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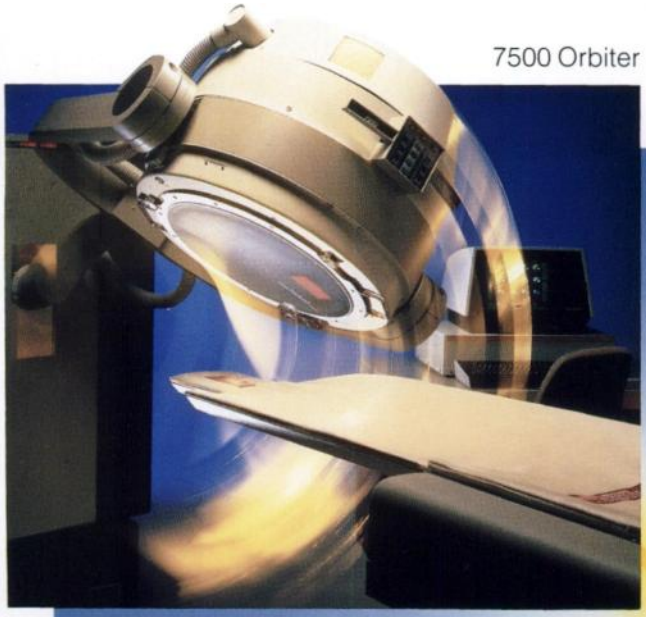

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MaxDELTA 3000® is the latest high-speed, **32-bit** computer from Siemens. Configured with a stand-alone camera, or as an add-on to any existing system, MaxDELTA 3000™ gives you powerful turnkey capability, and flexible expansion with instant connectivity to additional DELTA family computer products, such as MicroDELTA,™ and DELTAmanager.™

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A totally integrated, modular system of outstanding product innovations and comprehensive department management capabilities.

Designed to do the job today...with an eye on tomorrow. The new Capintec CAPTURA System won't become obsolete the moment your department needs change...or expand, whether you purchase them separately, or integrate them as part of our new System. At the core of our System is the host IBM Personal System/2 Computer® with the latest 286 technology, and enough storage and flexibility to meet all of your nuclear medicine department needs.

Start with CRC®-PC System. Everything from dose preparation to data analysis to patient scheduling is computerized in this dedicated system of dose calibration and patient management. Key to the CRC-PC System's outstanding performance capability is your choice of Capintec's most advanced family

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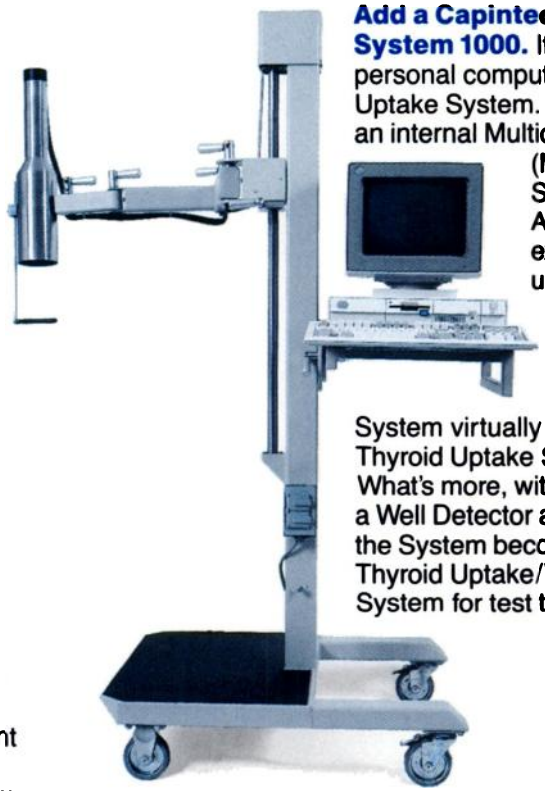

Add a Capintec Thyroid Uptake System 1000. It's the world's first personal computer-based Thyroid Uptake System. The System has an internal Multichannel Analyzer (MCA)* and the Excel Software Package. And together with the exceptionally easy-to-use application software, written under the Microsoft Windows Multiprogram Environment, the System virtually obsoletes all other Thyroid Uptake Systems. What's more, with the addition of a Well Detector and lead shield, the System becomes a combination Thyroid Uptake/Well Counting System for test tube and bulk samples.

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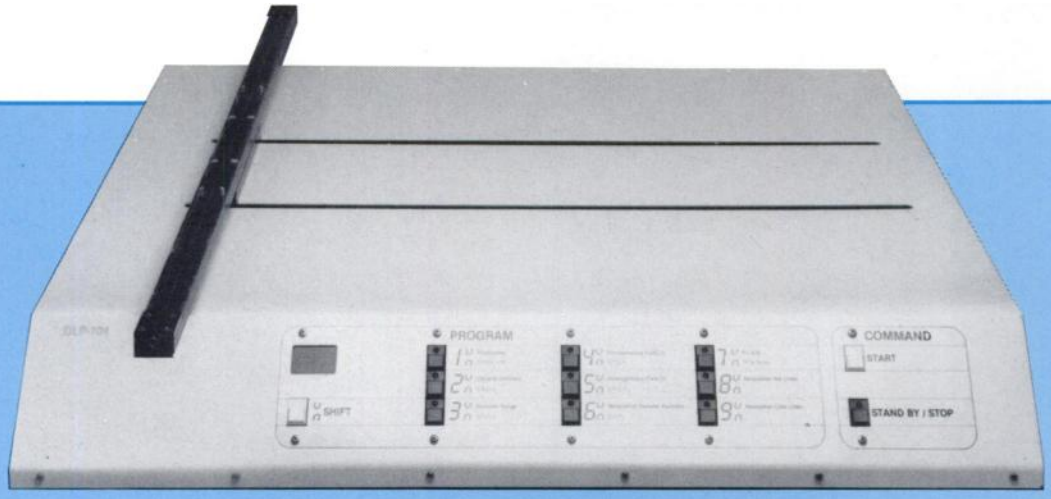
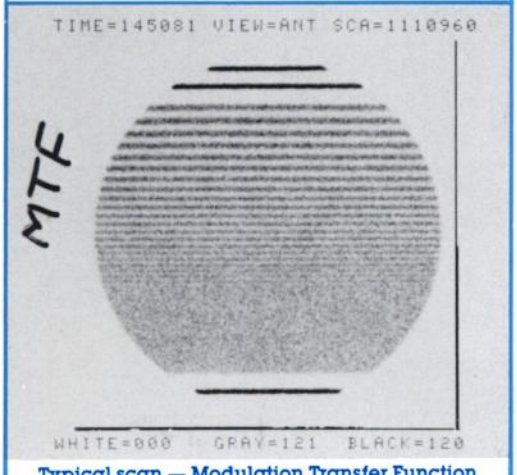
ONE Phantom...SIXTEEN Tests!



COMPUTERIZED DYNAMIC LINE PHANTOM

A Breakthrough in Gamma Camera Quality Assurance!

- **Makes current phantom/flood QA testing of gamma camera systems obsolete!**
- **Eliminates the need for most conventional phantoms!**
- **Greatly reduces exposure to personnel during flood QA testing!**



Typical scan — Modulation Transfer Function

Programmed to Perform Sixteen Quality Assurance Tests, Including...

- **Flood Field**
- **Variable Contrast**
- **Dynamic Range**
- **Modulation Transfer Function**
- **Resolution**
- **Linearity**

The Dynamic Line Phantom is the only instrument that will provide a true and accurate flood uniformity test for gamma cameras...a necessity in SPECT imaging!

This new phantom uses the principle of a thin line source transversing the camera. Using microprocessor technology, it can simulate a number of different phantoms. It can provide direct measurement of the Modulation Transfer Function, can evaluate collimator operation, and check the complete imaging system — camera, interface, processing, display.

Conventional phantoms such as flood, quadrant bar, PLES, orthogonal hole, flood sources, Hine-Duley, BRH test patterns, and more, have been incorporated into the Dynamic Line Phantom which is preprogrammed to perform 16 quality assurance tests.

For more details, request Bulletin 436-35

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ATOMLAB Dose Calibrators *...with unsurpassed repeatability, accuracy, linearity, geometry and an unprecedented 2-year warranty, are the right answer for nuclear medicine!*

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1024 x 256 pixel bone scan photographed from the monitor. Digital precision - analog image quality. Dx: patella fracture.

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proudly introduces the **NucLear MAC**, a high performance computer for acquisition, display, processing, PACS and tele-imaging.

