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MEDICAL PHYSICS WORLD

Bulletin of the International Organization for Medical Physics
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73 Adhering National Organizations 2002

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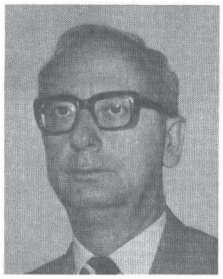
President's Message — *Oskar Chomicki, President IOMP*



Oskar A. Chomicki
President of IOMP

The three-year term of office for the Officers and Council of the IOMP has come to an end. This has been quite a fruitful period. What should be especially emphasized are the new initiatives, such as the idea of mid-term World Congresses for Medical Physics and the Dues Scheme (to be approved by the General Assembly in Sidney). They will undoubtedly have a great impact on the future of the IOMP.

Professor Gary Fullerton, Secretary General, and Professor Azam Niroomand-Rad, President-Elect, will present a detailed account of our achievements (and failures) over the past three years. As for myself I would like to express my deep appreciation of all the efforts and help from the Executive Committe Officers and other members of the Council to make my presidentship not only easier but also more pleasant.

As a final part of my message let me share with you one important item for future discussion in Sidney and elsewhere. After some deliberations and consultations we have come up with a definition of what medical physics is and medical physicists are.

Medical Physics is a branch of applied physics, pursued by medical physicists qualified with a University degree or equivalent and majoring in physics, which uses scientific (mainly physics) principles, methods and techniques in practice and research for the prevention, diagnosis and treatment of human diseases with a special goal of improving human health and well-being." , and

"A medical physicist is a person, qualified with a University degree or equivalent, majoring in physics with specialist education and training in the concepts and techniques of applying physics in medicine, who, using scientific physics principles, methods and techniques works in alliance with medical staff in medical institutions (general or University hospitals, research institutes or laboratories) employing and/or developing medical technology in practice and research for the prevention, diagnosis and treatment of human diseases, and/or runs courses in medical physics and allied sciences for physicists, engineers, technicians and medical doctors." These two definitions seem to be fundamental to the recognition and development of medical physics world-wide.

Finally, I wish you every success in the upcoming World Congress on Medical Physics and Biomedical Engineering, 24-29 August 2003 in Sidney, Australia, as well as in your professional and personal life.

Vice-President Report

Azam Niroomand-Rad, PhD, IOMP, Vice-President

Meeting the Needs - A Plenary Session Organized by the IAEA in Collaboration with the IOMP, PAHO, and WHO.

This past November, the International Atomic Energy Agency (IAEA) organized a special Plenary Session "Meeting the Needs" at the International Symposium on Standards and Codes of Practice in Medical Radiation Dosimetry that was held at the IAEA Headquarter in Vienna, Austria. This session was co-chaired by Dr. Groth and Dr. Shortt from IAEA.

Current global crisis in cancer treatment, especially in developing countries, was discussed by individual representing international organizations, (e.g. International Organization for Medical Physics (IOMP), World Health Organization (WHO), and Pan American Health Organization (PAHO)) as well as manufacturing organizations. In addition to my own presentation ("Medical Physics Education and Training: Opportunities and Challenges - An Overview of International Activities for Meeting the Needs"), the below topics were presented:

- Cancer Epidemiology in Developing Countries (Dr. S.L. Whelan, (WHO),
- Megavoltage Radiation Therapy: Meeting the Technological Needs (J. Van Dyke, Canada)
- Issues of Health Economics in the Practice of Radiotherapy in Developing Countries (Dr. Levin (IAEA)
- Use of Imaging Techniques in Radiation Oncology (Dr. Cari Borras (PAHO)

Upon completion of the formal presentations, there was a panel discussion. The following specific comments were expressed:

- What is the right technology for radiation therapy of cancer in developing countries?
- How can the aspirations of the developing countries in terms of cancer treatment and their economic reality be matched?
- What equipment should be purchased?
- How should the recruitment and training problems be addressed?
- How can QA and QC be ascertained?
- What should be the role of IAEA and WHO?

In an attempt to respond to these concerns, the following recommendations were suggested:

- Since there is likely to be a dramatic increase in the number of cancer patients in developing countries within the foreseeable future, and since nuclear technology in the form of radioactivity will remain a mainstay of the treatment of cancer in both developed and developing countries for the foreseeable future, the IAEA and WHO should be proactive in assisting developing Member States in addressing their current and future needs for cancer treatment.
- Cobalt teletherapy and high dose rate brachytherapy will be the mainstays of radiotherapy for most developing countries

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Vice-President Report *(continued from page 2)*

in the foreseeable future, accompanied by tools for diagnosis, staging, immobilization, shielding, treatment planning, simulation, dosimetry and QA. There fore, the industry should be made aware of the needs of the Member States.

- Appropriate dosimetry equipment must be made available for equipment commissioning and continuing quality control.
- The lack of properly trained radiotherapy personnel is prohibitive as the lack of equipment in many developing Member States. Optimizing the use of existing equipment is often far more cost-effective than simply adding new equipment.
- Training programmes should be implemented on a large scale for professional staff working in radiotherapy National or regional centers of excellence may be used for training. These should be developed and supported in co-operation with international organizations.
- The availability and use of appropriate imaging tools for radiotherapy should be encouraged in Member States.
- WHO recommendations should be disseminated to provide guidance to organizations donating technologies to the developing countries. Guidance should be developed to ensure safe and effective implementation of technologies for di agnosis and treatment.
- Qualified medical physicists need to be present at any radiation facility. In Europe, the EU (European Union) members follow the European Commission's Medical Exposure Directive [97/43/EURATOM (MED), 1997] which requires the services of a qualified medical physicist at any radiation facility. Many professional organizations, including IOMP, concur with this Directive and recommend that it be adopted globally.
- The existing academic and clinical residency programs in medical physics are not sufficient and/or adequate to meet the monotonically rising demand for qualified medical physicists worldwide. A possible solution is to establish regional medical physics programs such as the one that is being developed by IAEA for Africa under the African Regional Cooperative Agreement (AFRA) for the Member States. Another possible solution is to provide training to the trainers. An example of this model of "training the trainers" is the AAPM/IOMP International Scientific Exchange Programs (ISEP) that have been offered to many medical physicists in many developing countries since 1992.
- Certification and registration of the medical physicists by the professional organizations in the appropriate sub-field(s) as well as continuing medical education (CME) and continuing professional development (CPD) for maintenance of certification (MOC) have become essential.
- Medical physicists have to meet the established minimum required standards to ensure high quality patient care. Standards of practice have been developed by scientific and professional organizations such as AAPM (American Association of Physicists in Medicine), ACMP (American College of Medical Physics), and ACR (American College of Radiology), and EU Directives.
- Skills and training of medical physicists need to be updated on an ongoing basis in order that they may function effectively and independently.

