

President's Message

unique country. I'm sure things will unfold as they should and our efforts will be amply rewarded. Keep that year on your calendar of events; Rio in 1994.

Keep 1991 on your calendar of events first. That is the year of our next meeting — in Kyoto, Japan. If you haven't been to Japan before, this will be a good opportunity to see a remarkable land and culture. I have total confidence that it will be an excellent and memorable meeting. The theme is to be "*The Frontiers of Medicine and Health Care — Important Issues for the Next Millennium.*" You will hear more about this meeting as its time draws closer.

Jack Cunningham, Ph.D.
Toronto, Canada

Dosimetry Course (in Spanish)

The IOMP co-sponsored the Dosimetry Course in Spanish which was held in conjunction with the International Congress in San Antonio, August 3-7, 1988. Due to the superb efforts of Course Co-Director Cari Borrás this was highly successful and attendance far exceeded all expectations. This was made possible by the success Dr. Borrás had in securing sponsorships for attendees. The total funding by outside agencies exceeded \$50,000 US and this was sufficient to allow 45 individuals to attend from such countries as Puerto Rico, Mexico, Spain, Colombia, Costa Rica, Ecuador, Paraguay, Brazil, Chile, Peru, Venezuela, Argentina, Guatemala, and the USA.

Congratulations are due to Dr. Borrás and all the Faculty for an outstanding Course.

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Secretary-General's Report

International Congress

We have just witnessed one of the most significant achievements of the IOMP, namely the convening of a triennial Congress in San Antonio, Texas, with a total attendance of 3700 registrants, about two-thirds of whom were attributable to the medical physics component of the meeting. This is a far cry from the 50 medical physicists who, at the International Congress of Biophysics in Stockholm in 1961, first began to formally constitute the IOMP.

Our great regret was that the one IOMP Officer most responsible for making this Congress so successful, Secretary-General Brian Stedeford, was unable to attend due to a very inopportune heart attack and subsequent surgery a few weeks earlier. We are all very much indebted to Brian for his superlative work in helping to bring this Congress to fruition and, of course, for all his other activities on our behalf in the IOMP. As the new Secretary-General, I know that this will be a very hard act to follow. Fortunately, Brian appears to have fully recovered and will, no doubt, continue to play a decisive role in future IOMP activities.

Other Congress news of interest was that about 1700 scientific presentations were made by scientists from over 40 countries. In addition, the commercial exhibits program was very extensive and this will make the Congress a decided success financially. Apparently the tale that everything is bigger in Texas is really true!

We are deeply indebted to the American Association of Physicists in Medicine (AAPM), and especially, AAPM members Drs. Gary Fullerton (Congress Co-President), Al Smith (Program Co-Chairman), and David Kopp (Congress Secretary-General) and all the members of their Committees. Without their outstanding efforts our Congress would not have been nearly so successful. The coordinating efforts of the staff and Officers of our medical physics and engineering union, the IUPESM, should also be acknowledged. The Union is already working on our next Congress in Kyoto in 1991.

Council Meetings and General Assembly

Two Council meetings and a General Assembly were held during the San Antonio Congress. Following are some of the highlights of these meetings.

A total of 23 of our member nations were represented by Delegates and a number of im-

portant decisions were made. In terms of new members, the Council ratified memberships previously approved by the Officers of Australia, Hong Kong, New Zealand, Republic of the Phillipines, and Sri Lanka. The Council further gave tentative approval, pending satisfactory review of the required documentation by the Officers, to the membership applications of Malaysia, Republic of Korea, Taipei (China), Turkey, and Yugoslavia. If approved by the Officers, these will be ratified at the next Council meeting in Kyoto.

Another important election was that of the new IOMP Officers, who are:

Vice-President:

Udipi Madhvanath, Ph.D. (India)

Secretary-General:

Colin G. Orton, Ph.D. (USA)

Editor of Medical Physics World:

Richard L. Maughan, Ph.D. (USA)

Also approved by Council were our revised Statutes and new Bylaws, which we hope will help to streamline the operation of our Organization and, after considerable discussion, the dues structure for the next three years. Dr. Stedeford had recommended that the IOMP would continue to be rather ineffective in its commitment to aid developing countries unless its income could be increased. He proposed that a steady increase in dues was needed and Council approved the following subscriptions for 1989-91:

1989: US \$25 per 25 members

1990: US \$30 per 25 members

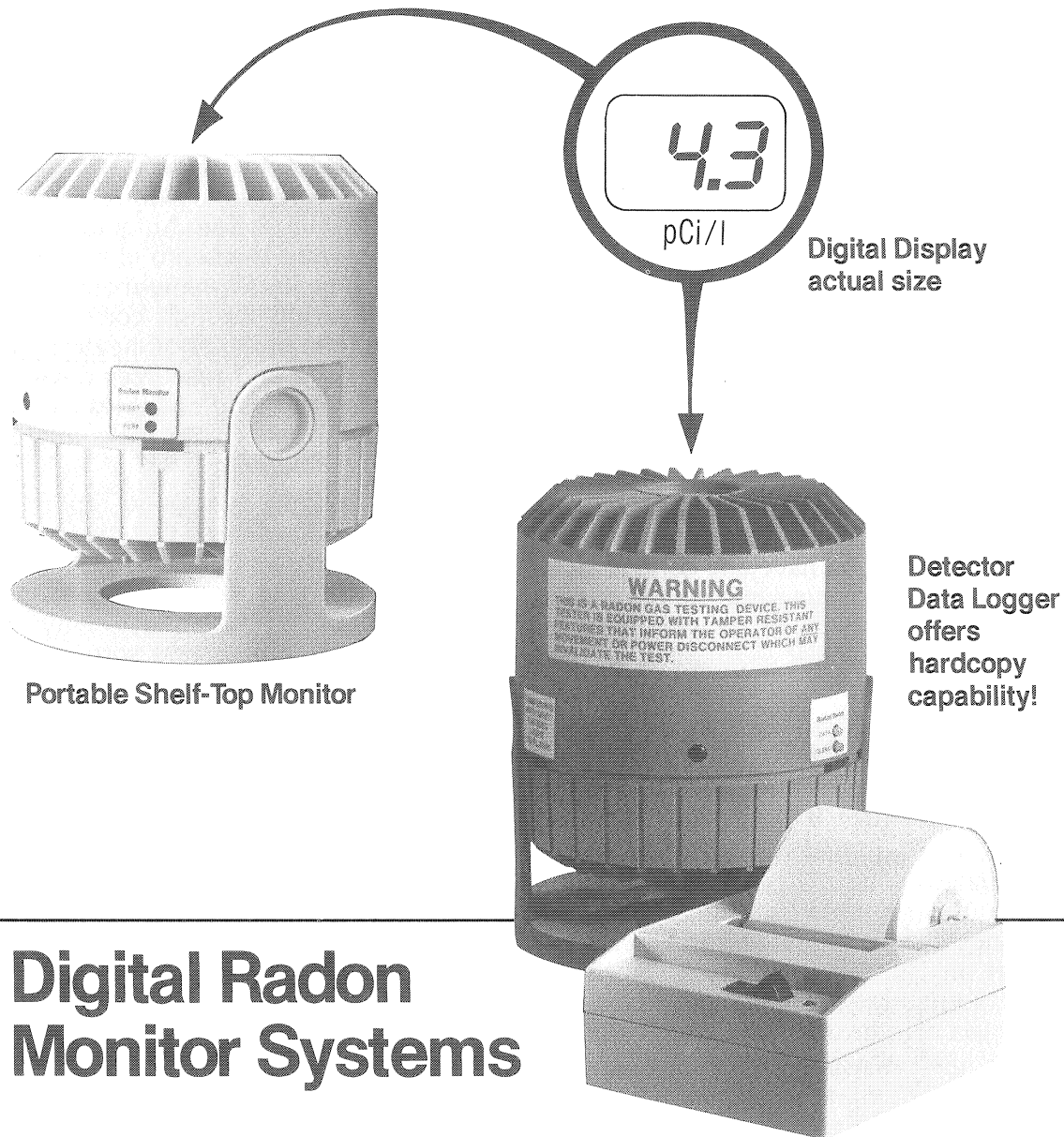
1991: US \$35 per 25 members

In addition, the new Officers agreed to actively pursue new sources of revenue and to propose new programs to support our members, especially those in developing countries.

Finally, the most controversial decision of all was the selection of the site for our 1994 Congress. This is a joint decision between the medical physicists (IOMP) and the engineers (IFMBE) and is normally not a difficult one to make when only one country bids to hold the meeting. However, this year 4 countries submitted bids, namely Brazil, France, Hungary, and Italy. All were outstanding proposals, which made the decision even more difficult. Fortunately, a decision was able to be made, and Brazil (Rio de Janeiro) was selected. Unfortunately, several of the representatives from the countries not chosen were bitterly upset by this selection and it is clear that a better, more for-

Continued on page 6

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Secretary-General's Report

mal selection procedure needs to be developed for the future. The IUPESM is taking this task seriously and will soon have a proposed site-selection program available for IOMP and IFMBE evaluation and, hopefully, approval.

Congratulations to Brazil, and also congratulations to those members in France, Hungary, and Italy for formulating such outstanding proposals. All four countries are clearly capable of hosting a superb Congress in 1994 and it is a pity that only one could be chosen. Maybe we could hold some regional meetings in these other countries, or how about 1997?

Obviously, my term of office as Secretary-General is going to be an active one. I plan to continue the outstanding programs started during the previous six years under the wings of Dr. Stedeford and hope to make the IOMP a truly viable organization which both represents and serves its members on the international scene. Please write to me if you have any good ideas as to how the IOMP can better serve the needs of its members and especially if you are willing to help.

With very best wishes,
Colin G. Orton, Ph.D.

Correspondence

Seminar on Automation Means in Preventive Medicine '87

The Working Party on Engineering Industries and Automation of the U.N. Economic Commission for Europe held its Seminar on Biomedical Engineering/Innovation in Biomedical Equipment, in Budapest in May 1983. Since that time biomedical engineering has been a regular subject of interest of the Commission.

The Seminar in Piestany falls in line with this activity. Eleven international organizations sent representatives to the Seminar; among them was IOMP which I was honoured to represent at the request of Dr. Brian Stedeford the Secretary-General.

Fourteen member-countries of ECE were represented and Japan sent an observer. Altogether about 130 participants attended the Seminar.

On the third day of the Seminar a field visit was arranged to visit the Chirana Company in Stara-Tura and to a multi-phase screening station in Trencin.

Sixty-three lectures were presented and all of them were followed by lively discussions, which testifies to the success of the Seminar.

Sincerely,
Prof. Paul Vittay, Budapest, Hungary

Retiring Secretary-General's Letter

First let me express my regrets that I was unable to attend the World Congress at San Antonio due to ill-health. I would like to thank the many people who sent me their good wishes. I am glad to say that I am on the way to a full recovery following heart surgery.

