

MEDICAL PHYSICS WORLD

Bulletin of the International Organization for Medical Physics

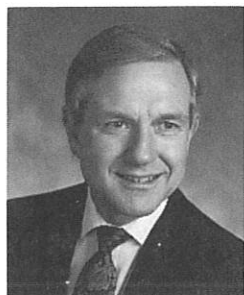
IOMP Home Page address: <http://www.iomp.org>

69 Adhering National Organizations 1999

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Thailand • Trinidad & Tobago • Turkey • Ukraine • United Kingdom • United States of America • Venezuela • Zambia • Zimbabwe

President's Message

Dear Fellow IOMP Members,



Questions I am frequently asked are "What does the IOMP do?" and "Why do we need the IOMP?" These are not easy questions to answer because, quite frankly, the IOMP has always been a low-key organization. Most of what we have done has been behind-the-scenes with little (probably too little) fanfare. Our major problem has been limited access to members: we meet as a group only once every three years at our World Congress, and then with only a small fraction (about 10%) of our members, and we communicate with members via *Medical Physics World* only every six months. Consequently, the majority of IOMP members are unaware of most of our activities.

A second problem is that membership in the IOMP is more "transparent" than it is for other organizations: members are not required to apply for membership and are not asked to pay annual dues. It is your national societies who apply for membership and it is they who pay your annual dues for you each year (about \$2.40 US per member each year). Most members are not even aware of this, it is so "transparent."

This lack of recognition has always been of concern to me, as I know it has been to all IOMP Officers, past and present. Your current Officers, Gary Fullerton, Oskar Chomicki, and I have been working hard to rectify this situation. We now have a very powerful new tool at our disposal: the Internet. This allows us to open a continual dialog with members. We realize that many members are not able to access this resource today, but "tomorrow they surely will. With this in mind we have developed, and are continuing to enhance, our Internet web site www.iomp.org. Secretary-General Gary Fullerton, especially, has made outstanding contributions. Without question, with Gary's leadership, the IOMP web site will soon become *the* major resource for medical physics communication and information transfer, professional development, and education. The future is limitless with such a resource.

Speaking of the future, we are rapidly approaching our next World Congress, WC2000. Apart from scientific exchanges and renewal of friendships, this is where we conduct most of the business of the IOMP. This is where our committees and Governing Council meet. This is where we elect new Officers to lead us into the future and it is vitally important that these Officers represent all of our constituents. The members of the Nominating Committee (Past-President Keith Boddy, Vice-President Oskar Chomicki, Secretary-General Gary Fullerton, Lila Carrizales (Venezuela), Akira Ito (Japan), Wynand Strydom (South Africa) and myself) seek suggestions for candidates to be nominated for the position of *Vice-President* and *Secretary-General*. Although suggestions are welcome from individual members, we would prefer to receive proposals from your national organizations, if possible. Please send suggestions to any of the above Committee members by September 1st, 1999. *We need your input.*

Since I started this Message with some questions, let me conclude by providing some answers. Following are *some* of the activities of the IOMP and its representatives during the past six months:

- sponsorship of workshop/courses in Mexico City, New Delhi and Cluj, Romania
- agreement to sponsor programs in Patras, Greece (with EFOMP) and Guangzhou, China

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Secretary-General's Report

IOMP Membership

There is satisfying growth in IOMP membership in practically all categories. IOMP now has 69 countries on the membership rolls (<http://www.iomp.org>) representing more than 16,000 individual members. While this is good, the number of countries presently in good standing is only about 25% of the total, which raises grave concern about IOMP ability to function effectively. In addition there are a number of countries that have not responded for 1998 and these countries are no longer eligible to vote at IOMP Council Meetings, participate in IOMP sponsored meetings, or receive assistance for their members to participate in IOMP programs. The Secretary-General would greatly appreciate the assistance of National Member officers in resolving this problem. In the Fall of 1999 the Secretary-General will have no alternative but to proceed with purging the list of non-responding National members. Individual IOMP members can determine if their organization is current by going to the 1999 National Members page on the IOMP Home Page to see if dues are paid and determine if they are current to participate in IOMP events. The National dues for 1999 is \$2.40 per individual member times the number of members (defined as the number of **Medical Physics World Bulletin** necessary to fulfill member needs independent of local category designations). The IOMP Headquarters Office is presently working on listings of Corporate and Regional Organization members for the Home Page and these lists should be up by the time you read this report.

Science, Education and Professional Programs

In 1998 the IOMP sponsored Educational Programs in Egypt and India and the first of a new type of Regional Science Program in Mexico. The unofficial reports of these programs indicate that all three were successful but more details will be available soon when the official reports are posted on the IOMP Home Page. The new programming on Science and Professional aspects of medical physics are intended to fully encompass the full range of member activities and needs. At present two Regional Science programs have been approved for 1999. The European Federation of Medical Physics (EFOMP) and the Greek Society have spearheaded the regional meeting in Patras, Greece in September 1999 while Australia, New Zealand, Thailand, Indonesia, Malaysia and Hong Kong are National Member sponsors for the regional meeting in Guangzhou, China in October 1999. Details of both meetings and contact addresses are on the IOMP Home Page. The Developing Countries Committee has been renamed the Professional Relations Committee with an expanded charge to begin to promote regional activities in the development of the medical physics profession. Both National and individual members of IOMP are encouraged to present proposals or suggestions for regional science, education and professional programming to the Secretary-General's office.

Formation of Advisory Councils

The IOMP has formed two Advisory Councils to advise the IOMP Council of Delegates concerning regional IOMP activities and needs. The International Advisory Council consists of representatives of all formally recognized regional medical physics organizations and all affiliate organizations such as IAEA, PAHO, and WHO. The Corporate Advisory Council consists of representatives of all Corporate Members of IOMP. The intent of both councils is to provide needed relevance to the IOMP medical physics programs and activities to more quickly achieve Organizations goals. The intent is to optimize use of IOMP resources to better meet global needs. You will read more about these Councils in the next issues of *MPW*.

International Union for Physical and Engineering Science

The IOMP and the International Federation for Medical and Biological Engineering (IFMBE) joined together almost 20 years ago to form the IUPESM. The IUPESM is presently an Associate Member of the International Council of Science (ICSU). At present your Past-President, Keith Boddy, serves as President of IUPESM and I as Secretary-General of IOMP serve as Secretary-General of IUPESM. The Administrative Council of IUPESM is

(Continued on page 6)