The **NucLear MAC** directly acquires gamma camera images with unsurpassed speed and precision. No intermediate computers are needed. Images are displayed on the high resolution monitors of the Macintosh II series of computers with full support of their friendly user interface. Menu driven, easy to use clinical analysis programs run nearly instantly.

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THE EASIEST TO USE, MOST POWERFUL NUCLEAR MEDICINE COMPUTER EVER

High Performance Gamma Camera Image Acquisition

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- 64 x 64 thru 1024 x 1024 images
- Body scan, gated, time series studies

Ultra-High Resolution Color Image Display

- 640 x 480 or 1024 x 780 monitors
- Gray scale or color
- Multiple monitors per computer
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Powerful Software for Clinical Applications

- Cine display of time series images
- Gated LV ejection fraction
- First pass RV ejection fraction
- Real time list mode processing
- Quantitative thallium analysis
- SPECT reconstruction

PACS - Telecommunications

- Film, laser, slide output of images
- 600 mbyte optical disk storage
- AppleTalk and Ethernet networking
- Rapid telephone image transmission

* Macintosh is a registered trademark of Apple Computer, Inc.

CIRCLE 98 ON READER SERVICE CARD

Covering the range in Nuclear Medicine Diagnosis

Toshiba introduces the New Digital Gammacamera, based on its remarkable history in computer technology and nuclear imaging.

The GCA-901A's functions are highly streamlined, allowing for imaging, data acquisition, processing, storage, and transferring to be simultaneously performed. Image reconstruction and data processing are performed quickly with its high-speed array processor. Data can be simultaneously acquired from a conventional analog gammacamera with an optional interface. Possible configurations include 1024×1024 matrix images displayed on the screen or on film; four 512×512 matrix images shown together with an independent gray scale adjustment and whole body imaging on a 1024×1024 matrix. The $50cm \times 35cm$ detector allows easy whole body scanning in a single pass mode. Macroprograms can be executed to perform automatic acquisition and processing.

Great emphasis has also been placed on safety. Toshiba's Gammacamera GCA-901A brings you diversity, accuracy and reliability in performance.

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International Operations Department
Medical Systems Division
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Telex: J22587 Toshiba Fax: (03) 457-2049

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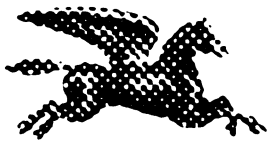

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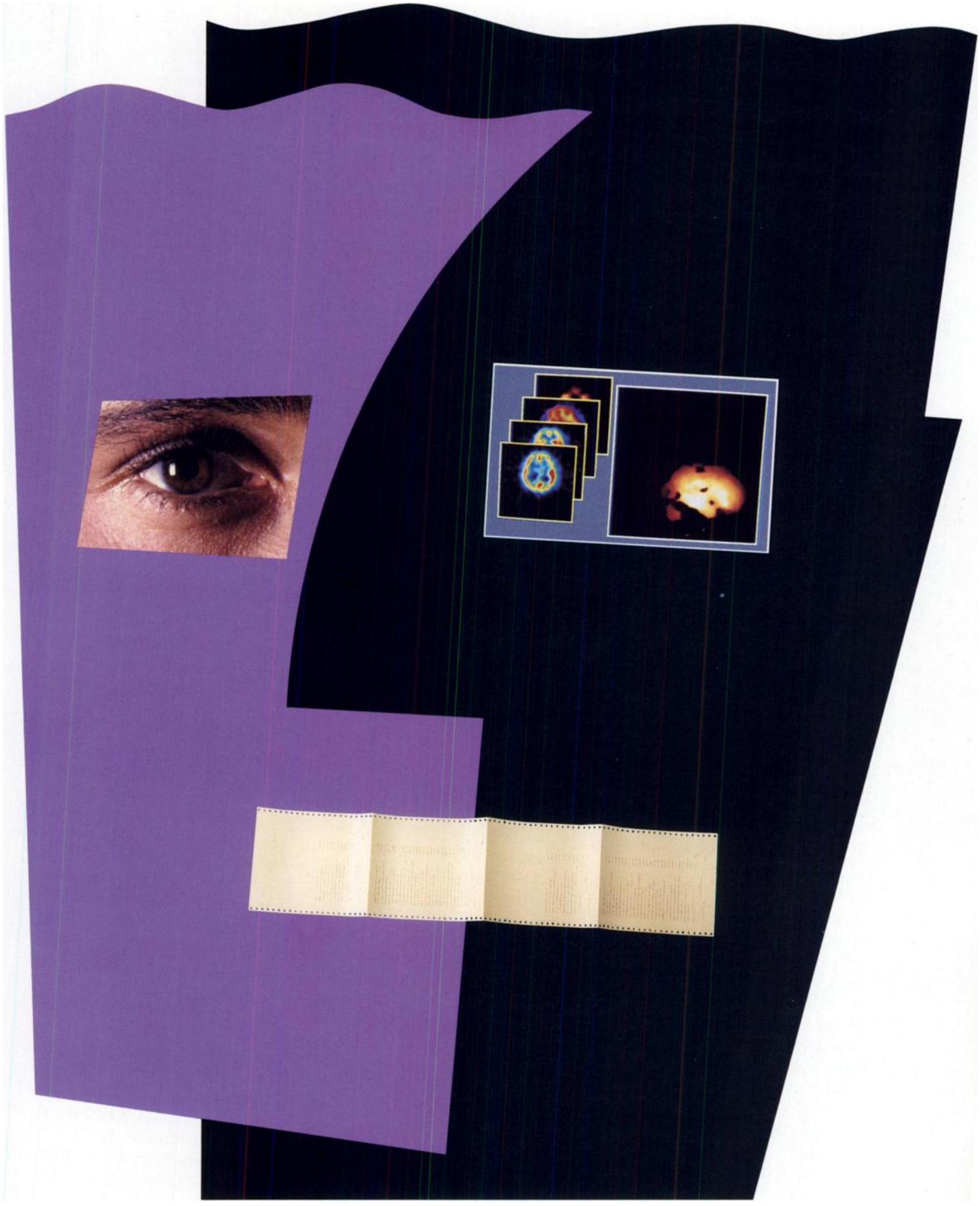
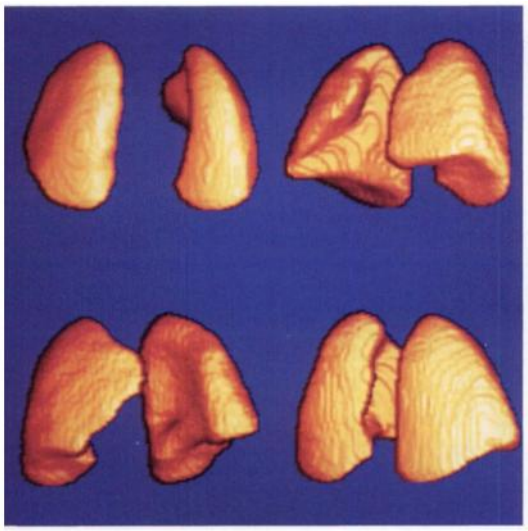


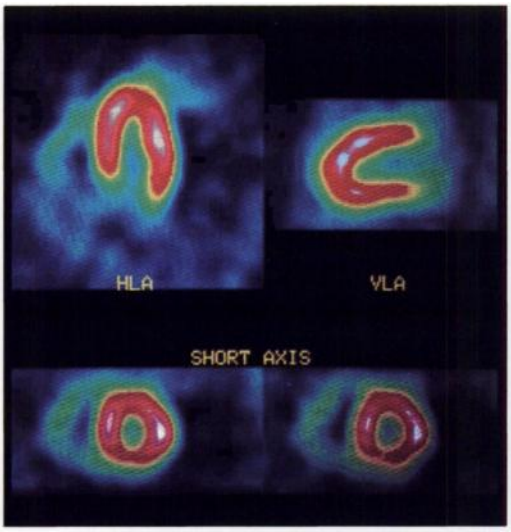
Looking for a fully integrated With 32-bit processing And software clinically



3D Display: Lung perfusion of ^{99m}Tc.

Apex SP*eed*: Less than *5* sec per view.