In summary, I think this forum provided an excellent opportunity to discuss the global crisis in cancer treatment from various perspectives. We hope to be able to stimulate further discussion on these topics not only in future international meetings but also in smaller regional meetings. Please share your thoughts or concerns with us by sending your comments to me or by bringing them to the WC2003 in Sydney (August 24-29, 2003) for further discussion. Thank you.

A Personal View of the Achievements and Potential of IOMP from the Outgoing Secretary General

Gary D. Fullerton, Ph.D., Secretary General IOMP 1998-2003

The past six years have been active and fraught with many active and at times acrimonious discussions concerning the proper allocation of IOMP resources. Many of my actions for IOMP have been questioned and at time resented. I apologize for personal slights that I have caused. They were not my intent. I look back on what we have achieved and conclude that many of the financial, organizational and conceptual tools to foster achievement that I sought in 1998 are now in place. I ask the newly elected officers of IOMP to use them wisely. Good luck and best wishes to you all.

When assuming the office of Secretary General of the IOMP in January 1998 I was filled with ambitious ideas about achieving the goals laid out by the founders of the International Organization of Medical Physics, "To organize international cooperation in medical physics and to promote communication between the various branches of medical physics and allied subjects". I soon discovered that many of the financial, organizational and conceptual tools to foster achievement were lacking. IOMP was not reaching the large majority of younger medical physicists because too large a fraction of financial resources was devoted to travel aid programs to the triennial World Congress for a small senior fraction of the IOMP membership. These aid programs were important but lacked potential for large, longstanding impact on the international future of medical physics. IOMP was not reaching the future core of our profession by not reaching the young.

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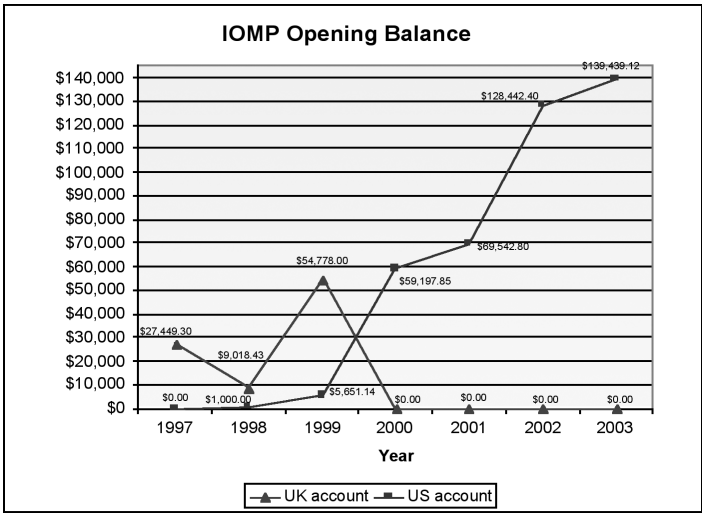
A Personal View of the Achievements and Potential of IOMP from the Outgoing Secretary General *(continued from page 2)*

Gary D. Fullerton, Ph.D., Secretary General IOMP 1998-2003

As shown in the Figure below, the IOMP treasury was reduced to only $10,000 US at the opening of 1998 when I took office. This amount provided no reserve and little room to initiate new programmatic initiatives. Simultaneously at the 1997 World Congress the IOMP committed to reconsidering the prior decision to collaborate and hold combined Congresses with the biomedical engineers. IUPESM membership was thought superfluous if membership in the International Council for Science (ICSU) could not be achieved. Clearly many changes and much work lay ahead.



The following activities were completed and achieved between 1998 and 2000:

- The application to ICSU was redrafted and the IOMP/IUPESM Secretariat sent letters (with sample drafts of letters appropriate to support election of the IUPESM to full ICSU membership) to all 25 Society Union and 75 National Academy of Science members of ICSU.
- This proactive program lead directly to the ICSU delegate election of IUPESM as the first union member of ICSU in a health related area at the Cairo, Egypt meeting in 1999.
- As a result IOMP committed in 2000 to remaining a member of IUPESM and agreed to increase dues from 2500 BPS (~$4000 US) to $10,000 US per annum.
- An IOMP Science Committee was formed and assigned the task of organizing and partially funding regional scientific conferences around the world.
- The responsibilities of the Developing Countries Committee were expanded to encompass those of the new Professional Relations Committee which was funded to sponsor regional professional conferences.
- The Education and Training Committee was budgeted for increased funding of educational programs with the request that activities encompass either three national members from a region or the IOMP chapter from the region of the world.
- The IOMP shifted from paper publication of the IOMP Directory to web page publication with a continuously updated listing of IOMP activities, funding levels and program plans (see http://www.iomp.org for details and history) to overcome notoriously slow and undependable paper mail delivery.
- The IOMP Congress travel grant program for 2000 was reduced to provide 8 IOMP awards under a program administered by the Professional Relations Committee to assure good regional representation from developing nations.
- The IOMP formed the International Advisory Council to promote the development of regional IOMP chapters and interchange at the regional level.

Following the financially very successful Chicago2000 World Congress that accounted for the large increase in the IOMP net worth at the beginning of 2001, a larger range of IOMP programs became possible. The primary IOMP achievements between 2000 and 2003 are:

- The EXCOM was expanded to include the past-President and an elected Treasurer to extend the range of input for important international decisions.
- George Mawko was elected Treasurer and a Finance Committee was formed to budget and administer IOMP finances.
- An experienced Finance Committee chaired by the Treasurer was formed with a membership including past-Treasurers of several National Members Societies accustomed to administering large budgets (AAPM, IPEM , COMP).
- Proactive budget planning by the Finance Committee for the first time allowed comprehensive allocations of funds for regional international science, education and professional activities.
- Financial analysis by the Finance Committee showed the importance of an independent World Congress for Medical Physics to maintain IOMP activities.
- The IOMP committed to sponsoring the first independent "World Congress for Medical Physics" in Nuremberg, Germany in 2005 in conjunction with the European Federation for Medical Physics (IOMP European chapter) and agreed to commit $10,000 seed money for the project.
- More than a dozen IOMP financially sponsored regional meetings in almost all Chapter regions of the World have encouraged the independent development of regional chapter activities accessible to younger medical physicists.
- Regional meetings enhanced the medical physics profession for several thousand medical physicists from developing countries who could not previously participate in IOMP activities due to high travel expenses.
- The IOMP opened the year 2003 with nearly $140,000 and budgeted expenditures of $84,325 with projected income of $66,000 (see budget on IOMP home page).
- IOMP can now organize international cooperation and promote communication between medical physics specialties and allied subjects in venues suitable for all our members.