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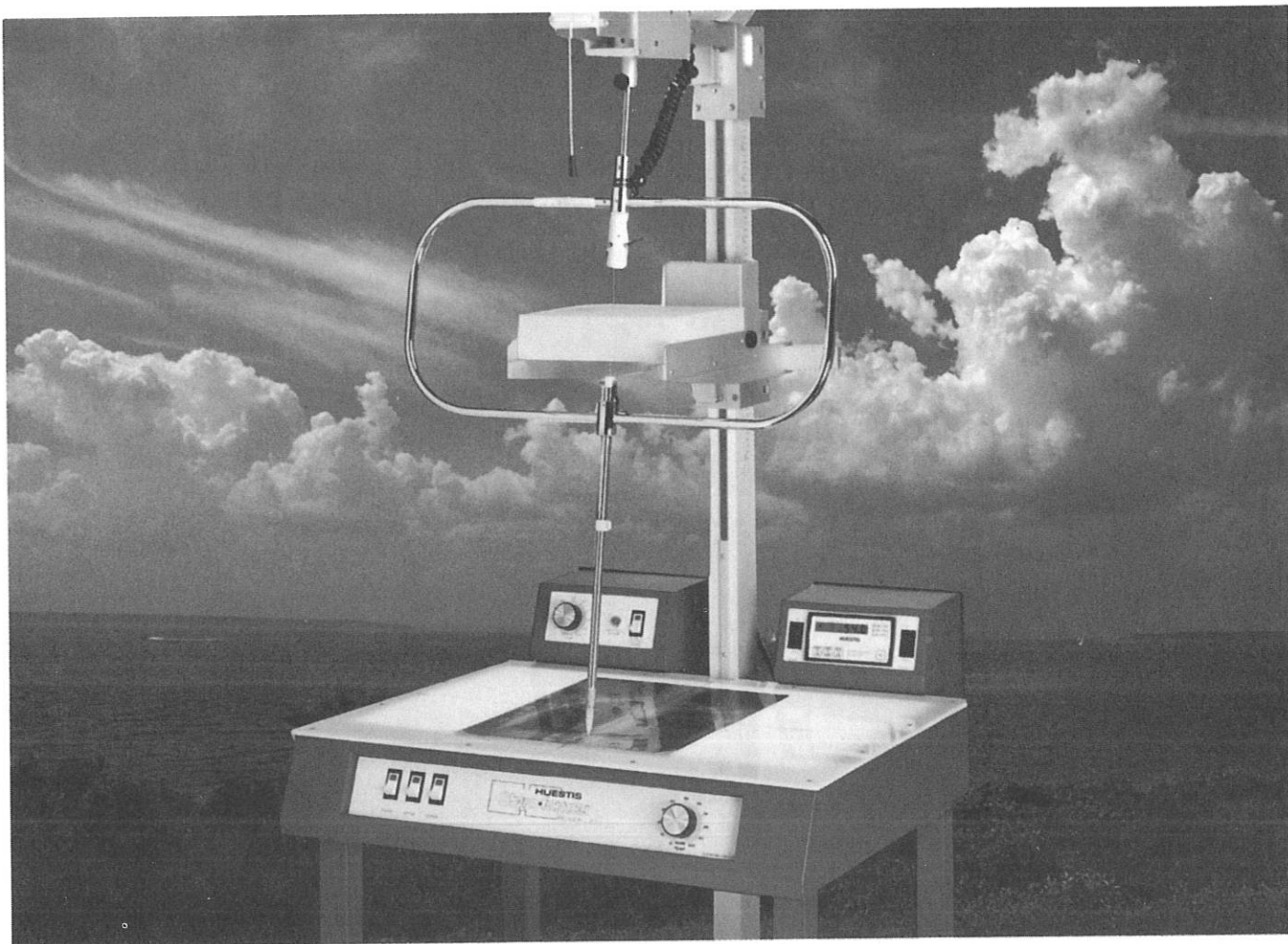
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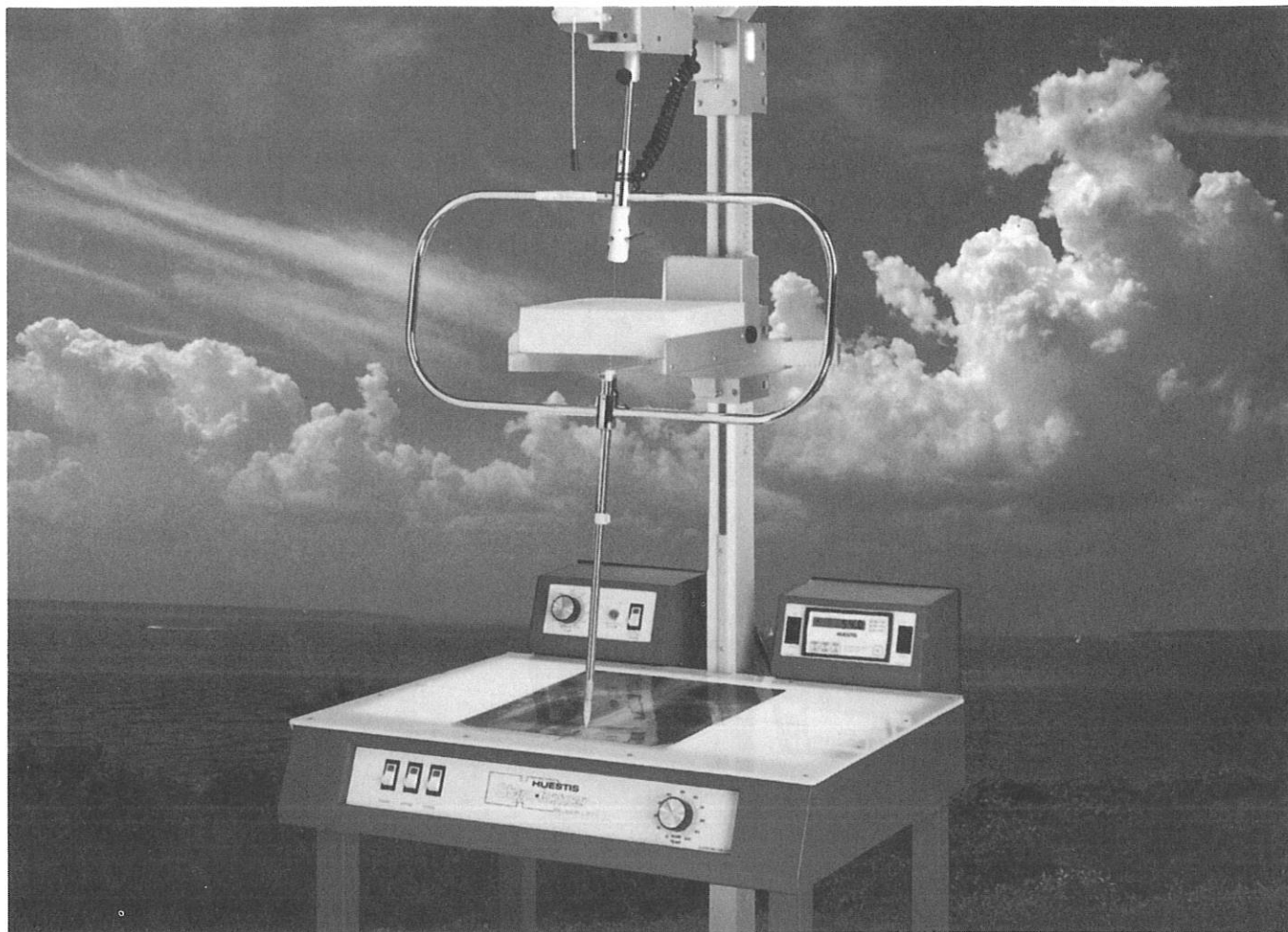
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The Executive Committee presents the IOMP budget for 1999 for consideration by all members. Specific attention is drawn to the monies set aside for regional science, education and professional programs. The IOMP Committees responsible for those areas stand ready to assist National Members and Regional Organizations to prepare programs of significance to all members.

International Organization for Medical Physics Budget 1999

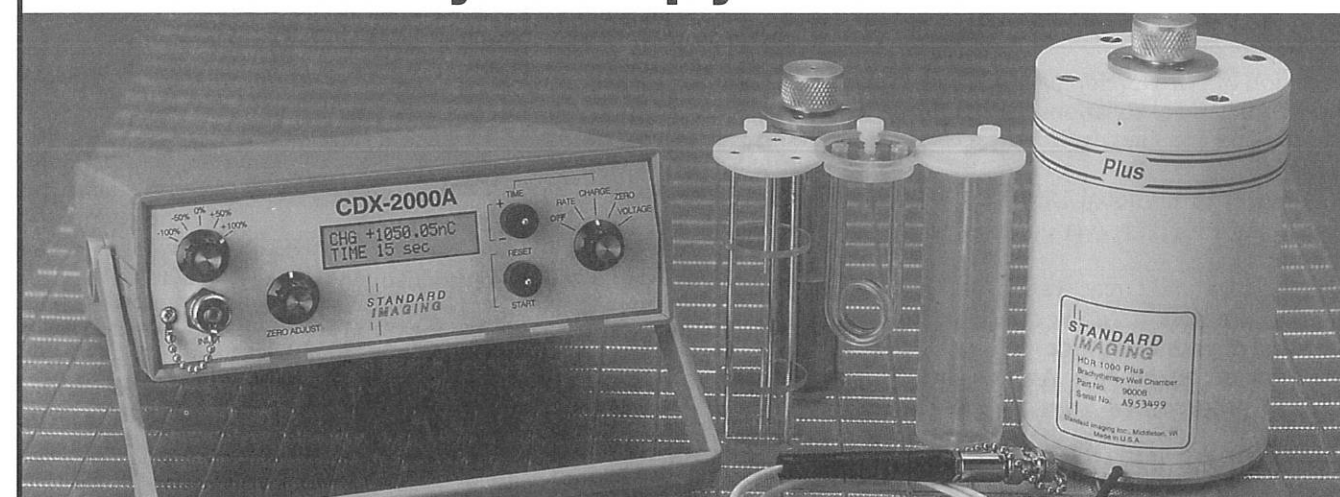
USA Account 1/01/99 - 12/31/99

Income:	Members	Dues	Totals
Member Dues	16,387	\$2.40	\$39,328.80
Corporate Dues	10	\$1,500.00	\$15,000.00
Grants	1	\$1,000.00	\$1,000.00
Income Sub-total			\$55,328.80

Expenses:		
Office Operations		\$ 2,600.00
Executive Secretary		
Salary		\$1,200.00
Postage		\$ 600.00
Supplies		\$ 600.00
Services		\$ 200.00
Officer Travel		\$ 3,000.00
Homepage		
Maintenance		\$ 2,000.00
Awards and Honors		\$ 500.00
Library Program	(Shipping Fees)	\$ 800.00
Medical Physics World	(Corporate Member Discount Sharing)	\$ 1,000.00
Electronic Medical Physics World		\$ 500.00
Global On-line Medical Physics		\$ 500.00
Professional Relations Program (formerly Developing Countries)		\$ 2,000.00
Education Program		\$16,800.00
Cash grants		\$7,000.00
Dues waivers	400x\$2.40	\$9,600.00
Research Program		\$16,600.00
Cash grants		\$7,000.00
Dues waivers	400x\$2.40	\$9,600.00
IUPESM Membership		
Dues		\$ 4,500.00
Expense Subtotal		\$50,600.00
Budget Balance to Reserves		\$ 4,728.80