I also want to express my grateful thanks for the magnificent plaque which was presented to me at San Antonio in my absence. It is a very nice memento of six most interesting years. I now know many members of IOMP all over the world through correspondence, and have had the pleasure of meeting quite a few in person. Time and resources have not allowed me to visit as many countries as I would have liked, but I have been welcomed wherever I have been able to go.

I was glad to hear good reports of the San Antonio Congress, and that the **Curso Practico de Dosimetria Fisica en Radioterapia** which preceded it was also a success. Having been involved closely with the organization beforehand, I was particularly sorry not to be able to attend it. I hope that IOMP will be able to organize more courses of a similar nature which help those physicists who find further training the most difficult.

It was very good to hear that Malaysia, Republic of Korea, Taipei (China), Turkey and Yugoslavia are provisionally admitted to membership of IOMP, making forty member nations. I know that our new Secretary-General Dr. Colin Orton, to whom I am delighted to hand over, already has plans to increase this number still further.

Finally let me thank all the Officers and members of IOMP, too numerous to mention, without whom it would have been quite impossible to do the work I have been able to accomplish. My very best wishes for the future of IOMP.

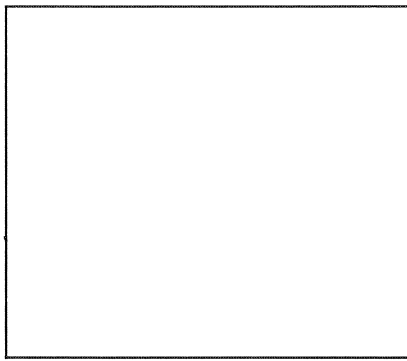
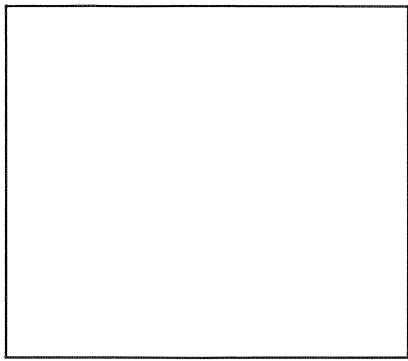
Brian Stedeford

Announcement

New Member Nation

We wish to congratulate Malaysia on being elected to IOMP membership by the Officers subsequent to their preliminary election by the Council in San Antonio.

Information about medical physics in Malaysia will appear in a future issue of **Medical Physics World**.



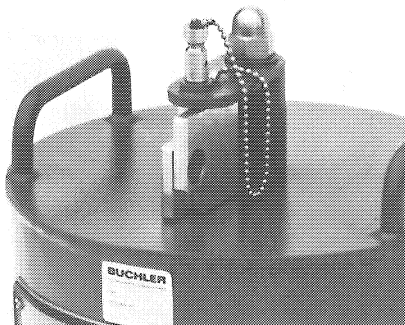
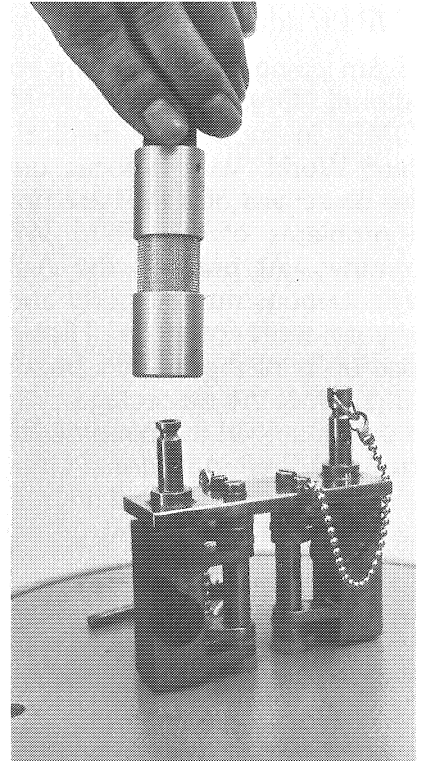
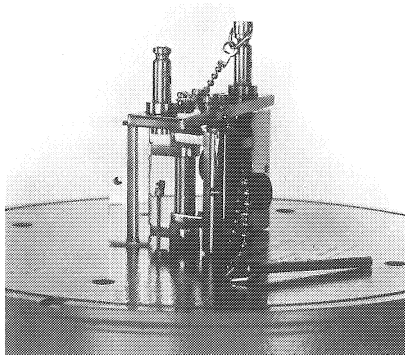
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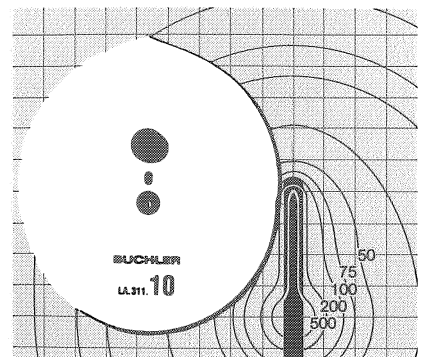
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International Collaboration Workshop

During the World Congress on Medical Physics and Biomedical Engineering held in San Antonio, Texas, August 6-12, 1988, a special International Collaboration Workshop was held on activities supporting the advancement of Medical Physics in developing countries. The program included reports from the International Organization for Medical Physics (IOMP), the World Health Organization (WHO), the Pan American Health Organization (PAHO), the International Atomic Energy Agency (IAEA), and others. The workshop was organized by Dr. Colin Orton who, at the time of the meeting, was acting Secretary-General of IOMP. Unfortunately, Secretary-General Brian Stedeford could not attend because of illness. Following are summaries of some of the presentations.

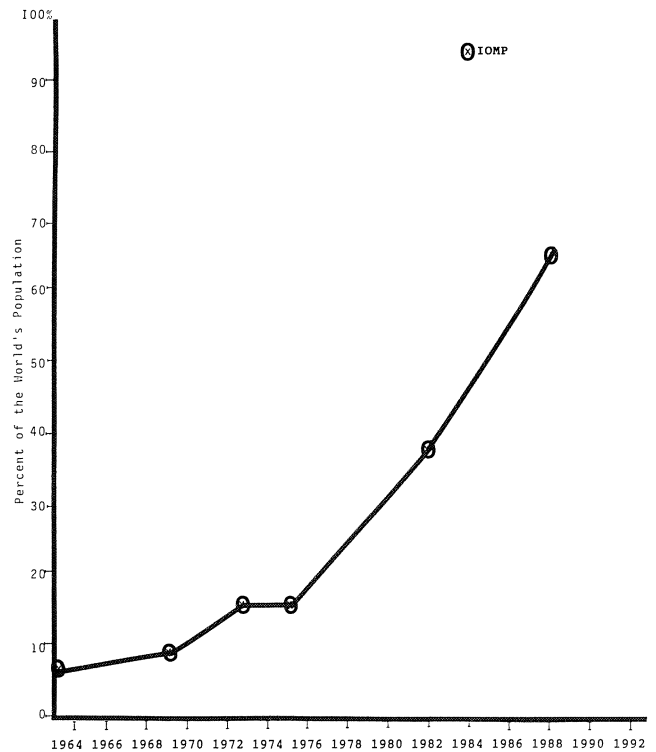
Past Activities of the IOMP

Lawrence H. Lanzl, Ph.D.
IOMP President (1985-1988)

I am going to discuss the role of the International Organization for Medical Physics (IOMP) in supporting medical physics in the Third World, with a focus on past activities. The objectives of IOMP are not directed solely to problems of the Third World, but to all countries. At present, the Adhering National Organizations number forty and thus represent forty different countries. These countries comprise 66% of the world's population. Figure 1 is a graph of the percentage of the world's population residing in the countries having a medical physics Adhering National Organization vs. the year, 1964 to the present time. This graph shows the steady and continuing growth of IOMP.

The Objectives of IOMP are:

- 1) To organize international cooperation in medical physics and to promote communication between the various branches of medical physics and allied subjects.
- 2) To contribute to the advancement of medical physics in all its aspects.
- 3) To encourage, promote, assist, and advise on the formation of national organizations of medical physics in those countries which lack such organizations, and also the possible formation of national committees in those countries where there is more than one medical physics organization.



The IOMP has had eight International Congresses, including the present one at San Antonio. The site of the Congresses were England, USA, Sweden, Canada, Israel, Federal Republic of Germany and Finland. A tradition has been established that, prior to a given congress, an IOMP site visit is made to the host organization and the congress location to assure that the accommodations include some at low cost. This policy is directed to medical physicists from developing countries.

In 1984, the IOMP asked the American Association of Physicists in Medicine to hold a Regional Congress on medical physics. This first Regional Congress was held in Chicago, Illinois, and was called the Inter-American Meeting of Medical Physics, since it was to include medical physicists from various American countries. About \$26,000 US was raised by the AAPM International Affairs Committee, chaired by Dr. Cari Borrás to finance student travel and accommodations. The students attended four special symposia and the AAPM Annual Meeting. Another \$11,000 US was awarded by organizations of the United States Government for speakers' expenses. The attendees came from eleven different American countries, even though only four, Brazil, Canada, Mexico, and

Continued on page 10

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International Collaboration Workshop

the USA, have Adhering National Organizations. Those who attended were so pleased with the meeting that they formed a Latin American Organization of Medical Physics (ALFM), which has led to the formation of regional memberships within the IOMP structure.

In 1986, a second IOMP regional meeting was held in Bombay, India, entitled "Asian Regional Conference on Medical Physics." IOMP was able to raise funds to support attendance of medical physicists from Papua, New Guinea, the Philippines, China, and Thailand, to name a few. About \$5,000 US was raised for this regional meeting, and another \$5,000 US for medical physicists attending the 1985 Congress in Finland.

Just before the World Congress in San Antonio, the IOMP, AAPM, and ALFM, together with the Spanish Society of Medical Physics, organized a Spanish-language summer school which was attended by 46 students representing 14 Latin American countries. Due to the tremendous efforts of the Co-Director of the course, Dr. Cari Borrás, and others, more than \$60,000 US was made available from a number of agencies and private companies to assist these students. A video tape of the entire proceedings of the summer school was recorded.

IOMP also has two committees that are dedicated to helping developing countries. The Committee on Education and Training and the Committee on Developing Countries. The work of these committees is described elsewhere.

European Federation of Organizations for Medical Physics

Prof. Dr. H. K. Leetz, President

In 1980 the European Federation of Organizations for Medical Physics, EFOMP, was founded after a short period of activities of some physicists engaged from the UK. The Federation is not based on individual membership but consists of affiliated organizations.

In 1988 there are 24 national organizations affiliated to EFOMP. They are Austria, Belgium,

Bulgaria, Czechoslovakia, Denmark, Federal Republic of Germany, Finland, France, German Democratic Republic, Greece, Hungary, Ireland, Israel, Italy, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, and Yugoslavia. EFOMP therefore represents more than 2700 Medical Physicists from throughout Europe.

