Volume 8, Numbers 1 & 2 1992

Medical Physics World

Bulletin of the International Organization for Medical Physics

President's Message

Dear Friends and Colleagues,

By the end of 1992, our International Organization for Medical Physics completes three decades of its existence. However, the office bearers and council members of the IOMP met only on nine occasions during this period. The effective communication among medical physicists of the world has come about only during the past eight years, beginning with the publication of the **MPW Bulletin**. The number of adhering medical physics societies which was 10 in 1972 and 28 in 1982, has crossed the 50 mark this year. The requirements of developing countries are attracting all our attention now and the conduct of IOMP sponsored regional conferences, training courses and workshops has become a regular feature in these countries.

International organizations which looked at the healthcare programmes of developing countries related to radiological sciences, realized that although funds for increasing the number of diagnostic and therapeutic facilities cannot be provided, they can help to improve the quality of service in whatever meager facilities the countries had. The WHO has, during the last decade, published quality assurance manuals in diagnostic radiology (1982), nuclear medicine (1982) and in radiotherapy (1988). However, due to lack of inexpensive tools required to enforce QA on a regular basis, situations in several developing countries has not improved. Even when a diagnostic x-ray QA kit or a treatment planning system is made available, proper utilization does not start until an expert visits the institution, initiates the procedure along with the local physicists/oncologists. Somebody has to visit a country with a specific assignment of initiating a practice rather than just give some didactic lectures. Depending on the nature of practical knowledge to be imparted, the expert may have to spend 15 days to a few months and this indeed is a costly undertaking.

In order to provide such assistance to needy countries, the IOMP has had dialogues with the International Atomic Energy Agency during the past few years. I am glad to report that when I visited Vienna in June, 1992 that I have signed, jointly with my IAEA counterpart, a memorandum of understanding. The IAEA will bear the travel and stay expenses of the expert who will be nominated by the IOMP, depending on the country and nature of the job to be carried out. The IAEA does not pay any salary, fee or honorarium to the expert for this assignment and the expert should be willing to share his time — to help an institution in the host country. Unfortunately, neither the IOMP nor the IAEA can initiate this assistance. The request has to originate from an IAEA Member State either within the framework of its Regular Programme of Technical Assistance or an executive agency, such as the United Nations Development Programme. I urge medical physicists in developing countries to apply, through their institution and government, to the IAEA, Vienna or to the UNDP office in their country requesting an expert's visit and identifying a major area of practical interest. Application forms may be obtained by writing to the Director, Division of Technical Co-Operation, IAEA, Wagramerstrasse 5, P.O. Box 100, A-1400 Vienna, Austria (Fax: 431 234564). In addition to the visit of an expert, you may also request for inexpensive equipment/accessories — a diagnostic x-ray QA kit, a modest TPS, books on medical physics, etc. The IAEA welcomes such requests from developing countries.

I would like to take this opportunity to express my sincere thanks to the four medical physicists (one from Cyprus and the others from the U.S.A.) who responded to my appeal for a used Co-60 unit for donation to a hospital in Kabul, Afghanistan. However, although the IAEA had kept funds ready for the transportation, reinstallation, a new cobalt source and visit of an expert to commission the facility, this could not be effected due to political disturbances in Afghanistan. These offers have lapsed because of the time factor involved. However, as some countries in Africa are in need of working caobalt units, availability well in advance on a continuing basis. Please write to our Secretary-General in this regard.

Sincerely, Udipi Madhvanath, Ph.D. President, IOMP

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Secretary-General's Report

The 1992 year was one in which the IOMP continued to establish existing programs and began the process of planning for a productive and stable future. We welcome **six new national associations** to membership, established **17 new libraries** in developing countries, co-sponsored **three workshops** or conferences, and began action on a new **Strategic Plan** devised by President-Elect Keith Boddy. For your Secretary-General, it was a year of both joy and sadness. Joy, in that I was able to help in the establishment of several new national medical physics societies, to see through to IOMP membership and, indeed, to have the enormously satisfying experience of visiting three of these new member nations. Sadness, in that we lost both a good friend and outstanding Education and Training Committee Chairman, **Dr. Norman Baily,** who passed away in October after a short illness.

Details of all these follow.

New Members

Congratulations are extended to national societies from the following countries who were elected to membership by the Officers in 1992, subject to ratification by the Council at their next meeting: **Indonesia, Moldova, Panama, Russia, Sudan, and Trinidad & Tobago.** This brings IOMP national adhering organization membership to a total of **52.**

New Libraries

Our Developing Countries Libraries have continued to grow at a fantastic rate, thanks to the untiring efforts of our Curator of Libraries, **Catherine Warmelink.** Since her report in the last issue of **Medical Physics World** we have added eight new libraries, their being in: **Rio de Janiero, Brazil; Budapest, Hungary; Bangalore, India; Bucharest, Romania; Peradeniya, Sri Lanka; Bulawayo, Zimbabwe and Harare, Zimbabwe.** Our Libraries now total **43** which, considering that this program has only been going for three years, is simply astounding. Great work Cathy!

Workshops and Conferences

Two workshops and one conference were co-sponsored by the IOMP in 1992, these being a radiation oncology physics workshop in **Islamabad, Pakistan,** April 18-23, a medical physics workshop in **Parana, Argentina,** 30 September, and an international conference on medical physics and radiation safety in **Bombay, India,** September 8-11. The IOMP, through our Education and Training Committee, provided both grant money and participants to help support each of these activities. IOMP representatives were Mohammed Zaidi (Education and Training Committee) and myself in Pakistan, John Cameron (Education and Training Committee) and myself in Argentina, and Udipi Madhvanath

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Editorial and Business correspondence should be addressed to Prof. Bhudatt R. Paliwal (see page 16). Events information should be addressed to Mr. Geoffrey Ibbott. IOMP correspondence should be addressed to Dr. Udipi Madhvanath and Dr. Colin Orton.

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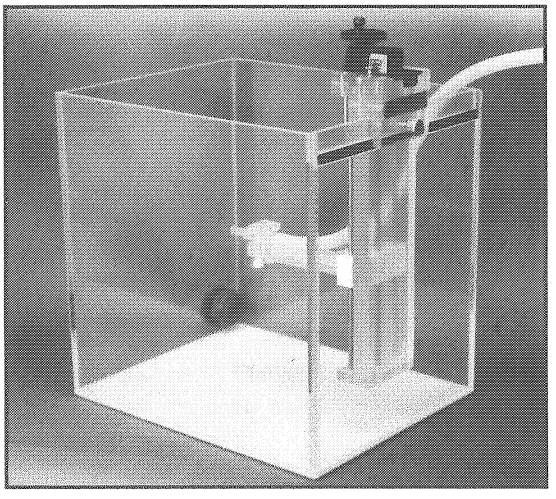

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(Continued from page 2)

(President), Oskar Chomicki (Developing Countries Committee), and P. S. Iyer (Long Range Planning Committee) in India. Unfortunately, Norman Baily, Education and Training Committee Chairman, was precluded from attending the latter due to illness.