The past six years have been active and fraught with many active and at times acrimonious discussions concerning the proper allocation of IOMP resources. Many of my actions for IOMP have been questioned and at time resented. I apologize for personal slights that I have caused. They were not my intent. I look back on what we have achieved and conclude that many of the financial, organizational and conceptual tools to foster achievement that I sought in 1998 are now in place. I ask the newly elected officers of IOMP to use them wisely. Good luck and best wishes to you all.

Editor's Corner

E. Ishmael Parsai, Ph.D., Editor, MPW

In the previous MPW issue, we announced the addition of the Editor's Corner for the purpose of listing of various sources of information and related news topics in the fields of Medical and Health physics. The listings could include reference to review articles, useful websites, and current innovative advances in the field mostly for the benefit of our readers located at remote sites around the world. I would like to take this opportunity to solicit suggestions from the readers regarding the same and to invite your comments and involvement in making this section more useful to our readers. If you have ideas on issues that you believe should be brought to the attention of MPW readers, please contact E. Ishmael Parsai, Ph.D., at: eparsai@mco.edu.

SOME RECENT NEWS OF CUREENT INNOVATIONS IN MEDICAL/HEALTH PHYSICS.

Compiled by: Mohammed K. Zaidi, Ph.D., Member, IOMP Professional Relations Committee.

1. FDA APPROVES LANDMARK TREATMENT FOR CORONARY ARTERY DISEASE

Cordis' CYPHER(tm) Sirolimus-eluting Coronary Stent Dramatically Reduces Reblockage of Coronary Arteries

Cordis Corporation, a Johnson & Johnson company, received approval from the U.S. Food and Drug Administration (FDA) to market its CYPHER(tm) Sirolimus-eluting Coronary Stent, making it the first U.S.-approved combination drug device intended to help reduce restenosis

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(reblockage) of a treated coronary artery. Restenosis is one of the greatest challenges in long-term patient treatment in interventional cardiology. Combined with the pharmaceutical agent sirolimus, the CYPHER Stent is placed into a human coronary artery to prevent restenosis (reblocked arteries). Sirolimus, marketed as Rapamune_xAE; by Wyeth Pharmaceuticals, is a commercially available drug developed from a naturally occurring substance first isolated from soil samples in Easter Island in the South Pacific.

2. Dirty Bombs - The Radiological Dispersal Devices (RDD)

A conventional bomb packed with some radioactive material such as cesium chloride powder, strontium and other isotopes used in medicine and industry may present a difficult and complex challenge and requires a determined and comprehensive international response. It is because of a possibility of spread of radiation that might cause immediate panic because of long-term fear of illness. It might also make a section of the city uninhabitable for years. A recent report concludes that worldwide "several tens of thousands" of the most dangerous radiation sources - used to treat cancer, find oil deposits, disinfect food - may be insufficiently protected. The US Department of Energy Secretary announced at the first high level global conference held in Vienna, Austria to help developing countries track down loose radioactive materials on their soil. It has allocated $3 M, funneled through the IAEA, in the next year to help poorer governments secure high-risk radiation sources that could be used for terror weapons. A radiation disaster is a possibility for which we must be prepared. Radiologists, radiation oncologists and medical physicists will play a vital role as responders and as sources of accurate information for patients, the public and the medical community.

3. Anthrax Problem

The infection begins with the inhalation of the anthrax spore. The spore is engulfed by alveolar macrophages, and is transported through the pulmonary lymphatic to hilar and mediastinal lymph nodes. Germination of the organism results in transformation to vegetative bacteria with subsequent exotoxin production, which results in hemorrhage and edema in the lymph nodes and mediastinum. Pleural effusions and thickening of the bronchovascular bundles result from lymphatic stasis and edema related to extensive lymph node involvement. Ultimately, the bacteria enter the blood stream via the thoracic duct, resulting in severe septicemia and often death. Previously described imaging features of inhalational anthrax consist of mediastinal widening presumably secondary to lymphadenopathy and mediastinal edema. There are frequent bilateral pleural effusions. It causes headache and night sweats as well as a mild sore throat and occasional dry cough.

4. Severe Acute Respiratory Syndrome (SARS)

Severe Acute Respiratory Syndrome (SARS), a mysterious respiratory illness, which has spread with the aid of international plane travel from Asia to Canada and other countries in Europe, is declared by the World Health Organization (WHO) to be a worldwide threat. It has caused deaths in Canada and other countries and couple of hundreds got affected so far. It is a form of pneumonia. The illness starts with the sudden onset of fever of 101degrees or higher, muscle itches, headache, sore throat, dry cough and shortness of breath. X-rays show pneumonia or respiratory distress syndrome. Laboratory tests show low numbers of white blood cells and platelets, which help blood clot. Dr. Gerberding from Center of Disease Control and Prevention, Atlanta, USA said, "We are not suspicious that this is a common organism, or we would have found it by now." It has been concluded that it is a known organism that is difficult to grow or a novel one.

5. Breast Cancer

Dr. Bernard Fisher//Head of Program: This study demonstrates that the use of Tamoxifen can prevent breast cancer in women who have no evidence of breast cancer, but are at high risk of getting it. As per report from the National Breast Cancer Foundation, USA indicates that about 182000 women will be diagnosed with breast cancer and 43000 will die, however 1600 men will be having breast cancer and 400 will die. Over the course of 6 years, at risk patients, who took the drug Tamoxifen, cut their breast cancer rate almost in half. This is something that is a great stride. But while Tamoxifen may reduce the risk of breast cancer, it has also been shown to increase the risk of uterine cancer and, in some patients has been associated with potentially fatal blood clots.

6. Radiolabeled Monoclonal Antibodies (mAbs)

Otto C. Boerman, et.al addressed the concept of targeting radionuclides to tumors using radiolabeled monoclonal antibodies (mAbs) against tumor-associated antigens was proposed more than a century ago. With the development of the hybridoma technology and the availability of mAbs against tumor-associated antigens, this concept was investigated scientifically in animal models and in cancer patients. On intravenous injection, mAbs accumulate in tumors relatively slowly, and several days after injection only a few percent, at most, of the injected dose is localized in the tumor. The inefficiency of this accumulation has been attributed to the presence of various physiologic barriers between the circulation and the tumor cell surface. The vascular endothelium, the relatively large transport distances in the tissue, and the enhanced interstitial pressure in the tumor tissue hamper the penetration of mAbs into the tumor tissue to bind to their target antigen. Despite inefficient targeting, good response rates have been obtained with radioimmunotherapy in patients with hematologic tumors. In comparison with directly labeled antitumor mAbs, mAb-based pretargeting strategies can enhance the radiation dose to the tumor in radioimmunotherapy. Therapeutic studies on various groups of cancer patients have shown that the avidin/biotin- or SA/biotin-based approach developed in Milan can induce meaningful therapeutic responses. Although pretargeted radioimmunotherapy using bsmAb constructs is still in its early phase, promising results have already been obtained with this approach (J. Nucl Med 2003 44: 400-411).