Gary D. Fullerton, Ph.D.
Interim Treasurer, IOMP

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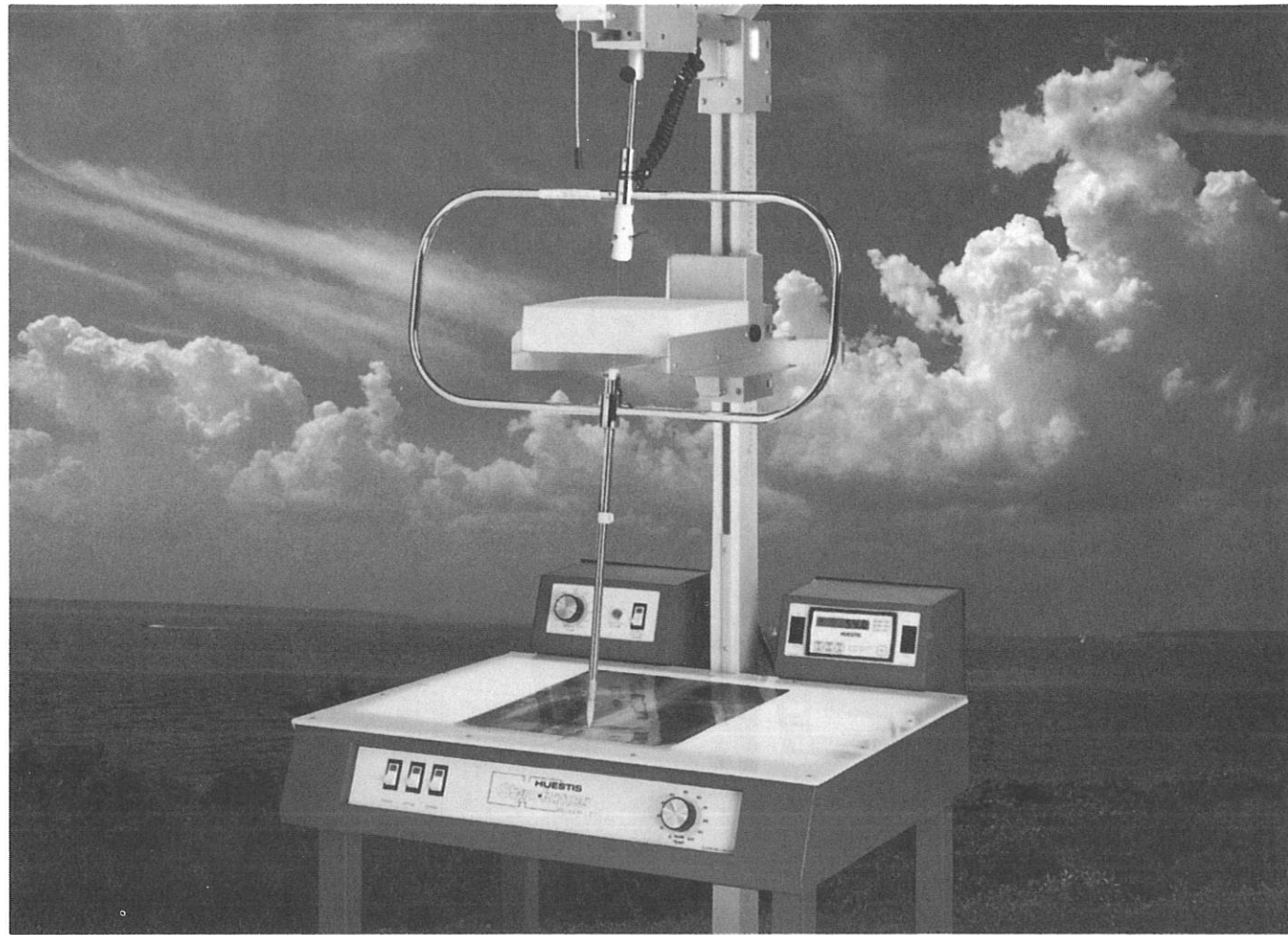
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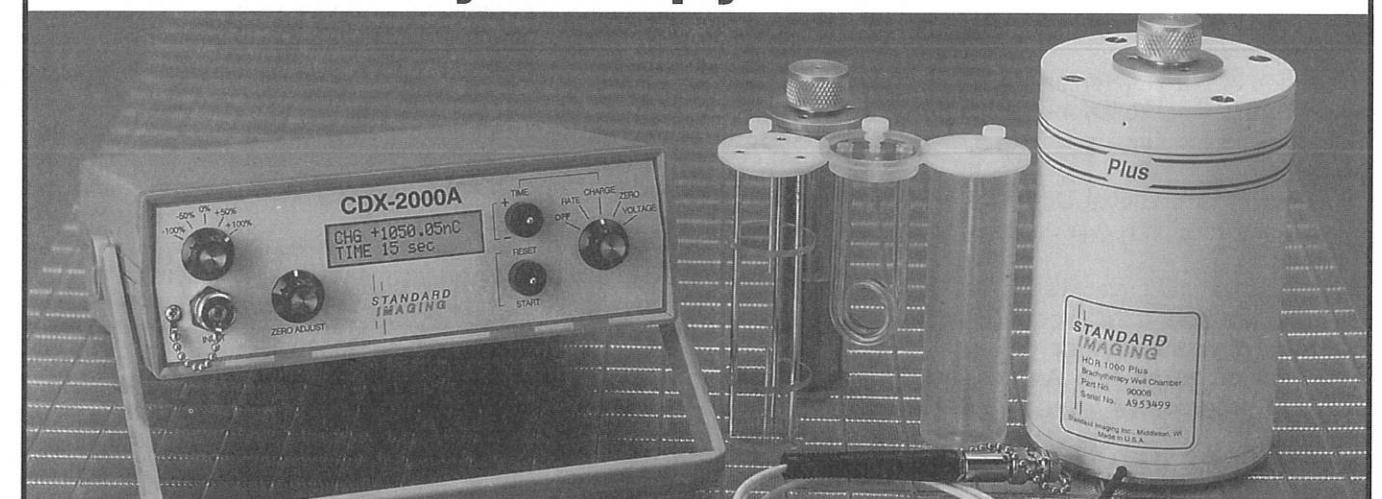
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Global On-line Medical Physics		\$ 500.00
Professional Relations Program (formerly Developing Countries)		\$ 2,000.00
Education Program		\$16,800.00
Cash grants		\$7,000.00
Dues waivers	400x\$2.40	\$9,600.00
Research Program		\$16,600.00
Cash grants		\$7,000.00
Dues waivers	400x\$2.40	\$9,600.00
IUPESM Membership		
Dues		\$ 4,500.00
Expense Subtotal		\$50,600.00
Budget Balance to Reserves		\$ 4,728.80

Gary D. Fullerton, Ph.D.
Interim Treasurer, IOMP

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Vice-President's Report

The boundless energy of our Secretary-General has left us with not so much scope for our own initiative. Nevertheless, a stream of e-mails that reach us everyday keeps us vigilant and busy and forces us at least to send back our "yes" or "no" answers. As far as I can remember, the Executive Committee of the IOMP has never worked so efficiently: we have become a smoothly running virtual machine (on the Internet!). On my part, I still operated in a very old-fashioned way: I have been able to come up with two issues (nos. 11 and 12) of the *Medical Physics and Biomedical Engineering Bulletin of the Developing Countries Committee of IUPESM*, printed on paper, published and distributed in 250 copies to our devoted readers, especially in the emerging countries of Central and Eastern Europe and/or developing countries of South America and Asia. We have, as some of you know, already published several issues of the Bulletin on the IUPESM web-site. Now new arrangements have to be made since the site has moved to the USA. As Vice-President of the IOMP I took part in the 11th General Assembly of the Polish Society of Medical Physics on February 4-5, 1999 combined with a training conference on the physical aspects of quality assurance in mammography (see separate item), and I delivered an invited paper on the history and activity of the IOMP, which met with very good response. In June 1999, I will go to the prestigious Science Conference in Budapest (Hungary) as one of two representatives of the IUPESM, who have received invitation to attend. I promise to tell you more about this conference in the next issue of *MPW*.

Oskar A. Chomicki, M.Sc.
Vice-President, IOMP

(Continued from page 1)

- conversion of our Developing Countries Committee into a new Professional Relations Committee with the mandate to enhance the development of our profession worldwide
- development of a Global Directory of Medical Physics Educational Programs (via our Education and Training Committee)
- formation (actually reactivation) of a Science Committee to promote scientific exchange and development in medical physics worldwide
- formation of an ad hoc Awards and Honors Committee to propose new ways to honor great leaders in our field
- contracting with the AAPM to maintain our Internet web site www.iomp.org
- representation (by me) on a World Health Organization Consultants Panel to develop a WHO strategy for radiotherapy development worldwide for the next 20 years (see report later).

These are just a few of the activities of the IOMP over the past six months. You will find more in the reports of your other Officers and Committee Chairs elsewhere in this issue of *Medical Physics World*.

Have I answered the questions?

Colin G. Orton, Ph.D.
President, IOMP

REQUEST FOR SUPPORT

INTERNATIONAL SCIENTIFIC EXCHANGE PROGRAMS

THE PHYSICS OF RADIATION THERAPY
Chulalongkorn University, Bangkok, Thailand, May 29-June 2, 2000

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AAPM Headquarters Office

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For more information contact:

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Tel: 202-784-3334
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3000 Arlington Ave.
Toledo, OH 43699-0008 USA
Tel: 419-383-5113
Fax: 419-383-3040
Email: eparsai@mco.edu

(Continued from page 2)

vigorously pursuing Full Membership in the ICSU to provide enhanced visibility of medical physics in international science and public policy forums. The activities of IUPESM are presented on the Union home page at the address <http://www.iupesm.org/>. That address also gives direct access to the ICSU home page, which gives a global view of our standing relative to other scientific unions. The union (remember you are a member of IUPESM) is undertaking a number of projects that complement those of the IOMP. Among these is the formal IUPESM adoption of the "Global Knowledge Network" project. The Network is presently under development as a part of Chicago '2000.

Chicago '2000 and Sydney '2003

World Congress Presidents William Hendee and Al Potvin report that plans are on schedule for the World Congress on Medical Physics and Biomedical Engineering in Chicago, July 23-28, 2000 (see <http://www.wc2000.org/>) for preliminary program. They also announced that Vice-President Gore has been invited to give the plenary address because of his specific interest in the development of global knowledge networks. Dr. Barry Allen has already begun development of the web page for the Sydney meeting and access is available from both the IOMP and IUPESM home pages. Interested National Members or regional organizations are encouraged to submit letters of interest for hosting the World Congress in 2006. Application forms and assistance are available from my office.

