

Medical Physics World

Bulletin of the International Organization for Medical Physics

Adhering National Organizations 1987

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President's Message

Dear Colleagues and Friends,

The First Asian Regional Conference on Medical Physics which was hosted by the Association of Medical Physicists of India at the Bhabha Atomic Research Centre in Bombay, India, in December 1986, was a great success in many ways. The quality of the papers was high and the social events were varied and of cultural interest. During the conference, the delegates and officers of IOMP met and approved the applications for admission to IOMP of the Adhering National Organizations from Australia, Hong Kong, New Zealand, People's Republic of China, and the Republic of the Philippines. With the addition of these five countries, IOMP now has thirty-four Adhering National Organizations. Prior to the admission of these countries, the percentage of the world population of those countries that had Adhering National Organizations was 40.2%. With

the new additions, this percentage has risen to 62.9%!

As IOMP gains new members, it may appear likely that some medical physicists will experience difficulties of free passage to IOMP international and regional conferences; however, it is IOMP's policy to accept invitations for our conferences only from countries assuring free passage.

The International Council of Scientific Unions (ICSU) has addressed the problem of free passage for scientists worldwide. Since IOMP is of the ICSU family through its membership in the International Union for Physical and Engineering Sciences in Medicine, it is in order to call to your attention the efforts of ICSU in this matter. To quote from a report by the Standing Committee on the Free Circulation of Scientists of ICSU, "The organizers of meetings should always keep in mind that bona fide scientists should not be excluded from partici-

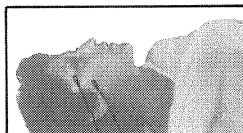
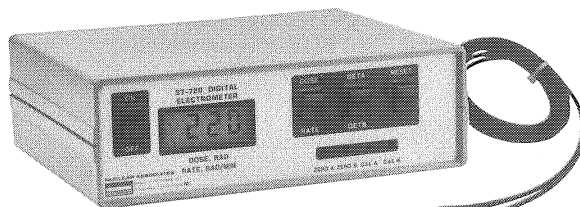
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President's Message

pating in international scientific meetings because of race, religion, political philosophy, ethnic origin, citizenship, language or sex."

Before issuing an invitation to hold a meeting in a given country, the local organizers should produce in writing an assurance that there will be no obstacles to the granting of visas to bona fide scientists who wish to participate. The local organizers should also supply information concerning the mechanisms of application for visas and an indication of the period normally required between application for and receipt of a visa.

Organizers of meetings can obtain a copy of the complete report entitled "Advice to Organizers of International Scientific Meetings," dated 1985/1986, from Dr. O.B. Tandberg, Executive Secretary, Royal Swedish Academy of Sciences, Box 50005, S-10405 Stockholm, Sweden.

Lawrence H. Lanzl, Ph.D.

Announcement

Newly Elected Members of the IOMP

Congratulations are extended to the following countries newly elected to IOMP membership at the Asian Regional conference in Bombay, December 1986:

Australia

Hong Kong

New Zealand

Republic of the Philippines

Information about each of the organizations (Australia and New Zealand are represented jointly by the Australasian College of Physical Scientists in Medicine) appears elsewhere in this or the next issue on Medical Physics World."

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Editorial and Business correspondence should be addressed to Dr. Colin Orton. Events information should be addressed to Mr. Geoffrey Ibbott. IOMP correspondence should be addressed to Dr. L.H. Lanzl and Dr. B. Stedeford.

Editorial Policy

Medical Physics World welcomes correspondence from medical physicists around the world. We are especially interested in receiving articles which review the status of medical physics in IOMP

member countries, such as the articles on pages 10, 20 and 25. Please send all correspondence intended for publication **double spaced** to the Editor. Deadline for the next issue is November 1, 1987.

Report of Visits to India and China

Secretary-General, Brian Stedeford

Asian Regional Conference on Medical Physics, 8-12 December, 1986.

The conference was held at the Bhabha Atomic Research Centre (BARC), Trombay, a full hour's journey from the centre of Bombay. I was staying with my wife at the BARC hostel, convenient to the conference; but many participants were staying at hotels in Bombay, and so inevitably had long daily journeys. I was pleased to be able to come to BARC, about which I had heard much over the years.

The meeting included invited lectures and preferred papers, plenary, parallel and poster sessions, refresher courses, an IOMP business meeting, and a trade exhibition. There was also a reception tea, an excellent cultural programme followed by a dinner, and a choice of conference outings to Bombay city and environs or Elephanta Island.

There were conference sessions on the physics aspects (including dosimetry and computing) of X-ray and electron beam radiotherapy and gamma-ray and neutron brachytherapy, medical electronics and instrumentation, hyperthermia, ultrasound, X-ray imaging by conventional, xerographic, digital and computed tomography techniques, nuclear medicine and magnetic resonance imaging, radiobiology, radiation protection, and the status of medical physics in many countries, including educational aspects (and my own contribution from the U.K.).

In general the standard of the meeting was as high or higher than that of many I have attended in western countries. As I said at the closing session when I was invited to comment, I am looking forward to receiving the full proceedings to study the details concerning some of the papers presented.

With over 200 papers any individual comments must be largely anecdotal, but one refresher course on the importance of quality assurance in radiotherapy reminded us of a situation in Ohio in 1976 when 400 radiotherapy patients were mistreated over a period of more than a year due to a dosimetry error. Recently, also in the U.S.A., three patients were seriously burnt, one fatally, by a radiation beam due to a combination of operator error and computer malfunction. Many useful suggestions were made for quality control techniques to improve the performance of equipment in less spectacular but equally necessary ways of relevance to medical physicists, doctors and patients the world over.

We also learnt that in India with a population of 680 million and a need for a similar number (1 per million) of high energy treatment units, there are in

fact 140 units in 90 centres, with 130 medical physicists.

Gujarat Cancer & Research Institute, Ahmedabad

We were welcomed at the airport by Mr. Dayal C. Aurora, Chief Physicist at the Institute, and his colleague, Mr. Patel (a not uncommon name in Ahmedabad). Unfortunately neither of them had been able to attend the Bombay meeting as their two other colleagues were on leave. We were taken to our accommodation in Circuit House, a once elegant establishment still run with great efficiency which reminded us of a film set from the period of British rule.

We were collected on the Saturday morning, 13 December and taken to the GCRI on the New Civil Hospital Campus. At 10 a.m. I gave my lecture, an extended version of that presented at Bombay, to a mixed and extremely interested audience who asked a number of questions informally after the lecture, particularly concerning the techniques of Total Body Irradiation. They requested that I forward on a copy of my talk which I will do. My wife and I were then taken to meet the director, Dr. T.B. Patel, an epidemiologist, and Dr. Patel, senior radiotherapist. We spoke about a new linear accelerator they hoped to obtain shortly, and my wife, a psychotherapist specialising in the problems of terminal care presented a copy of her book - *Facing Death, Patients Families and Professionals*. We were shown their plans for a hospice to be built on a donated site some way from the hospital. My wife liked the design, based on 15-17 individual cottages for the patients and their families.