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Editor's Corner *(continued from page 6)*

E. Ishmael Parsai, Ph.D., Editor, MPW

7. Eliminating Pain Without Medicine

Doctors have been implanting electrodes near the spinal cord to block certain kinds of pain from the neck down by interrupting signals between neurons. Now the scientists are moving that technology to head, hoping to treat certain crippling headaches. Nerve stimulation "has done wonders for this kind of a headache," agrees Dr. Sandeep Amin, an anesthesiologist and pain specialist at Chicago's Rush-Presbyterian-St. Luke's Medical Center, who implanted two patients who suffered unrelieved headaches after brain surgery. It's simple to implant. A battery lies under the skin by the collarbone, and a small wire runs up the neck and into the scalp. Two implants are needed if pain is on both sides of the head. A magnet turns the electric current on or off. Turned off, pain resumes - but the implant is vulnerable to security devices like those in airports, and must be switched off until patients pass by. Nerve stimulation for headaches is still highly experimental. For more information, go to info@wireheading.com.

8. DNA Testing in the United States

DNA testing in the next five years in a bid to stem a growing backlog of forensic evidence from crime scenes will cost US government about a $ 1 B. DNA testing of convicted felons who claim to be innocent will be done. DNA evidence can breathe new life into long dormant as we will learn many sexual assaults produced DNA matches against people convicted in burglaries and other nonviolent crime investigations. DNA was discovered, isolated and analyzed way back in the late 1800's. Dr. Watson and Dr. Crick discovered twisted shape and the double-helical structure of the DNA around 50 years ago. It was made possible by research data from Dr. Rosalind Franklin, as she was an expert on viruses. The show at New York Academy of Sciences focuses on the idea that the DNA is in their word, "a semiotic sign system," and that genetics "has turned the body into notations."

Libraries Report

By: Marylin Stoval, IOMP Curator of Libraries
Status AAPM/IOMP Libraries - June 2003

We currently have 63 active libraries in 41 countries. A new library is currently being established in Mardan, Pakistan. We send questionnaires to all libraries periodically to verify contact persons and mailing addresses. Any library which does not respond for more than 2 years is considered inactive.

We receive an average of 1-2 inquiries about the program every month and approximately one-third of these result in donations. There have been 2 donations coordinated since April 2003 and one of these has been shipped. An October 2002 match is pending word on funding for shipping at the donor's institution.

IOPP continues to donate 5 books to new libraries. Thirty-two members of AAPM have donated their 2003 Medical Physics subscriptions to libraries. Each quarter, The Society for Radiological Protection mails their quarterly publication, The Journal of Radiological Protection, to all active libraries.

While supplies last each new library will receive an immediate donation of 5 CDs (3 from ASTRO, 1 from Chicago 2000, and 1 Medical Physics-text & abstracts).

Anyone wishing to donate materials or establish a library is asked to contact the curator.

Annual Status AAPM/IOMP Libraries - June 1, 2003

By: Marilyn Stovall, Ph.D., IOMP Curator of Libraries

We currently have 63 active libraries in 41 countries. A new library is being established in Mardan, Pakistan, the second new library since June 2002. We are processing 11 shipments of books and/or journals donated by individuals in the past 12 months. Included is a large donation from the United Kingdom that was successfully coordinated and received by the IOMP Library. We have received confirmation that 7 of the 11 donations have been mailed.

IOPP continues to donate 5 books to new libraries. AAPM coordinates donations of Medical Physics journal subscriptions; currently 32 members have donated their 2003 subscriptions. Each quarter, The Society for Radiological Protection mails their quarterly publication, The Journal of Radiological Protection, to all active libraries.

While supplies last, each new library will receive an immediate donation of 5 CDs (3 from ASTRO, 1 from Chicago 2000, and 1 Medical Physics-text & abstracts). In addition, the physicists' organization in Cyprus donated 50 CDs from the Medicon '98 regional meetings.

We ask that we hear from libraries a minimum of once every two years to maintain them as active. Twenty-nine libraries have returned our update questionnaire sent April 15, 2002. A follow-up to the non-responding libraries was mailed July 15, 2002. An additional 28 libraries responded to this request. In September 2002, 32 libraries were placed on inactive status for failure to respond to either request. We contacted the 32 libraries placed on inactive status and have received 4 replies.

Anyone wishing to donate materials or establish a library is asked to contact the curator.

Longevity as a Measure of Radiation Health Effects

John R. Cameron, Ph.D., Professor Emeritus, Univ. of Wisconsin, U.S.A., (jrcamero@wisc.edu)

Excellent human data from the 100 year study of British radiologists (1) show that although early British radiologists (1897-1920) had a 75% increase in cancer mortality compared to their non-radiologist medical colleagues (the controls), their death rate from all causes was slightly lower than the controls. That is, from a longevity viewpoint, their high doses (estimated to be about 1 Gy/y) were not a health hazard.

Their death rate from non-cancer was 14% lower ($p<0.05$) than that of the control group. After 1920 their cancer death rate was never significantly higher than their medical colleagues, and for the century their non-cancer death rate was 14% lower ($p<0.001$) than their medical colleagues.

Present radiation protection policy is based almost entirely on the high cancer death rates of Japanese a-bomb survivors who received their high doses in a fraction of a second. The a-bomb survivors who had a high enough dose to increase their cancer mortality by 75% had a similar increase in deaths from non-cancer, in contrast to the significant 14% decrease in non-cancer deaths of the British radiologists. It is obvious that a-bomb longevity data are inappropriate for setting permitted radiation doses for radiation workers or the public.

The Berrington et al article (1) concludes with the true statement: "For non-cancer causes of death there was not evidence of an increased risk in any group, even among those registering before 1921." However, it does not mention the 14% decrease ($p<0.001$) in deaths from non-cancer for the 100 years as pointed out in my letter to the Editor. (2) The longevity data from the British radiologists study indicate that the dose limit recommended for radiation workers by the International Commission for Radiological Health (ICRP) in 1934 of 0.2 r/day (about 50 rads/year) did not need to be lowered. I suggest that the ICRP go back to their 1934 recommendation.