Separate detailed reports of each of these activities appear elsewhere in this issue of **Medical Physics World.**

Strategic and Action Plans

Our Vice-President, Prof. Keith Boddy, has drafted a Strategic Plan to lead the IOMP through the next 3-5 years, and has formulated a corresponding Action Plan to implement this Strategic Plan. Draft copies of these plans were circulated to several past and present Officers and Committee members for comments and suggestions, which were then reviewed by Drs. Madhvanath, Boddy and myself at a special Officers meeting in London on December 22.

Since these plans are still in a "draft" form, and since the present document is rather long (11 pages), only a brief review will be given here. Ultimately, we expect to present these plans to the IOMP Council at their next meeting (in Rio de Janiero, August 1994) for their approval.

Vice-President Boddy has formulated the Strategic Plan in order to satisfy his "vision" of what he would like to achieve during his tenure as IOMP President.

The "Vision"

The "vision" includes:

(a) Worldwide membership for all medical physicists

(b) An organization through which all members and their national societies can work collaboratively towards common objectives for the benefit of patients and the profession worldwide.

(c) Provision of a solid financial foundation at a level which will enable us to cope with reasonable requests for assistance, especially from developing countries.

(d) To establish a "profile" of medical physics and medical physicists in order to enhance their professional status.

Strategic Objectives:

1. To review the present **operational structure,** consider alternatives and make recommendations for the future, e.g. establishment of a permanent **"headquarters."**
2. To establish firm **financial foundations** for IOMP and its activities.
3. To increase **membership.**
4. To identify educational needs amd optimize the provision of **training opportunities.**
5. To identidy needs for **equipment** in developing countries and to establish the means to provide and maintain such equipment.
6. To enhance the **status** of medical physicists.
7. To establish **"regional liaison groups."**
8. To achieve full membership in the International Council of Scientific Unions **(ICSU).**
9. To continue to exploit the **strengths** of the IOMP and to overcome the **weaknesses.**

Action Plans:

In order to implement these Strategic Plans, the following actions are proposed:

1. To establish a task group to study our organizational structure, including a permanent headquarters, Assistant Secretary-General, etc.
2. To establish a **Working Group on Funding Resources.**
3. To utilize the regional liaison groups to encourage increased IOMP membership.
4. To request the Education and Training Committee to define training needs worldwide and to identify innovative means to satisfy these needs.
5. To request the ad hoc Long Range Planning Committee to propose imaginative ways to enhance the status of medical physics.
6. To establish regional liaison groups.

Dr. Norman A. Baily

I had known Norm Baily and his work for over 20 years but only recently, since his election to Chair of the Education and Training Committee, was I privileged to become a close colleague. What I discovered was a warm, sincere man, who was willing to dedicate considerable time and effort to this task as Chairman and saw this as an opportunity to repay his profession for all the years of fulfillment and success it had offered him. He was especially excited about being able to help his colleagues in the developing world and his efforts were just beginning to bear fruit. He was very gratified with the three workshops that his Committee had been able to co-sponsor in 1992 and was very upset that he could not personally represent us at the Bombay Meeting due to his illness. Dr. Baily passed away in October knowing that he had made a significant contribution to our educational program. Even though he was 77 when he died, he had the energy and enthusiasm of a much younger man. He will be dearly missed.

Sincerely,
Colin G. Orton, Ph.D.

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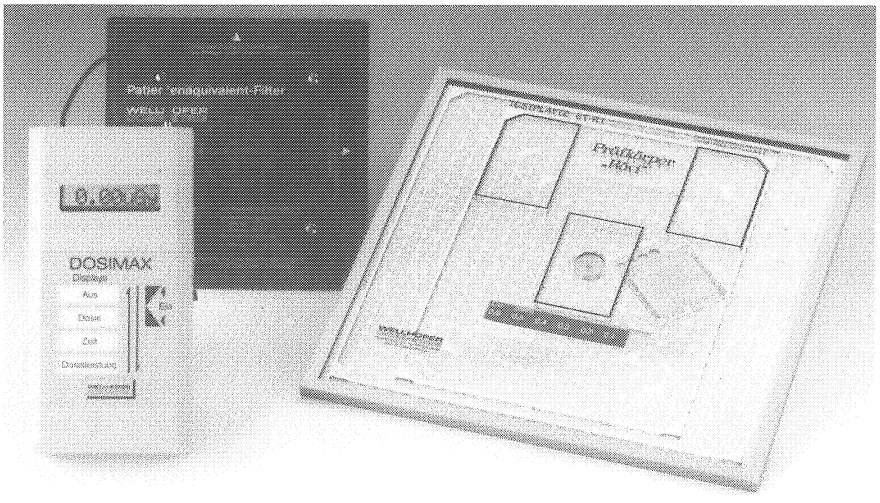

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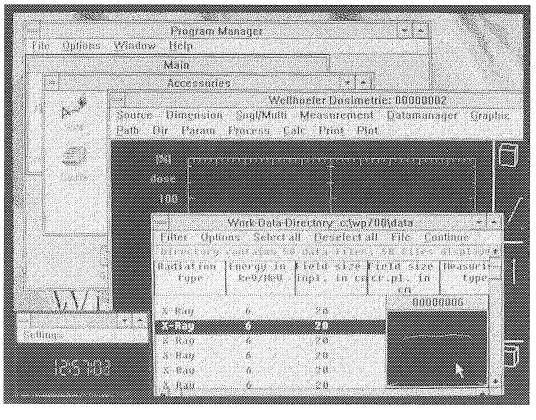

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Development of Medical Physics Infrastructure In India and South Asia

P. S. Iyer
Division of Radiological Protection
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INTRODUCTION

South Asia is a very complex part of the world. This region has a dense population and to a large extent is economically poor. In this analysis, 16 countries of this region have been considered, as given in Table I.

Table I. South Asia — 16 Countries

Afghanistan	Malaysia
Bangladesh	Myanmar
Bhutan	Nepal
Cambodia	Pakistan
China	Philippines
Hong Kong	Singapore
India	Thailand
Indonesia	Vietnam

Table II gives details of life expectancy, and availability of doctors, nurses and hospital beds in these countries. The total population of these countries taken together constitutes over 50% of the world population, and the rate of increase in the population is quite high compared with most of the remaining part of the world.[1]

Table II. South Asia

Life expectancy	Range	53-67 years
	Ave.	61 years
	(D.C.)*	76 years
GNP per head	Range	$150-$1,800 (US)
	Ave.	$300
	(D.C.)	$16,000
Availability of doctors ..	Ave.	1 for 2,500
	(D.C.)	1 for 500
Availability of nurses ...	Ave.	1 for 2,000
	(D.C.	1 for 180
Availability of hospital beds	Ave.	1 for 1,500
	(D.C.)	1 for 80

*Developed countries

The life expectancy in South Asia has strikingly increased in the recent past and now ranges from 58 to 67 years with an average of about 61 years. Gross national product (GNP) per head varies from U.S. $150 to $1,800 (except Hong Kong and Singapore) with an average of about $300. In comparison, the life expectancy is about 76 and the GNP about $16,000 in developed countries. The average availability of doctors, nurses and hospital beds is South Asia is 1 for 2,500, 1 for 2,000 and 1 for 1,500 population, respectively. The corresponding figures for developed countries are 1 for 500, 1 for 180 and 1 for 80, respectively. This shows the poor resources allotment for medical care in South Asia.

