope scanning. To name a few advances...

**Patient Positioning**—The hospital cart or bed can be positioned under or to the side of the scanning platform—permitting scanning in a room only 7 ft. wide!

**Scan Area**—Any area up to 40 cm. maximum—for both dot and photographic recording! (Limits of scan are easily set by means of lockable mechanical stops on centimeter-graduated scales.)

**Maximum Tap Rate**—Tapper is capable of operating at 70 pulses per second, continuously! (Occasional higher repetition rates will not jam the tapper.)

**Quick-Change Collimators**—Collimators are stored in a lazy susan tray below the scanning head—the 4-collimator capacity tray easily swings into position for collimator changing.

**Digital Response**—Both the photorecording and dot recording systems feature a digital response that: 1) with no suppression, produces a sharp-isotope image on the film—thanks to the digitized photo-producing light source and the precision lens system in the photorecording system,

and that, 2) allows you to operate on a one-dot per one-count basis over a count-rate range of 0-4,000 counts per minute! Thanks to the exclusive Rapi/Dot™ tapper. (With this system you can obtain a tap scan that provides a sharp, continuous-tone reproduction of the isotope pattern!)

Enough to whet your interest? If you'd like to learn more about all the features of this truly unusual instrument that's 'way ahead of its time... more like 2002 A.D. than 1973...

...contact your Searle Radiographics (formerly Nuclear-Chicago) sales engineer or write to us for our free Pho/Dot brochure.

Searle Radiographics Inc.
(Formerly Nuclear-Chicago)
Subsidiary of G. D. Searle & Co.
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**The future-oriented company**
Total system RIA where chemistry comes first... for total answers

Micromedic Systems has successfully adapted the majority of available RIA reagents to instrumentation. Now, in another major step, we offer:

**RIA reagent kits** of exacting standards, developed by a leading university research center. All kits are $^{125}$I-labelled, double antibody, utilizing a standard buffer from assay to assay. Protocols are matched to the system's performance and standards of the instruments below.

**Automated pipetting station**, allied to the RIA rack, assures hands off RIA all through the system... no individual tube handling, no massive micropipetting, no deviations in volume and dilution. Flexible through-put: handles small or large numbers of tubes with equal ease, all with reproducibility of 0.5% C.V. or better.

See us at Booths 107, 109, and 111 at the A.S.C.P.
Incubation and separation. Incubation in air or water is achieved, again without tube-handling: samples remain securely in place in RIA rack. Centrifugation is speeded as well: rack fits popular refrigerated centrifuge heads. Centrifuged samples decanted directly from the rack with exclusive decanting clamp.

Automatic gamma counting system uses standard RIA racks, completes error-free sequence of hands off RIA. The equivalent of three separate counting systems: each of 3 assay lots can be independently programmed, even for isotope selection. This economical time-sharing means multi-user access, permits sharing of capital cost.

Automatic mode may be interrupted for manual counting with no loss of index... greater assurance for your stats.

Data reduction is straightforward: gamma counts are presented in standard Teletype™ form, adaptable through standard ASCII punched tape to any offline computer, such as the lab processor or central institutional processor. Rely on Micromedic Systems’ extensive experience: let us recommend the data reduction process best suited to your individual needs.

This total system RIA family can deliver the greatest RIA precision and reproducibility available. Write us for full details.

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☐ Please send me an RIA rack.
☐ I would like to know more about the RIA total system.

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Address

City State Zip Code

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JNM
At last...

Potassium Perchlorate

...PERCHLORACAP™ Exclusively from Mallinckrodt

(Potassium Perchlorate)

A pre-packaged, dosage form of potassium perchlorate is at last available. It is ready for you now at Mallinckrodt/Nuclear under the brand name Perchloracap. 200-mg capsules can be shipped to you immediately in bottles of 100 capsules.

Why did Mallinckrodt develop Perchloracap —potassium perchlorate—in this convenient form? Because we knew of the need. Contact your Mallinckrodt representative or order Perchloracap needs now by calling Mallinckrodt toll free, 800-325-3688 (Missouri customers call collect 314-291-5574).

Mallinckrodt Chemical Works
St. Louis, Missouri 63147
Resolution. Ohio-Nuclear's Series 100 has an intrinsic resolution of better than \( \frac{1}{16} '' \) (3.2mm) with \(^{99mTc}\). Scintiphoto (above) taken using \( \frac{1}{8} '' \)(3.2mm) thick bar phantom. No collimator. 500,000 counts \(^{99mTc}\).