We were then taken around the hospital, and saw the Philips 5MV linear accelerator installed under the Columbo Plan. They have two AECL Theratron cobalt units which we did not see, but we saw their Hitachi CT scanner in use for a head injury patient, the Philips simulator and two Philips Treatment Planning Systems of an old design which could not use the CT information (the second unit had been brought in because the first was non-functional but not removed after the first had been repaired). The TPS system was not convenient for intracavitary and interstitial dosimetry calculations, but they hoped to get a small computer to do this work in due course. We saw their Selectron system used for treating some 250 patients a year using caesium sources in two single rooms. We also saw their mould room, workshop and a medical ward. Some 250-300 patients were treated daily using external beams, 50% to the head and neck, and 60% of the patients staying with relatives or at a guest house. The radiographers were male science graduates. Visits are made to a number of centres some 40-60

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Report of Visits to India and China

miles outside Ahmedabad on Sundays for consultation and instruction in cancer prevention (e.g. self-examination of the breast). All female visitors to the hospital are encouraged to have cervical smear tests. They hope to obtain one of the first two Magnetic Resonance Imaging systems in India shortly. There is a second X-ray CT unit in Ahmedabad, operated in a private clinic.

We were then taken to lunch, followed by a visit to a craft centre, and to Ghandi's house next to a dry river bed, the rains having failed for two years. Later we were collected again from Circuit House to see the site for the new hospice, and then entertained by the director, assistant director and chief physicist to dinner at a unique restaurant designed as an old village and including a utensil museum.

On Sunday morning Mr. Aurora again met us and took us to see a most interesting temple, and also to Stepwell, an impressive bathing edifice built some 500 years ago to persuade a reluctant bride, who however committed suicide before its completion. We were later taken to the airport for the flight to Bangalore.

We enjoyed this visit very much, and frankly felt we received more than we gave, but they seemed genuinely pleased to entertain us. I am pleased to be able to send them a copy of the latest set of depth dose data which they do not have, as a small recompense for their hospitality, and will hope to keep in touch with them and send other information as they may need it.

Kidwai Memorial Institute, Bangalore

We were met at the airport by Professor Ravichandran, chief physicist, whom we had previously met at Bombay, and who conducted us to the Shilton Hotel, with a large and pleasant room.

Next morning we were taken to the Institute, where we were introduced to the director, Prof. Krishna Barghava, and later shown around the hospital. We were told about the Institute which started in 1973 with 50 beds, increased to 150 in 1975 and 210 in 1986 (55 for radiotherapy). A building had just been started for another 250 beds. There is also a hostel for 200 patients and their companions, with 38 rooms costing 5-10 Rupees a day, and a large dormitory with no charge. I was particularly impressed with the work the housekeepers were doing to help the residents settle in. A continuing care unit is also being built with 17 flatlets built in the form of a double arc, and which seemed to be of an excellent design. Kidwai is one of 9 regional centres in India. Their support comes partly from state funds, and partly from public subscription.

They have a new centre from radio-pharmaceuticals, receiving the main stock from BARC and dispensing for local use, at first only for Kidwai, later for other centres. The building is operated at negative pressure for radiation safety, with glove boxes, an interesting variation from the U.K. philosophy of positive pressure for sterility with laminar flow cabinets. They also plan a radio-sterilization plant with a 100kCi source.

They have a clinical psychologist on the staff, and a programme of cancer education and detection with a separate team working in hospital during the week and going out to the country at weekends. We visited their cancer registry, only begun two years ago, and saw their records for cases admitted. They treat some 3000 cases for radiotherapy yearly. Oesophagus is the most common carcinoma for female, stomach for male. The general poverty seems to have the effect of increasing cancer incidence, the increase with age starting younger than in the west. Early marriage also increases the incidence of Ca cervix.

We saw their whole body Siemens X-ray CT scanner, operated by a female graduate. (There is one other head scanner in a government hospital, and one head and one whole body scanner in the private sector). They do regular Quality Assurance checks with a good phantom. We saw their Philips gamma camera and iodine uptake counter and mammography unit, also a Toshiba real-time ultrasound scanner.

We next saw their new radiotherapy department in shell form, which was extremely impressive. They had a Varian 18MV linear accelerator boxed up, the room having been built around it with an asymmetric arrangement to allow a 5m treatment distance for Total Body Irradiation. They had a long maze, with provision for an extra door for neutron protection if necessary. There is room for a second (5MV) linear accelerator in 3-5 years. There are generous laboratories and offices, mould room, planning room and a brachytherapy suite. They have a Selectron to treat two gynaecological patients at once, to be moved to their new department. Many patients are too far advanced for radioactive insertion when admitted, and often have radiotherapy to shrink the tumour first, the reverse of the usual situation in the U.K.

They have a room for an Oldelft simulator, which is in store at present. I was able to advise on Quality Assurance checks, particularly for image intensifier resolution, and on possible maintenance problems, since we have a recent Oldelft installation at Oxford. They have two cobalt units at present, one of Indian manufacture, one Canadian. Since they have to treat 250 patients a day, they have to treat over 24 hours with four 6 hour shifts. A further Canadian

cobalt unit is planned. They also have a caesium unit, at present out of action because the source fell out while being serviced by inadequately trained service staff. However the source had been very skilfully covered and moved to a temporary safe in the corner with very small doses to hospital and agents' staff, of 50mR. They hope to bring the unit back into use in due course.

They have seven physicists, two professors, two assistant professors and three lecturers, their department being of equal status to the radiotherapy department. They have three or four physicists doing radiobiological research, and in their cytogenetics unit are investigating a method of radiation dosimetry using premature clumping of chromosomes, a technique which I had not heard of previously.

After lunch my wife and I both gave lectures, mine on treatment of the larynx and total body irradiation, and my wife's on psychological problems of dying patients, emphasizing the need for pain relief. The talks seemed to be well received, and afterwards we were garlanded, and presented with a plate.

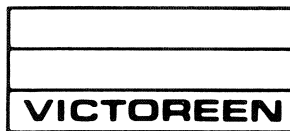
In the evening we were taken to a local arts and crafts centre before being returned to our hotel. We were collected again at 7 a.m. by Prof. Ravichandran and taken to the airport. This was just before the start of a two day satellite symposium which I was unfortunately unable to attend due to my prior commitment to visit China. We were invited to attend their Oncology meeting in February 1988, and I hope that this may be possible, as I would certainly like to keep in touch with developments at this interesting centre.

The People's Republic of China

We were pleased to be met in Hong Kong by Mr. Li Ji-Shi, from Guangzhou, who was visiting Hong Kong on his way back from the Bombay Conference. From there we travelled by train to Guangzhou, arriving in time to be welcomed at the end of the lecture given by the president of IOMP, Professor Larry Lanzl, who had come on to Guangzhou with Professor Xie immediately following the conference. We were accommodated at the First Military Medical College, being welcomed there by Mr. Lin Yi-Qun, whom we had also met in Bombay, and later entertained at a banquet there.