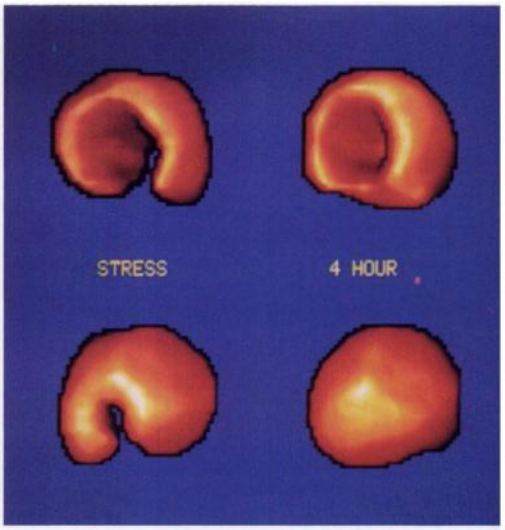
(2 minutes with 16-bit system)



Gated SPECT: Myocardial perfusion using (^{99m}Tc)SESTAMIBI

Apex SP*eed*: 10 min

(2 hours with 16-bit system)

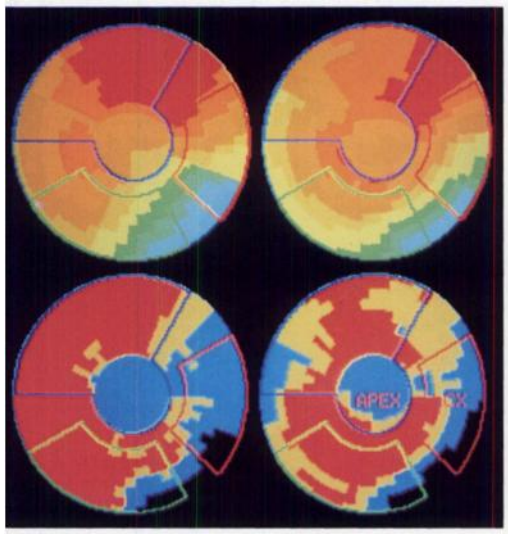


3D Display: Myocardial perfusion of Thallium-201 (^{201}Tl) stress/redistribution.

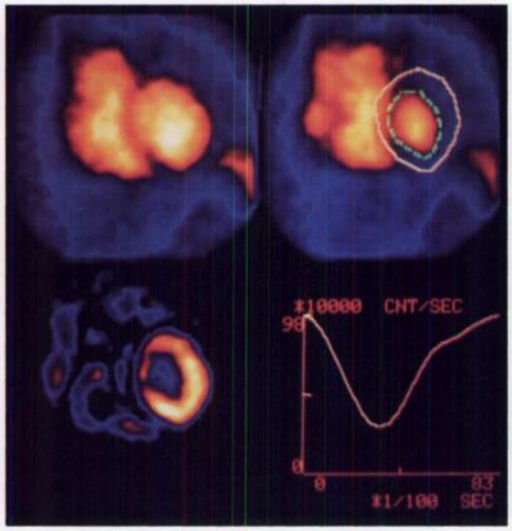
Apex SP*eed*: *5* sec per view.

(2 minutes with 16-bit system)

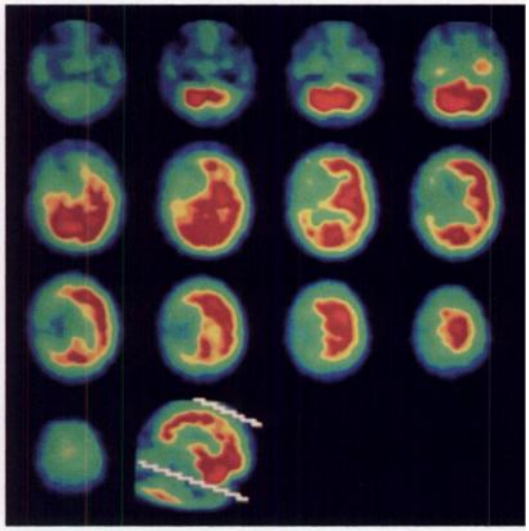
nuclear camera?
speed?
validated over 10 years?



Bullseye: SPECT Thallium-201 (^{201}Tl) stress/redistribution using *Cedars Sinai* Polar Mapping.
Apex SP*eed*: 1 min
(5 minutes with 16-bit system)



Multi-Gated Processing.
Apex SP*eed*: 30 sec
(4 minutes with 16-bit system)



Transverse slices: Brain SPECT using HM-PAO.*
Apex SP*eed*: 0.8 sec
(2.5 seconds with 16-bit system)

Elscint proudly presents the 32-bit Apex SP-4 and SP-6 digital gamma cameras.

Continuity. Compatibility. Connectivity. Elscint design engineers have created the Apex SP Series to be fully operational with existing Apex systems and established software. Standard protocols are still standard—except they can be processed much faster. And procedures that have been considered impractical will now be routine.

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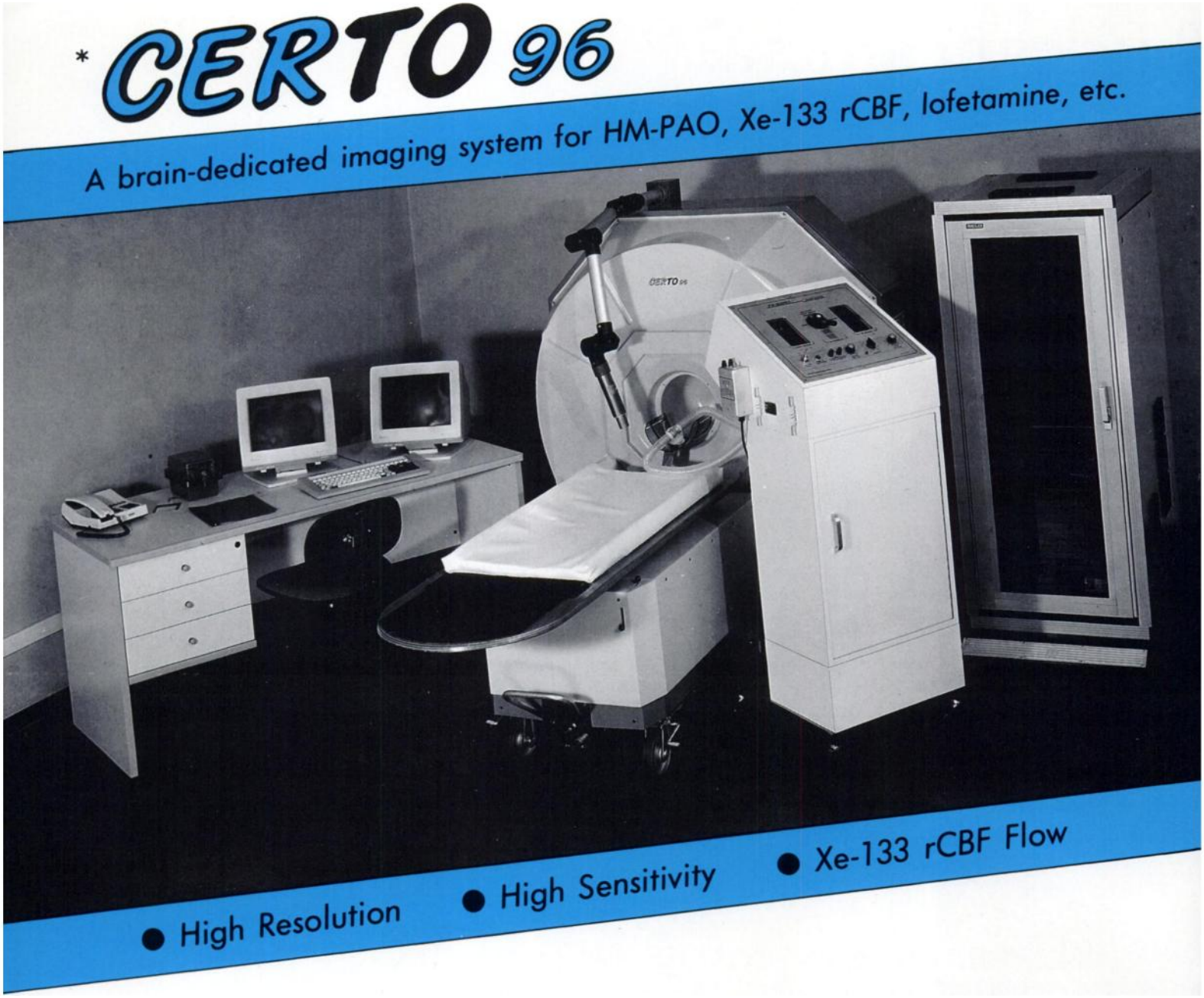
* CERTO 96

A brain-dedicated imaging system for HM-PAO, Xe-133 rCBF, Iofetamine, etc.