Speed. Maximum output count rate of 100K counts/sec. Performs standard studies more rapidly. Helps make fast dynamic studies a standard practice.


Economy. Reduced set up time. Reduced study time. Photomultiplier tube gains balanced by your technologist, eliminating need for serviceman.

Want proof? Send for our Series 100 Radioisotope Camera brochure, and our Systems Resolution product bulletin. Visit an installation...we'll arrange it. And talk to us. We have something better. The Superior Radioisotope Camera. From Ohio Nuclear.
More and more leaders in nuclear medicine are using Hewlett Packard’s approach.

There’s no end to what you can do with HP’s system.

This new computerized system offers the most advanced data acquisition and manipulation techniques in nuclear medicine. Whether you're a researcher or clinical user, the studies you can carry out are virtually unlimited.

It lets you see and do things you could never do before in this field. The results are better patient care and more precise research—done faster and for less money.

Despite its sophistication, the system is remarkably easy to understand and operate. It has a simple keyboard that you or your technicians can use to tell the system what you want it to do. After that, everything’s automatic. You don’t have to be a computer programmer to run it.

It does things no other system can.

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.

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1. Data resolution of 128 x 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 further with the built-in general purpose HP computer whole libraries of other languages, (Fortran, Assembly and Algol) are available from HP.

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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. It's 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 send in one of the attached postcards or call your nearest HP Office. Or write the Hewlett-Packard Company, 175 Wyman Street, Waltham, Massachusetts 02154; Europe: 1217 Meyrin-Geneva, Switzerland.

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For more than three years, the Surprenant/Douglas Automated Ventilation Module (AVM-3) has been simplifying radioxenon ventilation studies of all kinds.

The AVM-3 allows you to perform Single Breath (tidal volume or vital capacity), Rebreath and Washout studies—singly or in the combination of your choice—using just one operator. All without patient co-operation. All with consistently reproducible results. (Single breath studies may be made at any lung volume.)

In addition, since the geometric factors for AVM-3 controlled ventilation studies can be made nearly identical to perfusion studies, easy and meaningful regional V/Q comparisons are permitted.

The AVM-3 system is linked directly to your scintillation camera by remote control and automatically initiates all scintiphoto exposures at precise predetermined intervals. As a result, the only functions of the operator are to select the desired study sequence, push the start button and then collect camera data.

The AVM-3 system, with protective lead-shielding, is enclosed in a single case mounted on an overbed table for use on patients in either sitting or supine positions.

Also available is the RGD-700 Radiogas Dispenser. The RGD-700 crushes and stores curie ampules of Xenon-133 in its 35 ml. tank handle and allows you to withdraw single doses as needed. The savings which result from purchasing Xenon-133 in curie ampules as opposed to single doses at a volume of 20 studies per month, for example, are enough to pay for the RGD-700 after the first 10 procedures.

The super versatile AVM-3 and the money-saving RGD-700. Just two of the ways in which we're working to make your job a little easier.

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Better yet, call us collect at (213) 595-1658.

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First Fluorine-18
now Iodine-123
Gallium-67
Indium-111
Potassium-43

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RADIOLOGIST WANTED, CERTIFIED in nuclear medicine, with one year of nuclear medicine fellowship. For further information contact John V. Bearden, M.D., Director of Radiology, The Valley Hospital, Ridgewood, N.J. 07451. Tel. (201) 466-4900.


NUCLEAR MEDICINE TECHNOLOGIST, certified or recently trained, preferably with Bachelor’s degree, is needed to operate Nuclear Medicine Department in $400-bed general hospital in the Midwest. Attractive salary. Send resume, Box 1001, Society of Nuclear Medicine, 305 East 45th Street, New York, N.Y. 10017.

NUCLEAR MEDICINE TECHNICIAN. Position available at this 2000-bed GM&S hospital which is affiliated with Stanford University. Three years of Nuclear Medicine Technician experience plus two years of medical experience is required. U.S. citizenship required. Equal opportunity employer. Salary: $9520 per annum with opportunity for advancement. Please contact Dr. David A. Goodwin, Director, Nuclear Medicine Service, VA Hospital, Palo Alto, CA. 94304.