The next morning we were taken round Sun Yat Sen University by the Vice President Professor Zhang Chun-Xiang and his wife, together with Professor Lanzl. We were most interested to see the laboratory where experiments were being conducted to determine the existence of Gravity Waves. We also saw a Van de Graaf generator used to irradiate plant seeds for induction of mutations and also an environmental laboratory for counting

Continued on page 6



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Report of Visits to India and China

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After lunch, or rather another banquet, at the University, I gave my first lecture at the 1st Military Medical College to a very receptive audience on some radiotherapy techniques developed at the Churchill Hospital, Oxford. These included Total Body Irradiation prior to bone marrow transplantation for leukemia, and the use of iridium wires for interstitial therapy. My interpreter was Professor Wu Chao-Yuan from the Tumour Hospital. Then another banquet at one of the best restaurants in Guangzhou.

The following morning we were taken around the 1st Military Medical College, where we saw their CT and NMR scanners and gamma camera, and were able to witness a heart catheterization. There was an excellent anatomy museum, and a computer laboratory, with Chinese characters formed by graphics techniques. They also have a fully equipped television theatre, where I saw part of my lecture of the previous day replayed. The campus had only been built in 1978, which involved levelling four hills. Following the visit we enjoyed seeing the market within the campus, where some fruit was purchased for us.

After a luncheon banquet at the college, we drove down into the centre of Guangzhou for my wife to deliver a lecture on her own speciality, the psychological problems of terminal care. Unfortunately we also experienced a Chinese traffic jam, and were quite late for her lecture, which was nevertheless well received, with a large medical audience. After the lecture my wife was presented with a pair of beautiful vases made of many layers of silk, and then the President of Guangzhou Medical College, Professor Lin Tao Ping kindly took us on a walking tour of old Guangzhou, which we found fascinating, particularly the Chinese medicine shops. Then on to another restaurant for another Chinese banquet.

Professor Lanzl left us the following morning, Saturday, to return to the U.S.A., while we were shown around the Second affiliated Hospital of Guangzhou Medical College, completed in 1980. It has 600 beds, 400 doctors and 50 students, 400 nurses, and 2,500 outpatients are seen daily. They have the first SPECT gamma camera in South China. We saw their Renal Dialysis Unit, and also

their acupuncture clinic, where a medical student was treated for short sight. There is a good prospect of cure for young people, we were told. We also saw their beautiful roof garden.

After another luncheon banquet, back to the 1st Military Medical College for me to give a talk on the work of the IOMP. I was honored to have as my interpreter for this Professor Xie Nan-Zhu, and also to have in the audience Professor Lui Pu-He, now retired from his position at Sun Yat-Sen Medical University, but who had been in correspondence with me, particularly over assistance for medical physicists to attend the Bombay meeting.

After this, Professor Lui invited us, together with Professor Xie, to a 'simple meal' at his house, which however turned out to be another banquet. I fear that by this time we were unable to do full justice to such a meal, but we felt very privileged to be entertained at Professor Lui's home, and to meet his wife and family. He also presented me with a copy of a Chinese text-book of medical physics to which he had contributed, but of which I am afraid I have not so far been able to read very much.

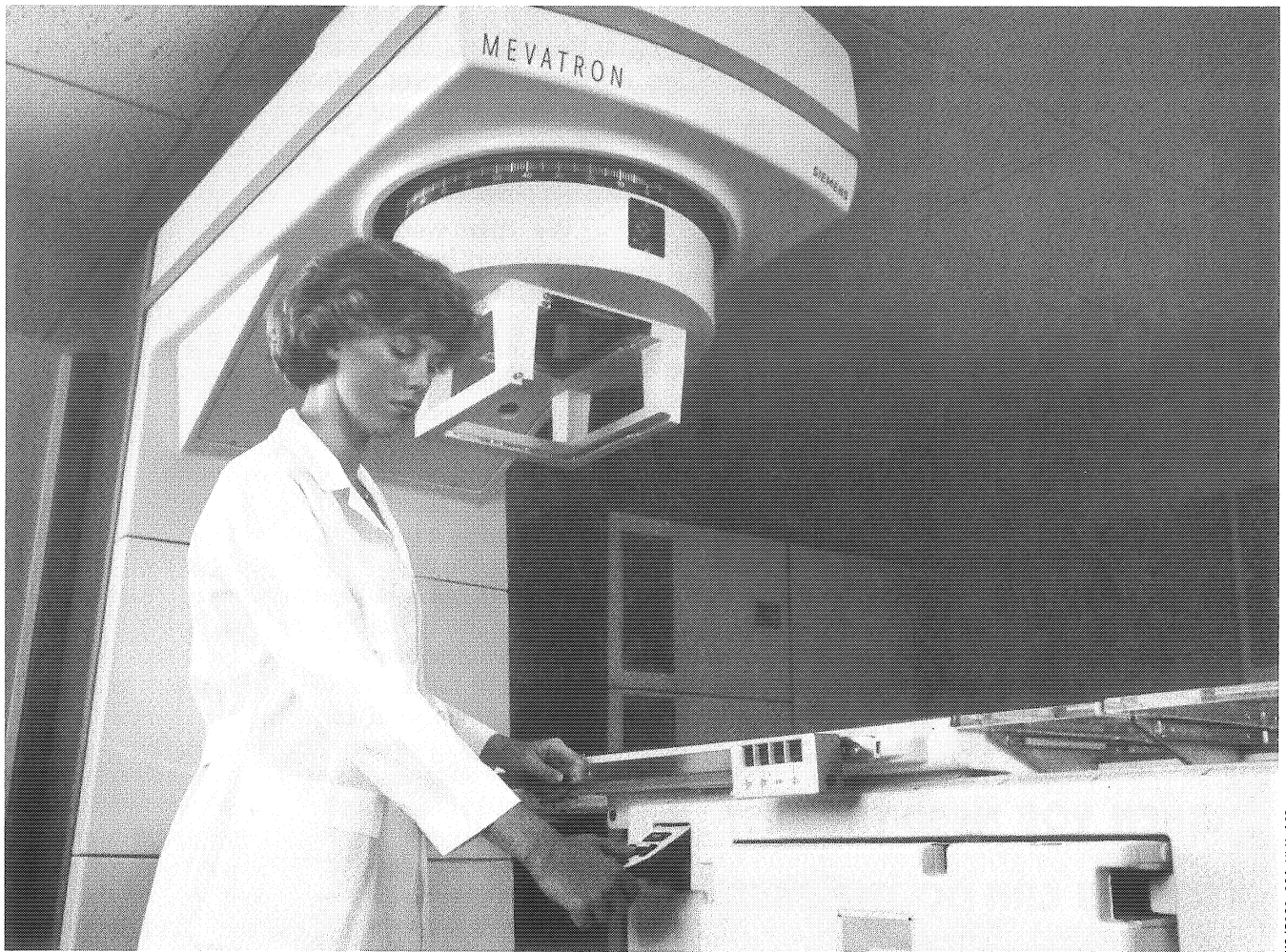
On Sunday morning Professor Xie showed us some of the beautiful parks of Guangzhou, before flying with us to Beijing, an enormous city with many bicycles. Only firms and government bodies can run cars, although there are many taxis. One of our precious memories is of going out in the early morning (bicycle) rush-hour and into the Park of the Temple of Heaven, where we saw the older people running and doing their Tai Chi exercises, and also many people bringing their caged birds out for an airing, sitting them on a wall and taking the covers off, a little like British people take their dogs for a walk. The Temple of Heaven itself is an amazing circular building, all wood, no nails allowed. Near it is a circular whispering wall, where you can hear someone talking quietly the other side. It encloses the Temple of the Gods.