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- Geometrical linearity — ± 0.2 mm

System specifications

- Tomographic transverse resolution (SHR collimator) — 6 mm
- Sensitivity (SHS collimator) — 180 kcps/mCi/l
- Collection time for one set of SPECT lateral views — 5 seconds
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VON GAHLEN

European Nuclear Medicine Congress 1990 — Amsterdam the Netherlands May 20-24

EANM European Association of Nuclear Medicine

EUROPEAN NUCLEAR MEDICINE CONGRESS 1990

May 20-24, 1990 Amsterdam

Scientific Programme

Plenary sessions with lectures by invited speakers will give a survey of state-of-the-art Nuclear Medicine in Europe. Free papers and posters are welcomed on basic and clinical science as well as on in vitro applications and radiopharmaceuticals. Abstracts may be submitted until February 1, 1990.

Exhibition

A comprehensive commercial exhibition of nuclear medicine equipment, radiopharmaceuticals and scientific books will be held in a 4000 sq.m. exhibition area adjacent to the Congress area.

Social programme

Amsterdam with its canals and museums is an ideal background for the congress. Several trips are organised for the participants to explore the Dutch landscape which is in full blossom at this time of the year.

Registration and fees

EANM members registering before 1/1/1990	no congress fee
Non-EANM members registering before 1/1/1990	NLG 475.-
Non-EANM members registering after 1/1/1990	NLG 600.-

Information

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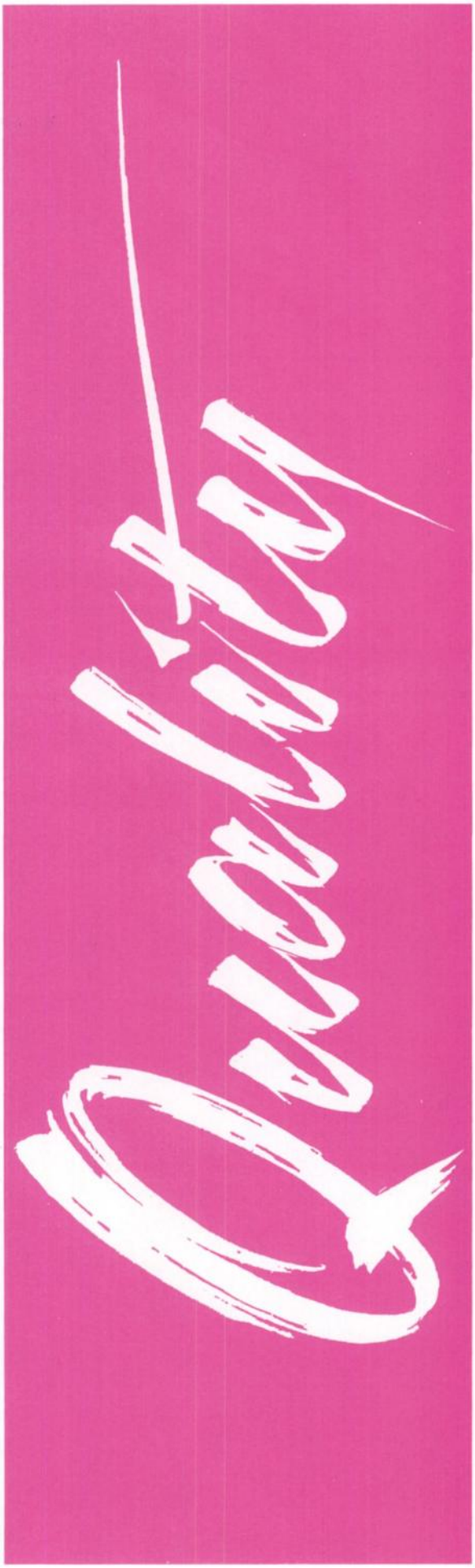

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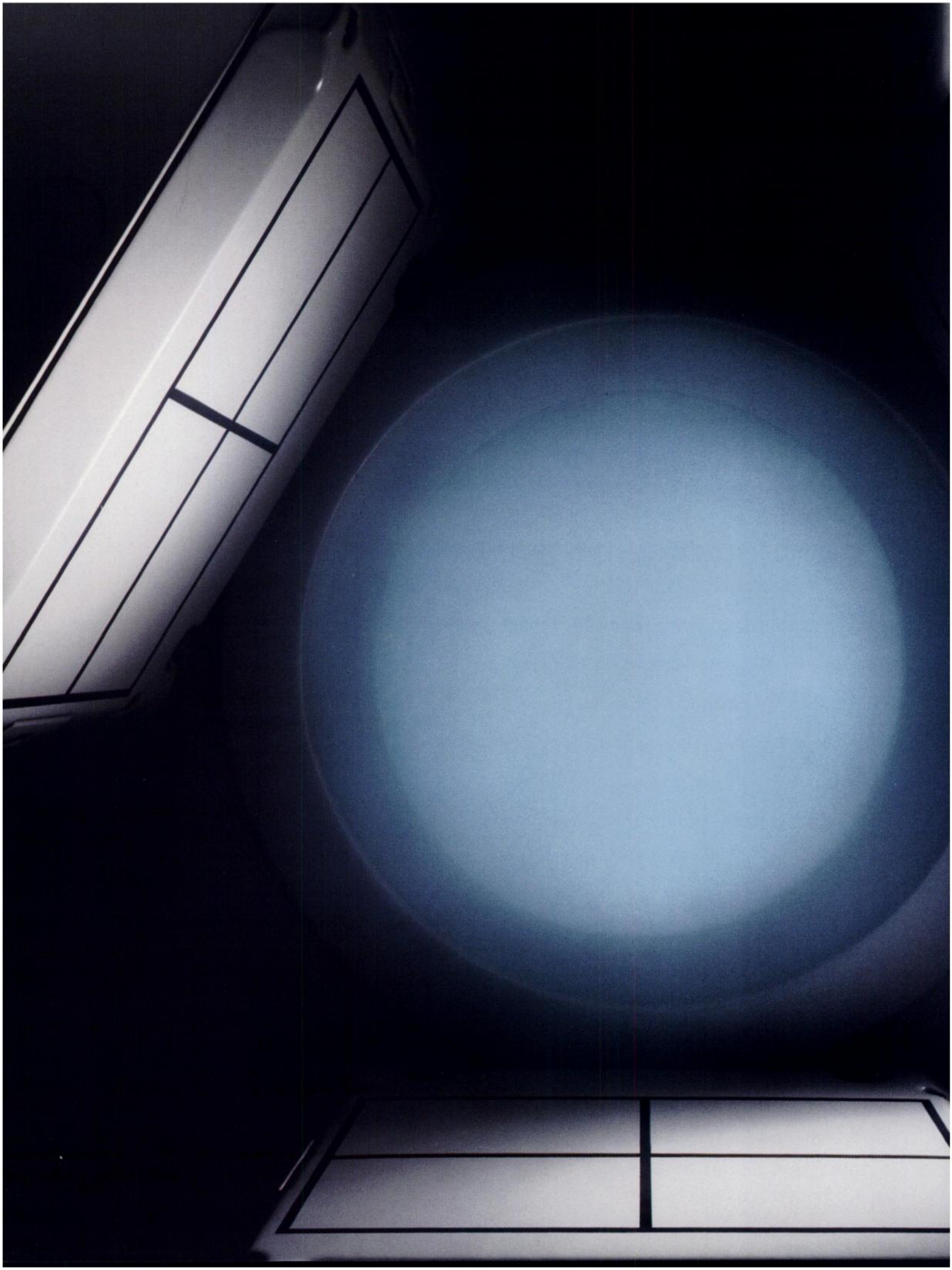

Three heads are definitely better than one.

When today's nuclear imaging needs go beyond a single-head camera, look into Picker's exciting new three-head PRISM™ SPECT System.

It represents the true leading edge in nuclear medicine. Providing increased sensitivity for shorter study times. Better throughput. And enhanced image quality—particularly for brain and heart SPECT studies.

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PRISM is powered by the Stardent visual supercomputer with two 64-bit processors. Now image reconstructions in less than 1/4 second and 3-D renderings are routine achievements. What's more, it only takes one room and one technologist to operate.

The Stardent visual supercomputer provides screen resolution of 1280 X 1024 pixels and is powered by two 64-bit processors.

And should a question ever arise about PRISM, our advanced high speed modem is also a standard feature. It enables immediate communication between you and Picker, making long distance problem evaluations and solutions a reality.