POSITIONS WANTED

ABNM-CERTIFIED PHYSICIAN, ALSO board certified in Radiology, age 40, 14 years military practice including eight years as department head. Desires full-time position in Nuclear Medicine in Atlantic Coast or SE states. Available June 1974. Box 1002, SNM, 305 East 45th Street, New York, N.Y. 10017.


ABRT NUCLEAR MEDICINE TECHNOLOGIST, Navy-trained. Experienced in imaging studies, wet lab, radioimmunoassay, lab management and teaching. Desires position in Great Lakes area or Midwest. Contact: Jerry W. Burmeister, 536 Hampton Place-OH, Portsmouth, Virginia, 23704.


INTERNIST, CERTIFIED ABNM AND ABIM, presently directing nuclear medicine laboratory at University hospital. Seeks full-time staff position or directorship at community Hospital. Curriculum vitae and references available. Box 1005, Society of Nuclear Medicine, 305 East 45th Street, New York, N.Y. 10017.

SYMPOSIUM FOR NUCLEAR MEDICINE TECHNOLOGISTS

An all-day symposium will be presented by the Technologist Section, Mid-Eastern Chapter, Society of Nuclear Medicine, on Saturday, November 10, 1973 at the Sheraton Inn, Washington-Northeast, New Carrollton, Maryland.

The faculty will lecture on various aspects of in vivo procedures in nuclear medicine.

Registration fee: $12.50 including luncheon.

For registration and program information, contact:

Michael Cianci, B.S.R.T.,
Oscar B. Hunter Memorial Laboratory
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1835 I Street, N.W.
Washington, D.C. 20006

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- Accepts standard disposable syringes in 2½ to 3 cc and 5 to 6 cc sizes.

High-density lead glass

Lead wall

Disposable syringe

Model 56-272 56-273
Capacity 2½ to 3 cc 5 to 6 cc
Weight 3.2 oz. 4.8 oz.
Price $38.00 $59.00

*U.S. Patent 3,596,659

For more details, ask for Bulletin 453-B

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Subsidiary of RADIATION-MEDICAL PRODUCTS CORP.
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Director of Nuclear Medicine required for new diagnostic department.
Furnish curriculum vitae to Dr. B. Martin-Smith, Executive Director, Royal Columbian Hospital, New Westminster, British Columbia, Canada.
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CONTINUING EDUCATION PROGRAM FOR PHYSICIANS IN NUCLEAR MEDICINE

After a very successful first year the Nuclear Medicine Institute is presenting a second four-week comprehensive course for physicians in nuclear medicine. This program is geared to the physician interested in continuing education in nuclear medicine and to those preparing to participate in the various specialty board examinations in nuclear medicine. The subject material covered will include:

- Physics
- Instrumentation
- Radiochemistry
- In vivo & in vitro procedures
- Dynamic and static imaging procedures
- Interpretative sessions

A unique interrupted schedule format has been chosen so that maximum duration away from home will be five days at a time. Classes will be held the weeks of:

- November 5-9, 1973
- December 3-7, 1973
- January 14-18, 1974
- February 18-22, 1974

Sessions will be five days each, Monday thru Friday. Subject materials will be intermixed and cumulative.

For further information and registration forms, contact:

D. Bruce Sodee, M.D., Director
Nuclear Medicine Institute
6760 Mayfield Road
Cleveland, Ohio 44124
CAMBRIDGE NUCLEAR
RADIOPHARMACEUTICAL CORPORATION
5th ANNUAL SYMPOSIUM
IN CLINICAL NUCLEAR MEDICINE.
Saturday, October 20, 1973
Playboy Club Hotel at Great Gorge, McAfee, N.J.

Faculty:
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The CXC-9 computes patient dose correctly the first time and every time that it is used. Consequently, the handling of radioactive material, either in stock bottle or syringe, is kept to a minimum with a corresponding reduction in exposure.

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new gamma camera

The dead time, \( \tau \), is one of the crucial parameters of a camera since it determines the maximum usable count-rate. This implies use of the camera for short frame time dynamic studies using very short half-life radiopharmaceuticals, of which high doses may be administered.

This curve clearly shows that a 12 \( \mu \)sec dead time camera is virtually useless even for countrates from as little as 70 Kcps. The ELSCINT camera with its 1.5 \( \mu \)sec is usable for countrates higher than 500 Kcps.