The main body of EFOMP is the Council, where every affiliated organization is represented by two delegates. The Council Meetings are held every year, if possible in conjunction with large international scientific meetings.

Officers of the Council are President, Past President, Secretary General and Treasurer. All officers are elected by the Council for a period of three years.

EFOMP's main activities are run by three standing committees:

- Scientific Committee
- Education, Training, and Professional Committee
- Publication Committee.

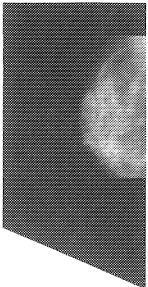
EFOMP itself does not organize large congresses but instead gives support to scientific meetings in cooperation with affiliated organizations in various ways. By sponsoring activities EFOMP has supported Medical Physicists throughout Europe to become a well-acknowledged group of scientists.

A first larger joint meeting was held with the Austrian and West German societies for Medical Physics in Innsbruck in 1987. EFOMP also was involved in a Workshop on Quality Assurance in Diagnostic Radiology in cooperation with ICTP at Trieste. Here the cooperation was mainly organized by the Scientific Committee.


The Education, Training and Professional Committee has prepared a series of policy statements on the Role and Responsibilities of the Medical Physicist:

- The Present European Level and Recommendations for its Future Development
- The Training of the Medical Physicist as a Qualified Expert in Radiophysics
- The Roles, Responsibilities and Status of the Clinical Medical Physicist

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International Collaboration Workshop

which are already published, and have been distributed to all individual members of the affiliated organizations.

The Publication Committee prepares and issues "European Medical Physics News," which is also distributed to all the individual members of the affiliated organizations as a link to council.

The future activities of EFOMP will be strongly influenced by the move of the European Communities towards the borderless common market to be achieved by 1992.

American Association of Physicists in Medicine

Colin G. Orton
Chairman, AAPM International
Affairs Committee

The International Affairs Committee of the AAPM is responsible for organizing collaborative programs with other countries. Liaison members are assigned to specific regions of the World and are expected to be in contact with medical physicists in countries within their regions, regardless of whether or not there is a national medical physics society. The AAPM has recently established a new category of membership, Corresponding Membership, which provides AAPM mailings, publications and other services at a reduced subscription.

With respect to aiding medical physicists in developing countries, three programs are of interest. Firstly, each year the Liaison members identify a total of 60 physicists in developing countries to be sent AAPM mailings free of charge for one year. The recipients are then encouraged to apply for Corresponding Membership which, if financial hardship can be demonstrated, is provided at no cost on a year to year basis.

Secondly, the Committee has a Task Group on International Scientific Exchange, which is charged with the organization of exchange visits by medical physicists to and from developing countries for educational purposes. This Task Group is currently seeking sources of financial support for such a program.

Finally, the Task Group on Publications Support is responsible for seeking ways to provide publications to developing countries. For example, an AAPM Travelling Library has been established in Guangzhou, People's Republic of China, and several other requests for AAPM publications have been satisfied.

Persons interested in activities related in this report should contact the new Chairman:

Perry Sprawls, Jr., Ph.D.
Emory University,
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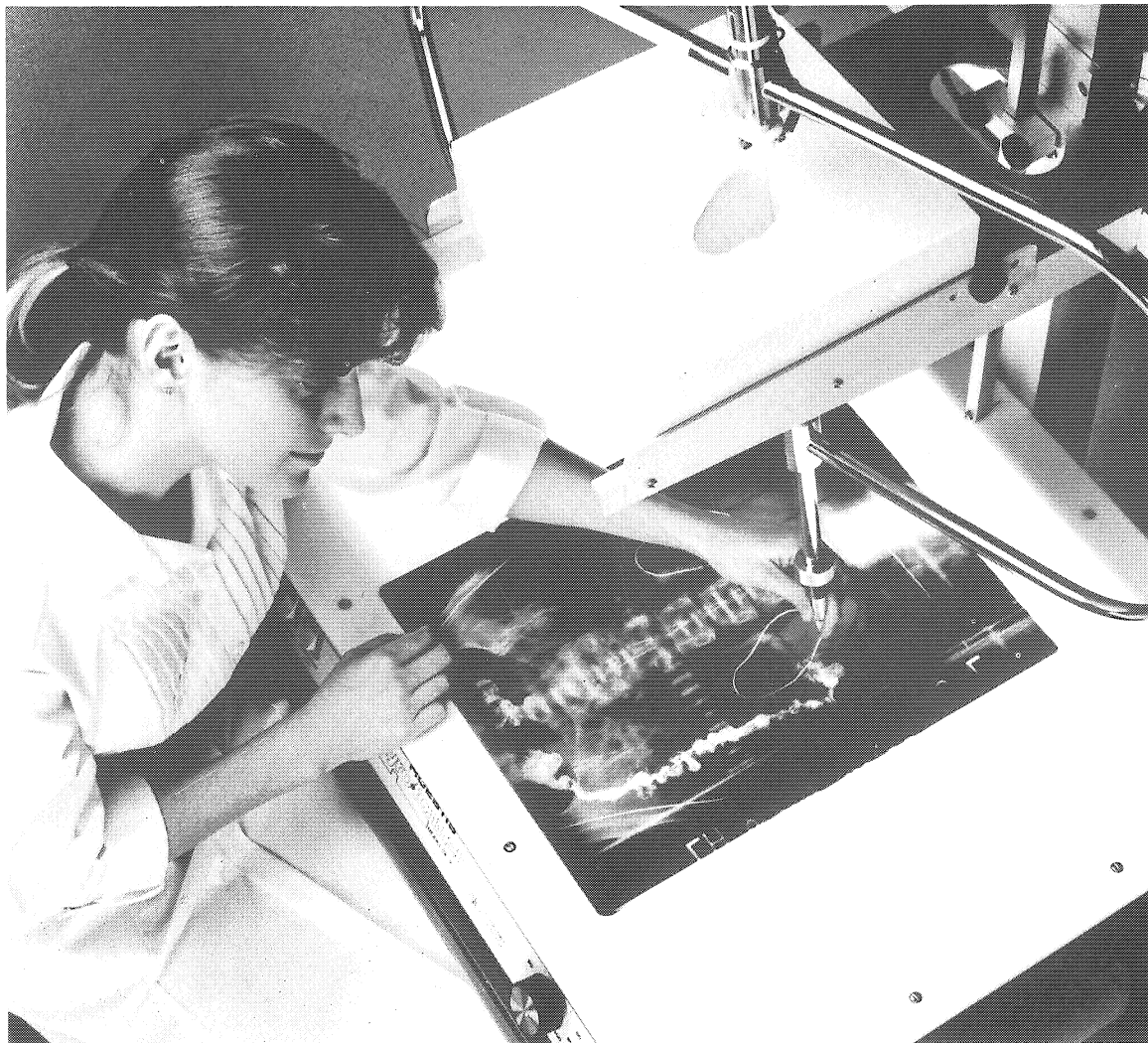
Prof. John Cameron

The ICTP was organized over 20 years ago by Prof. Abdus Salam, a theoretical physicist from Asia who has been director of the ICTP since its birth. The Associate Director of the ICTP is Prof. Luciano Bertocchi. The ICTP is supported by the International Atomic Energy Agency (IAEA) and by the Italian government. The original idea was to provide a research atmosphere for theoretical physicists from developing countries where they would not become part of the "brain drain." This program has been very successful and is still active. Physicists from third world countries stay at the ICTP several months a year and then return to their home institution.

In addition, the ICTP puts on many courses each year in various fields of pure and applied physics. Several years ago, at the suggestion of Prof. Sergio Mascarenhas from Sao Carlos, SP, Brazil, the ICTP initiated a program for medical physics. Under this program there have been training courses about every two years. In addition an International Congress of Physics Applied to Medicine and Biology was held after two of these courses. Proceedings of these International Congresses have been published.

The next training program will be a College of Medical Physics to held in Trieste, October 10 to November 4, 1988. About 80 participants have been accepted, most of these from develop-

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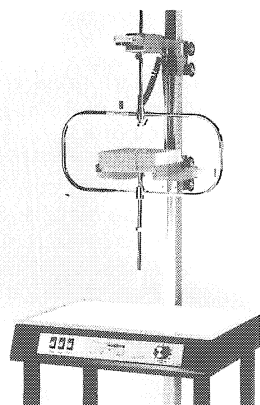
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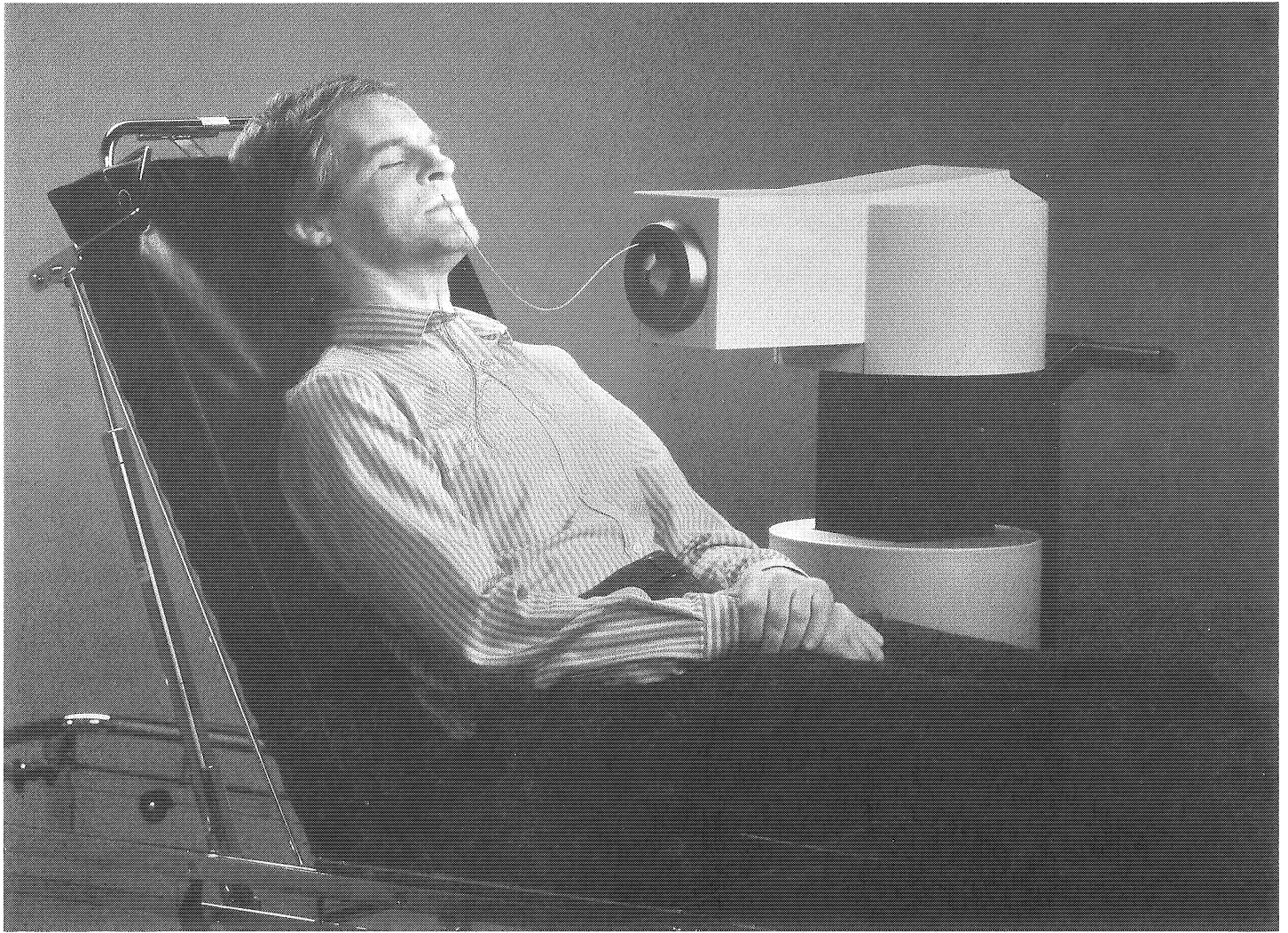
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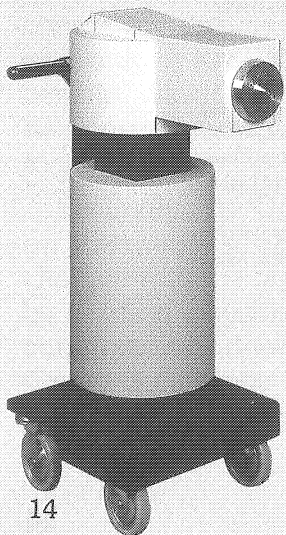
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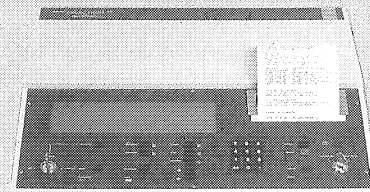