It all proves that Picker has what it takes to meet your needs. Even if it takes three heads to do it. For more information about the PRISM System, including support services, call Picker International, Ohio Imaging, Nuclear Medicine Division at (216) 475-1111.

PICKER

THE IMAGE OF EXCELLENCE

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Call for Abstracts for Works-in-Progress

The Society of Nuclear Medicine 37th Annual Meeting

Tuesday, June 19–
Friday, June 22, 1990

Washington, DC
Washington Convention Center

The 1990 Scientific Program Committee solicits the submission of abstracts from members and nonmembers of The Society of Nuclear Medicine for the 37th Annual Meeting in Washington, DC. Works-in-Progress accepted for the program will be published in a separate on-site show directory that will be distributed to all those who attend the meeting. Original contributions on a variety of topics related to nuclear medicine will be considered, including:

- **INSTRUMENTATION AND DATA ANALYSIS**
- **RADIOASSAY**
- **RADIOPHARMACEUTICAL CHEMISTRY**
- **DOSIMETRY/RADIOBIOLOGY**
- **NUCLEAR MAGNETIC RESONANCE**
- **CLINICAL SCIENCE APPLICATIONS**
  - **Bone/Joint**
  - **Cardiovascular (clinical and basic)**
  - **Endocrine**
  - **Gastroenterology**
  - **Neurology (clinical and basic)**
  - **Oncology (non-antibody)**
  - **Immunology (antibody)**
  - **Pediatrics**
  - **Pulmonary**
  - **Renal/Electrolyte/Hypertension**
  - **Hematology/Infectious Disease**

Authors seeking publication for the full text of their papers are strongly encouraged to submit their work to *JNM* for immediate review.

A complete educational program for technologists will be offered and technologists are encouraged to submit abstracts for their work for consideration.

Deadline for Works-in-Progress is Friday, April 6, 1990

The official abstract form for Works-in-Progress may be obtained from the October 1989 issue of *JNM* or by calling or writing:

The Society of Nuclear Medicine
Att: Abstracts
136 Madison Avenue
New York, NY 10016-6760
Tel: (212)889-0717
FAX: (212)545-0221

The Society of Nuclear Medicine

ANNUAL WINTER MEETING

TITLE
Functional Brain Imaging: Clinical Radiopharmaceutical and Instrumentation Update

DATE
Monday–Tuesday, January 29–30, 1990

LOCATION
Los Angeles Hilton, Los Angeles, California

PROGRAM
Includes a national panel of distinguished speakers presenting topics on Brain Imaging

FEE

	Before 12/20	After 12/20
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Nonmember	$215	$235
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IN A FOG??

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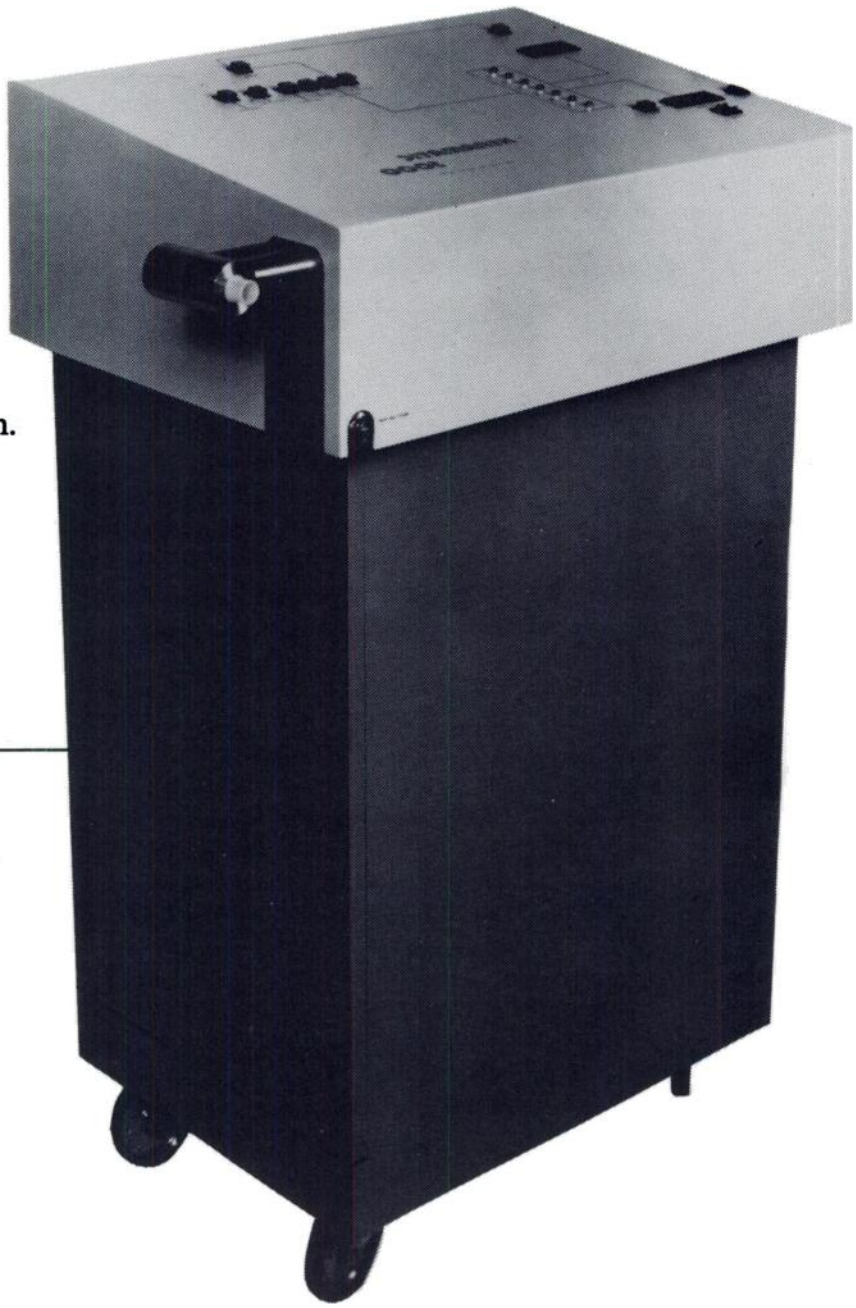

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PRODUCTION CAPACITY SOARS AT MEDI+PHYSICS

MANAGEMENT CREDITS *CYCLONE 30* FROM IBA

Key Medi+Physics Personnel Express High Degree of Satisfaction with New Cyclotron and IBA Performance. Expectations to Date Have Been Met or Surpassed; Outlook Very Bright.

Medi+Physics managers at a recent interview. Left to right: Ed Kowalski, Manager of Cyclotron Development, who brought more than 35 years experience in cyclotron engineering to the selection and acceptance of the IBA Cyclone 30 ; Bill Buela, Manager of Technical Services, in charge of cyclotron operations ; and Bob Morin, Plant Manager, responsible for overall plant operations at the South Plainfield production facility. Their remarks are reported below.

by Loretta MAY

On Tuesday, September 19, in an atmosphere highly charged with optimism and a warm exchange of transatlantic congratulations, Medi + Physics managers officially concluded acceptance testing of a new 30 MeV cyclotron at the company's South Plainfield, New Jersey, facility.

The new cyclotron, a "Cyclone 30" model, was designed, manufactured, and installed by the Belgian company Ion Beam Applications, s.a. This internationally recognized firm, a front-runner in the creation of cyclotrons for use in nuclear medicine, is head-quartered in Louvain-la-Neuve.

"In the medical cyclotron business, it takes a lot to satisfy a customer".

Medi+Physics, Inc., is one of the leaders in the development and marketing of innovative radiopharmaceuticals. The Company has grown steadily over the past 20 years and currently operates five cyclotrons plus a five megawatt nuclear reactor.

Medi+Physics provides diagnostic radioisotopes to hospitals and nuclear pharmacies across the United States. With the addition of the IBA "Cyclone 30", Medi+Physics officials project a quick leap from third into first place among U.S. manufacturers.

Barely two weeks after Medi+Physics made formal acceptance of the "Cyclone 30" cyclotron, Amersham International plc, the healthcare and life science research products group, announced plans to acquire the American company. By adding the advanced production capabilities of Medi+Physics to its existing production base, Amersham will become the largest radiopharmaceutical manufacturer in the world.

WHY DID MEDI+PHYSICS CHOOSE IBA ?