The gamma camera is a working system of many interacting factors, expressed in the performance figure-of-merit, \( M_E \).

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USE 99mTc ALBUMIN
MICROSPHERES

• Uniform Shape and Size
  Perfectly spherical, the 3M Albumin Microspheres are uniformly sized to 15-30 microns in diameter. This uniformity, coupled with an extremely low tendency to agglomerate, results in truer images of lung perfusion. The result — no hot spots or extra-lung activity.

• Integral, yet Biodegradable
  Each Albumin Microsphere is a single homogeneous sphere of albumin — they won’t disintegrate in the vial or syringe. Yet, microspheres readily clear from the lung. Pulmonary clearance half-times are long enough for multiple view imaging but are still short enough to allow daily imaging, if required. Microscopic analysis of lung tissue in the mouse showed 99 percent of the administered microspheres were gone after 29 hours.¹

• Eliminate Interference from “Free” Technetium
  “Free” isotope need no longer interfere with the scan. The unique filter construction of the Microsphere Label allows the free isotope to be removed, leaving just labeled microspheres for suspension.

• Stable Kit
  Currently the expiration date of each kit is 6 months after the date of manufacture. You can stock the kit and have it available for immediate use. Even a department doing a moderate amount of lung imaging can take advantage of quantity discounts.

• Each Lot FDA Approved
  Thoroughly tested by 3M, each lot is checked by the Bureau of Biologics, FDA, and approved for shipment. This provides a double-check of sterility, lack of pyrogens, and all the important performance parameters of the kit.

INDICATIONS Scintillation imaging of the lungs with 99mTc-Labeled Albumin Microspheres is indicated as an adjunct to other diagnostic procedures whenever information about pulmonary circulation is desired.

CONTRAINDICATIONS The safety of Albumin Microspheres in patients with a known right-to-left cardiac shunt has not been established and its use in such patients is contraindicated.

SIDE EFFECTS Although no anaphylactoid reactions have been reported in patients following the administration of Albumin Microspheres, the possibility should be considered that hypersensitivity reactions may occur rarely in patients who receive additional doses of the Microspheres.

HOW SUPPLIED Each kit contains five labeling units. Each labeling unit contains one day’s supply of Albumin Microspheres (5mg — enough for 5 to 7 patients) plus all the reagents necessary to attach technetium to the microspheres.

¹ Data on file at the 3M Company and the Bureau of Biologics.

For detailed information about Microspheres and the 3M Brand Albumin Microsphere ⁹⁹mTc-Labeling Kit, write: Nuclear Products for Medicine, 3M Company, 3M Center, St. Paul, Minnesota 55101, or phone TOLL FREE (800) 328-1671.
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 video monitor; 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.
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 minimize 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 mini-fications 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 Video-display 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 monenergetic gamma rays (125S) 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.
In cases of vaginal bleeding in early pregnancy it is frequently impossible on clinical grounds alone to distinguish between those patients who will abort and those who will proceed to term. It has been shown that the assay of human placental lactogen (HPL) in maternal serum can often make this distinction. Patients with lower than normal levels usually went on to abort during their first admission, whereas those with normal levels were likely to continue successfully to term. Thus, the HPL assay can indicate those women in whom abortion is inevitable and could be used to reduce substantially the length of hospital stay in this common complication of early pregnancy.**


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(What did all those customers know?)

*Well over 3000 Magna Scanners are in use today. And our best estimate is that there are more Magna Scanners now in active use throughout the world than all the other gamma-imaging devices combined.

Scans and study data courtesy of: S. T. Pinsky, R. E. Myers, R. M. Stankey, and M. Fassihi, Department of Nuclear Medicine, St. Vincent Hospital and Medical Center, Toledo, Ohio.
Presumably, these customers knew a better thing when they saw it. And, with every new Magna Scanner model, this “better thing” gets better and better.

Look at the newest Magna Scanners, for example, with their abundance of “better things.”

**Better Thing #1: Automated scan set-up.**
Computerization simplifies and speeds the entire setting-up procedure. Calibration is virtually instantaneous: the instrument is ready to go in a matter of seconds. (But the computer doesn’t limit flexibility.)