Gary D. Fullerton, Ph.D.
Secretary-General, IOMP

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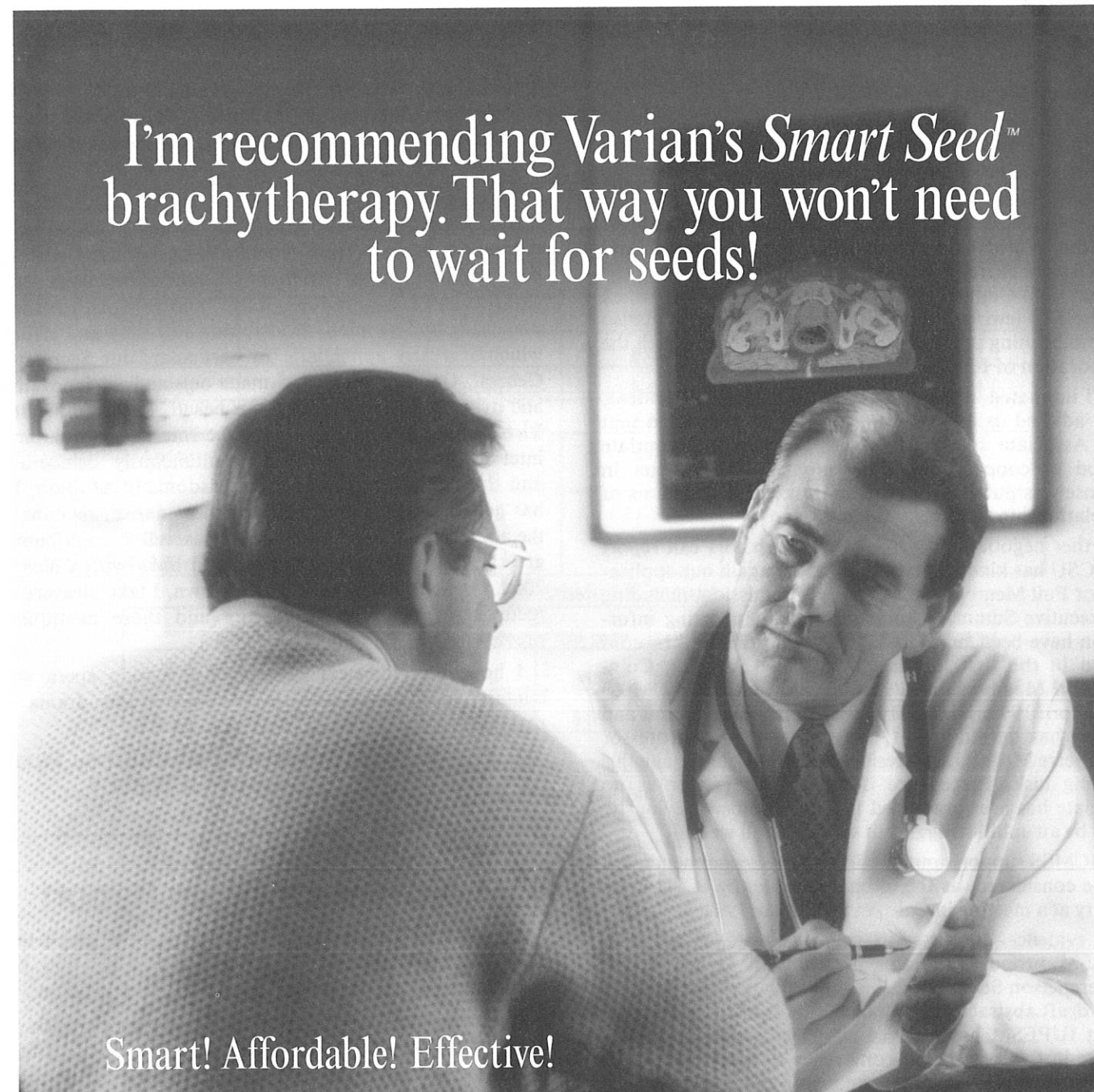
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Letter From the President of IUPESM

Dear Fellow Member of IUPESM:

On reflection, these Presidential Letters resemble a soap opera or a serial but, since the episodes appear at three monthly intervals, it is understandably easy to forget the plot. Consequently, with your indulgence, I will briefly recapitulate the story so far before bringing you up to date.

At the World Congress in Nice, your President and Council were charged with seeking Full Membership of the International Council of Scientific Unions (ICSU), which was itself reviewing our relationship at the time, and also with establishing innovative Key Programmes in which the collaboration of ICSU would be sought.

As I intimated in the previous letter from the President, ICSU advised us in July 1998 that it had concluded that "the Associate relationship was the most appropriate method of cooperation at the moment." My letter in response was published in full and asked for the status of our relationship to be reconsidered.

Further negotiations were undertaken and I can report that ICSU has kindly agreed to consider again our application for Full Membership. A revised submission, including an Executive Summary and substantial supporting information have been submitted. Our application will be considered in the first instance by ICSU's Standing Committee on Membership, Structure and Statutes (SCMSS) on 13 April 1999. IUPESM has been invited to attend and Council has agreed that I, as President, and Professor Jean-Pierre Morucci, as President Elect will undertake this daunting task. Precedence is not in our favour as no Associate has ever graduated to Full Member previously. It will be an uphill struggle but we will do all we can.

If SCMSS supports our application, its recommendation will be considered, as the ultimate hurdle, by ICSU in its entirety at a meeting in Cairo in September 1999.

As evidence of our wish to collaborate with ICSU, IUPESM proposed a joint presentation at the World Conference on Science to be held in Budapest this summer and a draft abstract was sent to ICSU. A positive outcome is that IUPESM has received a formal invitation to participate in this prestigious conference at which we will be represented by Oskar Chomicke from Poland and Nandor Richter from Hungary, both experts in the relevant areas of the conference.

The primary benefits of Full Membership of ICSU are potentially symbiotic for both organizations. ICSU brings to the table its substantial international stature, greater resources (from which we may not directly benefit financially) and programmes and committee structures linking closely with our own. IUPESM can offer vast international experience, complementing that of ICSU, to create an authoritative international advocate for the appliance of science, including engineering, for the benefit of the sick and disabled worldwide. Our Key Programmes to promote: Governmental and public understanding of Physical and Engineering Sciences in Health; Education, training, and Continued Professional Development; global biomedical information networking; evidence based health technology and equipment evaluation, all with special

reference to Developing Countries, link with ICSU's Committee on Science, Technology in Developing Countries; its Programmes on Capacity Building in Science and its International Network for the availability of Scientific Publications. We hope to convince ICSU of these potentially important mutual benefits but, as I indicated earlier, it will not be an easy task.

In conclusion, the role of President of IUPESM is a difficult one and nothing could be achieved without substantial support from others. Consequently, I wish to pay tribute to our Officers, Council Members and Constituent Organizations, IOMP and IFMBE, for their unstinting and generous contributions of time and effort, which I greatly appreciate. In particular, our Secretary-General, Gary Fullerton, has made outstanding, innovative and dynamic contributions on our behalf. He has instigated Virtual Council Meetings, using the Internet, at quarterly intervals, thereby enhancing simultaneously democracy and the availability of collective wisdom. In addition, he has generated vital documents at short notice, revitalized the administration and our Web Site as well as contributing greatly to our Key Programmes and links with Chicago 2000. On your behalf as well as my own, I take pleasure in recording special thanks to him and those mentioned previously.

I hope that the next episode of this soap opera will contain good news. We can try — but this drama is real life!

Keith Boddy, CBE, DSc, FRSE
President, IUPESM

IOMP/AAPM Libraries Report

Currently there are 81 active libraries in 48 countries. Seven of these libraries were reactivated when they responded to our second request for updated information.

During calendar year 1998, 47 donations were processed, compared with 22 donations in 1997. To date in 1999, 31 donations have been completed, several more have been initiated and are pending notification from the library that the material were received.

We are working with Kathy Burroughs at AAPM to coordinate donated subscriptions of Medical Physics for all libraries needing ongoing subscriptions. We also continue to work with Brenda Trigg to coordinate donations of IOPP books to new and existing libraries.

The IOMP Web Site (www.iomp.org) contains a list of the currently active libraries and their locations. The curator welcomes applications for new libraries and offers of donations. Information concerning the procedures to request a new library or make a donation is available from the curator.

Marilyn Stovall, Ph.D.
Curator of the IOMP/AAPM Libraries

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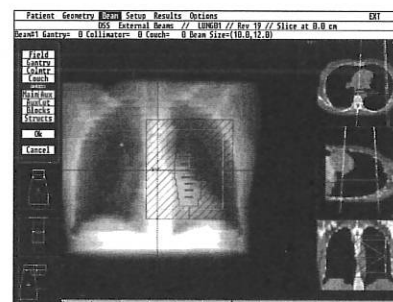


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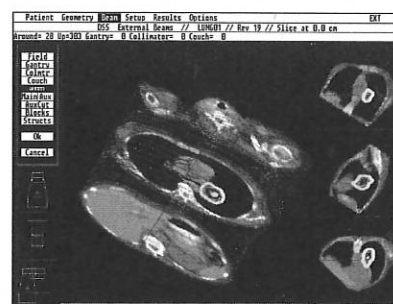
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Report From the Education and Training Committee (ETC)

Since the World Congress in 1997 in Nice, France, the first task of the Education and Training Committee (ETC) was to establish policies and procedures for supporting education and training programs worldwide. This was achieved and approved by IOMP Officers by mid 1998 and was reported in the last issue of MPW (Vol. 14(2), Dec. 1998, page 10). These policies and procedures as well as the ETC Application are now available at the IOMP web site (www.iomp.org).

Since our financial resources are very limited, we are unable to provide financial support for all the IOMP (co-)sponsored programs. However, we can offer our technical expertise in planning and organizing an educational program in your country and/or in your region of interest. Please contact an ETC member in your region for any IOMP (co-)sponsored educational program.