It is in this background that one has to review the status of medical physics in South Asia. This paper will discuss the evolution and status of medical physics activities in India first and then discuss the status in South Asia as a whole.

INDIAN STATUS

The average age at death of the Indian population has grown from 27 to 61 years during the last 45 years and in some states up to 65-70 years. This implies that the society is having an increasing number of aged persons. During this period, many diseases have been controlled. One of the major killer diseases presently is cancer, the incidence of which is estimated now as $800/10^6$ persons/year and is expected to be over $1000/10^6$ persons/year in the next few years.

The beam therapy facilities in India are given in Table III.

Table III. Beam Therapy Facilities

Number of Teletherapy Centres	110
Number of Teletherapy Units	
Cs-137	13
Co-60	150
Linacs	13
Total	176
Number of Simulators	25
Number of TP Systems	25
Number of Mould Machines	10

Of the 110 teletherapy centres, 9 are owned by central (federal) government, 60 by state (local) governments and 41 by private organizations. 76 centres have both beam and brachytherapy facilities and 34 have only beam therapy facility. 5 centres have only Cs-137 teletherapy units. 67 centres are teaching institutions imparting M.D. (radiotherapy), medical physics and/or technology courses. In addition, there are 10 centres which have only brachytherapy facility.

139 of the teletherapy units (rotational-111, stationary-28) are imported and 37 (rotational-22, stationary-15) locally fabricated. About half the number of simulators, treatment planning and mould machines are locally made.

The growth in the number of teletherapy units is given in Table IV.

(Continued on page 8)

[1]Invited paper: Plenary Session on 'MBE and MP in Developing Countries,' World Congress on Medical Physics and Biomedical Engineering, Kyoto, Japan, July 7-12, 1991.

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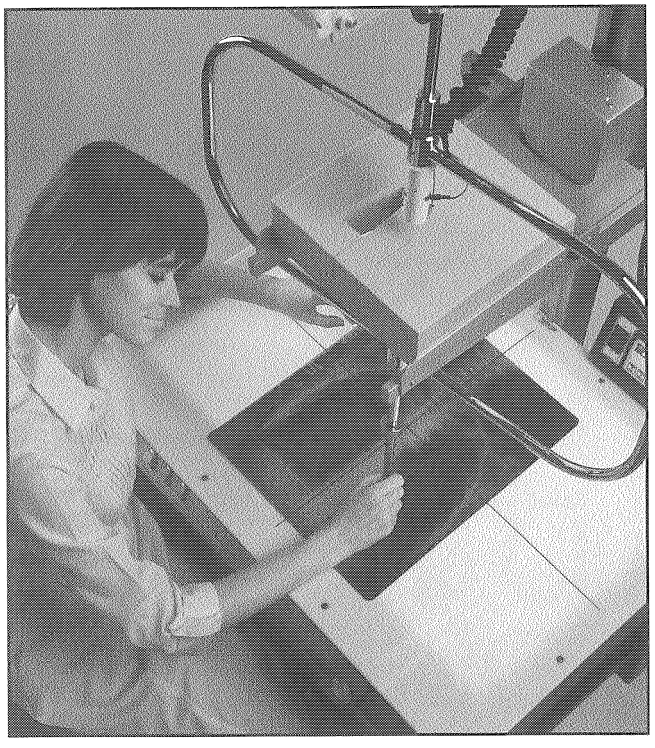

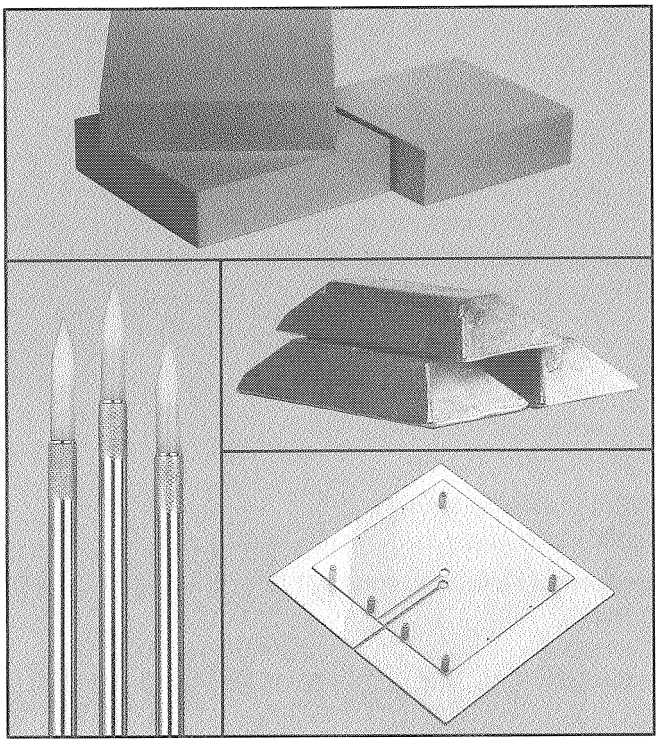

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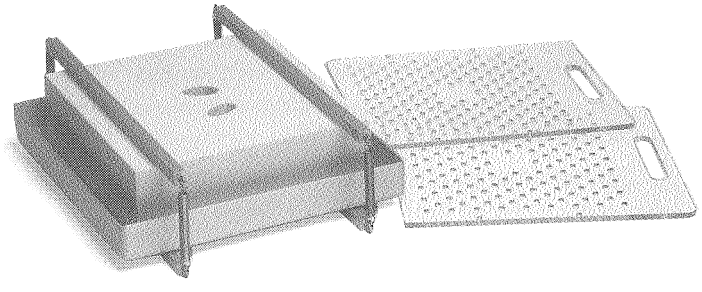

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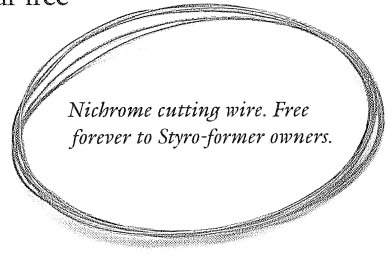

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(Continued from page 6)

Table IV. Growth in Number of Teletherapy Units

Year	No. of Units
1957	1
1960	4
1970	45
1980	100
1990	170

Details of brachytherapy facilities available in India is given in Table V.

Table V. Brachytherapy Facilities

No. of brachytherapy centres	100
No. of remote afterloading applicators	35
No. of manual afterloading applicators	30
Tubes/needles (discrete sources)	
Ra-226	2500 mg
Co-60	74 GBq (2,000 mCi)
Cs-137	187.5 GBq (5,000 mCi)
Ir-192 interstitial implants	10

Most centres have stopped using radium. 14,000 mg of radium from the hospitals have been collected and disposed off through BARC.