**Better Thing #2: Consistent scans, minimal repeats.**
Since scan parameters are automatically optimized by the computer, overall scan quality and consistency are superior and so interpretation is improved. Hence, the annoyance, time, and cost of retakes is minimized. Productivity goes up.

**Better Thing #3: Training simplified.**
With the task of calibration assigned to the computer, technologist training is simplified and speeded.

**Better Thing #4: Improved color printer.**
Result: the highest quality color scans available at any scanning speed. (And color ranges are set up automatically.)

Note well: all of these better things are shared by both the new Magna Scanners and the new Dual Magna Scanner. And the Dual Magna Scanner also offers: dual isotope and subtraction modes, and matched scans from the lower and upper probes.

So, if you now contemplate the purchase of a scanner, find out what else those 3000 (plus) hospitals already know—and like—about their Magna Scanners.

The easiest way to do this is to speak to a Magna Scanner user or your local Picker representative. They’re both easy to find. (Ask us also about our flexible lease plans.) Or write Picker, 595 Miner Road, Cleveland, Ohio 44143.
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The complete sequence imaging system with built in physiological trigger functions.

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exposure: 0.8 seconds/frame
mode: 16 frame dynamic recorded on sheet
of 11” x 14” X-ray film

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- Up to 36 frames of dynamic flow study recorded on 11” x 14” X-ray film.
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**Static study applications**

A one frame format allows recording of a life size 10” diameter image on 11” x 14” X-ray film. In addition, the dynamic flow study frame formats can be operated manually, advancing the frame after each view is recorded.

In the 4 frame format four static views can be recorded on a single sheet of 11” x 14” X-ray film, each view image having a diameter of 3.5”. In the 16 frame format a sixteen view bone study can be recorded on a single sheet of 11” x 14” X-ray film, each view image in the correct anatomical orientation, with a diameter of 2.0”.

**Physiological trigger accessories**

Unlike a motorized camera, the Multi-Imager System can not only advance frames, but also return to re-expose frames. Physiological trigger accessories are available that allow synchronization of recorded data with the patient’s cardiac or respiratory cycle. The cardiac function system records the systolic image data in one frame and the diastolic image data in a second frame, alternating exposures between the two frames synchronous with the patient’s cardiac cycle. The respiratory function system is useful to minimize respiration motion artifacts in liver and lung studies. Through use of a chest expansion transducer, one frame records the inspiration plateau image data, the second frame records the expiration plateau image data, and the third frame records the image data between the two plateaus. The exposures are cycled through the three frames synchronous with the patient’s respiratory cycle.

With both physiological trigger accessories, all the available image data is recorded, separated into frames corresponding to phases of the cardiac or respiratory cycle.

**Photographic recording options**

An 11” x 14” format X-ray film camera and a 4” x 5” format scope camera are available for use with the Multi-Imager System.

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Simplified Acquisition—Mounted on top of Pho/Gamma's console, the Acquisition Panel easily facilitates camera/Clincom control by the technician. All operating parameters including date, patient identification number, collimator used, framing rates, and patient orientation are pushbutton selected. Furthermore, the acquisition of data begins when the Pho/Gamma's "Start" button is activated.

Image Processing—All processing controls are placed on the Physician's Viewing Console. The Analysis Scope displays either current data being received from Pho/Gamma, or stored images developed from Clincom's wide-ranging diagnostic procedures. The Text Scope continuously logs (in everyday clinical language) all information on the desired study. Both the processed image and the text may be photographed with a synchronized camera for storage in patient records.

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• Stable: drift less than 0.001A per day.
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Resolution. All three modes are built in and operator selected.

128 x 120 (16K) matrix (8 bits deep), or
64 x 60 (4K) matrix fields (12 bits deep), or
32 x 30 (1K) matrix fields (12 bits deep).

Fast Framing. Dynamic studies are recorded as follows:

<table>
<thead>
<tr>
<th>Speed</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 frames/sec</td>
<td>32 x 30 (1K)</td>
</tr>
<tr>
<td>5 frames/sec</td>
<td>64 x 60 (4K)</td>
</tr>
<tr>
<td>1 frame/sec</td>
<td>128 x 120 (16K)</td>
</tr>
</tbody>
</table>

Available options provide:

<table>
<thead>
<tr>
<th>Frames/sec</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>39 frames</td>
<td>32 x 30 (1K)</td>
</tr>
<tr>
<td>13 frames</td>
<td>64 x 60 (4K)</td>
</tr>
<tr>
<td>3 frames</td>
<td>128 x 120 (16K)</td>
</tr>
</tbody>
</table>


Isometric Displays. View isometrics, profile histograms, and isotope uptake at camera console.