Following is a summary list of the ETC co-sponsored educational programs since the last World Congress (Nice, 1997):

- 1998: The 10th Congress of Chinese Society on Medical Physics
Beijing, China, May 22-25, 1998 (\$0.00)
Co-sponsored by: Chinese Society on Medical Physics
- 1998: The Physics of Radiation Therapy
Cairo, Egypt, May 10-14, 1998 (\$0.00)
Co-sponsored by: American Association of Physics in Medicine
Egyptian Association of Medical Physics
- 1998: International Conference on Medical Physics
New Delhi, India, November 6-9, 1998 (\$3000.00)
Co-sponsored by: Association of Medical Physics of India
- 1998: First Iberian Latin American and Caribbean Congress on
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Mexico City, Mexico, November 22-25, 1998 (\$3000.00 from
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- 1999: Quality Assurance in Mammography
Warszawa, Poland, February 4-5, 1999 (\$0.00)
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- 1999: The Physics of Radiation Therapy: Review and Update
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American Association of Physics in Medicine
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For 2000, we are planning a course/workshop in radiation therapy physics for Thailand and neighboring countries at the end of May/early June, 2000. Please contact us if you are interested to participate.

If you are interested in IOMP (co-)sponsored educational program, we encourage you to submit an ETC Application, with or without financial support request, as early as possible. Thank you.

Azam Niroomand-Rad, Ph.D.
Chair, ETC

Report of the Professional Relations Committee (PRC)

Since the last report, the name of the Developing Countries Committee (DCC) was changed to the Professional Relations Committee (PRC). The contention for this change was that the need of IOMP members could be served better through the charge of the PRC. The charge of the PRC follows for those who do not have access to the IOMP Homepage.

The charge to the IOMP Professional Relations Committee is to improve medical physics worldwide by providing systematized knowledge concerning clinical training, standards of practice, personal resources and physical resources necessary to provide quality services in the areas of clinical medical physics. The Committee promotes research and documentation to determine the nature and principles of professional conduct necessary to assure quality patient care and put such information in a useful form for all countries but especially in developing countries.

Methods:

1. The Professional Relations Committee will consist primarily of regional representatives representing (Middle East, North Africa, Southern (Central) Africa, Eastern Europe, Western Europe, North America, Latin America, Central Asia and Far East) as well as Directors of all programs of the committee (e.g. Library, Twinning and Communications Programs).
2. The Committee will identify the need for international professional relations and standards development through symposia, regional meetings and/or workshops and will assist with the organization, funding and arrangements of these ventures.
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5. The Committee will work on any and all alternative mechanisms that will promote international cooperation in addressing the professional and clinical needs of medical physics.

Please make use of this opportunity that the IOMP offer and contact the PRC member responsible for your country (names of the committee members and regions were published in the December 1998 issue of MPW).

One task that is being addressed at the moment is to establish a database on the Status of Medical Physicist Certification in the IOMP member states. A questionnaire recently went out from the Secretary-General's office in this regard. Each country official that received the form is urged to submit it without delay.

Activities involving PRC members included organizing of two successful workshops held in Bangladesh and Poland respectively. The first was a workshop on Medical Physics in Radiotherapy and Nuclear Medicine that was attended by 70 participants. The second was on Physical Aspects of Quality Assurance in Mammography that formed part of the XIth Congress of the Polish Society of Medical Physics.

The equipment exchange program is progressing well. A report on this activity can be found elsewhere in this issue.

The PRC kindly invite all IOMP members to participate in the activities of the committee. One hears the cliché often, but the truth is that a committee can only function successfully when members are actively involved and support the charges of the committee.

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Chair, PRC

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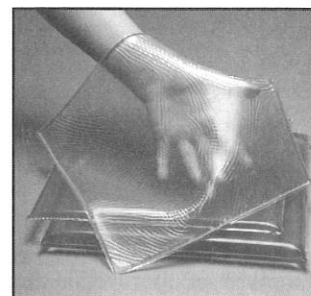
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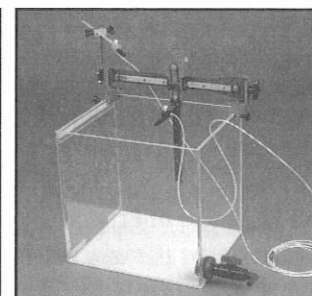
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MPW Vol. 15 (1), June, 1999

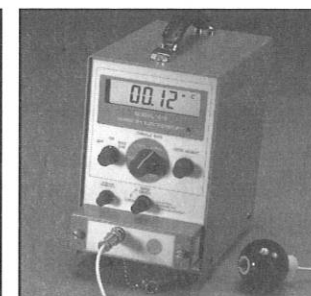
MEDICAL PHYSICS TOOLS



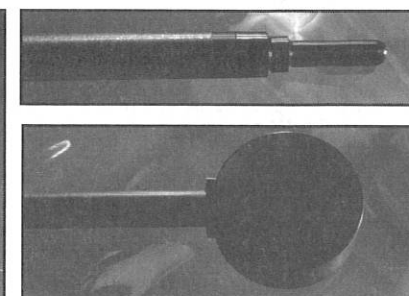
Bolx-I and Bolx-II bolus
These bolus sheets are made from a solid, homogeneous, tissue-equivalent gel with a density of 1.03g/cc. Ideal for radiotherapy applications above 1MV. Bolx-I is encased in a tough layer of thin plastic skin. Bolx-II is "skinless" for greater conformity to steep body contours.



QuickScan™ water scanner
This CRS compact 2D water-scanning phantom meets all the requirements for external beam quality control without the bulk, cost, and complexity of larger water phantoms. High-precision components. Software-supported for quick, accurate, and easy quality checks of treatment machines.



Dosimetry electrometer
Popular reference-grade electrometer features front-end amplifier/feedback modules matched to the ionization chamber in use for optimum operating conditions and range for that chamber. Measuring units include charge, current, dose, and dose rate. Battery-powered.



Exradin™ ionization chambers
These high-precision chambers have found acceptance worldwide as the physicist's choice for radiation beam quality control and dosimetric measurements in radiotherapy, radiology, and research. Available in models from a miniature (0.05cc) shonka thimble chamber to a large 16-liter low-level spherical chamber.

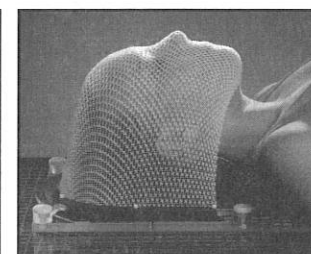
PATIENT POSITIONING



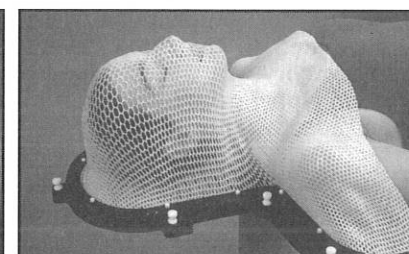
Breastboards
Our breastboards truly "set the standard" for accurate and repeatable patient set-ups and patient comfort. Our popular MT-250 breastboard (shown above) features rigid, radio-translucent carbon fiber grid treatment panels and your choice of head supports, arm positioning options, and elevation systems. *Ask about our NEW lightweight, durable carbon fiber breastboard*



Wing Board™
This lightweight, comfortable, economical device supports a patient's arms and elbows at approximately 30° with hands overhead. Shown here mounted to our MT-250 breastboard for additional patient set-up flexibility and comfort. The Wing Board is also available with an overhead arm positioner/hand grip for enhanced positioning accuracy.

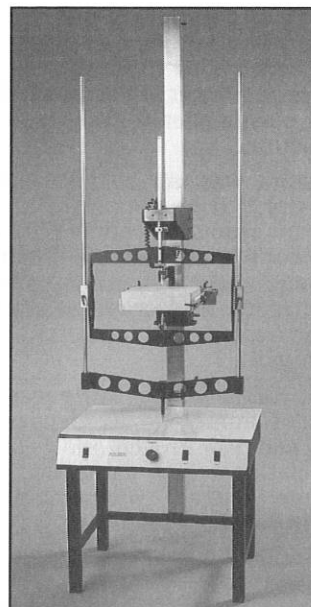


Uni-frame®
The easiest-to-use head and neck positioning system on the market, the Uni-frame system features low-temperature thermoplastic bonded to a rigid U-frame for precision and control. Softened thermoplastic becomes rigid when cooled, creating an accurate mold of the patient's facial contours. Full line of baseplates available. New snap-in reloadable Uni-frame saves time and money!

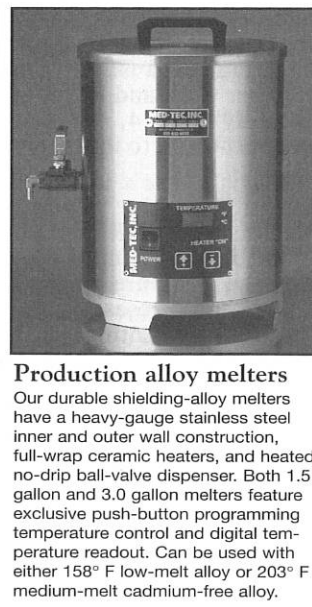


Type-S™ head & shoulders system
This unique new system provides maximum head and upper body fixation by capturing the head, neck, and shoulders under a continuous thermoplastic sheet. Features snap-in reloadable thermoplastic and a carbon fiber grid baseplate, making this the most cost-effective, accurate, and user-friendly head and shoulders system available.

CUSTOM BLOCKING



FC/2000 hot-wire cutter
Advanced features and precision construction make our new FC/2000 hot wire cutter easy to operate. Minimizes the need for tolerance adjustments to ensure precision foam blocks.



Production alloy melters
Our durable shielding-alloy melters have a heavy-gauge stainless steel inner and outer wall construction, full-wrap ceramic heaters, and heated no-drip ball-valve dispenser. Both 1.5 gallon and 3.0 gallon melters feature exclusive push-button programming temperature control and digital temperature readout. Can be used with either 158° F low-melt alloy or 203° F medium-melt cadmium-free alloy.