Details of nuclear medicine facilities are given in Table VIII.

Table VI. Nuclear Medicine Facilities

No. of nuclear medicine centres	
Major	56
Minor	30
Total	95
No. of gamma cameras	56
No. of physicians trained	10/year
No. of technologists trained	8/year

MEDICAL PHYSICISTS IN INDIA

Presently in India, medical physicists primarily restrict their activities to the dosimetry of ionising radiations for treatment of cancer. However, other areas such as physics of imaging including nuclear medicine, quality assurance of radiological equipment, biomedical instrumentation and optimisation of radiation protection are also being included as part of medical physicist's work, in addition to teaching and research.

Table VII gives details of physicists working in different disciplines.

Table VII. Medical Physicists: Area of Employment

Medical physicists in	
Radiation Therapy Centres	165
Imaging Centres	14
Commercial Organizations	9
Regulatory and R & D Work	45
Total	232

In addition 15 medical physicists trained in India are working abroad.

Every teletherapy centre has at least 1 full time medical physicist, who is also qualified to act as radiological safety officer, certified by the competent authority. The number of medical physicists in teletherapy centres is given in Table VIII.

VIII. Medical Physicists in Teletherapy Centres

No. of Physicists In Each Teletherapy Centre	No. of Teletherapy Centres
1	74
2	19
3	8
4	1
5	2
8	1
10	1

Teletherapy units in 4 centres are not functional at present.

Availability of medical physicists in teletherapy facility is a statutory requirement in the country under the provisions of the Radiation Protection Rules 1971, promulgated under the Atomic Energy Act, 1962.

Details of the number of teletherapy units in the teletherapy centres is given in Table IX.

Table IX. Teletherapy Centres and Units

No. of Teletherapy Units in a Centre	No. of Teletherapy Centres	No. of Units
1	73	73
2	23	46
3	8	24
4	1	4
5	3	15
7	2	14
Total	110	176

Educational qualifications of the medical physicists are given in Table X.

Table X. Educational Qualifications of Medical Physicists

Degree	No. of Medical Physicists
B.Sc.	30
M.Sc.	111
Ph.D.	23
Total	164

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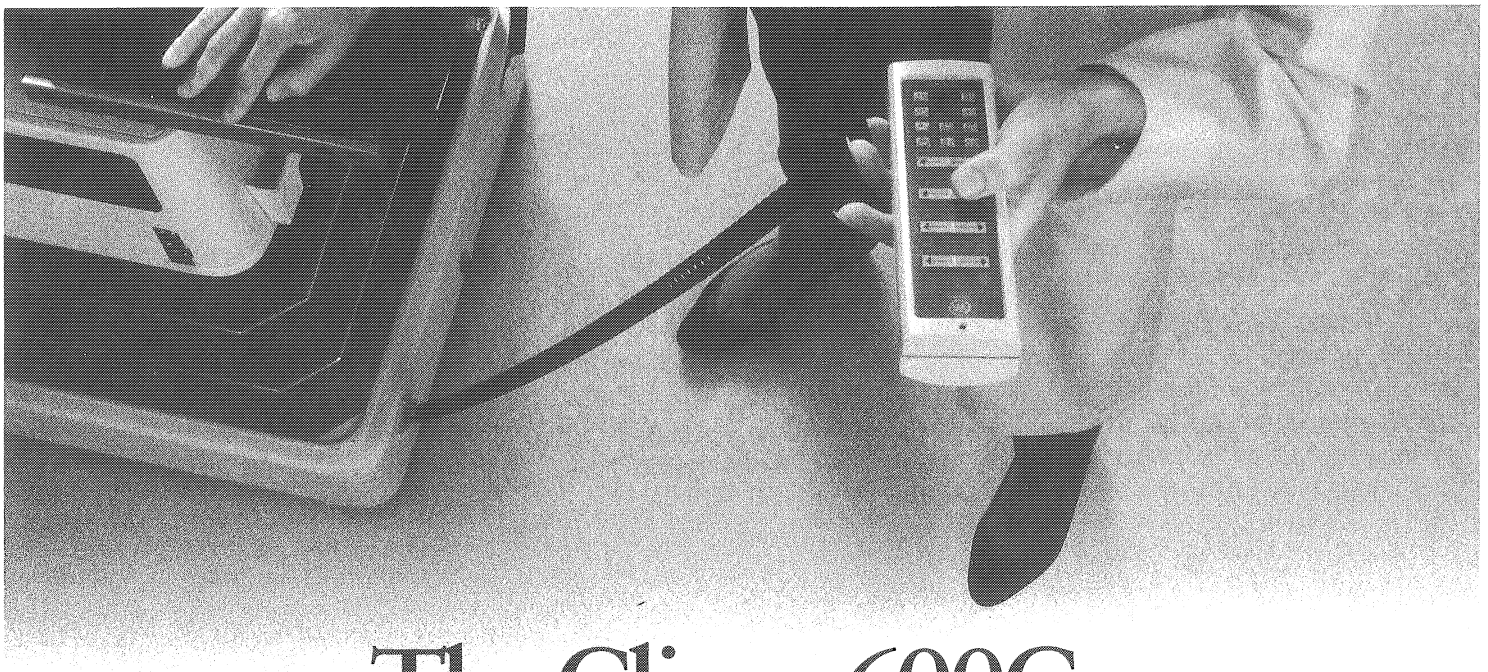

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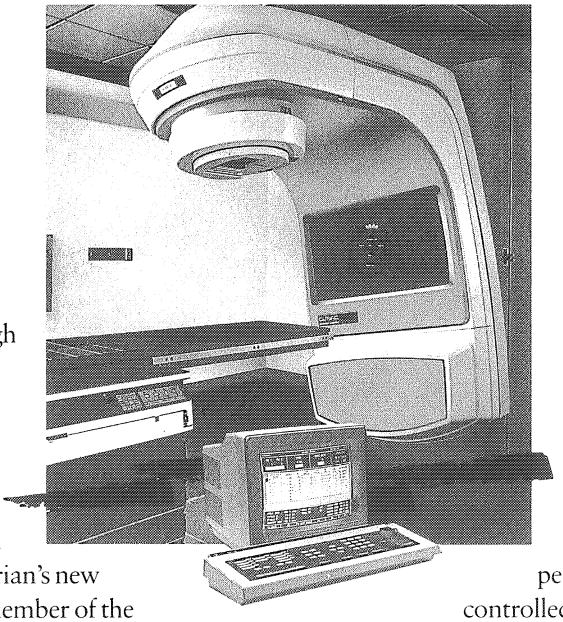

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(Continued from page 8)

14 medical physicists have completed doctorate and 5 master's degrees after joining the profession. Of the 164 hospital based medical physicists, 145 have successfully completed medical physics degree/ diploma courses in the country. 19 have been recognised as medical physicists by virtue of their extensive experience in the field.

A national programme has been formulated to have more effective regulatory control of diagnostic x-ray equipment. Under this programme, regional surveillance and accreditation centres are to be set up in different states and this work will be carried out by medical physicists only. Accordingly, 87 medical physicists have been trained to carry out quality assurance tests and surveillance of diagnostic x-ray units.