Ed Kowalski:

IBA was really the first company to make a negative ion cyclotron from the ground up.

Their goal was to make an industrial cyclotron with high guaranteed yields, very good performance, low radiation problems for people, and very low maintenance for the machine. And they succeded in doing so

Bob Morin:

IBA's cyclotron is definitely the machine of choice.

HOW DID YOU HEAR ABOUT IBA ?

Ed Kowalski:

We read several papers about IBA and their design innovations, and we decided we should take a look at their prototype. So we went over to Belgium.

We saw the prototype, and we were enormously impressed. Everything that was on paper seemed to be fulfilled by that machine.

We were also impressed by IBA's track record. They designed that machine and produced a prototype in around 13 months. That's an absolutely amazing achievement, particularly for a new design.

HOW DO YOU RATE IBA RELATIVE TO THE COMPETITION ?

Ed Kowalski:

Their machine is far superior to any machine that's ever been produced. It's the equivalent, in my opinion, to at least 3 other standard cyclotrons. And I think it's recognized now by all of the other companies because in a short period of time they sold eight additional machines. That's absolutely unheard of in that industry.

IBA and the Cyclone Series

IBA's involvement in cyclotron R & D reaches back more than 40 years.

The prestigious UCL, IBA's parent organization, installed its first cyclotron in 1947. That machine was replaced in 1968 by a 90 MeV cyclotron with neutrontherapy applications and radioisotope production capability for use in SPECT and PET.

The phenomenal success of the "Cyclone 30" testifies to the strength, experience and dedication of IBA's experts. It also reflects IBA's commitment to meeting the growing needs of nuclear medicine for production cyclotrons that are safe, efficient, and highly automated. Within a year of its introduction, the "Cyclone 30" easily outstripped the competition and achieved worldwide market leadership. Since then, IBA has launched two new systems - - the "Cyclone 10/5" and the "Cyclone 3-D" - - specifically developed for use in PET centers.

WHAT ABOUT IBA IN TERMS OF QUALITY CONTROL ?

Bill Buela:

The installation people from IBA have been very insistent on ensuring a quality product. They're leaving a machine that meets all of their internal design parameters.

They weren't quick and dirty about anything.

Ed Kowalski:

I've been in charge of 3 other cyclotron installations involving 3 other manufacturers. None of the competitors makes a machine that compares with IBA's.

Bob Morin:

The acceptance testing was completed within a very optimistic time frame. IBA managed to meet the schedule and do quite a good job of it.

WERE ALL SAFETY REQUIREMENTS MET ?

Ed Kowalski:

That's one of the main features of this particular machine. Since there is no interception of the beam by any heavy metal internally, the machine is relatively cool.

So you can run enormous amounts of currents and yet it's much cooler than any of the other machines we operate.

HOW ABOUT EASE OF OPERATION ?

Ed Kowalski:

There isn't an elaborate tuning procedure to go through. Most of the equipment is preprogrammed. An untrained person can sit down at the machine and in five minutes bring it up to full energy, separate the beam into two beams, and put them on the targets. All you have to do it set the parameters. The beam comes out very easily. It's like a game. It's fun to play with. It's a very nice system.

WERE THE IBA PERSONNEL COOPERATIVE ?

Ed Kowalski:

In a word, fantastic. When we first saw the machine, there were a number of things we wanted to incorporate into it for our specific requirements. We made the suggestions,they took the suggestions to heart and they tried them out. That kind of cooperation just doesn't happen. It's too expensive.

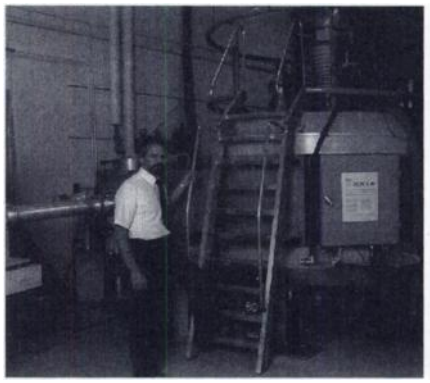
Essentially we were asking for a custom made machine, and they gave us their machine plus the custom input that we asked for.

HOW WOULD YOU RATE THE ACCEPTANCE TESTS ?

Ed Kowalski:

These acceptance tests were the most rigorous, the most difficult, the most demanding tests that I've ever written up. When you write up a set of tests you write them up not to fail the machine, but to test the machine to its full capability. That's why they were written up to be so demanding.

"It's like a game. It's fun to play with. It's a very nice system."



IBA's "Cyclone 30" offers high productivity potential coupled with low power consumption. The machine installed at Medi+Physics will allow the South Plainfield plant to fulfill at least 50% of the company's total production requirements.

Well, it turned out I didn't write them up demanding enough. The machine passed with flying colors. It was beyond my expectations. It was phenomenal. It was a real pleasure to run those tests.

WOULD YOU BUY YOUR NEXT CYCLOTRON FROM IBA ?

Ed Kowalski:

I kind of think they're the only ones we'd buy from because nobody else is going to have a machine like that for a while.

Bob Morin:

At the point where we are now, they're the only game in town for us.

IBA, S.A.
Chemin du Cyclotron, 2
B-1348 Louvain-La-Neuve
BELGIUM
Tel : (32) 10-47.58.58
Fax: (32) 10-47.58.10

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Today's goal is to remain on the cutting edge of product application development and to satisfy our customers' support needs in their clinical operations. We believe that this goal can only be reached by keeping our customer needs uppermost in our minds and fully adhering to our three point corporate philosophy, based on professional, business, and ethical principles, but always with a concern for our ultimate guide, humanity.

Trionix is in the process of establishing a regional customer service support and sales application support organization with a target date of March 1990. Trionix welcomes both fresh and experienced technical individuals in these areas. They must share our corporate philosophy. Naturally, the successful candidates are required to have a long-term commitment to mutual growth. They will receive intensive training in the corporate manufacturing environment in a Cleveland suburb. Candidates should have a minimum of two years experience in handling either scintillation gamma cameras or computer imaging applications.

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Kansas City, MO
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Atlanta, GA
Omaha, NE
Iowa City, IA
Miami, FL
Denver, CO
Phoenix, AZ
Madison, WI

Applicants are invited to send their resumés with salary requirements to:
Mr. David A. Huston, Trionix Research Laboratory, Inc., 1666 Enterprise Parkway, Twinsburg, Ohio 44087. (216) 425-9055

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LIVERPOOL HOSPITAL
AUSTRALIA

NUCLEAR MEDICINE TECHNOLOGIST

Position No: L.703

The Nuclear Medicine Department requires an experienced Nuclear Medicine Technologist.

The Liverpool Hospital is situated in the South Western Region of Sydney, 30 kms from the centre of Sydney. The Department caters for the needs of a 480 bed Hospital and offers a wide range of Nuclear Medicine procedures, including computerized studies, real-time ultrasound and radio-immunoassays.

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Applicants should be accredited or be eligible for accreditation by the Australian and New Zealand Society of Nuclear Medicine. Reciprocity exists with Canadian Association of Medical Radiation Technologists.

Applications in writing giving full details of qualifications and experience together with names and addresses of two referees should be forwarded to:

The Personnel Manager,
The Liverpool Hospital,
Elizabeth Street, Liverpool, N.S.W. 2170 Australia.

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NUCLEAR MEDICINE TECHNOLOGIST

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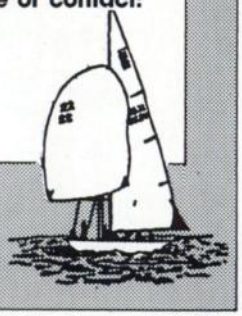

NEWPORT HOSPITAL

NUCLEAR MEDICINE SUPERVISOR

Urban medical center in Philadelphia, PA has an excellent career opportunity for a permanent FULL TIME DAY SHIFT Nuclear Medicine Supervisor. Candidates must be a graduate of an approved Nuclear Medicine Technology Program or Radiologic Technology Program with training in nuclear medicine. Ability to plan, direct and control activity of work areas and employees. Minimum of 2 years of progressively responsible experience in nuclear medicine is required.