We saw Tian An Men Square, at 100 acres the largest in the world, but saw no sign of the student demonstrations we read about when we got home. We visited Chairman Mao's Mausoleum (no cameras allowed) and although the queues were long we quickly got through. (Mao's last years are now regarded as oppressive, but he is still honoured for his good works until that time.) Then on to the Forbidden City, built in the fifteenth century by the third Ming Emperor, not so much a palace as a city of palaces - you must go there to even begin to appreciate it. We spent two hours there, it takes a week to explore fully.

The Great Wall is clearly an experience not to be missed - started in the fifth century B.C., rebuilt in the 14th-16th Centuries, and a short length restored

Continued on page 8

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Report of Visits to India and China

recently. Five horsemen could ride abreast from one tower to the next, from which beacons could be lit to warn of approaching invaders. The section near the road is crowded, but as with tourist crowds the world over you can soon get to a deserted part, and the swirling mist allows one to imagine what it might have been like centuries ago. On the return you pass the Ming Tombs, where 13 of the 16 Ming Emperors were buried from 1368 to 1644. One has been excavated fully, another partly. By far the most impressive, however, is an enormous avenue of animal and mandarin statues. We had to stop and examine (and photograph) each one, which I think tried the patience of our guide and driver a little. Neither spoke any English, except that our guide knew one word 'Hello', of which he could vary the intonation in true Chinese fashion to give an amazing variety of meanings. By the end of the trip, his vocabulary had doubled, he also knew 'toilet'. We shall remember his cheerfulness and enthusiasm for the rest of our lives.

Beijing has many beautiful parks, some with lakes on which there was skating. On the edge of one is

the Summer Palace, a strange series of buildings built on a hill by a tyrannical dowager empress with money earmarked to rebuild the Chinese navy of the time - which may explain why she included a marble boat on the lake shore.

I also visited the Temple of Heaven Hospital, to see their MRI equipment, and the Tumour Hospital, where I spoke again about Total Body Irradiation and iridium wire implants, the former they already do, and the latter they were hoping to introduce. Finally we were entertained by Professor Xie and his daughter to a superb meal at the Peking Duck Restaurant, the best in Beijing, and the best Peking Duck.

We then went on Christmas Day to Quilin, considered by many the most beautiful place in China, and were met there by one of Professor Xie's assistants, Mr. Mei Bingqiang. In the city and the surrounding area are a whole series of round-topped hills with almost vertical sides, rising out of a plain. There are many beside a river along which we took a boat ride. This trip, with a gentle mist on the hills, and fishermen on the river, some using trained cormorants to catch the fish for them, was an unforgettable experience. We had thought that the many shades of grey in Chinese paintings was their technique, but it is a true portrayal of the scenery.

Finally back to Guangzhou, with a farewell banquet (what else), where we had the pleasure of meeting Mrs. Xie, as well as Professor Xie and his colleagues who had done so much to make our stay enjoyable. We certainly hope it may be possible to return some time.

It should be pointed out that medical physics is somewhat different in China from almost all other countries. As well as the usual medical physics activities to do with radiotherapy, nuclear medicine, etc., there are many physicists in medical school who carry out research but also teach medical physics to medical students as part of their normal curriculum, involving perhaps 50 hours of teaching. In the United Kingdom there is normally no physics taught to undergraduate medical students, but only for post-graduate specialization in Radiology, Radiotherapy, and Nuclear Medicine. I believe this is also the situation in most countries. Of around 1000 medical physicists in China, about 100 work in hospitals, the rest in medical schools.

The President and Secretary-General of the IOMP have been honoured to have had the opportunity to visit The People's Republic of China in the year that the Chinese Society of Medical Physics became a member of the International Organization for Medical Physics.

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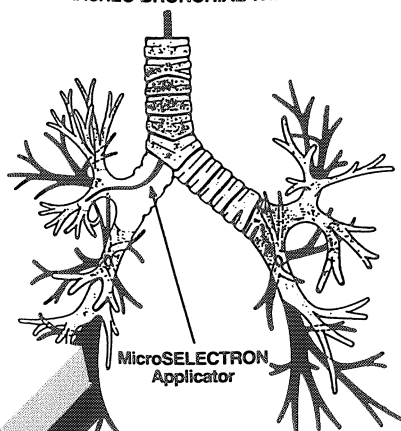
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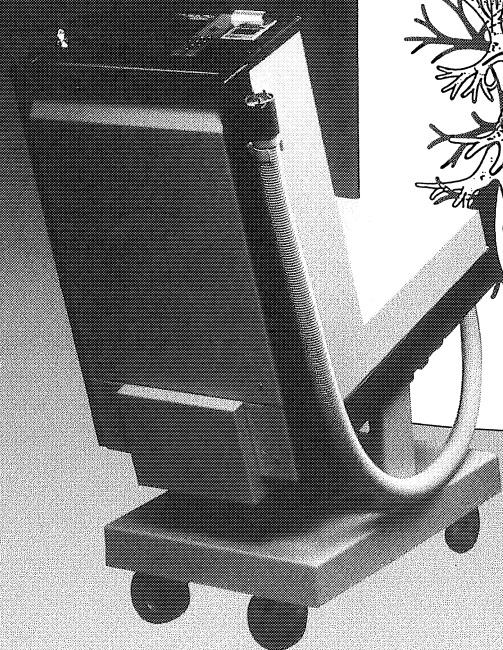
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Medical Physics in Canada - An Historical Overview - 1987

*J.C.F. MacDonald
and J.R. Cunningham*

From a slow and somewhat late beginning, medical physics in Canada has, over the last thirty years, grown to become a vital and active discipline employing more than 200 full-time physicists.