Such programmes could lead to additional responsibility and potential enhanced status for the medical physics profession.

The expertise generated among medical physicists in the country has been gainfully utilized in the fabrication of radiological equipment and accessories in India (Table XI).

Table XI. Radiological Equipment, Radionuclides and Accessories Fabricated in India

Telecobalt Unit; Accelerator; Telecobalt Source; Simulator; TP Systems, including software; Therapy, protection level instruments; Mould Machine

Manual Afterloading Applicator; Co-60, Ir-192 Sources; Shielding Equipment in Brachtherapy;

Fast Scanners; Radiopharmaceuticals; RIA Kits and Related Accessories

MEDICAL PHYSICS TRAINING PROGRAMMES

Details of medical physics training programmes in India are given in Table XII.

Table XII. Medical Physics Training Programmes

Title of Course	Organizing Institution	Year of Course Starting
1. Diploma in Radiological Physics (1 year)	Bhabha Atomic Research Centre, Bombay	1962
2. M.Sc. Medical Physics (2 years)	Anna University, Madras	1982
3. Associate in Radiation Physics (1 year)	Saha Institute of Nuclear Physics, Calcutta	1988

No. of Candidates Trained Per Year	25
No. of Candidates Trained So Far	514
No. of Institutions Having Ph.D. Programmes in Medical Physics	6

The syllabus of these courses are to a large extent identical and have been kept updated on a continuing basis. A few more centres are planning medical physics training programmes. The syllabus is generally patterned on the syllabus prepared on behalf of the education and training committee, IOMP.

It is to be pointed out that some students from Southeast Asia, Middle East and Africa have successfully completed the training programmes in Bombay and Madras.

ASSOCIATION OF MEDICAL PHYSICISTS OF INDIA

Association of Medical Physicists of India (AMPI) a professional association formed in 1976, encourages interaction among the medical physicists and dissemination of relevant technical information. The quarterly medical physics bulletin of AMPI is now in its 15th year of publication and appears to be well received nationally and internationally. AMPI gives travel fellowships to a number of its members to attend annual conferences on medical physics and related topics.

The association has so far organized the programmes shown in Table XIII.

Table XIII. Programmes Organized by AMPI

International Conferences	2
International Workshop	1
National Conferences	11
National Workshop	1
National Seminar	1
National Training Programmes	2

FINANCIAL CONSTRAINTS

The availability of radiation therapy facilities is rather meager in India and the number of teletherapy units works out to be just 1 per 5 million persons, against the WHO's recommended value of 1 per million.

This is due to the high cost of setting up and running a radiation therapy facility and the lack of available resources.

The financial aspects for the installation and functioning of a typical telecobalt facility in India may be as given in Table XIV.

Table XIV. Typical Cost of Telecobalt Facility (In Rupees)

Cost of Unit	5×10^6
Cost of Building	2×10^6
Cost of Simulator	1×10^6
Cost of TPS	1.5×10^6
Cost of Other Facilities (Mould, Pathology, Other Rooms)	2×10^6
Cost of Source	1×10^6
Total	1.25×10^7
GNP/Head	5×10^3

$$\frac{\text{Cost of Telecobalt Facility}}{\text{GNP/Head}} \quad \frac{\text{Rs } 1.25 \times 10^7}{\text{Rs } 5 \times 10^3} = 2500$$

In developed countries the corresponding figure may be about 50-100.

(Continued on page 16)

Health Through Education: The Work of the Clinical Science Foundation

David R. White, Ph.D.
Radiation Physics Department
St. Bartholomew's Hospital
London EC1A 7BE, U.K.

1. Background

Since 1990, clinical scientists from St. Bartholomew's Hospital, London have been providing professional advice to central and eastern European hospitals. This effort has been directed mainly at hospitals in Romania, Hungary and Bulgaria.

Decades of neglect and lack of investment have left hundreds of hospitals in parts of Europe in a sorry state. Medical equipment is either non-existent or 20-30 years out-of-date. Modern, proven techniques are not used due to lack of resources and training. But this situation can and must be changed. It can be achieved by providing essential resources and appropriate staff training, and by close collaboration between hospital professionals in Europe and North America. By these methods, each clinical specialty can be raised to acceptable standards throughout Europe. Fortunately, professional staff in these hospitals now fully appreciate that their services have fallen behind and are anxious to initiate improvements.

The Clinical Science Foundation, which has charitable status, was formed to actively promote collaboration between European and North American clinical scientists. In the following sections, the long-term objectives and current projects of the Foundation are outlined.

2. Long-Term Objectives

- In the first instance, the Foundation will encourage, support and promote closer collaboration between clinical scientists at St. Bartholomew's Hospital and those at hospitals in Europe and North America.
- Efforts will be concentrated in the field of **medical radiation physics** (radiotherapy physics, x-ray imaging, nuclear medicine and radiation safety). Particular attention will be paid to the development of this specialty in the 'emerging' European nations.
- The Foundation will be run by no less than three and no more than six clinical scientists from St. Bartholomew's Hospital. The advice of other healthcare professionals of established international reputation will be sought as appropriate. The Directors and Specialist Advisors give their services free of any charge.
- Close collaboration will be maintained with national healthcare associations to facilitate the effective exchange of medical and scientific information and expertise.
- Fundraising activities will be undertaken in order to provide medical and scientific resources to certain European countries as selected by the Directors of the Foundation. These resources will take the form of **training materials** (reports, scientific papers, journals, textbooks, computer programs and audio-visual aids), **equipment** (computers, dosemeters, radiation monitors, quality assurance systems, etc.) and the services of **expert advisers/lecturers.**
- The Foundation will help establish **Medical Physics Resource Libraries** at hospitals selected by the Directors of the Foundation, in collaboration with national healthcare associations. Each library will contain a computer, printer, photocopier, 35mm and overhead projectors. In addition, a basic core of medical physics information will be provided in the form of relevant written and aural material, visual aids and computer programs.
- Encouragement and support will be given to the interchange of European and North American professional staff between countries for the purposes of training and the exchange of information and expertise.

3. Current Projects

i) Workshops/Seminars

Following the recent financial support of The Nuffield Foundation, eight workshops/seminars will be held at selected medical centres by European experts during 1992. Four of these will be in Romania, two in Hungary and two in Bulgaria. Topics covered include modern radiation safety practice in hospitals, quality assurance in diagnostic radiology, quality assurance in radiotherapy and modern radiotherapy techniques. It is hoped that these workshops will become a regular feature of our programme, with topics tailored to the current needs of the clinical scientists in the countries concerned.

ii) Library Resources

Library materials are sparse, even non-existent, in many parts of Europe. It is our intention to establish **Medical Physics Resource Libraries** initially at seven Romanian and three Bulgarian Medical Centres. Each library will have textbooks, reprints, 386sx computer system and programs, photocopier, 35mm and overhead projectors. Seven sets of 550+ reprints (covering diagnostic radiology, radiotherapy, nuclear medicine and radiation safety) have been donated by colleagues in Europe and North America. Seven retired physicists

(Continued on page 13)

(Continued from page 12)

and clinicians have kindly given us all or part of their own libraries. Some funding for overhead projectors has also been obtained. Whenever possible, these materials will be located at centres with documentation from IOMP and AAPM. Sponsors willing to fund the establishment of complete Resource Libraries are being urgently sought.

iii) Provision of Safety Equipment

We hope to be able to provide radiation safety survey dosemeters and radionuclide contamination monitors to selected hospitals. A leading UK manufacturer of such equipment has agreed to participate in this project.