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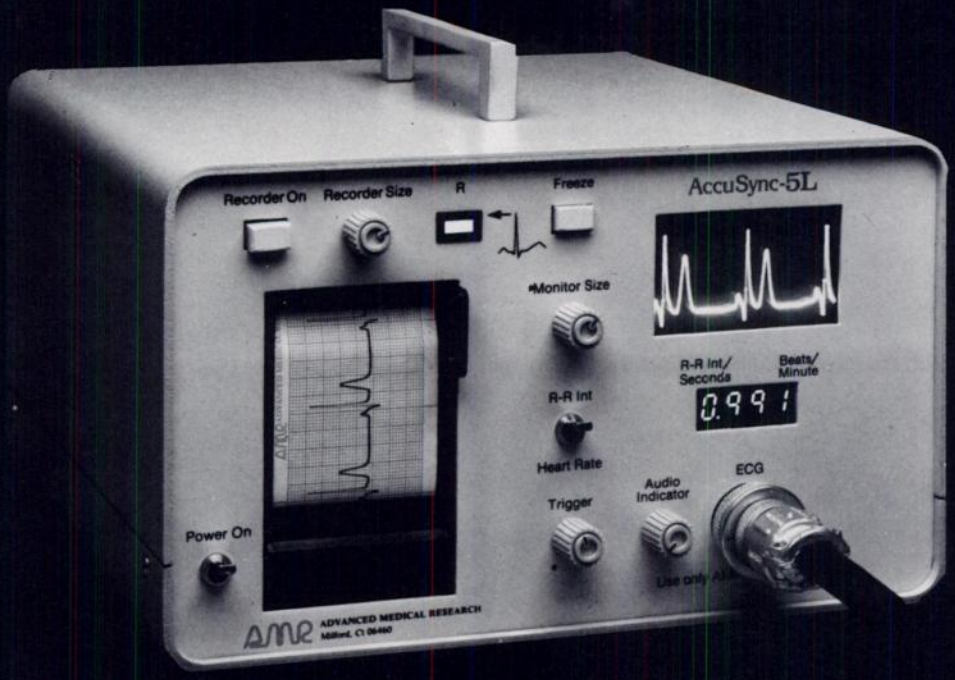

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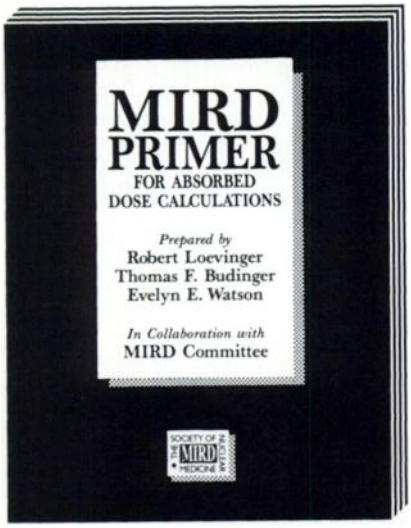

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Prepared by

Robert Loevinger
Thomas F. Budinger
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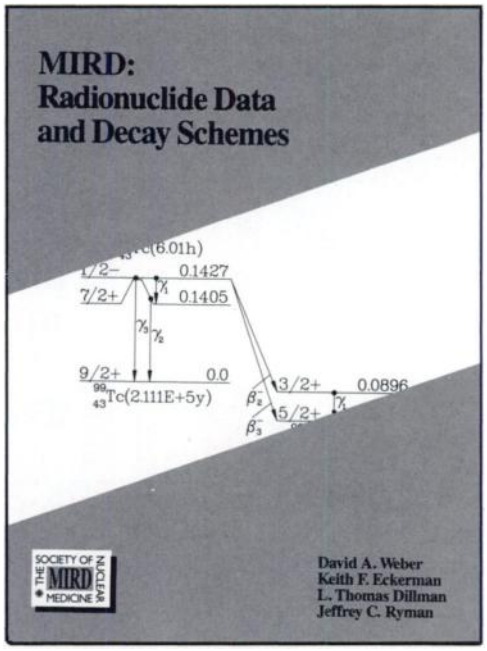

MIRD: Radionuclide Data and Decay Schemes
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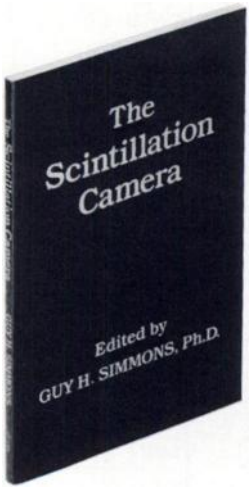

***The Scintillation Camera*, edited by Guy H. Simmons, PhD. 140pp. Paperbound. $30 for members, $35 for non-members.**

Although the scintillation camera, invented by Hal Anger in 1958, has been called the most significant instrumentation event in the history of nuclear medicine, no one publication had been written that explains all its major features. The Instrumentation Council of The Society of Nuclear Medicine has filled that void with *The Scintillation Camera.*

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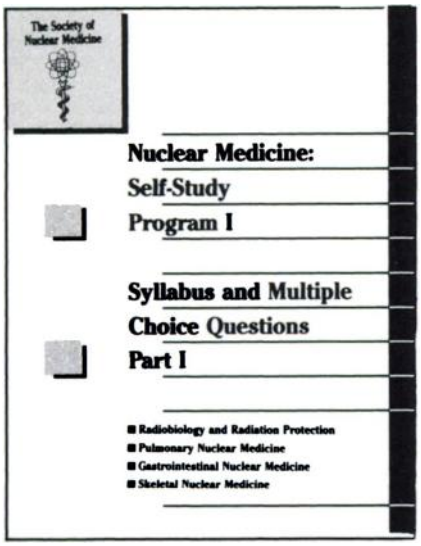

***Syllabus and Questions*– Emphasize essential, clinically related topics, with annotated references to more detailed information on each subject. Questions are formulated to approximate the level of difficulty of those found in specialty exams.**

NUCLEAR MEDICINE: SELF-STUDY PROGRAM I
Edited by Barry A. Siegel, MD, and Peter T. Kirchner, MD

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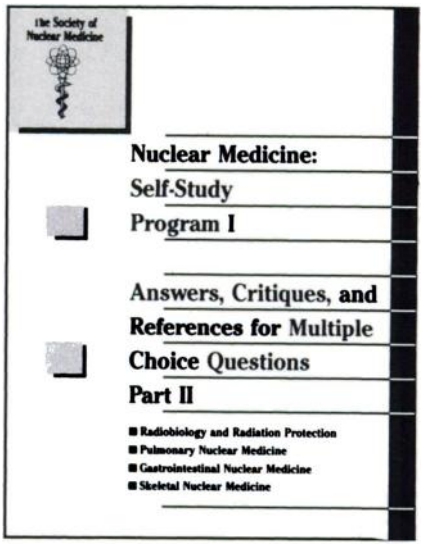

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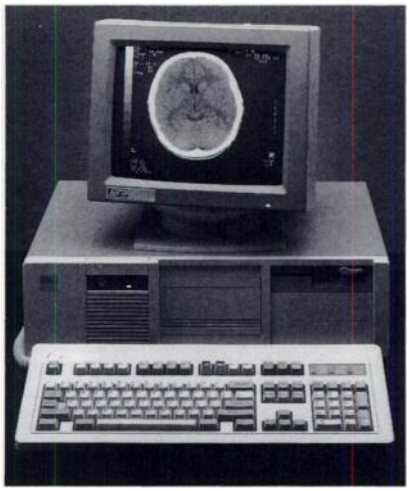
Remote Viewing Station



Advanced Video Products (AVP) introduces the Referral-2 viewing station, a remote viewing station. The Referral-2 allows physicians to quickly and economically review X-rays with their patients, track a patient's progress, or consult with experts viewing the same image from a distant location. Thus, two physicians can access an identical image, even if the physicians are on different continents. The Referral-2 eliminates both the need for duplicate films and the problem of lost films. In addition to increasing reliability, the Referral-2 dramatically reduces delivery time. The viewing station's menus and images are displayed on a non-interlaced monitor with a full 640×480 resolution and 256 shades of gray. The images are sent over a high speed (19.2 kps) modem with an average sending time of 30 seconds. Since the Referral-2 is PC-based, the system can double as a personal computer with the ability to run all IBM software. **Advanced Video Products, 29 Domino Drive, Concord, MA 01742, Attn: John Miller. (508) 371-7130.**