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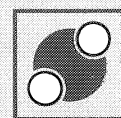
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International Collaboration Workshop

ing countries. The ICTP provides financial support for travel and living expenses. However, applicants that have partial support from their home countries are most apt to be helped by the ICTP.

In addition to the various courses held in Trieste, the ICTP initiated in 1985 the Office of External Activities (OEA). The head of the OEA is Prof. Jan S. Nilsson (from Sweden). The Secretariat consists of Susan Bencich and Eleonara Crotta. There is also a Committee on External Activities that meets about three times each year. The OEA has a variety of programmes including Training Activities, Workshops, Conferences, Physics and Mathematics Teaching and Visiting Scholars/Consultants.

Financial support is only given to projects initiated by scientists/teachers permanently associated with a Third World institution. In most cases the organization of the activity rests entirely with the initiators.

Examples of OEA activities involving medical physics:

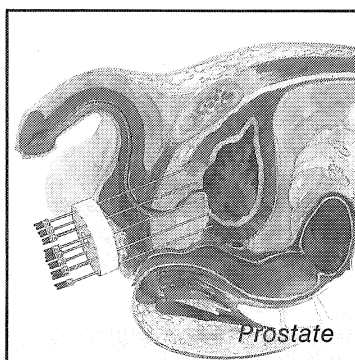
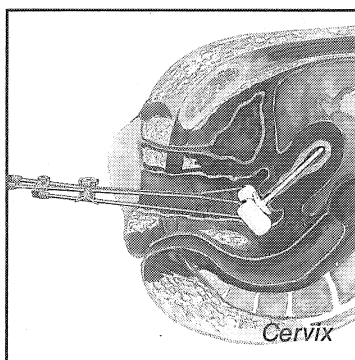
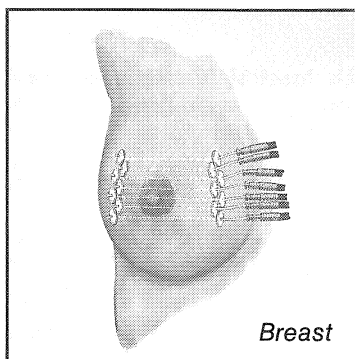
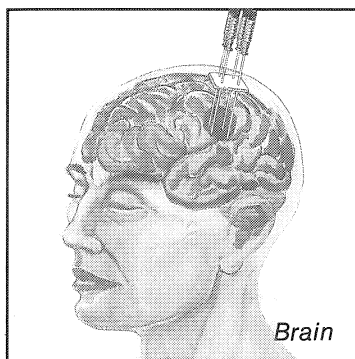
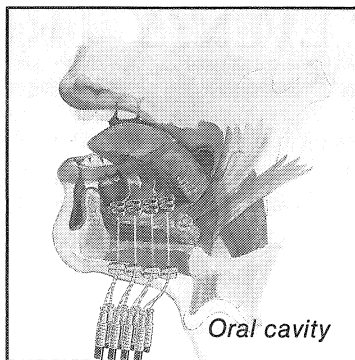
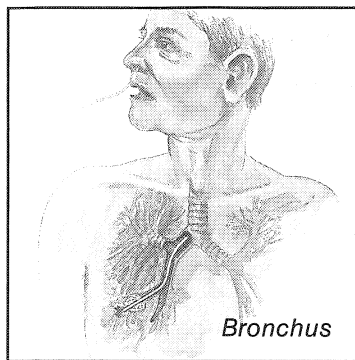
John Cameron is contracted to visit and assist the medical physics program in Costa Rica at least three weeks each year for a total of five years. The program was initiated by the Atomic Energy Commission of Costa Rica. John works closely with Patricia Mora from the (Escuela de Fisica) Physics Dept. of the University of Costa Rica. In addition to helping establish a QC program in radiology, John also helps initiate research activities and gives lectures. Last year he helped Ms. Mora give a two day QC course for radiographers.

In January 23-27, 1989 he will help Ms. Mora give a course on QC for Latin American medical physicists. The ICTP contributed \$5000 to pay travel and living expenses for the participants. It was a condition of the grant that matching funds be obtained locally.

Information on the OEA program of the ICTP can be obtained by contacting:

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Office of External Activities, ICTP
P.O. Box 586
34100 Trieste, Italy
Phone: (39) 40 2240253 Telex: 460392-I

Continued on page 26



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CALENDAR OF EVENTS

Geoffrey S. Ibbott, Editor

1989

February 17 - 19

5th Biennial Conference of Indian Association of Chemotherapists, Bombay, India (Dr. Nagraj G. Huilgol, M.D., Organizing Secretary, Nanavati Hospital and Medical Research Centre, S.V. Road, Vile Parle (West), Bombay 400 056, India).

February 28 - March 3

Annual Congress and Summer School of the South African Association of Physicists in Medicine and Biology, Durban, South Africa (Mr. A. E. Houlder, Dept. of Medical Physics, Addington Hospital, 4001 Durban, South Africa).

March 6 - 10

Nuclear Medicine Computer Course (Standard), Victoria Hospital, London, Ontario, Canada (Dr. T. D. Craddock, Department of Nuclear Medicine, Victoria Hospital, 375 South Street, London, Ontario N6A 4G5 Canada).

March 18 - 20

9th Annual Meeting, North American Hyperthermia Group, Westin Hotel, Seattle, Washington, U.S.A. (Ms. Meg Keiser, Radiation Research Society, 1101 Market Street, 14th Floor, Philadelphia, Pennsylvania 19107, U.S.A.).

March 19 - 23

37th Annual Meeting, Radiation Research Society, Westin Hotel, Seattle, Washington, U.S.A. (Ms. Meg Keiser, Radiation Research Society, 1101 Market Street, 14th Floor, Philadelphia, Pennsylvania 19107, U.S.A. [215-574-3153]).

March 28 - 30

Managing your Infectious and Hazardous Wastes, University of Wisconsin-Madison, Madison, Wisconsin, U.S.A. (Philip R. O'Leary, Department of Engineering Professional Development, University of Wisconsin-Madison, 432 North Lake Street, Madison, Wisconsin 53706, U.S.A. [800-262-6243]).

April

International Conference on Radioactive Waste Management, United Kingdom (The Secretariat, British Nuclear Energy Society, at the Institution of Civil Engineers, 1-7 Great George Street, Westminster, London SW1P 3AA, United Kingdom [01-222 77 22]).

April 4 - 7

INTERMAG: International Magnetics Conference Sponsored by Magnetics Society, Institute of Electrical and Electronics Engineers, Washington, D.C., U.S.A. (Technical Activities Department, The Institute of Electrical and Electronics Engineers, Inc., 345 East 47th Street, New York, New York 10017, U.S.A.).

April 5 - 6

25th Annual Meeting of the National Council on Radiation Protection and Measurements, Vista International, Washington, D.C., U.S.A. (NCRP, 7910 Woodmont Avenue, Suite 800, Bethesda, Maryland 20814, U.S.A.).

April 5 - 7

Southern California Chapter of the American Association of Physicists in Medicine, 1989 Spring Seminar, Workshop on Portal Imaging, Caesar's Palace, Las Vegas, Nevada, U.S.A. (Dr. Norman A. Baily, Department of Radiology, M-010, University of California, San Diego, La Jolla, California 92093, U.S.A.).

April 11 - 15

15th L. H. Gray Conference on the Radiobiology of Human Cells and Tissues, Eliot College, University of Kent at Canterbury, United Kingdom (Dr. G. G. Steel, Radiotherapy Research Unit, The Institute of Cancer Research, Clifton Avenue, Sutton, Surrey SM2 5PX, United Kingdom).

April 15 - 19

18th Annual Meeting, American Radium Society, St. Thomas, U.S. Virgin Islands (Office of the Secretariat, 1101 Market Street, 14th Floor, Philadelphia, Pennsylvania 19107, U.S.A. [215-574-3179]).

April 19 - 21

Conference on Nuclear Technology in Medicine, Southampton, United Kingdom (Mrs. S. M. Blackburn, Institution of Nuclear Engineers, 1 Penderley Road, London SE6 2LQ, United Kingdom [44/1/698 1500]).

April 26 - 28

The International Clinical Hyperthermia Society Annual Meeting, Rome, Italy (Dr. Homayoon Shidrea, Secretary, ICHS, Indiana University Medical Center, 1100 West Michigan Street, Indianapolis, Indiana 46202, U.S.A.).

May 4 - 6

Radiobiology 89, 47th Annual Congress of the British Institute of Radiology and Annual Conference of the College of Radiographers, Eastbourne, Sussex, United Kingdom, (Programme Office, The British Institute of Radiology, 36 Portland Place, London W1N 4 AT, United Kingdom [01-580-4085]).