The abrupt decrease in cancer deaths of the British radiologists after 1920 suggests that x-ray induction of cancer may have a high threshold as suggested by two earlier studies. Radium induced bone cancer of the dial painters had a threshold of 1,000 rads to the skeleton. (3) Lung cancer induction from fluoroscopic exposures had a threshold of about 200 rads to the lungs. (4) The healthiest British radiologists were those who joined a radiological society between 1955-1979. Their death rate from cancer was 29% lower (not significant); from non-cancer was 36% lower ($p<0.001$) and from all causes was 32% lower ($p<0.001$) than the controls. Their longevity would be more than 3 years longer than the controls. The chance of this greater longevity being accidental is less than one in 1,000.

In my opinion, the best epidemiological study of radiation workers ever done is the unpublished DOE supported U.S. nuclear shipyard worker study (1980-1988). (5) The 28,000 nuclear shipyard workers with the largest cumulative doses had a death rate from all causes 24% lower ($p<10\text{-}16$) than that of 32,500 age-matched and job-matched unexposed shipyard workers. No other study of radiation workers had the important advantage of having job-matched controls.

I believe that longevity is a better measure of the health effects of radiation than cancer mortality. The above data strongly support my belief that a moderate dose rate of radiation is beneficial to the health.

References:

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5. Sponsler, R. Cameron, J.R. Nuclear shipyard worker study (1980-1988): a large cohort exposed to low dose-rate gamma radiation. http://www.medphysics.wisc.edu/~jrc/art_nsws1.htm

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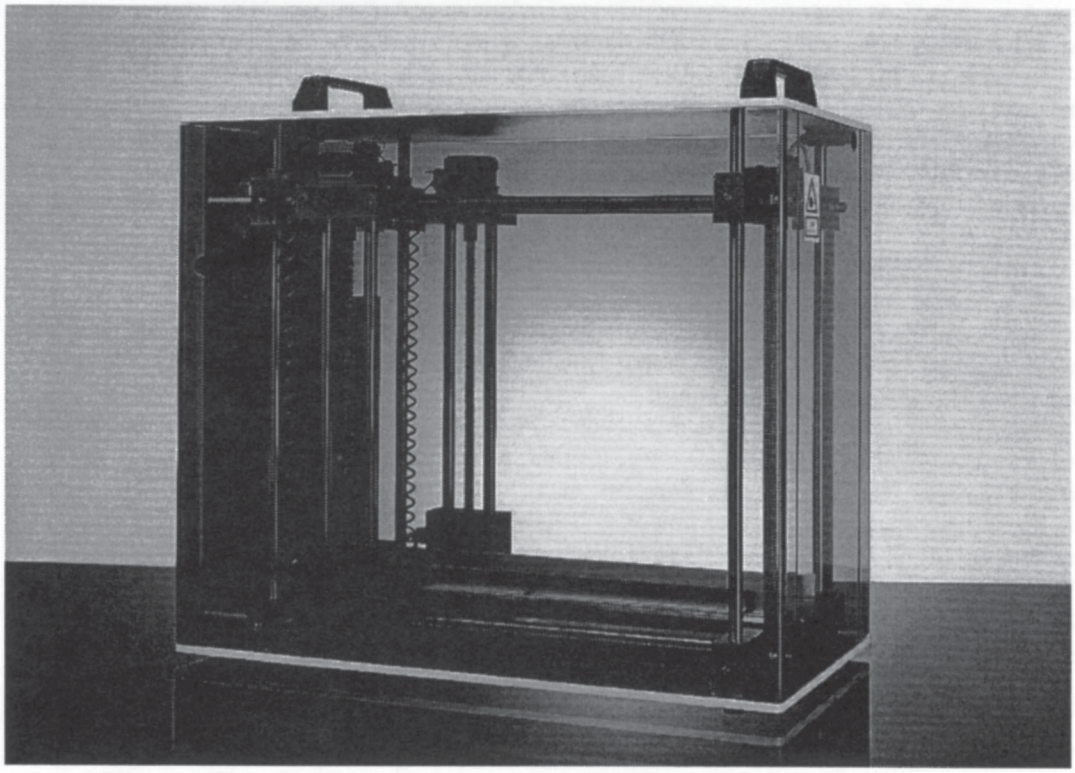

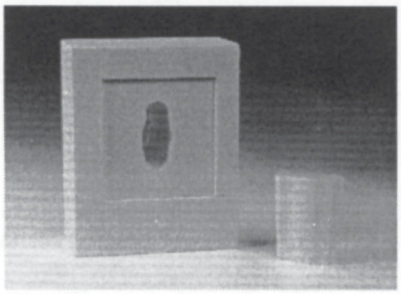

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Archived Radiation Discussion Rooms on the Web

By: John R. Cameron, Ph.D., Professor Emeritus,
Univ. of Wisconsin-Madison, U.S.A.,

This article describes a scientific Web communication scheme as part of the Virtual Radiation Museum (VRM) . Most of the VRM is basic educational material about radiation and radioactivity. A new "wing" of the VRM will be Radiation Discussion Rooms (RDRs) primarily for serious commentary by and for radiation scientists. Following is a tentative list of topics for the Radiation Discussion Rooms:

1. Health effects of low dose rate radiation.
2. Radiation protection quantities.
3. The scientific basis of As Low As Reasonably Achievable.
4. Permitted dose levels to workers and the public.
5. How to reduce radiation phobia.
6. The LNT model of radiation risk.
7. Health effects of Radon.
8. Safety of Nuclear Power.

Letters to science journals play an important role in science communication but they have limitations: 1) The high cost of publishing letters; 2) Controversial topics are often not published; and 3) The usefulness of letters is reduced by not having the original article available. The RDRs will not have these disadvantages. All contributions accepted for a given RDR will be immediately available to a visitor. All contributions to the RDRs will be filtered to be sure they are well written, well referenced and make sense. If any contribution seems plausible and is well written, it will be posted. Anybody can visit the RDRs. They can also contribute a commentary to support or refute material already posted on the RDR. Most contributions are expected to be from radiation scientists.

The rooms will be open to the public who may contribute questions to be answered by one or two of the experts. Some of the Q & A may be posted if they are of general interest. Each RDR will have a "Contact the Editor" link, which will permit a visitor to send a comment or query.

We hope to have radiation scientists from all over the world as "Room Editors" of the RDRs. Some senior radiation scientists will be invited to be "Honorary Editors" to give advice on which contributions should be accepted for a particular RDR. We solicit your advice on this idea of Radiation Discussion Rooms and to ask if you are willing to help filter contributions to a room that is of interest to you. The success of the RDR idea will depend on help from many people. We hope to initiate the first archived Radiation Discussion Rooms late in 2003.