Block casting systems
An efficient system for producing quality shielding blocks, our MT-550 casting system features a solid-state electronic alloy melter mounted on a flat refrigerated cold plate. The alloy melter has a digital readout, push-button programming, and ball-valve dispenser. Cooling plate is precision-surfaced and will accommodate 3-4 blocks at once. Optional built-in vibrator improves block homogeneity and speeds up the block solidification process.



Shielding alloy and Flat-foam™
We offer certified composition shielding alloy in both 158° F low-melt and 203° F medium-melt (cadmium free) at guaranteed lowest prices. Our Flat-Foam Dow® oncology foam is a high-quality 40 PSI foam designed to provide a flat and parallel surface — essential to the shielding block pouring process. Plus, we carry a complete line of mold room equipment and accessories.

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Editor's Corner

Maria Sklodowska-Curie's Achievements - Part III

(Continued from MPW Vol. 14 (1), 1998, Page 14 and MPW Vol. 14 (2), 1998, page 18)

The Second Stage: Large Scale Research

Radioactivity which, in its initial stage, was closely related to physics and chemistry, in the later period found many applications in other branches of science. The development of the new field induced the French government to establish a specialized research laboratory in Paris. The Radium Institute was to include two research laboratories: (1) physico-chemical laboratory administered by the Faculty of Science of the University of Paris, and (2) biological and medical laboratory administered by the Pasteur Institute. The faculty of science of the Sorbonne assigned the organization of the physico-chemical facility, to be later named Laboratoire Pierre Curie, to Maria Curie.

The year 1910 saw the publication of Maria Curie's famous book "The treatise of radioactivity" in two volumes. This treatise remained for many years a valuable textbook for young researchers and, to a great extent, contributed to the rapid development of the science of radioactivity. In 1911, Maria Curie was awarded the second Nobel prize in chemistry for her work in chemistry of radioactive substances.

On Maria Curie's suggestion a unit of the quantity of radioactive substances was established, and named "curie" in honor of her. It was defined as the activity of the emanation remaining in equilibrium with 1 gram of radium. A primary international standard was placed at the Bureau International des Poids et Mesures at Sevres, a secondary standard was conveyed to the Radium Institute in Vienna.

In mid 1914, the construction of the Laboratoire Curie was complete. However, the outbreak of World War I delayed its occupation. In this situation, Maria took the decision to organize and operate a fleet of radiological ambulances to provide service at the various fronts, and set up radiological units in all military hospitals, where all the sick and wounded could be examined with x-rays. In some cases, she even drove an ambulance herself being exposed to direct hazard from military activities. It was that great devotion and competent work in Red Cross that helped her to earn recognition and respect from all Frenchmen. In her book "radiology in the war" she writes at length about the organization of the radiological health services.

The Third Stage: Triumph and Glory . . .

The installation of the laboratory in a new place proceeded under extreme difficult conditions with a lack of adequate financial resources and skilled personnel. The laboratory did not start regular operation until two years after the end of the war.

From 1920, the Radium Institute came under the patronage of the Curie-Carnegie Foundation, which considerably improved the material status of the physics laboratory at the Institute. Consequently, in 1925, the Curie Laboratory was enlarged and gained widespread reputation.

In the postwar period, Maria returned to the fundamental questions involving the production of strong radioactive sources.

At the end of 1921, Maria Curie stopped her research since she had been invited to America. There, accompanied

by her two daughters, she made a triumphant journey. President Warren G. Harding presented her with a gram of radium bought as a contribution from American women. That amount of precious radium received as a gift beyond any dreams of many laboratories, she offered for social services and sciences in France.



In view of the very extensive scope of the work done at the Radium Institute it became essential to set up a special department to perform measures of and control over radioactive substances intended for research purposes. This department would also meet the requirements of the ever expanding medical therapeutic industry which called for expertise, determinations of the quantity and quality of radioactive substances in minerals, mineral waters and in various drugs.

In 1922, Irene Curie, Maria's daughter, joined the scientific staff of the Radium Institute. She published her doctoral thesis "On the properties of alpha radiation from polonium" in 1925. Later, in 1929, Maria and Irene Curie measured the decay constant of RaD. Irene Curie was joined by Frederic Joliot. Like Pierre and Maria Curie, they jointly published their works. The history repeated itself. Mutually shared interests and aims, boundless devotion for science, all these factors contributed to the great research success of both Irene and Frederic Joliot-Curie.

The great discovery made by the Joliot-Curies at the Radium Institute in the last year of Maria Curie's life was to show that a certain type of nuclear transmutation lead to the formation of radioactive species. Due to their discovery of artificial radioactivity and the synthesis of new radioactive elements, the Joliot-Curies acquired great fame and repute the world over. The possibilities were revealed of using artificially produced radioactive elements to follow chemical changes and physiological processes or in applications to medical therapy procedures.

Albert Einstein, when he was once in Paris, remarked that "Madame Curie was fortunate to see her work to be continued by her daughter, Irene Curie, who was her equal in talent and scientific activity."

In 1934, Maria Curie investigated the optical spectrum of actinium. At that time she caught a cold, but, against doctor's recommendations, she did not want to stop her laboratory work. Unfortunately, Maria's incessant and intensive research effort, and her continuous presence at the Institute, had all contributed to serious complications and total exhaustion of her body. This time, she had to stop her work and leave for a health resort in the mountains. On July 6, 1934, she died of plastic anemia, the result of long exposure to ionizing radiation.

Maria Curie's last great work was her comprehensive scientific treatise "Radioactivity." It was her third book. The Institute of Radium in Paris rose to a leading position in the development of the science of radioactivity of matter and the structure of the atomic nucleus thanks to Maria Curie's own research and intensive and ceaseless efforts leading to continuous improvements in research and measuring methods and techniques.

In recognition of her great merits Maria Curie was included among the members of numerous Academies of Science of various countries and 107 French and foreign scientific societies and associations. Her name and her creation—the Radium Institute in Paris—will remain for ever in the memory of all scientists and researchers.

Adoped from: Polish Journal of Medical Physics and Engineering, Vol. 3, No. 4 (10), 1997.

Article by: Cezary Anatol Pawlowski.

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Article by: Cezary Anatol Pawlowski.

Explaining Radiation to Patients — The BERT Approach

Answering a patient's question about the amount of radiation would be easy if you knew the effective dose. However, it is unlikely the patient would understand "the mammogram will give you an effective dose of about 1 millisievert (mSv)." She probably would understand and be satisfied if she heard: "the mammogram will give you about the same amount of radiation you get from nature in a few months." This method of explaining radiation is called Background Equivalent Radiation Time or BERT¹. The idea is to convert the effective dose from the exposure to the time in days, weeks, months or years to obtain the same effective dose from background. The U.S. National Council for Radiation Protection and Measurement (NCRP²). Has also recommended this method.

The background in different parts of the world varies about a factor of ten. This uncertainty is unimportant for explaining radiation to patients. The effective dose from common diagnostic x-ray procedures in the U.S.A.; are typically less than the amount of radiation the patient receives from nature in two or three years. (See Table 1).

Patients seldom see a radiologist. Questions about radiation are often asked of the radiographer. If tables of BERT are available at each x-ray unit, any radiographer can answer the patient's question. Using this approach has the advantages: 1. It does not imply any risk - it is just a comparison; 2. The answer is understandable to the patient; 3. It emphasizes that radiation is natural; and 4. It reduces radiation fear.

It is necessary that a medical physicist construct BERT tables for various x-ray exposures and various size patients. In addition, the physicist must teach the radiographers how to use the tables to explain radiation to the patient. The word BERT should not be used in the explanation. BERT is not a radiation unit or quantity - it is a method of explaining radiation dose to a person who is concerned about their medical exposure.

TABLE 1. TYPICAL: EFFECTIVE DOES AND BERT VALUES FOR SOME COMMON X-RAY STUDIES TO AN ADULT (Adapted from IPSM Report 53³).

X-Ray Study	BERT	
	Effective Dose (mSv)	The times to get same dose from
Nature		
Dental, intra-oral	0.06	1 week
Chest x-ray	0.08	10 days
Thoracic spine	1.5	6 months
Lumbar spine	3	1 year
Upper digestive tract	4.5	1.5 years
Lower digestive tract	6	2 years

A longer version of this article is available on the Internet at <http://www.medinfo.ufl.edu/other/cameron/rads.html>.

References:

1. Cameron JR: A radiation unit for the public. Physics and Society News 20:2, 1991.
2. NCRP Report 117: Research needs for radiation protection, p. 51. National Council on Radiation Protection and Measurement, Bethesda, MD, 1993.
3. IPSM Report No. 53: Patient dosimetry techniques in diagnostic radiology, p. 53. Institute of Physics and Engineering in Medicine, York, UK, 1988.

John R. Cameron, Ph.D.
University of Wisconsin
Madison, Wisconsin 53706, USA

IOMP Solicits Suggestions For Awards

An ad hoc Awards and Honors Committee has been appointed to make recommendations to the IOMP Council for the establishment of IOMP awards. If established these awards would supplement the IUPESM Award of Excellence which is, at present, the only mean available to us to recognize those medical physicists who have made outstanding contributions our profession.

We (John and Azam) have been asked to solicit ideas for the IOMP Awards and Honors Committee to consider. It might be possible for one or more IOMP awards to be given at the World Congress in Chicago in 2000. We want a broad input of ideas. The Committee will give extra weight to suggestions from the officers and councils of national medical physics organizations. The suggestions should include: 1. Proposed name of the award; 2. Suggestions for guidelines for the selection of the awardee; and 3. Suggestions for the type of award (e.g., a plaque plus a free registration to attend the World Congress). There is no deadline for suggestions. The IOMP Awards and Honors Committee hopes to start considering suggestions in September 1999.