May 4 - 6

Remote Afterloading: State of the Art, Hyatt Regency Hotel, Dearborn, Michigan, U.S.A. (Dr. Alvaro Martinez, M.D., Chairman, Radiation Oncology, William Beaumont Hospital, 3601 West Thirteen Mile Road, Royal Oak, Michigan 48072, U.S.A.).

May 8 - 12

Nuclear Medicine Computer Course (Advanced), Amsterdam, Netherlands (Ms. E. Busemann-Sokole, Department of Nuclear Medicine, Amsterdam Academic Medical Center, Meibergdreef 9, 1105 AZ Amsterdam Zuidoost, The Netherlands).

May 13 - 17

24th Annual Meeting & Exposition of the Association for the Advancement of Medical Instrumentation, Cervantes Convention Center, St. Louis, MO (Anna Belousovitch [1-800-332-2264]).

May 14 - 19

14th Annual Meeting of the American Association of Medical Dosimetrists (AAMD), Baltimore, Maryland (Gina Lastner, Chairperson, [301-955-6980]).

May 15 - 19

Nuclear Medicine Computer Course (Standard), Amsterdam, Netherlands (Ms. E. Busemann-Sokole, Department of Nuclear Medicine, Amsterdam Academic Medical Center, Meibergdreef 9, 1105 AZ Amsterdam Zuidoost, The Netherlands).

May 21 - 26

10th Symposium on Microdosimetry, Rome, Italy (Dr. J. Booz, Institut für Medizin, Kernforschungsanlage Jülich, Postfach 1913, D-5170 Jülich, F.R. Germany).

May 29 - June 2

Regional Seminar for Africa on Improving Health and Reproductive Efficiency of Livestock Through Radioimmunoassay and Related Techniques, Harare, Zimbabwe (Conference Service Station, IAEA, P.O. Box 100, A-1400 Vienna, Austria).

May 29 - June 2

Regional Seminar for Latin America on Calibration Procedures in Secondary Standard Dosimetry Laboratories (SSDLs), Rio de Janeiro, Brazil, (Conference Service Section, IAEA, P.O. Box 100, A-1400 Vienna, Austria).

May 30 - June 2

5th Symposium on the Medical Application of Cyclotrons, Turku, Finland (Turku Medical Cyclotron Project, Turku University, c/o Sh Building, Room B206, University Hospital, SF-20520 Turku, Finland).

June

13th Meeting of the Hungarian Biophysical Society, Szeged, Hungary (Prof. Laszlo Bozoky, Szabolcska M.u. 1, Budapest H-114, Hungary).

June 4 - 7

29th Annual Conference of the Canadian Nuclear Association and 10th Annual Conference of the Canadian Nuclear Society, Toronto, Ontario, Canada (Canadian Nuclear Association, 111 Elizabeth Street, Toronto, Ontario, Canada M5G 1P7).

June 4 - 8

IMAC '89, 1st International Conference on Image Management and Communication in Patient Care: Implementation and Impact: The Sheraton Washington Hotel, Washington, D.C., U.S.A. (Seong K. Mun, Ph.D., Department of Radiology, Georgetown University Hospital, 3800 Reservoir Road, Washington, D.C. 20007, U.S.A. [202-687-5990]).

June 4 - 8

American Nuclear Society Annual Meeting, Atlanta Hilton, Atlanta, Georgia, U.S.A. (Barbara Morris, American Nuclear Society, 555 North Kensington Avenue, LaGrange Park, Illinois 60525, U.S.A. [312-353-6611]).

June 4 - 9

4th International Symposium, Society for Radiation Protection, Malvern, England (Dr. P. Schwemlein, SRP Symposium, c/o CEGB, Courtenay House, 18 Warwick Lane, London EC4P 4 EB, England).

June 5 - 9

Regional Seminar on Regulatory Aspects and Enforcement of Radiation Protection, Tunis, Tunisia (Conference Services Section, IAEA, P.O. Box 100, A-1400 Vienna, Austria).

June 5 - 9

Critical Issues in Tumor Microcirculation, Angiogenesis and Metastasis: Biological Significance and Clinical Relevance, Carnegie Mellon University, Pittsburgh, Pennsylvania, U.S.A. (R. Hilda Diamond, Associate Director, Biomedical Engineering Program, DH 2313, Carnegie Mellon University, Pittsburgh, Pennsylvania 15213-3890, U.S.A.).

June 6 - 11

2nd European Congress on Oral Dento-Maxillo-Facial Radiology, Kuopio, Finland (Dr. S. Syrjanen, Institute of Dentistry, University of Kuopio, P.O. Box 6, SF-70211 Kuopio, Finland).

June 11 - 16

9th International Symposium on the Packing and Transportation of Radioactive Materials (PATRAM 89), Washington, D.C., U.S.A. (Mr. Lawrence H. Harmon, Director, Transportation Management Division, Office of Defense Waste and Transportation Management, Department of Energy, Washington, D.C. 20545, U.S.A.).

June 14 - 16

7th Congress of the Spanish Society for Medical Physics, Oveido, Spain (Dr. J. Vivanco, Centro de Oncologia, Hospital General de Asturias, 33006-Oveido, Spain).

June 14 - 16

International Microwave Symposium and Workshops Sponsored by Microwave Theory and Techniques Society, Institute of Electrical and Electronics Engineers, Long Beach, California, U.S.A. (Mr. C. W. Swift, C. W. Swift and Associates, 15216 Burbank Boulevard, Van Nuys, California 91411, U.S.A.).

June 15

Biological Engineering Society, Meeting on "Developments in Intensive Care Monitoring," London, Great Britain (D. T. Delpy, Dept. of Medical Physics, University College, London, Shropshire House, Capper Street, London WC1E 6JA [01-380 9700]).

June 18 - 22

Joint Meeting of the Canadian Association of Physicists with the Canadian Association of Radiologists and Radiation Oncologists, Montreal, Quebec, Canada (Sherry Connors, Department of Medical Physics, Cross Cancer Institute, 11560 University Avenue, Edmonton, Alberta T6G 1Z2, Canada).

June 23 - 25

Meeting of the Canadian Association of Physicists, London, Ontario, Canada (Dr. Chris Thompson, M.N.I. Room 723, 3802 University Avenue, Montreal, Quebec H3A 2B4, Canada [514-284-4680]).

June 25 - 28

15th Canadian Medical and Biological Engineering Conference, Westbury Hotel, Toronto, Ontario, Canada (CMBES Secretariat, c/o NRC Room 302, Bldg. M-50, Ottawa, Ontario K1A 0R8, Canada).

June 25 - 29

Health Physics Society, 34th Annual Meeting, Albuquerque, New Mexico, U.S.A. (Mr. R. J. Burk, Health Physics Society, 8000 Westpark Drive, Suite 400, McLean, Virginia 22101, U.S.A. [703-790-1745]).

June 26 - 29

Australian Radiation Protection Society, 14th Annual Conference, Perth, Western Australia (ARPS-14 Conference Convenor, c/o Radiation Protection Office, The Queen Elizabeth II Medical Centre, Verdun Street Nedlands 6009, Western Australia, Australia [09 389 2262]).

June 29 - 30

ESTRO Teaching Course, Computers in Radiotherapy: Selection of Equipment and Quality Control, Paris, France (ESTRO Secretariat, Department of Radiotherapy, University Hospital St. Rafael, Capucijnenvoer 35, 3000 Leuven, Belgium).

July 1 - 4

International Congress of Radiation Oncology, Paris, France (Mr. D. Chassagne, Department of Radiation, Institut Gustave Roussy, 39 rue Camille-Desmoulins, F-94805 Villejuif Cedex, France).

July 1 - 8

17th International Congress of Radiology (ICR 89), Paris, France (Mr. D. Chassagne, Department of Radiation, Institut Gustave Roussy, 39 rue Camille-Desmoulins, F-94805 Villejuif Cedex, France).

July 3 - 7

9th World Congress of the International Society of Radiographers and Radiological Technicians, Paris, France (Ms. V. Crown, 38 High Ashton, Kingston Hill, Kingston, Surrey KT2 7QL, United Kingdom).

July 5 - 6

Joint Meeting of the French Society of Hospital Physicists with ICR 89, Lyon, France (Irene Sentenac, CH Lyon Sud. J. Courmont, 69130 Pierre Benite, France [7850 75 15]).

July 17 - 21

A.A.P.M. Summer School: "Nuclear Medicine - The Role of the Medical Physicist," Samford University, Birmingham, Alabama, U.S.A. (AAPM Executive Officer, 335 East 45th Street, New York, New York 10017, U.S.A.).

July 23 - 27

American Association of Physicists in Medicine, 31st Annual Meeting, Radisson Hotel, Memphis, Tennessee, U.S.A. (AAPM Executive Officer, 335 East 45th Street, New York, New York 10017, U.S.A.).

July 24 - 26

2nd International Federation for Medical and Biological Engineering Pan Pacific Symposium, "Technology in Medicine - Developments and Directions" Melbourne, Australia (Sue Wood and Associates Pty. Ltd., 1st Floor 387 Malvern Road, South Yarra, Victoria, Australia 3141 [03-824 0022]).

August 7 - 11

Massachusetts Institute of Technology, "Course #2.77S Non-Ionizing Radiations: Biophysical and Biological Basis, Applications, and Hazards in Industry and Medicine," Cambridge, Massachusetts, U.S.A. (Director of Summer Sessions, Room E19-356, M.I.T., Cambridge, Massachusetts 02139, U.S.A.).

August 28 - 31

Annual Conference, Australasian College of Physical Scientists in Medicine, "Engineering and the Physical Sciences in Medicine," Hamilton, New Zealand (Dr. W. H. Round, ACPSM (NZ Branch) c/o Physics Department, University of Waikato, Private Bag, Hamilton, New Zealand).

August 29 - September 1

Mediterranean Conference on Medical and Biological Engineering Regional Meeting of the IFMBE, University of Patras, Greece (Department of Medical Physics University of Patras, 265 00 Patras, Greece [0030-61-991512]).

September 3 - 6

Biological Engineering Society, 1989 Annual Scientific Meeting: Engineering for Health (including Diagnostic Radiology), The Royal College of Surgeons, London, England (The Royal College of Surgeons, 34/43 Lincoln's Inn Fields, London WC2A 3PN, England [01-242-7750]).

September 3 - 7

8th Annual Meeting, European Society for Therapeutic Radiology and Oncology, London, England (ESTRO Secretariat, University Hospital St. Rafael, Department of Radiotherapy, Capucijnenvoer 35, B-3000 Leuven, Belgium).

September 10 - 14

IRPA Regional Congress on The Radioecology of Natural and Artificial Radionuclides, sponsored by the Nordic Society for Radiation Protection, Visby, Gotland (Sweden) (GotlandsResor AB, Konf avd, Box 2081, S-62102 Visby, Sweden).