In the 1930's and 1940's, as the need for physics input into radiation therapy became evident, the medical profession turned to the universities for help. Probably the first such cooperative venture was the construction of a radon emanation plant by Professor E.L. Harrington for the Saskatchewan Cancer Commission in 1931. This plant remained in operation until 1962. Harrington's involvement in cancer therapy led later to the appointment in 1945 of Dr. H.E. Johns to the Physics Department, and as physicist to the Saskatchewan Cancer Commission. As is well-known, Professor Johns initiated and actively developed a world-class medical physics program, first at the University of Saskatchewan and later at the Ontario Cancer Institute in Toronto, which has trained many of the medical physicists in Canada as well as others scattered across the world.

In the late 1940's and early 1950's, smaller scale medical physics groups were developing in other parts of Canada, notably in British Columbia under Dr. H.F. Batho and in Quebec by Dr. L.G. Stephens-Newsham.

The development of the cobalt teletherapy unit for cancer therapy in 1951 by Dr. Johns' group, and independently by AECL, was probably the single most important step in the evolution of medical physics in Canada. Because of this, regulatory bodies insisted upon the full-time presence of a trained medical physicist wherever such a unit was installed.

By 1954 the physicists employed in the seven centers of the Ontario Cancer Foundation in the Province of Ontario had formed an Association to advise the Foundation and to "provide collective discussion and action for the advancement of the application of physics to radiation therapy". At its first meeting, the secretary was instructed to communicate with other physicists working in the medical field across Canada with the object of forming a Canadian Association of Medical Physicists (CAMP). The reason for this action was that it was apparent that the Canadian Association of Physicists (CAP) was concerned mainly with the interests of academic physicists, while the Canadian Association of Radiologists (CAR) was a medical body, with little interest in the problems of its non-

medical colleagues. The medical physicists required recognition, both scientific and professional, which was not forthcoming from the two well-established organizations.

CAMP was formed in 1955. Both the CAR, with whom the medical physicists worked closely, and the CAP were concerned at the time about this independent action on the part of the small group of medical physicists, and actively worked to absorb the embryonic Association in these larger and more well-established bodies. The CAP, in an unprecedented step, decided to set up a medical physics "subject division" - the first of many such limited-interest groups in the physics community. This move was accepted by the members of CAMP, and the subject Division of Medical and Biological Physics (DMBP) of the CAP was born out of the ashes of CAMP.

One of the first steps undertaken by the Division was an attempt at "certification of competency" in medical physics, to provide a basis for recognition by Governmental agencies. This action was ill-conceived and premature, and remained dormant until the creation of the Canadian College of Physicists in Medicine, as described below.

For the past thirty years, the DMBP has been the official body representing physicists working in the fields of biological and medical research and application in Canada. Within the limitations imposed by a small population, a very large country, a wide diversity of interests on the part of its members, and a variety of employment situations, the Division has done a creditable job, both as a scientific and professional organization.

Its most regular function has been the organization of scientific meetings, at the rate of at least one per year. It has been the organization representing Canada to the IOMP since about 1970. It organized the Fourth International Conference on Medical Physics in 1976 in Ottawa. In addition, it has provided the nation with a number of committees dealing with radiation matters. An example of this type of activity would be participation in the committees on radiation protection in the healing arts (HARP) of the province of Ontario.

In 1980, the physicists working in a hospital environment in the field of radiation therapy, nuclear medicine and medical imaging (most of whom were members of the DMBP) recognized the need for a peer-review process to establish competency in the applications of medical physics involving direct contact with patients. To meet this need, the "Canadian College of Physicists in Medicine" (CCPM) was legally established under a Canadian government charter.

Initially, a well-established physicist was admitted

Continued on page 17

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Pérez, 326 Mexico 3, D.F. Tel: 531-3170
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404-935-1367; 200 E. Howard Street, Suite 202,
Des Plaines, IL 60018 Tel: 312-296-5533



CALENDAR OF EVENTS

Geoffrey S. Ibbott, Editor

1987

July 1 - 3

Annual Conference of the College of Radiographers, Scarborough, Lancashire, United Kingdom (The Secretary, College of Radiographers, 14 Upper Wimpole Street, London W1M 8BN, United Kingdom).

July 1 - 4

International Symposium on Computer Assisted Radiology, Berlin, West Germany (Ausstellungs-Messe-Kongress-GmbH, Unternehmensbereich Kongresse/KVE, ZH Frau Bibiana Illman-Moser, Messedamm 22, D-1000 Berlin 19, West Germany).

July 5 - 9

Health Physics Society, 32nd Annual Meeting, Salt Lake City, Utah, U.S.A. (Mr. R.J. Burk, Health Physics Society, 1340 Old Chain Bridge Road, Suite 300, McLean, VA 22101 [703-790-1745]).

July 5 - 9

8th International Meeting of NMR Spectroscopy, Canterbury, United Kingdom (Dr. J.F. Gibson, Secretary (Scientific), The Royal Society of Chemistry, Burlington House, London W1V 0BN, United Kingdom).

July 6 - 10

Biannual Meeting of the French Physical Society, Strasbourg, France (Institut de Physique, 3 rue de l'Universite, F-67000 Strasbourg, France).

July 7 - 8

Blood Flow '87, Sponsored by the Biological Engineering Society, University of Leeds (Ms. Jenny Upton, Biological Engineering Society, Royal College of Surgeons, 35 Lincoln's Inn Fields, London, WC2A, 3PN, England [01-242-7750]).

July 13 - 17

AAPM Summer School: "Image Communication and Image Analysis", Ann Arbor, Michigan, U.S.A. (AAPM Executive Officer, 335 East 45th Street, New York, New York, U.S.A. 10017).

July 13 - 17

Seminar for Asia and the Pacific on Calibration Procedures in Secondary Standard Dosimetry Laboratories, Kuala Lumpur, Malaysia (Conference Service Section, IAEA, P.O. Box 100, A-1400 Vienna, Austria).

July 14 - 16

European Society for Hyperthermic Oncology, Cardiff, U.K. (Dr. J.L. Moore, Velindre Hospital, Whitechurch, Cardiff CF4 7XL, U.K.).

July 18 - 19

Physics Review Course, sponsored by the Continuing Education Committee of the AAPM, The Westin Hotel, Renaissance Center, Detroit, Michigan, U.S.A. (AAPM Executive Officer, 335 East 45th Street, New York, New York, U.S.A. 10017).

July 19 - 23

American Association of Physicists in Medicine, 29th Annual Meeting, The Westin Hotel, Renaissance Center, Detroit, Michigan, U.S.A. (AAPM Executive Officer, 335 East 45th Street, New York, New York, U.S.A. 10017).

July 19 - 24

8th International Congress of Radiation Research, Edinburgh, Scotland, U.K. (Dr. E. Martin Fielden, Secretary General 8th I.C.R.R., M.R.C. Radiobiology Unit, Harwell, Didcot, Oxon OX11 Ord, United Kingdom).

July 24 - 26

American College of Medical Physics, Annual Meeting, Bay City, Michigan, U.S.A. (Farideh Bagne, Ph.D., Medical College of Ohio, Radiation Therapy, C.S. #10008, Toledo, Ohio, U.S.A. [419-381-5460]).