Publications Committee Summary Report:

Gino Fallone, Ph.D., Chair, Pub Com

Our main activity revolved around the implementation of the Global On-line Medical Physics (GOMP) Textbook. The Editor is Kwan-Hoon Ng and the associate editor is Larry DeWerd. The goal of GOMP is to improve medical physics education worldwide by providing up-to-date educational materials to students in all countries by using advances in internet communications and publication. The intent is to use a prestigious international editorial board to select a single chapter from among all textbooks presently in print and available for purchase. The Publisher of the selected textbook is invited to post the selected chapter on the web server of the Company marketing page along with links to specific marketing information to inform the reader how to purchase the textbook. At present, an URL is under construction for this purpose. The link to the URL is http://gompbook.tripod.com/. The Publication Committee continues to negotiate with publishing institutions to obtain price discounts for IOMP members for publications.

Announcement of Publication Availability

"The Publications Committee of AAPM is pleased to announce that eleven Task Group reports are now available free (online) to non-AAPM members. Reports like " Comprehensive QA for Radiation Oncology", "AAPM Code of Practice for Radiotherapy Accelerators", "Code of Practice for Brachytherapy Physics", "Permanent Prostate Seed Implant Brachytherapy" and others may be downloaded in PDF Format. Visit www.aapm.org/pubs/reports. You will be informed when additional reports become available for free to non-AAPM members. For further information, you may contact: Julie E.Dawson, Ph.D., MBA, Chair AAPM Publication Committee"

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Report from the Education and Training Committee (ETC)

By: Slavik Tabakov, Ph.D., Chairman ETC

During the period October 2002 - March 2003 the IOMP Education and Training Committee supported the Regional Course on Advances in Diagnostic Radiology and Nuclear Medicine Physics in Cairo, Egypt (postponed from 2002). The course, co-sponsored by AAPM and the Egyptian Medical Physics Society, was delivered successfully during February 2003.

Additionally ETC supported a number of activities in the Asia Oceania Region. The first one was a Refresher Course on Medical Physics and Diagnostic Imaging (satellite to the Second South East Asian Congress of Medical Physics SEACOMP in Bangkok). The second important activity supported in the region was the Workshop on Education and Training of Medical Physicists in AsiaOceania Region (Joint IOMP AFOMP activity). This activity will cover all countries in the region; will assess the status of their education/training activities and will plan activities for their harmonization and further development. The Workshop is also supported by the Organizers of the WC2000 in Sydney and will take place as an adjacent activity to the Congress.

A European Conference on Medical Physics Training is in preparation at the moment at ICTP, Trieste. The Conference is supported by the projects EMERALD and EMIT and will focus on Training in Medical Imaging (MRI and Ultrasound).

New E-Training Materials for Medical Physics

Slavik Tabakov, Ph.D., Chair, Education & Training Committee (on behalf of EMIT Consortium)

Following the success of the EMERALD project (its materials being used in more than 60 countries), the core of the partnership developed a new medical physics training project under the Leonardo EU program. The objective of the new pilot project EMIT (European Medical Imaging Technology Training) is to develop a hospital based training programme, for young medical physics graduates, on Ultrasound and Magnetic Resonance Imaging Technology. It is intended that the training pack should also be a useful training tool or continuous/life-long training resource for other healthcare professionals working with these medical imaging modalities. The project Consortium comprises Universities and Hospitals from the UK, Sweden, France, and Italy, together with EFOMP. In order to provide coherence between the EMIT training materials and those from EMERALD, the Consortium is using a similar format of Internet and CD based e-Workbooks and Image Databases (IDB). The EMIT materials will be based on two modules - MRI and Ultrasound. Each Training Module will encompass the physics and engineering of the topic and consists of: a training timetable of approx. 4 months condensed training; a workbook with training tasks, leading to specific competencies; an IDB and Course Guide. All these will later be combined into e-training materials (e-workbooks). As in project EMERALD, the e-workbooks will use an HTML shell, which incorporates the training tasks (as PDF files) hyperlinked with the corresponding images (from the IDB). This simplicity allows for the user to learn directly through his/her existing computer and its Internet browser and Adobe Acrobat Reader. The project will also develop a Digital Dictionary of terms covering the whole field of Medical Imaging Technology. In the first instance, this e-Dictionary will be available in five languages (English, French, German, Italian, and Swedish, with the possibility for future expansion). The training Guide will also be translated in to these languages. The structured EMIT training programme will be further disseminated in Europe through a special Conference (October 2003, ICTP Trieste). All information for the EMIT project is available from the Web site: http://www.emerald2.net.

DONATION OF USED EQUIPMENT - PRC report for January-June 2003.

By: Mohammad K.,Zaidi, Ph.D., Member IOMP-PRC

THERAPLAN 5B Treatment planning system with CPU (installed on a table with all cable connections), Sonic Digitizer, Magnetic Tape Unit, Track Ball, 2 Monitors, HP LaserJet III printer & Operator's manual, HP 7550 Pen Plotter & Operator's manual, Installed GE CT driver to transfer CT images via magnetic tape, System capable of doing 3D teletherapy planning & Brachytherapy planning, System Manager Manual, Technical Reference manual (Hardware) and User's Manual being shipped to INDIA - International Cancer Centre, Kanyakumari Medical Mission C.S.I., Neyyoor, Kanyakumari District, Tamil Nadu, S. INDIA (MADRAS PORT-CHENNAI), INDIA. Dr. S. Blessed Singh, Medical Superintendent and Dr. Nehemiah Thompson of USA helped to pay for this shipment. Kingston Regional Cancer Centre, Kingston, Ontario, CANADA very kindly donated the system. I am very thankful to Dr. L John Schreiner FCCPM, Chief Medical Physicist for his effort and help to get this accomplished.

AECL series 300 Treatment planning system (TPC), Computer and Disk Drive System 'L' Series Unit, the Winchester Disk Drive, 11/34 System RLO1 Disk Drive, the Winchester Expansion Drive, Graphic Display Terminal TP-11 Unit, Theraplan Display Terminal, Digitizer, Printer and Plotters, Floppy Disk Drive, Magnetic Disk Drive, Accessories contain tapes, disks, manuals etc. to PAKISTAN - Pakistan Institute of Engineering and Applied Sciences (PIEAS), Nilore, Pakistan. St. Joseph's Medical Center, Stockton, CA, USA very kindly donated this equipment. Dr. Jahangir Satti, Chief Medical Physicist and Radiation Safety Officer, Department of Radiation Physics, St. Joseph's Medical Center is instrumental in getting this donation. Drs. Satti and Abdullah Sadiq, Rector, PIEAS are making the necessary arrangement for its shipment. PIEAS has last year started a two-year graduate program in medical physics.