September 11 - 15

Nuclear Medicine Computer Course (Standard), Victoria Hospital, London, Ontario, Canada (Dr. T. D. Craddock, Department of Nuclear Medicine, Victoria Hospital, 375 South Street, London, Ontario N6A 4G5 Canada).

September 13 - 16

20th Annual Meeting of the German Society of Medical Physics (DGMP), Themes: Radiation Treatment Planning, Quality Assurance, Homburg/Saar, FRG (Prof. Dr. H. K. Leetz, Institut für Radiologische Physik der Universitätskliniken, D-6650 Homburg/Saar. Fed. Rep. of Germany [06841/164634]).

September 18 - 22

Nuclear Medicine Computer Course (Advanced), Victoria Hospital, London, Ontario, Canada (Dr. T. D. Craddock, Department of Nuclear Medicine, Victoria Hospital, 375 South Street, London, Ontario N6A 4G5 Canada).

September 20 - 22

Polish Medical Physics Conference and International Regional Symposium on the Training and Education of and by Medical Physicists, (Oskar A. Chomicki, Klinika Endokrynologii, Szpital Bielski, 01-809 Warszawa, Poland).

September 20 - 23

Annual Scientific Meeting of the Royal College of Radiologists, Liverpool, United Kingdom (The Conference Officer, Royal College of Radiologists, 38 Portland Place, London, England W1N 3DG [01-636 4432]).

October 1 - 6

American Society for Therapeutic Radiology and Oncology, San Francisco, California, U.S.A. (American Society for Therapeutic Radiology and Oncology, 1101 Market Street - 14th Floor, Philadelphia, Pennsylvania 19107-2990, U.S.A. [215-574-3180]).

October 3 - 6

Annual Meeting, American Institute of Ultrasound in Medicine, San Francisco, California, U.S.A. (AIUM Convention Department, 4405 East-West Highway, Suite 504, Bethesda, Maryland 20814, U.S.A.).

November 5 - 8

13th Symposium on Computer Applications in Medical Care, Sheraton Washington Hotel, Washington, D.C., U.S.A. (The George Washington University Medical Center, Office of Continuing Education, 2300 K Street, N.W., Washington, D.C. 20037, U.S.A.).

November 6 - 10

9th International Conference on Solid State Dosimetry, Vienna, Austria (Dr. A. Hefner, Austrian Research Center at Seibersdorf, A-244 Seibersdorf, Austria [02254 80 ext. 2500]).

November 6 - 10

Nuclear Medicine Computer Course (Standard), Victoria Hospital, London, Ontario, Canada (Dr. T. D. Craddock, Department of Nuclear Medicine, Victoria Hospital, 375 South Street, London, Ontario N6A 4G5 Canada).

November 26 - December 1

Joint Meeting of AAPM with the Radiological Society of North America, Chicago, Illinois, U.S.A. (AAPM Executive Officer, 335 East 45th Street, New York, New York 10017, U.S.A. [212-661-9404]).

November 26 - December 1

American Nuclear Society Winter Meeting, San Francisco Hilton, San Francisco, California, U.S.A. (Barbara Morris, American Nuclear Society, 555 North Kensington Avenue, LaGrange Park, Illinois 60525, U.S.A. [312-352-6611]).

1990

February 4 - 8

Health Physics Society 23rd Midyear Topical Meeting on Risk: Perception/Assessment/Management and Communication, Atlantic City, New Jersey, U.S.A. (Eva Celinski, Schering Laboratories, 60 Orange Street, Bloomfield, New Jersey 07003, U.S.A. [201-429-4270]).

April 7 - 10

10th Annual Meeting, North American Hyperthermia Group, New Orleans, Louisiana, U.S.A. (Ms. Meg Keiser, Radiation Research Society, 1101 Market Street, 14th Floor, Philadelphia, Pennsylvania 19107, U.S.A.).

April 8 - 12

38th Annual Meeting, Radiation Research Society, New Orleans, Louisiana, U.S.A. (Ms. Meg Keiser, Radiation Research Society, 1101 Market Street, 14th Floor, Philadelphia, Pennsylvania 19107, U.S.A. [215-574-3153]).

April 17 - 20

INTERMAG '90: International Magnetics Conference, Brighton, England, United Kingdom (Courtesy Associates Inc., 655 15th Street, NW, Suite 300, Washington, D.C. 20005, U.S.A. [202-639-5088]).

June 3 - 7

30th Annual Conference of the Canadian Nuclear Association and 11th Annual Conference of the Canadian Nuclear Society, Toronto, Ontario, Canada (Canadian Nuclear Association, 111 Elizabeth Street, Toronto, Ontario M5G 1P7, Canada).

June 7 - 9

French Society of Hospital Physicists, Lille, France (tentative).

June 10 - 15

Annual Meeting of the American Nuclear Society, Nashville, Tennessee, U.S.A. (Meetings Department, American Nuclear Society, 555 North Kensington Avenue, LaGrange Park, Illinois 60525, U.S.A.).

July 22 - 26

Radiology 90, 48th Annual Congress of the British Institute of Radiology and Annual Conference of the College of Radiographers, Harrogate, Yorkshire, United Kingdom (Programme Office, The British Institute of Radiology, 36 Portland Place, London W1N 3DG, United Kingdom [01 580 4085]).

July 22 - 26

American Association of Physicists in Medicine, 32nd Annual Meeting, St. Louis, Missouri, U.S.A. (AAPM Executive Officer, 335 East 45th Street, New York, New York 10017, U.S.A.).

September 12 - 17

6th Regional Conference of Asia and Australasia of the International Society of Radiographers and Radiological Technicians, Christchurch, New Zealand (Miss V. Crown, 38 High Ashton, Kingston Hill, Kingston, Surrey KT2 7QL, United Kingdom).

September 19 - 22

Annual Meeting of the Royal College of Radiologists, Edinburgh, Scotland, United Kingdom (The Conference Officer, The Royal College of Radiologists, 38 Portland Place, London W1N 3DG, United Kingdom).

September 30 - October 3

4th International Evoked Potentials Symposium, Toronto, Ontario, Canada (Colin Barber, Ph.D., Symposium Co-Director, Medical Physics Department, Queen's Medical Centre, Nottingham NG7 2UH, England [44 602 421421 Ext. 3531]).

November 4 - 7

14th Symposium on Computer Applications in Medical Care, Sheraton Washington Hotel, Washington, D.C., U.S.A. (The George Washington University Medical Center, Office of Continuing Education, 2300 K Street, N.W., Washington, D.C. 20037, U.S.A.).

November 11 - 16

Winter Meeting of the American Nuclear Society, Washington, D.C., U.S.A. (Meetings Department, American Nuclear Society, 555 North Kensington Avenue, LaGrange Park, Illinois 60525, U.S.A.).

November 25 - 30

Joint Meeting of AAPM with the Radiological Society of North America, Chicago, Illinois, U.S.A. (AAPM Executive Officer, 335 East 45th Street, New York, New York 10017, U.S.A. [212-661-9404]).

1991

June 2 - 6

Annual Meeting of the American Nuclear Society, Orlando, Florida, U.S.A. (Meetings Department, American Nuclear Society, 555 North Kensington Avenue, LaGrange Park, Illinois 60525, U.S.A.).

July 7 - 12

9th International Congress of Radiation Research, Sheraton Center, Toronto, Ontario, Canada (Ms. Meg Keiser, Radiation Research Society, 1101 Market Street, 14th Floor, Philadelphia, Pennsylvania 19107, U.S.A. [215-574-3153]).

July 7 - 12

9th International Congress of Medical Physics, Kyoto, Japan (Dr. C. G. Orton, Secretary General, International Organization for Medical Physics, Gershenson Radiation Oncology Center, Harper-Grace Hospitals, 3990 John R., Detroit, Michigan 48201, U.S.A.).

July 28 - August 1

American Association of Physicists in Medicine, 33rd Annual Meeting, San Francisco, California, U.S.A. (AAPM Executive Officer, 335 East 45th Street, New York, New York 10017, U.S.A.).

September 8 - 14

International Conference on Magnetism, United Kingdom (The Meetings Officer, The Institute of Physics, 47 Belgrave Square, London SW1X 8QX, United Kingdom [01 235 6111]).

September 18 - 21

Annual Meeting of the Royal College of Radiologists, Warwick, United Kingdom (The Conference Officer, The Royal College of Radiologists, 38 Portland Place, London W1N 3DG, United Kingdom).

November 10 - 15

Winter Meeting of the American Nuclear Society, San Francisco, California, U.S.A. (Meetings Department, American Nuclear Society, 555 Kensington Avenue, LaGrange Park, Illinois 60525, U.S.A.).

November 17 - 20

15th Symposium on Computer Applications in Medical Care, Sheraton Washington Hotel, Washington, D.C., U.S.A. (The George Washington University Medical Center, Office of Continuing Education, 2300 K Street, N.W., Washington, D.C. 22037, U.S.A.).

December 1 - 6

Joint Meeting of AAPM with the Radiological Society of North America, Chicago, Illinois, U.S.A. (AAPM Executive Officer, 335 East 45th Street, New York, New York 10017, U.S.A. [212-661-9404]).

1992

April 26 - May 1

6th International Symposium on Hyperthermic Oncology, Tucson, Arizona, U.S.A. (Ms. Meg Keiser, Radiation Research Society, 1101 Market Street, 14th Floor, Philadelphia, Pennsylvania 19107, U.S.A. [215-574-3153]).

June 7 - 12

Annual Meeting of the American Nuclear Society, Boston, Massachusetts, U.S.A. (Meetings Department, American Nuclear Society, 555 North Kensington Avenue, LaGrange Park, Illinois 60525, U.S.A.).

August 23 - 27

Joint Meeting of American Association of Physicists in Medicine, 34th Annual Meeting with the Division of Medical and Biological Physics of the Canadian Association of Physicists, Calgary, Alberta, Canada (AAPM Executive Officer, 335 East 45th Street, New York, New York 10017, U.S.A.).

November 15 - 20

International Meeting of the American Nuclear Society, Washington, D.C., U.S.A. (Meetings Department, American Nuclear Society, 555 North Kensington Avenue, LaGrange Park, Illinois 60525, U.S.A.).

November 29 - December 4

Joint Meeting of AAPM with the Radiological Society of North America, Chicago, Illinois, U.S.A. (AAPM Executive Officer, 335 East 45th Street, New York, New York 10017, U.S.A. [212-661-9404]).

1993

June 6 - 11

Annual Meeting of the American Nuclear Society, Las Vegas, Nevada, U.S.A. (Meetings Department, American Nuclear Society, 555 North Kensington Avenue, LaGrange Park, Illinois 60525, U.S.A.).

August 1 - 5

American Association of Physicists in Medicine, 35th Annual Meeting, Washington, D.C., U.S.A. (AAPM Executive Officer, 335 East 45th Street, New York, New York 10017, U.S.A. [212-661-9404]).