Contrast Enhancement/Background Erase

Regions of Interest. Two—rectangular. Operator selects size and position. Counts read out on display, along with area.

Display. Non-flickering interactive display continually refreshed from core memory.

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.

Slices. Two slices along either the X or Y axis can be defined independently, & observed on the isometric view.

Options Available. Black and White video displays, 9” and 14” diagonal, with 64 shades of gray, flicker free; isometric display, 14” and 5” diagonal, sixteen shades of green; Color display, 12” diagonal, 16 or 8 colors, switch selectable; Color and B&W simultaneous display; Field uniformity correction; Statistical Smoothing; Chart Recorder for plot of profiles set by slices, or plot of dynamic study count versus time; Fast Framing Tape; Added Memory; 16 Extended Rectangular Areas; Irregular Areas; Interfaces; B&W or Color Polaroid Capability.

Want More Information? Write for our DataSystem brochure and our Product Bulletin — Series 150 DataSystem Description. Visit an installation ... we'll arrange it. And talk to us. We have something better. The complete DataSystem. From Ohio-Nuclear.
Diagnosis: Diseased organ? Sick Camera?

The difference is critical. The image above shows the result of unbalanced photomultipliers which might necessitate a repeat scan. NEN flood sources provide a clean and efficient method of daily camera check which can easily be performed by a technician. They are solid, flat, light discs, 13.5” in diameter — precision made to provide uniform radiation over the entire surface (± 5% or better). The flood test is made with the camera collimator in place. No liquids to mix, spill, or dispose of.

The NEN flood source (1 mCi ⁵⁷Co) provides a radiation level that floods without saturation. Effective life of this source, two years.

New England Nuclear is the expert in calibration sources for nuclear medicine. Just ask, and we'll send you a comprehensive summary of our flood sources and other products for instrument calibration.

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The anywhere, anytime, something-for-nothing service.

When you buy a Raytheon scanner you get something free. Our Clinical Consultant Program. A unique service that provides on a scheduled basis any owner of a Raytheon nuclear scanner with the services of a highly trained, thoroughly professional clinical consultant. And we pay all the costs.

Raytheon consultants will train your staff, provide the latest information on new scanner applications and techniques, as well as set up and check out new installations.

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Take advantage of us. Your personal consultant can be reached by just calling the local Raytheon sales office or Mike Bono at our Waltham headquarters. Raytheon Company, Medical Electronics, 190 Willow St., Waltham, Mass. 02154. Tel. 617-899-5949.
Abnormal Liver Scan — ant. view (Metastatic Disease)
Study Time — 224 sec.
Isotope — 4mCi 99mTc Sulfur Colloid
Total Counts — 2,676,795

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

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

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

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.

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 99mTcO₄⁻

Normal Cardiac Blood Flow — ant. view
Accumulation Interval — 0.1 sec.
Display Interval — 1.0 sec.
Peak Counts per sec. — 78,147
Isotope — 15mCi 99mTcO₄⁻

Abnormal Liver Scan — ant. view
Study Time — 320 sec.
Isotope — 2mCi 99mTc
Total Counts — 445,502

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.

These curves provide a useful calibration of System Seventy. The observed count rate for 15 mCi of 99mTc 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 99mTc 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.

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**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.
Searle Radiographics. We do more gamma imaging than anyone in the world.

We changed our name from Nuclear-Chicago to Searle Radiographics. We have also strengthened our organization so that we can offer more comprehensive service devoted to the field of diagnostic imaging. Our primary concern, however, remains unchanged. We want you to have the best possible equipment for this very vital procedure, because the patient is our ultimate concern as well as yours.

Saying that we do more gamma imaging than anyone in the world may sound boastful, but it happens to be true. Pho/Gamma is the instrument of choice in well over 70% of the hospitals and laboratories utilizing this type of diagnostic tool... and for very good reason: The importance of the procedure is only surpassed by the quality of the system. And the quality of our system is quite simply unsurpassed. Pho/Gamma and Searle Radiographics means gamma imaging. Need we say more?

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