The Clinical Science Foundation has four Directors and 15 Specialist Advisers from Europe and North America. It is being supported by numerous colleagues and organizations within the medical physics field. Such support is essential to the success of this initiative.

Can you help us? Are you willing to sponsor one of our projects? We look forward to hearing from you.

Announcement

The U.S.-India Medical Physics Foundation

The U.S.-India Medical Physics Foundation (USIMPF), a non profit tax exempt organization (IRS # 68-D166466), was formed in 1989 by a group of physicists of Indian origin of the AAPM. The aims of the Foundation are to:

i) to promote continuing educational opportunities in major radiological physics centers in India for the radiological physicists in India,

ii) to promote such other activities as necessary for the educational, scientific and professional advancement of Medical Physicists/Medical Physics in India.

So far, the Foundation has operated with the funds generated by donations from medical physicists of Indian origin. With these funds we were able to initiate "Best Scientific Paper" award at the annual meeting of the Association of Medical Physicists of India (AMPI) in summer 1992. This will continue on an annual basis.

Our next proposed project is to initiate a short term (2 to 4 weeks) training program for junior physicists working in small community hospitals (lacking expertise and modern equipment) at large medical centers with the required expertise and modern equipment.

Projects of this nature requires a large investment and we are seeking the participation of the IOMP members from developed countries by making contributions to this worthy cause. All contributions to be made to USIMPF and mailed to the following address:

S. V. Parthasarathy
Secretary/Treasurer, USIMPF
c/o West Coast Cancer Foundation
185 Berry Street, Suite 4411
San Francisco, CA 94107-1729

Report on the International Conference on Medical Physics and Radiation Safety

Bombay, India, September 8-11, 1992

P. S. Iyer
Radiological Physics Division
Bhabha Atomic Research Centre
Trombay, Bombay 400085, India

The International Conference on Medical Physics and Radiation Safety was held in Bhabha Atomic Research Centre (BARC) Bombay, India during September 8-11, 1992.

The Scientific programme consisted of 15 scientific sessions including 2 poster sessions. The topics for the scientific sessions were:

(i) Human resource development in medical physics
(ii) Photon dosimetry
(iii) Brachytherapy
(iv) Imaging
(v) Quality assurance in radiation therapy
(vi) Beam therapy
(vii) New trends in radiation therapy
(viii) Particle dosimetry
(ix) Instruments
(x) Radiation safety

There were 16 invited papers. Of the 120 proffered papers, 35 were presented as oral papers and 85 as poster papers.

The invited speakers and their topics were:

1. Dr. I. J. Das (U.S.A.) — Problems of high Z interface in megavoltage photon beam therapy.
2. Dr. S. Jayaraman (U.S.A.) — Implant doses: prescription and reporting dilemma.
3. Dr. B. R. Paliwal (U.S.A.) — Special procedures in radiation therapy: physical, technical and clinical perspectives.
4. Dr. M. R. Raju (U.S.A.) — Particle therapy: physicist's contribution.
5. Dr. N. Suntharalingam (U.S.A.) — Quantitative assessment of interstitial brachytherapy implants.
6. Dr. J. Van Dam (Belgium) — Is equipment performance a factor of importance for the quality of radiotherapy?
7. Dr. A. Wambersie (Belgium) — Prescribing, recording, and reporting photon beam therapy: ICRU Report #50.
8. Prof. Yimin Hu (China) — The present status of medical radiation physics in China.
9. Dr. S. C. Klevenhagen (England) — Specification and energy determination of clinical electron beam.
10. Dr. A. Dutriex (France) — Quality assurance in radiotherapy at the patient level.
11. Dr. S. S. Chu (Korea) — ESR dosimetry of high energy radiation in radiotherapy.
12. Dr. M. O. Chomicki (Poland) — Setting-up of a national medical physics organization: survey and guidelines.
13. Dr. A. Calzado (Spain) — Doses to patients from computed tomography examinations in the area of Madrid.
14. Dr. G. Haridasan (India) — Information and artefact in medical images: an overview.
15. Dr. U. Madhvanath (India) — Status of education and training in medical physics and radiation protection in India.
16. Dr. M. S. S. Murthy (India) — Biological basis of ICRP recommendations.

Proffered oral papers also discussed a number of similar topics and the present status of the physical aspects of radiation applications in medicine.

All poster papers were displayed from the forenoon of the first day till afternoon of the last day, to enable delegates to go through the posters and have detailed discussion with the authors. Three rapportaeurs each reviewed the posters in the two poster sessions and these reviews were followed by discussion.

There were 2 panel discussions on topics (i) Choice of teletherapy equipment and their maintenance with the emphasis on the needs of developing countries and (ii) Impact of ICRP-90 on the planning of radiological installations. The refresher courses were on (i) Photon and electron beam dosimetry (Dr. N. Suntharalingam, U.S.A., (ii) Imaging applications in radiation therapy (Dr. B. R. Paliwal, U.S.A.) and (iii) Conservative management of breast cancer (Dr. S. C. Pandey and Dr. S. M. Deore, India). Dr. A. Dutriex (France) presented the first Dr. Ramaiah Naidu Memorial Lecture on 'The Physics of Brachytherapy: An Almost Centennial History.' Dr. Naidu was the first medical physicist in India and had trained with Dr. Madame Curie in France.

The Conference marked completion of 30 years since the inception of the medical physics training programme in India (at BARC), and a function was held to mark this occasion. In a special session, the Conference felicitated Dr. U. Madhvanath, President, International Organization for Medical Physics (IOMP).

472 registered delegates participated in the Conference, including 35 from foreign countries. There were 22 associates delegates. The Conference was inaugurated by Dr. P. K. Iyengar, Chairman, Atomic Energy

(Continued on page 16)

PTW-PRODUCT INFORMATION

MP 3-System, a modern, fast and reliable water phantom system for measurement of dose distribution in radiotherapy.

Measures a profile of 45 cm length within 25 seconds.

The MP 3-system is now equipped with a fast dual-channel electrometer which allows a reduction of the required measuring time down to 10 ms per measuring point. This feature, combined with the high moving speed of 50 mm/s maximum between the measuring points, yields the extreme low measuring time for a complete scan.

The measuring data are acquired by dose integration on every point of a scan, measuring step by step with programmed step sizes. This proceeding secures high accuracy and reproducibility. When measuring curves with high dose rate gradient (e.g. profile slopes or low-energy electron depth dose curves) speed reductions or smoothing functions are not required. Only the original data are stored.