Suggestions should be sent to:

(Ms) Azam Niroomand-Rad, Ph.D.
MPW Editor
Georgetown University Medical Center
Fax: (202) 784-3323
Email: nirooma@gunet.georgetown.edu
John R. Cameron, Ph.D.
Chair, Ad Hoc Committee
University of Wisconsin
Fax: (352) 371-9866
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IPEM Journals from IOP Publishing: Recent Developments & Innovations

On behalf of The Institute of Physics and Engineering in Medicine (IPEM), Institute of Physics Publishing published two academic journals, *Physics in Medicine & Biology* and *Physiological Measurement*. Both are official journals of the International Organization for Medical Physics (IOMP) and individual members of the IOMP can benefit from a reduced subscription rate to the paper version of the journal. Lately, these journals have undergone considerable editorial and electronic development, whilst continuing to disseminate high-quality, original research within their respective scientific communities.

Physics in Medicine & Biology

Phys. Med. Biol. is a monthly title and is currently in its 44th year of publication. Over 270 research articles were published in 1998. The scope of the journal focuses on the application of theoretical and practical physics to medicine, physiology and biology. Photon and particle radiotherapy, treatment planning, nuclear medicine, SPECT, PET, MRI, ultrasound imaging, X-ray, radiography, tissue spectroscopy and biomagnetism are all covered extensively. Publication times and author service standards are extremely competitive. On average, authors can expect to receive initial comments from the reviewers within about 70 days. After formal acceptance, articles appear in the electronic version of the journal within two months. Citation of material in the journal continues an upward trend, with its impact factor rising from 1.401 in 1996 to 1.542 in 1997 (according to the Institute for Scientific Information).

Physiological Measurement

Physiol. Meas. is published four times a year as a journal for seniors, instrumentation, measurement techniques and signal processing in physiology and medicine, and is now in its 20th year of publication. Articles cover the quantitative assessment and visualisation of physiological function in clinical research and practice, with an emphasis on the development of new methods of measurement and their validation. Subject coverage includes clinical engineering, patient monitoring, life support systems, flow and pressure measurement, instrumentation and data analysis. The journal has particularly strong traditions in electrical impedance imaging and cardiovascular research. The journal typically returns initial referees comments to its authors within 60 days on average, and submission-to-acceptance times are of the order of 140 days.

Electronic Publishing

All journals published by Institute of Physics Publishing are available in electronic format on the World Wide Web to full-rate subscribers. However, non-subscribers to *Physics in Medicine and Biology* and *Physiological Measurement* may still browse the journals' homepages, access table of contents for previous issues, and preview lists of forthcoming articles. Also available to casual browsers are a selected number of recent Featured Articles from each journal. In 1999, full-rate subscribers to either journal receive two additional benefits as part of their subscription package. The first of these is a six-year online archive of material (1993-1998 inclusive) with all articles available to download as PDF files. The second is HyperCite™ technology, enabling users to link from references in each paper to other articles, abstracts and resources in the wider physics community.

Institute of Physics and Institute of Physics Publishing

The Institute of Physics is a learned society and a professional body for physicists, based in London. It is charged by Royal Charter to "promote the advancement and dissemination of a knowledge of and education in the science of physics, pure and applied." Membership of the Institute exceeds 20,000 throughout the world. Institute of Physics Publishing currently published 32 academic journals in paper and electronic form, as well as numerous books and magazines. A recommended starting point for further information is the Institute of Physics' welcome page at <http://www.iop.org>. *Physics in Medicine and Biology* and *Physiological Measurement* have dedicated homepages at <http://www.iop.org/Journals/pb> and <http://www.iop.org/Journals/pm> respectively.

Dr. Paul A. Craven
Publishing Editor
Institute of Physics Publishing

Donations of Used Equipment—A PRC Report

During the month of February 1999 the Professional Relations Committee (PRC) shipped a Theratronic Treatment Planning Computer (TPC) 500 including two monitors, scanner, and plotter to the Institute of Radiotherapy & Nuclear Medicine (IRNUM), Peshawar University, Peshawar, Pakistan. The TPC was very kindly donated by Monmouth Medical Center, Long Beach, NJ. IOMP PRC is thankful to the hospital administration for the donation of the equipment. The TPC will be used for patient care and training of personnel in a developing country. Dr. Jack Yang, Medical Physicist at the hospital, helped us to get the equipment donated to IOMP and made the necessary arrangements for handling and shipping.

Used Equipment Needed:

- Co-60 machine, Film Dosimeter, Radiation Field Analyzer, Rectal Monitor, Cavity Chamber, Gamma Camera operating in a Spect mode.

Used Equipment Available:

- Siemens Mevatron
- Kellket Superficial X-ray machine
- Beam Monitors Keithley 35060
- Treatment Planning Computers, ROCS, Theratronic 300 and 400
- 10 year old Siemens Orbiter Digitrac ZLC 7500 but no formater or computer to go with it. LEHR LEHS LEGP and MEGP collimators. It will be available in May. It is under service contract and has had all worn and damaged parts replaced (e.g. new couch top recently).

The equipment mentioned above are in good working condition. The recipient has to pay for shipping and handling. For more information, please contact Mohammed K. Zaidi, member of PRC at 208-526-2132, fax 208-526-2548, or e-mail zaidimk@id.doe.gov.

6th International Conference on Medical Physics Patras Medical Physics 99

The European Federation of Organizations for Medical Physics - EFOMP and the Hellenic Association of Medical Physics - HAMP are organizing this conference with a central theme: "New Methods and Advanced Technology in Medical Diagnosis and Therapy," from 1 to 4 of September 1999, at the Conference Center of the University of Patras, Patras, Hellas (GR). For further details please use our web-site: <http://patras99.med.upatras.gr>.

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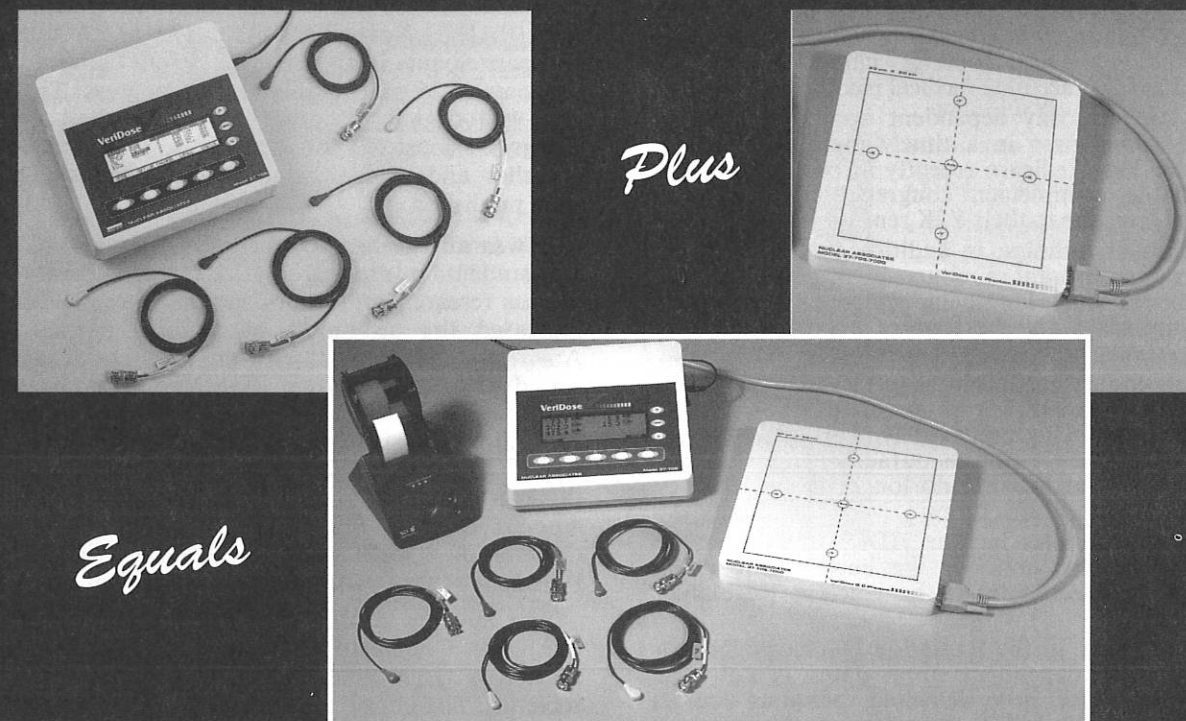
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The Impact of the Year 2000 Problem in Clinical Environment

Introduction — Origin and Nature of the Problem

At its core, a simple statement of the problem is that many computers will not, at some time in the future, recognize the date correctly, as date data in the form "dd/mm/yy" goes from the year "99" to "00." Date in the form "dd/mm/yy" will, however, appropriately change from 1999 to 2000. Thus two digit year date data is the origin of the problem.

Healthcare Specific Problems

The healthcare industry (large and small hospitals, private clinics, Health Maintenance Organization, HMO, Health Care Financial Administration, HCFA) are particularly at risk. The last three, due to the enormous volume of claims processing (HCFA processes 1.7 million transactions/day, 1 billion claims/year), of which is very date sensitive, from a business (billing), clinical (appropriate clinical data, lab tests, accurate medical records), standpoint.

Providers are critically dependent upon the accurate processing of these data in a timely manner, for their very existence. Yet Medicare recently informed Congress they were unable to implement congressionally mandated changes in the law, due to their Y2K remediation efforts.

The hospitals and clinics, in addition to their perilous dependencies upon prompt reimbursement, have their own internal problems. Much life saving equipment is computer controlled, including the bottom of this iceberg, i.e. *embedded systems!*

Also, much equipment is old (e.g. GE 9800 Hi-Speed Advantage CT), and will not be made compliant by the vendor, despite still being used widely. This example uses a computer (DG S-230) not manufactured since about 1984. Many other vendors are no longer in business, or have changed hands multiple times.