November 13 - 18

Winter Meeting of the American Nuclear Society, Washington, D.C., U.S.A. (Meetings Department, American Nuclear Society, 555 North Kensington Avenue, LaGrange Park, Illinois 60525, U.S.A.).

November 28 - December 3

Joint Meeting of AAPM with the Radiological Society of North America, Chicago, Illinois, U.S.A. (AAPM Executive Officer, 335 East 45th Street, New York, New York 10017, U.S.A. [212-661-9404]).

1994

July 24 - 28

American Association of Physicists in Medicine, 36th Annual Meeting, Anaheim, California, U.S.A. (AAPM Executive Officer, 335 East 45th Street, New York, New York 10017, U.S.A. [212-661-9404]).

July - August

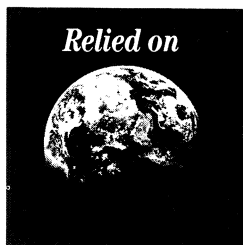
10th International Congress of Medical Physics, Rio de Janeiro, Brazil.

November 27 - December 2

Joint Meeting of AAPM with the Radiological Society of North America, Chicago, Illinois, U.S.A. (AAPM Executive Officer, 335 East 45th Street, New York, New York 10017, U.S.A. [212-661-9404]).

*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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Medical Radiation Physics in the USSR

**Prof. A. M. Gurvich, Dr. E. G. Chikirdin,
Dr. M. Sh. Vainberg**

Moscow Scientific Research Institute of
Roentgenology and Radiology,
All-Union Oncological Scientific Center

In the USSR physicists were the ones who initiated the development of medical roentgenology and related industries. Thus in 1918 the Central Scientific Research Institute of Roentgenology and Radiology was founded in Leningrad on the initiative of Academician A. F. Joffe, an outstanding physicist and a disciple of Roentgen, and Prof. M. J. Nemenoy. After that similar establishments sprang up in Kharkov, Kiev and Moscow. For the first six years the Moscow Institute was headed by the famous physicist, specialist in the field of optics and biophysics, Academician P. Lazarev. It was the physics and technology departments and experimental shops of the above institutes that played the decisive role in the foundation of the first plants for production of roentgenological equipment in Leningrad ("Burevestnik", 1927), Moscow ("Mosrentgen", 1930) and Kiev ("Rentok", 1931).

During the following period physicists and engineers working hand-in-hand with doctors in medical establishments continued to generate and implement new ideas and technical achievements in roentgenology. The results of their work served as the basis for technical and technological developments. They were participating in medical and technological tests of new products; working out methods of parameter control and making recommendations for their use; solving various dosimetry problems; searching for better ways of assuring radiation safety in the course of diagnostic investigations for both patients and personnel; taking part in developing standards and technical documentation, as well as being engaged in training doctors and technicians in basic radiation physics and techniques.

During the post war period the activity of medical physicists considerably increased and became more complicated due to development of radiation therapy and radionuclide diagnostics, which in turn were stimulated by achievements in the production of radioactive isotopes in the USSR. In the fifties the industrial production of remote control gamma-ray units was started and later intracavitary therapy units were produced; many of these units (Rokus-M, Luch-1, Agat-S, Agat-R) are being exported.

In the fifties and sixties new industrial enterprises meeting the needs of diagnostic and therapeutic radiology stimulated the modernization of the technical basis of this branch of medicine and a network was built up comprising plants (product manufacturing), industrial institutes (product development), physics and technology departments of medical institutes (physical and operational tests), and radiological departments (medical tests). All the links of the above chain are closely interrelated, so medical physicists remain active participants in the development of new technology for diagnostic and therapeutic radiology.

In many cases it is these physicists, chemists and engineers working in medical establishments that stimulate the production of new goods and methods. For example in the USSR V. A. Vitka, the engineer from the Moscow Institute for Roentgenology and Radiology, proposed a new scheme for an x-ray tube power supply, known in literature as "Vitka-Schaltung." Later at the end of the fifties sensitivity studies on various combinations of luminescent screens and film led to the production of supersensitive combinations of intensifying screens with optically sensitized film which reduced exposures by a factor of four. From the very beginning film was produced with a special underlayer to prevent the cross-over effect; this technique has only recently started to attract the attention of investigators elsewhere. Medical physicists also proposed that compounds containing elements from the mid-range of the periodic table could be used in optical transformers (intensifying screens) for radiography. These elements exhibit K-edge absorption at a range of x-ray energies that are important for diagnostic applications. This work led to the optimization of phosphors in rare earth intensifying screens.

Soviet medical physicists devote plenty of time to metrological problems, dosimetry, sensitometry, the measurements of machine parameters for diagnostic and therapeutic equipment and the characteristics of the image quality. So in the late 1930's at the Moscow Institute for Roentgenology and Radiology an original method of roentgenological sensitometry was developed, which in a slightly modified form, is now being used for quality control of radiographic and fluorographic films. Metrological investigations serve as the basis both for developments in the fields of standardization and theoretical investigation, that at present allow the ultimate capabilities of the method to be calculated in

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Medical Radiation Physics in the USSR

terms of minimal sizes of detected details and minimal doses of radiation.

Metrological and theoretical investigations help to solve problems of the optimization of imaging systems and of quality assurance in diagnostic and therapeutic radiology. The peculiarity of this system if applied to diagnostics is the necessity to take into account the probability character of the threshold size and minimal contrast of the identified details in the test object and the image.

The USSR as well as other countries is intensively developing computerized methods of calculating the dose distribution in radiation therapy. The methods are applied in therapy with teletherapy sources, electron and proton accelerators and with radioactive neutron sources such as Californium-252.

Close cooperation of physicists and engineers in medical and industrial enterprises is reflected in their work on the expert panels of

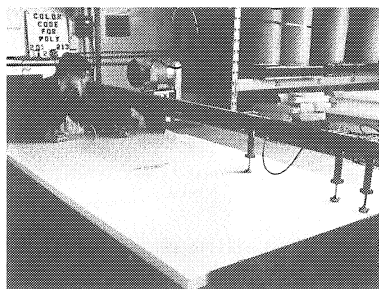
the USSR Health Ministry which are responsible for technical products standards and specifications. They also recommend what apparatus, devices, equipment and materials should be put into production.

Medical physicists form a special section of the All Union Scientific Society of Roentgenologists and Radiologists which cooperates with commissions of the Scientific Council of Roentgenology and Radiology of the USSR Academy of Medical Sciences in the study of physics and technical problems associated with diagnostic and therapeutic radiology. In addition they organize symposia on particular problems such as roentgenotechniques, luminescent receivers and transformers of x-ray radiation etc. Regularly monthly meetings of major local organizations of medical physics meet in Moscow, Leningrad and Riga.

Regional seminars and classes for the education of roentgenologists and radiologists in the physics and technical basis of radiation diagnostics and therapy are organized at the National Economic Achievements Exposition and involve leading specialists from scientific research cen-

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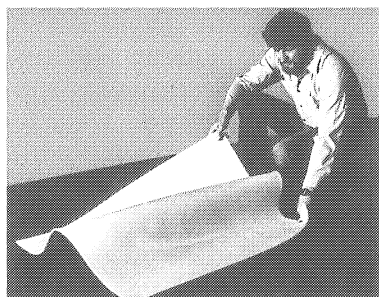
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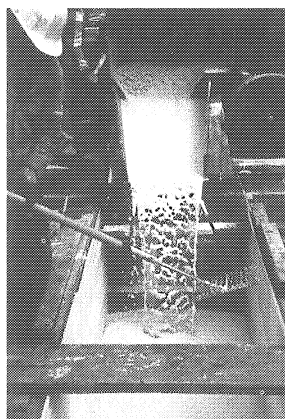
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ters. Two-week seminars and classes are also held at the Medical Radiology Department of the Central Institute of Medical Advanced Training. Scientific papers on medical physics are published in such journals as "Medical Technique," "Medical Radiology," "Vestnic Roentgenology" etc., and in separately published books.

The USSR co-operates with other countries, particularly with the German Democratic Republic (DDR), Czechoslovakia and Hungary, in solving medical physics and technical problems. In collaboration with specialists from the DDR we work in the field of roentgenological screens, computer tomography and image quality, while collaborations with Czechoslovakian experts include work on image intensifiers and supporting devices. Studies of quality assurance in nuclear medicine are being made in collaboration with our Hungarian colleagues.

We hope that this brief description of the experiences of Soviet medical physicists might be useful for our colleagues abroad.

Training in Radiodiagnosis, Radiotherapy and Nuclear Medicine

Meeting the Needs of Technologists in India

Anand Vijay Kumar, MSc, DRP, MInst.P
Consultant Physicist and Secretary,
Paramedical Section
Christian Medical Association of India

Christian Medical Association of India, the health arm of the Protestant and Orthodox Churches in India, has been deeply committed and involved in manpower development through various training programmes. Most of its member hospitals are situated in rural areas where a single Technologist has to run the whole department. Keeping this interest in view, CMAI training programmes in Radiodiagnosis started in 1953, under the guidance of an appropriate Radiography Training sub-committee which came as a sub-committee of the Central Education Board of CMAI. Each sub-committee was chaired by a convenor/secretary and experts in the field. Rules and Regulations and

curriculum/examination pattern and evaluation were the responsibility of this sub-committee.

Some of the common health problems in India where Radiation is used as a diagnostic and therapeutic tool are Tuberculosis and Cancer (oral among men, cervix among women). About 80% of India's population live in rural areas and these are the people most affected by the diseases. Hospitals in remote areas face problems like untrained staff, lack of training centres, and migration of trained people to gulf countries.

Out of about 40,000 X-ray machines installed in India, there would be only 6,000 trained Technologists to handle the machines. Many hospitals still depend upon "self-made Technicians," ward boys who generally hang around for a few years are made to handle the machine independently. Such people often expose himself and his patient to much more radiation than is really necessary, even in the course of routine investigations. Many X-rays are badly taken and have to be repeated resulting in poor quality X-rays. Yet, the show goes on because X-ray machines can legally be purchased by general practitioners, in fact anyone who has the money. Nobody is worried about whether the person who buys the machine is capable of using the machine or not.

The Division of Radiological Protection of BARC has laid down stringent conditions where checks could be introduced before installation of Radiotherapy and Nuclear Medicine facilities. But for X-ray machines there is no law to check its sale. Looking to these needs around the vast country, CMAI offers a 2 year diploma programme in Radiodiagnosis, Radiotherapy and Nuclear Medicine Technology for Technologists in 8 centres in India through its member hospitals.

The requirement for admission is 12 years of schooling with science, equivalent to GCE 'A' level. The first year subjects are common to all and that includes — Anatomy and Physiology, Radiation Physics, Medical Photography, Hospital Practice and Patient Care, Principles of Radiodiagnosis/Radiotherapy/Nuclear Medicine and Clinical experiences. The second year subjects are separate for Radiodiagnosis. They include — Physics of Diagnostic Equipment, Radiographic Technique, Assignment, Hospital Practice and Patient Care and Clinical experience.