Together with our new software package MEPHYSTO the water phantom system MP 3 is the latest state-of-the-art system.

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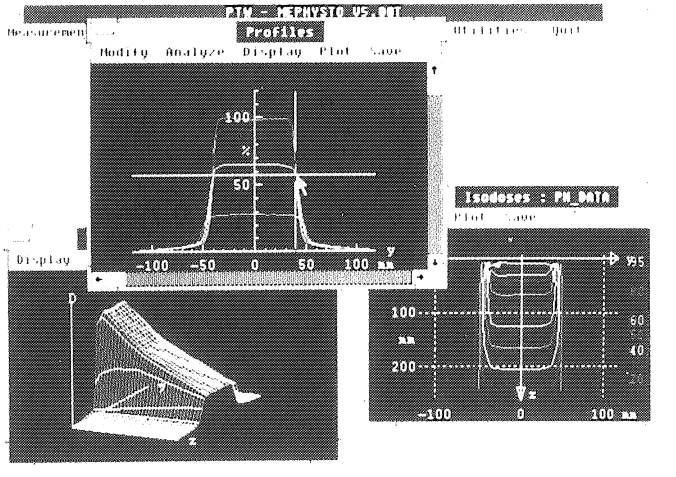

Microsoft Windows software for data acquisition using the PTW water phantom MP 3, for data evaluation and data management.

- Graphic user interface Microsoft Windows 3.0 and mouse control
- Programming language Microsoft C 6.0
- Data base for data management
- Multitasking for simultaneous presentation of profiles, depth dose curves, isodoses and 3-D graphics; disk data presentation even during phantom measurements
- Proven water phantom measuring routines for any inclined measuring plane
- Useful evaluation programs and formatting modules for data transfer to therapy planning systems.

Further advantages of MP 3-System (a selection):

- Moving range of A co-ordinate: 600 mm (500 mm are not sufficient for complete profile measurements of 40 cm x 40 cm field sizes, especially in the depth)
- Measurements in arbitrary inclined planes possible
- High positioning accuracy by stepper motors (200 steps/mm approx.)
- High mechanical stability of stainless steel moving mechanism
- No displacement of water by parts of the moving mechanism dipping in water when measuring from the water surface into the depth. Thus the adjusted source surface distance SSD will not be displaced.
- Simultaneous digital display of the three co-ordinates on the control pendant, resolution: 0.1 mm
- Scan optimization for beam evaluation of accelerators with scanning electron beam

For further information please contact:

PTW-FREIBURG

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D-7800 Freiburg
Loerracher Str. 7
Phone 07 61 / 4 90 55 - 0
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Telefax 07 61 / 49 21 95

(Continued from page 10)

STATUS IN OTHER SOUTH ASIAN COUNTRIES

Nepal, Bangladesh, Afghanistan, Myanmar

Radiation therapy and medical physics facilities are scarcer in some of the other countries in this region. For example, Nepal has just 1 telecobalt unit. The medical physicist of this centre has recently undergone short term training in India.

Bangladesh has 1 telecobalt unit and has no brachytherapy practice now. There is no medical physicist associated with the telecobalt unit.

Afghanistan has 1 telecobalt unit and its source was loaded over 20 years ago. No medical physicist is employed in this facility.

Myanmar has 5 teletherapy units and 5 medical physicists.

China

In China, as of 1988, there were 264 radiation oncology departments or clinics, 1,715 doctors, 180 radiation physicists, 76 radiation biologists, and 410 technologists.

Facilities include 71 linear accelerators, 239 telecobalt units, 224 deep x-ray machines, 100 simulators and 78 brachytherapy afterloading units.

Nationwide programmes for training medical and physics personnel involved in radiation oncology have been set up, as well as one year post graduate and refreser courses organized under the Department of Science and Technology and the Society of Radiation Oncology.

A variety of radiation therapy equipment such as telecobalt units, accelerators and remote afterloading systems are fabricated in China. Kilocurie telecobalt sources and several radiopharmaceuticals are also produced in China, which has the largest radioisotope producing reactor of Asia, located in South China.

OUTLOOK

However, there is still need for qualified medical physicists in many of the developing countries of South Asia. In spite of limitations of resource allocations for such programme, it is gratifying to note that the medical physics infrastructure in India has a strong base and is well developed on a planned basis. Medical physics infrastructure and medical physicists in India are adequate to meet the requirements in the present and foreseeable future. Cooperation in medical physics in this region, wherever needed, on a government-to-government or professional level may be useful.

(Continued from page 14)

Commission and Secretary, Department of Atomic Energy, Government of India. Dr. R. Chidambaram, Director, BARC presided over the inaugural function and opened, inaugurated the trade exhibition in which 17 companies took part. Dr. U. Madhvanath, President, IOMP, on behalf of the IOMP and Mr. S. D. Soman, President, Association of Medical Physicists of India (AMPI) spoke on behalf of the AMPI. Dr. D. V. Gopinath, Co-Chairman, (Organizing Committee) welcomed the participants and Dr. P. S. Iyer, Secretary, of the Organizing Committee proposed the vote of thanks.

A programme on 'Dances of India' was arranged on the evening of September 10, 1992 for the entertainment of the delegates, particularly those from abroad. The associates delegates had interesting social and sightseeing programmes. Almost all the outstation delegates — including foreigners — were accommodated in BARC Hostel, very near the venue of the meeting.

The Conference was jointly organized by the Association of Medical Physicists of India and the International Organization for Medical Physics. The Organizing Committee thanks the IOMP for its generous financial support.

Announcement

Future issues of **Medical Physics World**

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News items, calendar events and advertising inquiries should be directed to Eileen Healy at Medical Physics Publishing.

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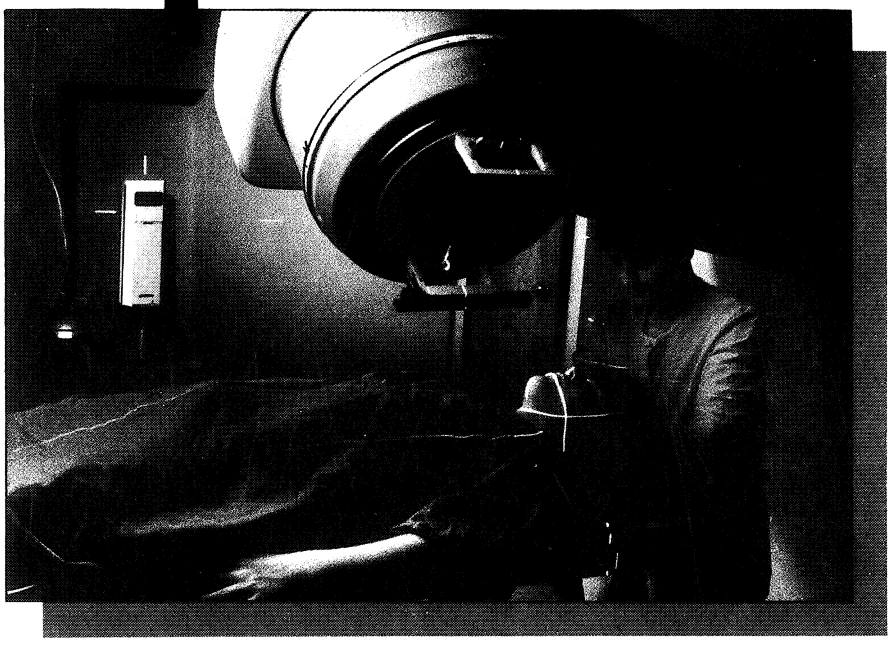