CMS Modulex Radiotherapy Planning system with CMS Modulex Computer, Hewlett Packard Plotter, 12" Text Video Monitor, 15" Color Video Monitor, Light digitizer Box and a set of operator manuals being sent to Pakistan - Nuclear Medicine, Oncology and Radiotherapy Institute (NORI), Islamabad. I am thankful for this donation to John Rodriguez, President, Dosimetry Consultant, 275 North 18th Street, Suite 12, Beaumont, Texas 77707

Victoreen Electrometer 555 was sent to Idaho State University, Health Physics Lab., Pocatello, ID. I am thankful to Ray A. Carlson, President of Radiological Physics Services, Inc., Plymouth, MI. for this donation.

Shipping arrangements:

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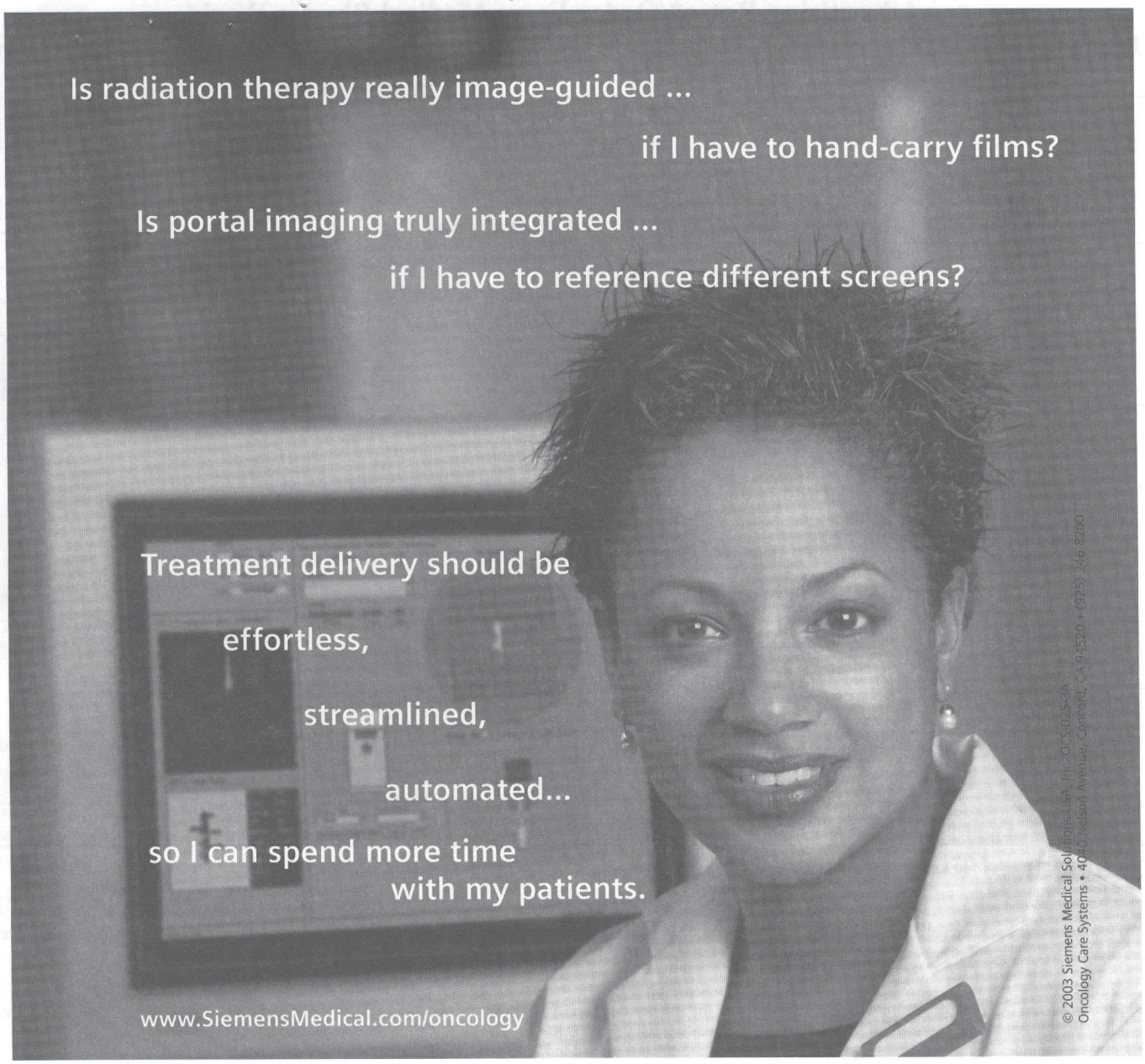
Used equipment needed:

Automatic film processor, block cutter, film densitometer, radiation field analyzer, 3D treatment planning system, direct patient dose monitor, TLD readers and ultrasound machine.

The equipment donated to IOMP Used Equipment Donation Program is generally in good working condition but we don't guarantee its usefulness. The recipient has to pay for shipping and handling only. The donations to IOMP are sometime tax deductible. If you want to donate or want some equipment donated to your organization, please contact Mohammed K. Zaidi at 208-526-2132, Fax 208-526-2548 or e.mail zaidimk@id.doe.gov



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Calendar of Events

Carter Schroy, Ph.D., Associate Editor

The following events have been excerpted from the Medical Physics Calendar [http://medphys.org/calendar/]. Also see [http://www.iomp.org/]. Events for inclusion should be emailed to the Calendar Editor, Carter Schroy, at EventsEd@aol.com. MPW deadlines are April 1 and October 1 for issues that are mailed several weeks later.

20-25 July 2003
IPMI 2003: 18th Int'l Conference on Information Processing in Medical Imaging ; Ambleside, UK
www.ipmi-conference.com noble@robots.ox.ac.uk

10-14 August 2003
AAPM 45th Annual Meeting; San Diego, USA
aapm@aapm.org
http://aapm.org

17-22 August 2003
12th Int'l Congress of Radiation Research (ICRR 2003); Brisbane, Australia
http://www.icrr2003.org icrr2003@icms.com.au

19-21 August 2003
Workshop on Recent Advances in Absorbed Dose Standards (ARPANSA);
Melbourne, Australia
www.arpansa.gov.au / robert.huntley@health.gov.au

24-29 August 2003
World Congress on Medical Physics and Biomedical Engineering; Sydney, Australia
www.wc2003.org
B.Allen@unsw.edu.au

9-11 September 2003
16th Int'l Conference on Systems Engineering (ICSE2003); Coventry, U.K.
'Computing and Control in IMRT' and 'Automatic and semi-automatic image segmentation for IMRT treatment planning.'
http://www.ctac.mis.coventry.ac.uk/icse2003/icse2003.html