For Radiotherapy they include — Physics of Radiotherapy Equipment, Radiotherapy Tech-

Continued on page 25

Meeting the Needs of Technologists in India

nique, Assignment and Hospital Practice and Care of the Patient. For Nuclear Medicine they include — Physics of Nuclear Medicine Equipment, Clinical Procedures and Hospital Practice and Care of Patient.

Certain requirements are laid down by the sub-committee now named as Medical Radiation Technologist Training Committee for a centre to be recognized to take up this training course.

For Radiodiagnosis Technology in equipment, there should be mobile 100 MA X-ray machine, 500 MA stationary unit, survey meter, Radiation Protection accessories. Among teaching faculty, there should be Radiologist, Physicist, Instructor for every 6 students, and Technologist.

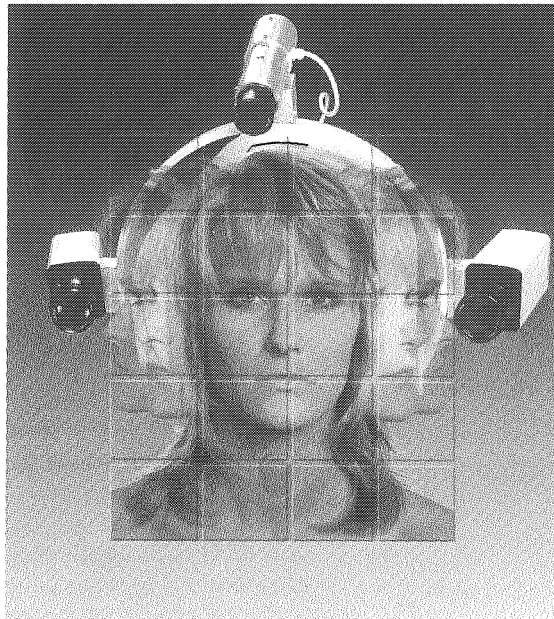
For Radiotherapy Technology in equipment there should be a cobalt unit, Brachytherapy sources, and measuring instruments. Among teaching faculty there should be Radiotherapist, Physicist, Instructor for every 4 students, and Technologist.

For Nuclear Medicine Technology in equipment there should be a linear scanner, well counter, spectrometer analysis, scaler/rate meter, Thyroid function test kit, Isotope calibrator, contamination monitor. Among teaching faculty there should be one Nuclear Medicine Specialist, Physicist, Instructor, and Technologist.

In addition to this, students are encouraged to visit hospitals with latest diagnostic facilities and later undergo safety in Radiation Protection Course organized by BARC. Every year about 52 Technologists are trained in these 8 centres in India.

CMAI is working on the lines to help the Technologists to form their association whereby they receive due recognition. We still need much improvement and updating of our courses, your valuable suggestions and resources available would help the training programme to improve. The theme of the 1988 World Congress was "Looking Ahead — Challenges for the Year 2000." One of the challenges could be to train more technologists in developing countries in areas where diagnostic imaging has gone as far ahead in its advancement. How could man-made radiation benefit the common poor man of the developing world?

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International Collaboration Workshop

The Pan American Health Organization

Cari Borrás, D.Sc.
PAHO, WHO, Washington

In 1901 the International Union of American Republics (today the Organization of American States) decided that health administrators from all over the western hemisphere should formulate "agreements and regulations" to control infectious diseases and founded the International Sanitary Bureau, to be headquartered in Washington, D.C., U.S.A. The first "International" Sanitary Conference was held in 1902, to be then repeated every four years. In 1923 the name "International" was changed to "Pan American." In 1947 the organization was restructured into four bodies and in 1949 the World Health Organization (WHO) — which had been created in 1948 by the United Nations — recognized two of these bodies, the Directing Council and the Pan American Sanitary Bureau as, respectively, WHO's Regional Committee and WHO's Regional Office in the Western Hemisphere. Since then PAHO activities have been carried out in accordance with WHO guidelines, without losing their own identity.

Concern for infectious diseases has given way to a more general focus on international health. Progress has been achieved in many fields: protection of the environment; strengthening of health service systems at the national and local levels; improvement in training of health personnel, and promoting collaborative research. Technical cooperation is achieved through consultation, publications, fellowships, conferences, courses, workshops and seminars.

Medical physics activities are carried out by the Regional Adviser in Radiological Health within the Health Services Development Program, under the Health Systems Infrastructure Area Director. "Radiological Health" includes both radiation medicine and radiation safety. Program priorities are analysis of the situation, direct technical cooperation and research.

Radiation medicine encompasses diagnostic imaging, radiation therapy and nuclear medicine. Consultation in these fields include: planning radiological services; specification, selection, maintenance and repair of equipment; review of procedures, and development and implementation of quality assurance programs. Educational activities involve the organization of

courses such as the "Practical Course in Radiotherapy Dosimetry" (in Spanish), just held prior to the World Congress of Medical Physics and Biomedical Engineering, and the development of teaching materials, such as audiovisual programs. Currently, the most important projects are the promotion of the WHO Basic Radiological System and the IAEA/WHO postal dosimetry intercomparison for high energy radiotherapy units. 220 machines will have been monitored in Latin America and the Caribbean in 1988.

The most important activities in radiation protection involve environmental levels monitoring and intervention, and preparedness for radiation accidents. Consultation services are available for: shielding specifications; installation and operation of radiation producing equipment; radioactive waste disposal; prescription of dose limits; radiation dosimetry; food irradiation; microwave hazards; laser uses, and radiation emergencies.

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Funding derived from these sources is allocated to the support of hospital physicists in developing countries. Corporations wishing to receive more information about Corporate Membership should contact: Colin G. Orton, Ph.D., Prof., IOMP Secretary-General, address on Page 2.

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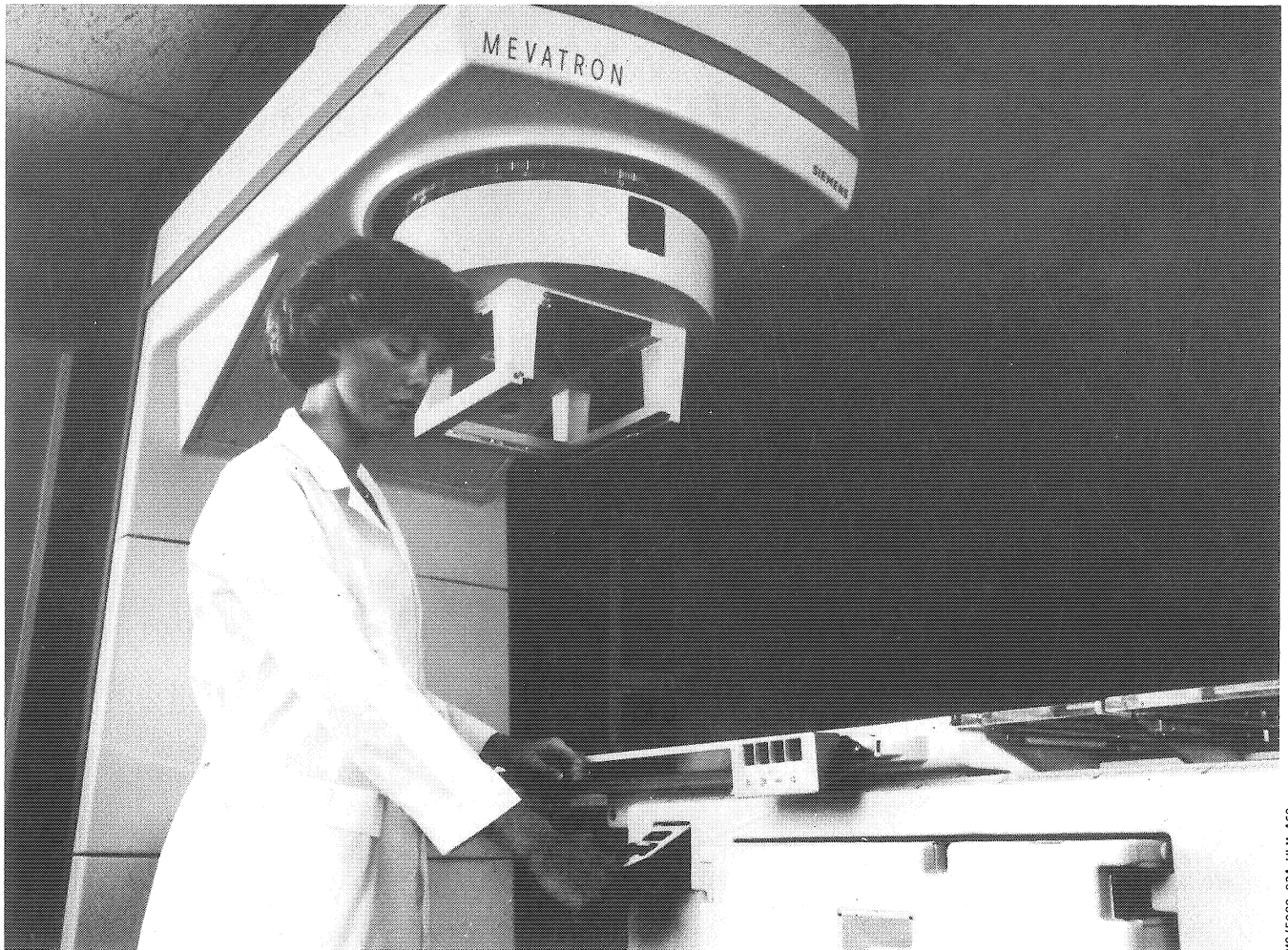
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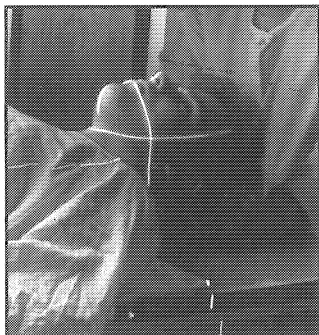
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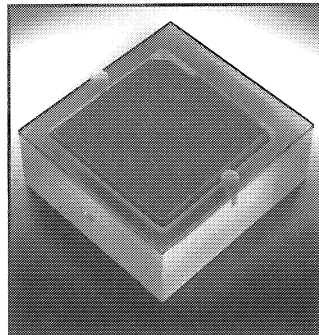
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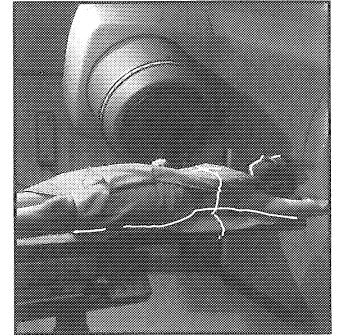
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