July 26 - 28

The 3rd Conference on Spheroids in Cancer Research, Cambridge, United Kingdom (Dr. P. Twentyman, M.R.C. Clinical Oncology and Radiotherapeutic Unit, Hills Road, Cambridge, CB2 2QQ, United Kingdom).

July 27 - 30

2nd International Microwave Symposium and Exhibit Sponsored by Institute of Electrical and Electronic Engineers, Rio de Janeiro, Brazil (Prof. Alvaro Augusto A. de Salles, 1987 International Microwave Symposium/Brazil Committee, CETUC-PUC/RJ, Rua Marques de Sao Vicente, 225 -Gavae, CEP: 22451, Rio de Janeiro - RJ, Brazil).

July 31 - August 3

6th Asian Conference for Radiographers and Radiological Technologists, Kuala Lumpur, Malaysia (Organising Council, 6th ACRT, Malaysian Society of Radiographers, c/o School of Radiography and Radiotherapy, General Hospital, Jalan Pahang, 50586 Kuala Lumpur, West Malaysia).

August

International Conference on Medical Engineering, Harbin, People's Republic of China (Scientific and Technological Association, Heilongjian Shang, 204 Zhong Shan Road, Harbin, People's Republic of China).

August 10 - 14

Gordon Conference on Dynamics of Simple Systems in Chemistry and Physics, Wolfeboro, New Hampshire, U.S.A. (E.F. Redish, Department of Physics and Astronomy, University of Maryland, College Park, Maryland, U.S.A. 20742).

August 16 - 21

31st Annual International Technical Symposium on Optical and Electro-Optical Engineering, San Diego, California, U.S.A. (SPIE, P.O. Box 10, Bellingham, Washington, U.S.A. 98227-0010 [206-676-3209]).

August 16 - 22

3rd Regional Conference of the Americas of the International Society of Radiographers and Radiological Technicians, Canada (Ms. V. Crown, 38 High Ashton, Kingston Hill, Kingston, Surrey KT2 7 QL, United Kingdom).

August 17 - 21

10th International Conference on Luminescence, Beijing, China (D.S. McClure, Department of Chemistry, Princeton University, Princeton, New Jersey, U.S.A. 08544 [609-452-4980]).

August 24 - 28

14th Congress of the International Commission for Optics, Quebec, Canada (L. Forget, Conference Services Office, National Research Council of Canada, Ottawa, Ontario K1A 0R6, Canada [613-993-9009]).

August 24 - 29

9th International Biophysics Congress, Jerusalem, Israel (Mrs. Ruth Goldstein, The Aharon Katzir-Katchalsky Centre, The Weizmann Institute of Science, Rehovot 76100 Israel).

August 25 - 28

6th COMPUMAG: Conference on the Computation of Electromagnetic Fields, Graz, Austria (COMPUMAG Secretariat, c/o Interconvention, P.O. Box 80, A-1107 Vienna, Austria).

August 27 - 30

6th International Conference on Biomagnetism, Tokyo, Japan (6th International Conference on Biomagnetism, c/o Inter Group Corporation, Akasaka Yamakatsu Building, 8-5-32, Akasaka, Minato-ku, Tokyo 107, Japan [03-479-5311]).

August 28 - 29

1987 International Superconductivity Electronics Conference, Tokyo, Japan (M. Sugahara, Department of Electronic and Computer Engineering, Yokohama National University, 156 Tokiwadai, Hodo-gaya-ku, Yokohama, 240 Japan [045-335-1451, ext 2808]).

August 31 - September 3

Engineering and the Physical Sciences in Medicine, Sponsored by Australasian College of Physical Scientists in Medicine, Auckland Medical School, Auckland, New Zealand (Mr. M.B. John, Convenor, Department of Medical Physics and Bioengineering, Auckland Hospital, Auckland 1, New Zealand).

August 31 - September 4

International Symposium on Dosimetry in Radiotherapy, Sponsored by the International Atomic Energy Agency in Co-operation with the World Health Organization, Vienna, Austria (Secretariat, International Atomic Energy Agency, IAEA-AM-298, Vienna International Centre, P.O. Box 100, A-1400 Vienna, Austria [0222-2360]).

September 3 - 5

50th Anniversary Conference on Megavoltage Radiotherapy, The City University, London, England (The Conference Secretariat, Concorde Services Limited, 10 Wendell Road, London W12 9RT, England [01-743 3106]).

September 7 - 11

European Society for Therapeutic Radiology and Oncology, Course on Radiation Physics for Clinical Radiotherapy, Begijnhof, Louvain, Belgium (ESTRO Secretariat, Department de Radiotherapie, Clinique Saint-Raphael, 35 Chemin des Capucines, B-3000 Louvain, Belgium [016-21 22 31]).

September 7 - 11

6th Pacific Basin Nuclear Conference, Beijing, People's Republic of China, (Mr. Xu Honggui, Chinese Nuclear Society, P.O. Box 2125, Beijing, People's Republic of China).

September 8 - 9

1st National Congress on Medical Physics, Istanbul, (Secretary-General of I. UMFK., A. Akbulut, M.S., I.U. Cerrahpasa Medical Faculty, Department of Nuclear Medicine, Cerrahpasa, Istanbul, Turkey).

September 9 - 12

Medical Physics 87, Sponsored by: The European Federation of Organisations of Medical Physics, Vienna, Austria (Dr. H. Bergmann, Division of Nuclear Medicine, 2nd Department of Internal Medicine, A-1090 Vienna, Austria).

September 10 - 12

Holographic Systems, Components, and Applications (IERE/IPSM), Cambridge, England (The Institute of Physical Sciences in Medicine, 47 Belgrave Square, London SW1X 8QX, England [01 235 6111]).

September 10 - 13

40th Annual Conference on Engineering in Medicine and Biology, Niagara Hilton Hotel, Niagara Falls, New York, U.S.A. (Susan P. Leone, Suite 700, 1101 Connecticut Avenue, NW, Washington, DC., U.S.A. 20036 [202-857-1199]).

September 11 - 14

L.H. Gray Trust Meeting on the Biological Effects of Low Doses of Radiation, Oxford, United Kingdom (Mr. K.F. Baverstock, MRC Radiobiology Unit, Chilton, Didcot, Oxon, OX11 ORD, United Kingdom [Tel. Abingdon [0235] 834393]).

September 14 - 18

10th Brazilian Conference on Biomedical Engineering, Brazilian Society for Biomedical Engineering, Rio de Janeiro, Brazil (Sociedade Brasileira de Engenharia Biomedica, Caixa Postal 68510, 21945 - Rio de Janeiro/RJ. - Brasil).

September 15 - 19

Hospital Physicists Association Annual General Meeting and IPSM Scientific Meeting, Liverpool, United Kingdom (IPSM, 47 Belgrave Square, London SW1X 8QX, United Kingdom).