28 Sep - 3 Oct 2003
9th Symposium on Neutron Dosimetry (NEUDOS9) and Advances in Nuclear Particle Dosimetry for Radiation Protection and Medicine; Delft, The Netherlands
www.iri.tudelft.nl/~neudos9 Bos@iri.tudelft.nl

15-18 October 2003
International Meeting on Applied Physics (APHYS-2003); Badajoz, Spain
http://www.formatex.org/aphys2003/aphys2003.htm
amvilas@unex.es

19-24 October 2003
IEEE Nuclear Science Symposium and Medical Imaging Conference; Portland, OR, USA
www.-mic.org
rjames@bnl.gov

7-9 November 2003
Meeting of the Association of Medical Physicist Of India (AMPICON-2003); Patna, India
email: anal14@vsnl.net

30 Nov - 5 Dec 2003
Radiological Society of North America Annual Meeting, Chicago USA
www.rsna.org

3-5 May 2004
Advanced Workshop in 'Current Topics in Monte Carlo Treatment Planning'; Montreal, Canada
http://mctp.medphys.mcgill.ca
mctp@medphys.mcgill.ca

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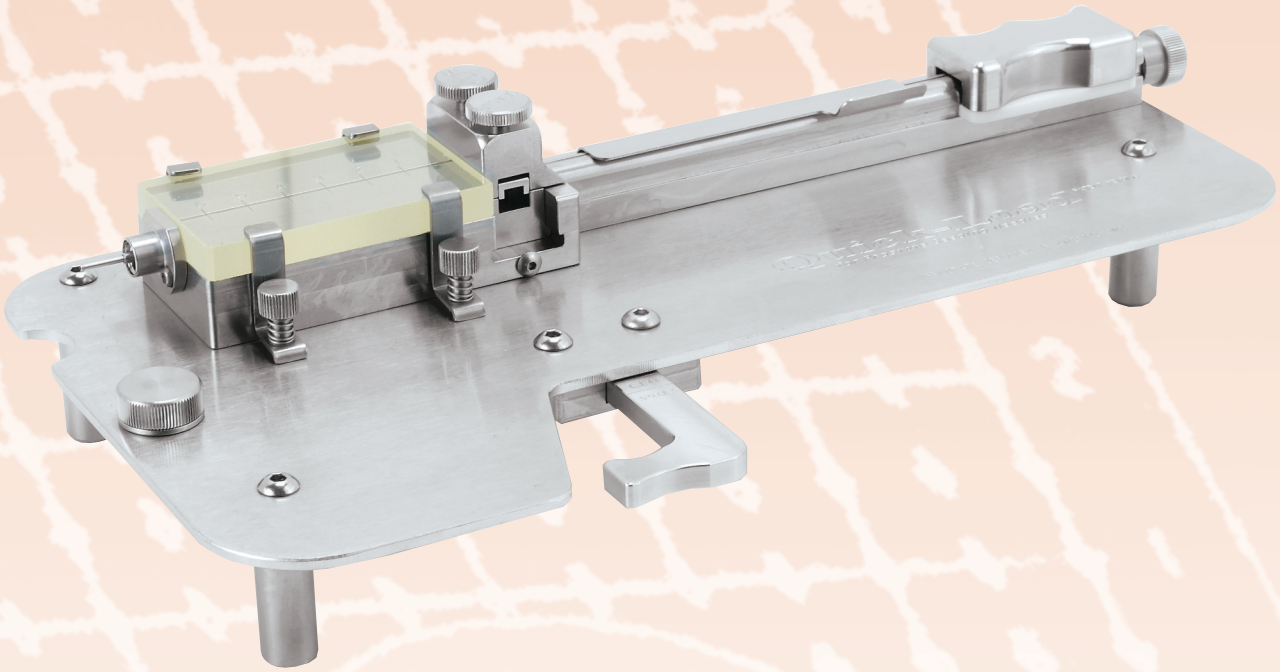

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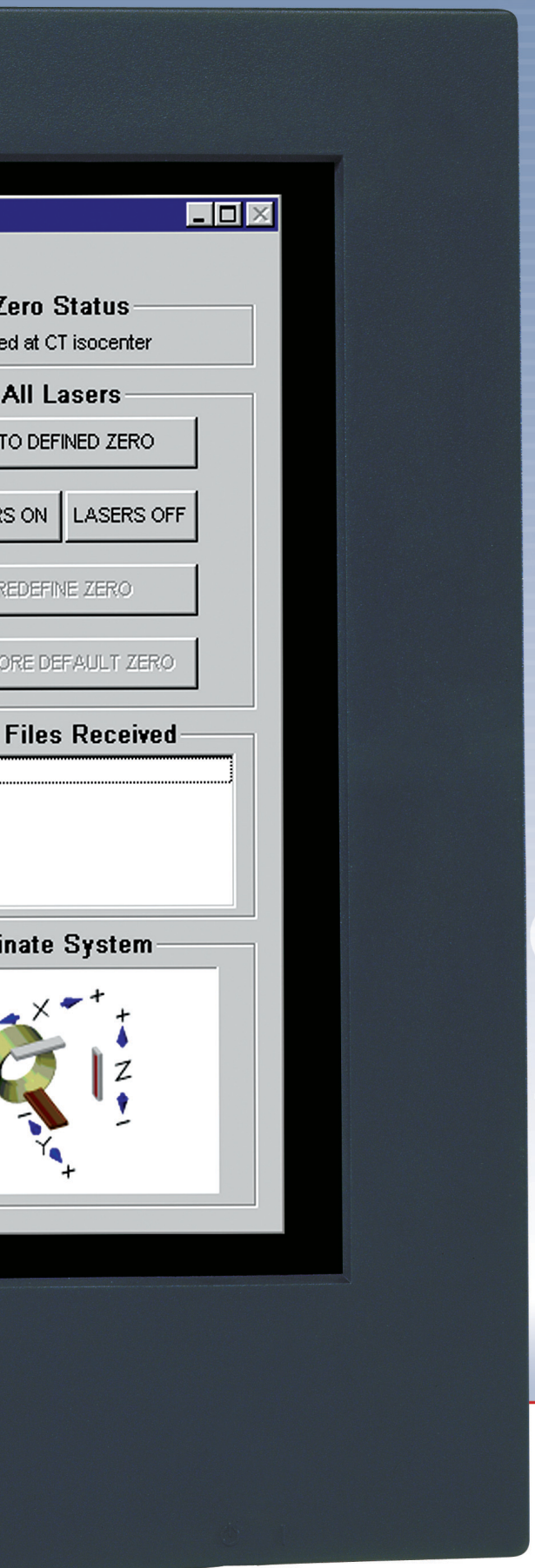

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