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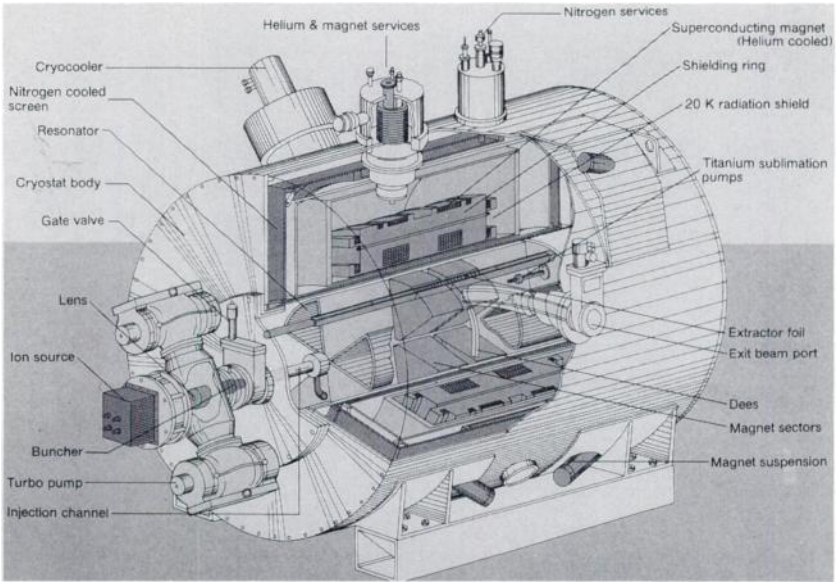
Japan–U.K. Venture Develops Compact Cyclotron with Medical Diagnostic System



A compact superconducting cyclotron, one-fifth the weight and using one-third the power of conventional alternatives has been developed by Oxford Instruments Ltd. of the U.K. The cyclotron's first application will be to make short-lived radioisotopes for use in medical diagnosis. This will be accomplished by using a PET compound supply system recently commercialized by NKK Corporation of Japan. Since a cyclotron requires an electromagnet to provide a very strong magnetic field, it usually weighs about 20 tons and power consumption is about 100 kw. However, this new unit uses a superconducting electromagnet which not only is lighter but also reduces electricity consumption, since once it is energized, it operates in persistent mode. The weight of the cyclotron is only 3.6 metric tons and power consumption for the entire radioisotopic compound supply system, including a target box and a chemical black box, is only 36 kw. Following final beam testing in the U.K., the No. 1 unit will be taken to NKK's Applied Technology Laboratory in Kawasaki to test the performance of its PET supply system. NKK, Japan's second largest steelmaker and a leading engineering firm, began working with Oxford, the leading firm in the superconducting magnetic field, in the summer of 1987. Oxford designed and manufactured the cyclotron; NKK developed other components and associated systems. The entire system is being jointly marketed worldwide by the two companies. **Charles E. Butler & Associates, 40 East 42nd St., New York, NY 10165. (212) 687-2480.**

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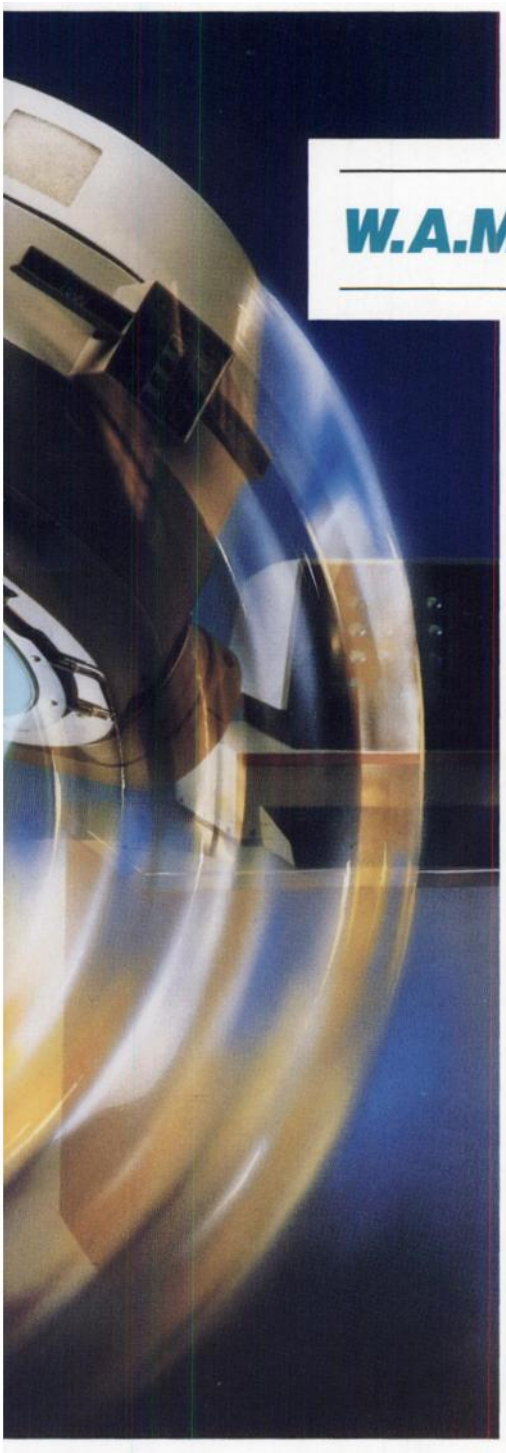

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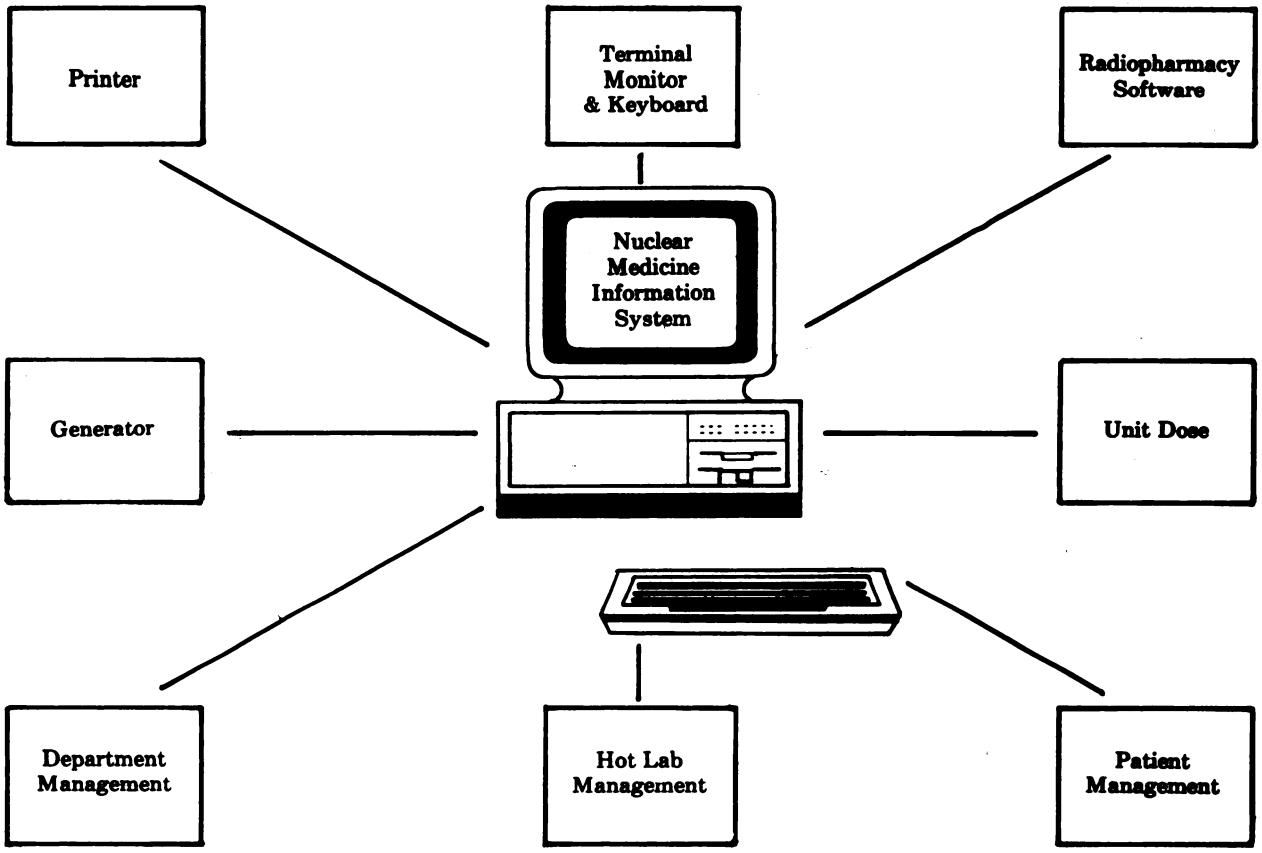

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