September 16 - 18

7th Hungarian Conference on Biomedical Engineering, Esztergom, Hungary (Mrs. Zsuzsanna Pinter, Scientific Society of Measurement and Automation, Pf. 451, H-1372 Budapest, Hungary [36-1-531-406]).

September 16 - 18

4th National Congress of Associazione Italiana di Fisica Biomedica (AIFB), Rome, Italy (Prof. G. Arcovito, Istituto di Fisica, Facolta di Medicina e Chirurgia "A. Gemelli", Universita Cattolica, L.go S. Vito 1, 00168 Roma, Italy).

September 21 - 25

10th International Conference on Magnet Technology, Boston, Massachusetts, U.S.A. (MT-10 Conference Committee, MIT, Plasma Fusion Center, NW17-203, Cambridge, Massachusetts, U.S.A. 02139).

September 23 - 25

6th National Congress of the Badajoz, "Sociedad Espanola de Fisica Medica" Spain (Catedra de Fisica Medica, Facultad de Medicina, 06071 Badajoz, Spain).

September 24 - October 3

International School on Monte Carlo Transport of Electrons and Photons Below 50 MeV, Ettore Majorana Centre for Scientific Culture, Erice, Sicily (D.W.O. Rogers, Physics, National Research Council, Ottawa K1A 0R6, Canada [613-993-2715]).

October

2nd Brazilian Congress on Physics in Medicine, San Paulo, Brazil (Dr. Marilia Teixeira Gruz, R. Vice-Gov. Rubens, Berardo, 175 B1. 1/906, 22451 Rio de Janeiro, RJ, Brazil [021 292-4110 R. 155]).

October 6 - 9

American Institute of Ultrasound in Medicine, The Rivergate, New Orleans, Louisiana, U.S.A. (AIUM Convention Department, 4405 East-West Highway, Suite 504, Bethesda, Maryland, U.S.A. 20814 [301-656-6117]).

October 11 - 25

NATO Advanced Study Institute on Terrestrial Space Radiation and its Biological Effects, Sponsored by the North Atlantic Treaty Organization (NATO), National Aeronautic and Space Administration (NASA), Armed Forces Radiobiology Research Institute (AFRRI), Deutsche Forschungs- und Versuchsanstalt Fur Luft und Raumfahrt e.V. (DFVLE), Greek Ministry of Industry, Energy and Technology, Corfu, Greece (Percival D. McCormick, M.D., Ph.D., Manager, Operational Medicine, Code EB, NASA HQ, Washington, DC., U.S.A. 20546).

October 12 - 16

6th Symposium on Neutron Dosimetry, Neuherberg, Federal Republic of Germany (Gesellschaft fur Strahlen-und Umweltforschung mbH.Muenchen, Dr. H. Schraube, Ingolstaedter Landstr.1, D-8042 Neuherberg, Federal Republic of Germany).

October 18 - 23

American Society for Therapeutic Radiology and Oncology, The Sheraton-Boston Hotel, Boston, Massachusetts, U.S.A. (A.S.T.R.O., 1101 Market Street - 14th Floor Philadelphia, Pennsylvania, U.S.A. 19107-2990 [215-574-3180]).

October 26 - 30

Symposium on the Peaceful Uses of Nuclear Energy, Kinshasa, Zaire (Mr. I. Konate, Boulevard 30-Juin, Bdg 2me Republique, Kinshasa, Republic of Zaire).

November 1 - 4

11th Annual Symposium on Computer Applications in Medical Care, U.S.A. (Bruce I. Blum, SCAMC, The George Washington University Medical Center, Office of Continuing Medical Education, 2300 K Street N.W., Washington, DC., U.S.A. 20037).

November 2 - 5

Radionuclides in the Food Chain, Sponsored by International Life Sciences Institute, Laxenburg Conference Center, Laxenburg, Austria (Ms. Lili Merritt, Conference Coordinator, ILSI, 1126 Sixteenth Street, N.W., Washington, DC., U.S.A. 20036 [202-659-0074]).

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, U.S.A. 10017 [212-661-9404]).

November 30 - December 5

International Waste Management Conference, Kowloon, Hong Kong (Larry Oyen, Sargent & Lundy, 55 East Monroe, Chicago, Illinois, U.S.A. 60603 [312-269-6750]).

December 8 - 10

The British Medical Ultrasound Society 19th Annual Scientific Meeting, Brighton Conference Center, England (Mrs. L. Blench, General Secretary, BMUS, 36 Portland Place, London W1N 3DG, England).

December 14 - 18

12th International Conference on Infrared and Millimeter Waves, Lake Buena Vista, Florida, U.S.A. (K.J. Button, Box 72, MIT, Cambridge, Massachusetts, U.S.A. 02139-0901 [617-253-5561]).

1988

April 5-8

International Non-Ionizing Radiation Workshop, Melbourne, Australia (Dr. M. Repacholi, Chief Scientist, Royal Adelaide Hospital, North Terrace, Adelaide, South Australia, 5000 [08-223 0230 Ext 5562]).

April 10 - 17

7th International Congress: International Radiation Protection Association, Centerpoint Convention Centre, Sydney, Australia (Mr. R.J. Burk, Health Physics Society, 1340 Old Chain Bridge Road, Suite 300, McLean, Virginia, U.S.A. 22101 [703-790-1745]).

April 16 - 20

American Radium Society, Seattle, Washington, U.S.A.

April 17 - 22

Radiation Research Society Annual Meeting, Franklin Plaza Hotel, Philadelphia, Pennsylvania, U.S.A. (Radiation Research Society, 925 Chestnut Street - 7th Floor, Philadelphia, Pennsylvania 19107 [215-574-3153]).

May

International Symposium on the Management of Low and Intermediate Level Radioactive Wastes, Stockholm, Sweden (Conference Service Section, IAEA, P.O. Box 100, A-1400 Vienna, Austria).

May 23 - 25

International Conference on Transportation for the Nuclear Industry, Stratford-upon-Avon, England (The Conference Secretary, The Institution of Nuclear Engineers, Allan House, 1 Penerley Road, London SE6 2LQ, England).

May 23 - 28

Radiology 88, 46th Annual Congress of the British Institute of Radiology and Annual Conference of the College of Radiographers, Glasgow, Scotland (Programme Office, The British Institute of Radiology, 36 Portland Place, London W1N 3DG, United Kingdom [01-580 4085]).

May 26 - 28

International Hyperthermia Symposium '88, Sponsored by International Clinical Hyperthermia Society, Indianapolis, Indiana, U.S.A. (John McLaren, M.D., Emory University Medical School, 1365 Clifton Avenue, Atlanta, Georgia, U.S.A. 30325.)

June

Congress of the Canadian Association of Physicists, Montreal, Quebec, Canada (Ms. M. Jento, Executive Secretary, Canadian Association of Physicists, 151 Slater Street, Suite 805, Ottawa, Ontario, Canada K1P 5H3).