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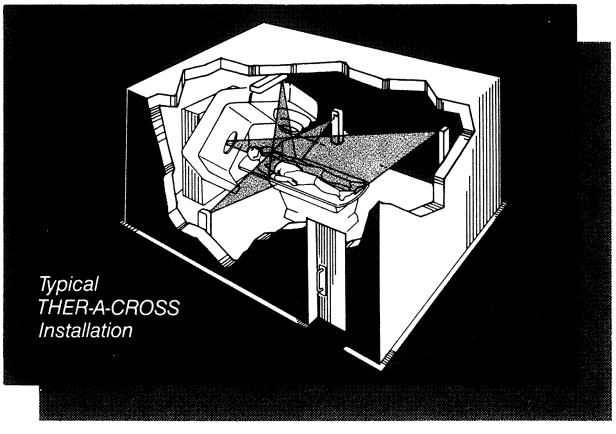

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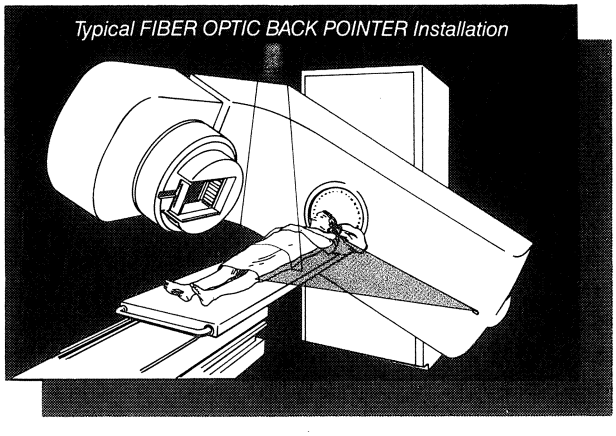

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Advertising Rates

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1/6 page	$255.00	1/3 page	$455.00
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1/4 page	$355.00	1 page	$1,200.00

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CALENDAR OF EVENTS

Geoffrey S. Ibbott, Editor

1993

September 5 - 9

Teaching Course on "Radiation Physics for Clinical Radiotherapy," European Society for Therapeutic Radiology and Oncology, Leuven, Belgium, (ESTRO Secretariat, U.Z. St. Rafael, Department of Radiotherapy, Capucijnenvoer 35, 300 Leuven, Belgium).

September 12 - 17

8th European Congress of Radiology, Vienna, Austria (Mrs. Sylvia Altermann, Vienna Medical Academy, Alser Strasse 4, 1090 Vienna, Austria [43-1 421383-0; Fax: 43-1 421383-23]).

September 19 - October 2

Low-Level Measurements of Radioactivity in the Environment, LaRabida, Spain, (Manuel Garcia-Leon, Facultad de Fisica, Apdo. 1065, 41080 Sevilla, Spain).

September 22 - 24

Medical Physics 93 and 9th Congreso Nacional de Fisica Medica, Puerto de la Cruz, Tenerife, Spain, (Medical Physics 93, Catedra de Fisica Medica, Facultad de Medicina, Universidad de La Laguna, 38320 La Laguna, Tenerife, Espana [Tel: 922-60 33 44; Fax: 922-60 34 07]).

October 11 - 15

American Society for Therapeutic Radiology and Oncology, New Orleans, Louisiana, (American Society for Therapeutic Radiology and Oncology, 1101 Market Street - 14th Floor, Philadelphia, PA 19107-2990, U.S.A. [Tel: 215-574-3180]).

November 14 - 19

Winter Meeting, American Nuclear Society, San Francisco, CA (Meetings Department, American Nuclear Society, 555 North Kensington Avenue, La Grange Park, IL 60525, U.S.A.).

November 14 - 19

12th Annual Meeting, European Society for Therapeutic Radiology and Oncology, Israel (ESTRO Secretariat, U.Z. St. Rafael, Department of Radiotherapy, Capucijnenvoer 35, 3000 Leuven, Belgium).

1994

August 21 - 26

World Congress on Medical Physics and Biomedical Engineering: 10th International Congress of Medical Physics and 17th International Conference on Medical and Biomedical Engineering, Rio de Janeiro, Brazil, (Congrex do Brasil, Rua do Ouvidor, 60/414 20040 - Rio de Janeiro - RJ, Brazil, [Tel: 55-21-224-6080; Fax: 55-21-231-1492; Telex: 21-32891 CGRX BR]).

*Readers are invited to send to the **Calendar of Events** Editor, Geoffrey S. Ibbott, M.S. (address on page 2), information on any events not listed in this issue of MPW and also additions or corrections to the items that are listed. Officers of national societies are especially encouraged to submit information on their future national meetings.*

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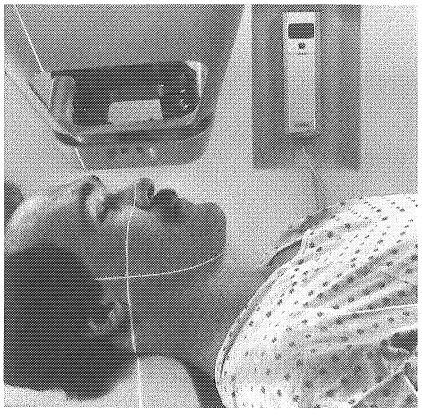

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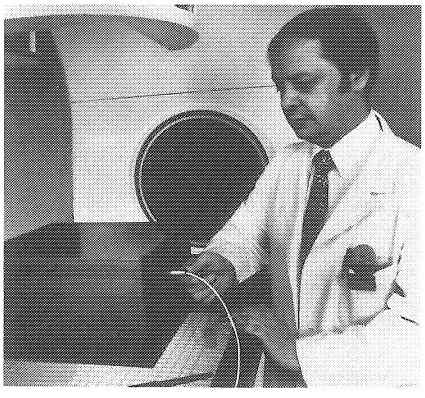

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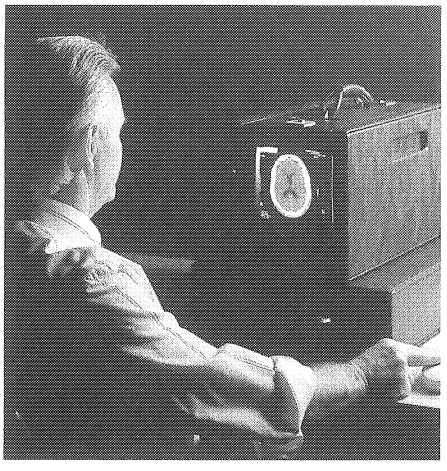

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