More critical examples include HDR. In addition to patient considerations, consider the bureaucratic chaos in explaining incorrect date to the Nuclear Regulatory Commission, NRC!

Record and Verify in the Radiation Oncology Department is intimately dependent upon dates. Total dose prescribed (over time), dose delivered, previous courses of treatment, as well as billing, scheduling, and electronic charts! The above include only commercial applications. End-User applications (e.g. Excel spreadsheets and Access programs) must also be investigated and fixed.

Vendor Roles

Some systems (Operating systems, COTS, i.e. commercial, off-the-shelf) systems may only be remediated by the vendor. Assessment is required, however, as is follow-up in installing service packs. Good record keeping is essential! End-User written applications can be remediated with software tools, such as Visual DataScope 2000. This includes Excel, Access, and any database accessible via ODBC.

Every industry faces building specific issues (elevators, security), much of it due to embedded systems.

Summary

This article does not address problems on mainframes, e.g. hospital wide payroll, billing, etc. It emphasized department level concerns, such as PC's (including LAN's), and embedded processors, and a large problem, end user written applications (spreadsheets and PC or server based databases, or large databases accessible by the PC). Software tool exist that will scan, locate and remediate two digit year dates. Embedded systems must be identified, tested, and typically the only remediation for problems in this area is replacement. Forms may be obtained that facilitate Inventory and Assessment.

Robert J. Baker, Ph.D.
RJB Consulting LLC, San Diego, CA

Report on the Latin American Medical Physicists (ALFIM) Meeting in Mexico, November 1998

The Association of Latin American Physicists in Medicine - ALFIM together with the National Cancer Institute of Mexico sponsored a Congress of Medical Physics in Latin America and the Caribbean region in Mexico City, Mexico, November 22-25, 1998. There were two pre-congress courses: one on Radiation Therapy, sponsored by the International Atomic Energy Agency (IAEA), November 9-20. The second on Radiological Protection and QA for Diagnostic Radiology was organized by ALFIM, under the direction of Radiological Risks of the Secretary of Health of Mexico and the Pan American Health Organization (PAHO) November 16-20. The IAEA subsidized in full participants in their course. PAHO covered the local expenses of 26 participants to the Congress. The Congress was well organized, down to the smallest detail. The Congress consisted of oral papers, posters, keynote speeches and categorical refresher courses. The papers were published.

It was an excellent opportunity for medical physicists and students in medical physics to exchange ideas and to discuss research projects of mutual interest. The meeting increased the awareness of medical physics in Latin American countries. It was an excellent Congress. The president of the Congress, Enrique Gaona, together with the officers of ALFIM received strong support from Dr. Jaime G. de la Garza Salazar, Director of the National Cancer Institute of Mexico (INCan); Dr. Cari Borrás from the Pan American Health Organization; Professor Pedro Andreo of the IAEA; Dr. Gary Fullerton, Secretary-General of IOMP; and Dr. Bartolome Ballester Moll, President of the Spanish Society of Medical Physics.

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The General Assembly selected Venezuela as the site of the next ALFIM Congress in 2001. Dr. Federico Gutt was chosen as the organizer of the Congress. The Assembly elected the following new officers of ALFIM: President: Fis. Lila Carrizles, Venezuela (lcarriza@ivic.ivic.ve); Vice-President; Fis Nixon Gutierrez, Ecuador; Secretary: Dr. Esperanza Castellanos, Columbia; and Treasurer: Fis. Herman Barriga, Chile.

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Reported by:

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IVIC, Secondary Dosimetry Laboratory
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AP 21827. Caracas 1020-A VENEZUELA
Telephone: 58-02-504.1539/1546/1583
Fax: 58-02-5041577

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Fax: 58-02-5041577

Calendar of Events

25-29 July 1999: AAPM 41st Annual Meeting, Nashville, TN, USA. (American Association of Physicists in Medicine, One Physics Ellipse, College Park, MD 20740-3846 USA; [Tel: 301-209-3387; Fax: 301-209-0862; E-mail: aapm@aapm.org; URL: www.aapm.org].)

1-4 September 1999: 6th International Conference on Medical Physics: New Methods and Advanced Technology in Medical Diagnosis and Therapy, Patras, Greece. (Constantin Kappas, [E-mail: patras.med.phys.99@med.upatras.gr; URL: www.med.upatras.gr/news/patras99].)

12-16 September 1999: ECCO 10 — ESTRO 18, Vienna, Austria. (European Society for Therapeutic Radiology and Oncology, Av. E. Mounier 83, 1200 Brussels, Belgium, [Tel: +32.2.775.93.47; Fax: +32.2.779.54.94; E-mail: info@estro.be; URL: www.wstro.be].)

4-6 October 1999: (Was originally 4-6 November 1999) International Conference on Medical Imaging, Medical Physics and Precision Radiation Therapy, Guangzhou (Canton), China. (William R. Hendee, Medical College of Wisconsin, 8701 Watertown Plank Road, Milwaukee, WI 53226, USA, [Tel: (+01) 414-456-4402; Fax: (+01) 414-456-6554; E-mail: whendee@mcw.edu].)

28 November-3 December 1999: RSNA Annual Meeting, Chicago, IL, USA. (The Radiological Society of North America, 2021 Spring Road, #600, Oak Brook, IL 60523-1860, USA, [Tel: (630) 571-2670; URL: www.rsna.org].)

5-10 March 2000: European Congress of Radiology, Vienna, Austria. (ECR-Office, Neutorgasse 9/2A, A-1010 Vienna, Austria, [Tel: (+ + 43/1) 533 40 64; Fax: (+ + 43/1) 533 40 649; E-mail: office@ecr.org; URL: www.wcr.org].)

23-28 July 2000: World Congress on Medical Physics and Biomedical Engineering, Chicago, IL, USA. (WC2000 and WC2003 Secretariat: Gary D. Fullerton, UTHSC Radiology Dept., San Antonio, TX 78284-7800, USA [Tel: +01 210-567-5550; Fax: +01 210-567-5549; E-mail: fullerton@uthscsa.edu].)

24-29 August 2003: World Congress on Medical Physics and Biomedical Engineering (WC2003), Sydney, Australia. (Gary D. Fullerton, UTHSC Radiology Dept., San Antonio, TX 78284-7800, USA, [Tel: +01 210-567-5550; Fax: +01 210-567-5549; E-mail: fullerton@uthscsa.edu].)

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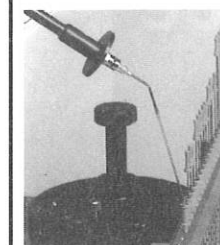
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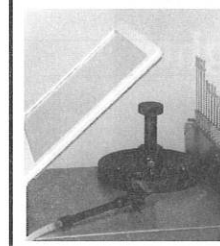
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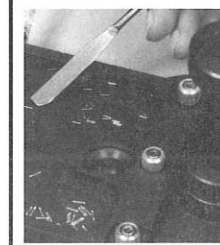
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Report on WHO Radiotherapy Consultants Meeting

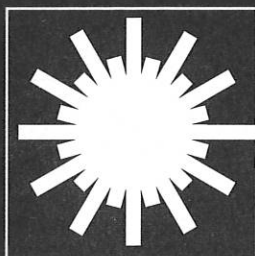
On March 5-6, 1999 a Consultants Panel for the World Health Organization met in London to develop a global strategy for the development of radiotherapy for the next 20 years. IOMP members participating were Nisakorn Manatrakul (Thailand), Eric Van't Hooft (The Netherlands) and myself. The major event was to devise an integrated approach that could be implemented by developing countries taking into account such factors as overall health care expenditure, stability of economy, existing resources, medical expertise availability, geography and population distribution, epidemiology of cancer, public awareness and demand, and political awareness and will. The panel developed a series of templates for regional and satellite centers and proposed:

- construction of a "Partners in Cancer" program to forge relationships between first world centers and those in developing countries
 - formalization of a WHO accreditation scheme to ensure and support the practice of high quality radiotherapy
 - establishment of distance-learning programs, and regional centers for the training of professional staff as close to their country of origin as possible
 - creation of a WHO radiotherapy volunteer advisory panel or temporary assignments to the developing world.
- The panel report is to be published in *Lancet*.

Colin G. Orton, Ph.D.
President, IOMP

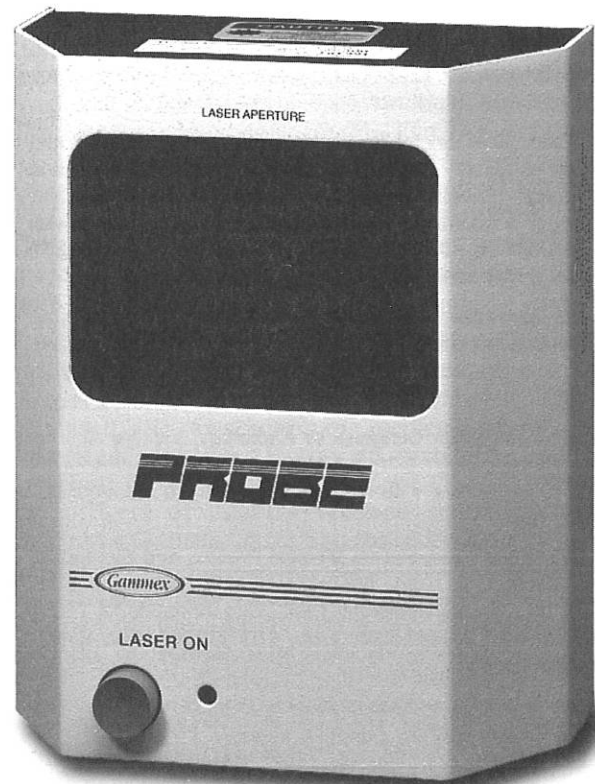
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