June 12 - 16

American Nuclear Society Annual Meeting, Town & Country Hotel, San Diego, California, U.S.A. (Thomas Page, San Diego Gas & Electric, 101 Ash Street, San Diego, California, U.S.A. 92112).

June 12 - 16

American Society of Radiologic Technologists, 1988 Annual Conference, Albuquerque, New Mexico, U.S.A. (The American Society of Radiologic Technologists, 15000 Central Avenue, S.E., Albuquerque, New Mexico, U.S.A. 87123 [505-298-4500]).

June 26 - July 1

13th Annual Meeting of the American Association of Medical Dosimetrists, Pallister Hotel, Calgary, Alberta, Canada (Dennis M.B. Watkins, Medical Physics Department, Tom Baker Cancer Centre, 1331 - 29th Street N.W., Calgary, Alberta, Canada T2N 4N2 [403-270-1790]).

July 4 - 8

Health Physics Society, 33rd Annual Meeting, Boston, Massachusetts, U.S.A. (Mr. R.J. Burk, Health Physics Society, 1340 Old Chain Bridge Road, Suite 300, McLean, Virginia, U.S.A. 22101 [703-790-1745]).

July 18 - 22

8th Regional Conference of Europe and Africa of the International Society of Radiographers and Radiological Technicians, Findland (Ms. V. Crown, 38 High Ashton, Kingston Hill, Kingston, Surrey KT2 7QL, United Kingdom).

July 24 - August 2

Training Course in Radiotherapy Dosimetry for Latin American Physicists (in Spanish), Sponsored by the International Atomic Energy Agency (IAEA) (tentative), the International Organization for Medical Physics (IOMP), the Spanish Medical Physics Society (SEFM) and the American Association of Physicists in Medicine (AAPM), (AAPM Executive Officer, 335 East 45th Street, New York, New York, U.S.A. 10017).

July 31 - August 5

AAPM Summer School: "Computers in Medical Physics", St. Edward's University, Austin, Texas, U.S.A. (AAPM Executive Officer, 335 East 45th Street, New York, New York, U.S.A. 10017).

August 4 - 6

Practicum on Radiotherapy Dosimetry for Latin American Physicists (in Spanish), Sponsored by the International Atomic Energy Agency (IAEA) (tentative), the International Organization for Medical Physics (IOMP), the Spanish Medical Physics Society (SEFM) and the American Association of Physicists in Medicine (AAPM), Cancer Therapy and Research Center, San Antonio, Texas, U.S.A. (AAPM Executive Officer, 335 East 45th Street, New York, New York, U.S.A. 10017).

August 6 - 13

World Congress on Medical Physics and Biomedical Engineering, 15th International Conference on Medical and Biological Engineering, 8th International Conference on Medical Physics, 6th International Conference on Mechanics in Medicine and Biology, 30th Annual Meeting of the American Association of Physicists in Medicine, and 41st Annual Conference on Engineering in Medicine and Biology, San Antonio, Texas, U.S.A. (Gary D. Fullerton, Ph. D., Department of Radiology, The University of Texas Health Sciences Center, 7730 Floyd Curl Drive, San Antonio, Texas, U.S.A. 78284, or AAPM Executive Officer, 335 East 45th Street, New York, New York, U.S.A. 10017).

August 29 - September 3

5th International Symposium on Hyperthermic Oncology, Sponsored by the Japanese Society of Hyperthermic Oncology, Kyoto International Congress Hall, Kyoto, Japan (Secretariat 5th I.S.H.O., Health Research Foundation, Matsuo Building 4F, Kawaramachi Marutamachi Sagaru, Kamigyoku, Kyoto 602, Japan).

September 4 - 8

7th Annual Meeting of the European Society for Therapeutic Radiology and Oncology, Den Haag, Nederland (ESTRO Secretariat, Department de Radiotherapie, Clinique Saint-Raphael, 35 Chemin des Capucines, B-3000 Louvain, Belgium [016-21 22 31]).

September 11 - 14

L.H. Gray Trust Meeting on the Biological Effects of Low Doses of Radiation, Oxford, United Kingdom (Mr. K.F. Baverstock, MRC Radiobiology Unit, Chilton, Didcot, Oxon. OX11 ORD, United Kingdom [0235 834393]).

October 9 - 14

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

October 16 - 22

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

November 6 - 9

12th Symposium on Computer Applications in Medical Care, Sheraton Washington Hotel, Washington, DC., U.S.A. (The George Washington University Medical Center, Office of Continuing Education, 2300 K. Street, N.W., Washington, DC, U.S.A. 20037).

November 27 - December 2

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

December 6 - 8

The British Medical Ultrasound Society 20th Annual Scientific Meeting, Glasgow Conference Centre, Scotland (Mrs. L. Blench, General Secretary, BMUS, 36 Portland Place, London W1N 3DG, England).

1989

March 18 - 23

Radiation Research Society Annual Meeting, Westin Hotel, Seattle, Washington, U.S.A. (Meg Kaiser, Radiation Research Society, 925 Chestnut Street - 7th Floor, Philadelphia, Pennsylvania, U.S.A. 19107 [215-574-3153]).

April 4 - 7

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

May 4 - 6

Radiology 89, 47th Annual Congress of the British Institute of Radiology and Annual Conference of the College of Radiographers, Eastborne, England (Programme Office, The British Institute of Radiology, 36 Portland Place, London W1N 3DG, United Kingdom [01-580-4085]).

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, U.S.A. 60525 [312-352-6611]).

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 4EB, England).

June 14 - 16

International Microwave Symposium and Workshop 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, U.S.A. 91411).

June 18 - 22

Health Physics Society, 34th Annual Meeting, Albuquerque, New Mexico, U.S.A. (Mr. R.J. Burk, Health Physics Society, 1340 Old Chain Bridge Road, Suite 300, McLean, Virginia, U.S.A. 22101 [703-790-1745]).

July 1 - 4

International Congress of Radiation Oncology, Paris, France (American Society for Therapeutic Radiology and Oncology, 1101 Market Street - 14th Floor, Philadelphia, Pennsylvania, U.S.A. 19107-2990 [215-574-3180]).

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 16 - 21

A.A.P.M. Summer School: "Physics of Nuclear Medicine", Birmingham, Alabama, U.S.A. (AAPM Executive Officer, 335 East 45th Street, N.W., New York, New York, U.S.A. 10017).

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, U.S.A. 10017).

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, U.S.A. 19107-2290 [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, U.S.A. 20814).

November 5 - 8

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

November 12 - 17

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, U.S.A. 10017 [212-661-9404]).

1990

June 11 - 16

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]).

August 5 - 9

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, U.S.A. 10017).

November 25 - 30

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

1991

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, U.S.A. 10017).

August

19th Meeting of the International Organization for Medical Physics, Kyoto, Japan (Dr. L.H. Lanzl, President, IOMP, Department of Medical Physics, Rush-Presbyterian St. Luke's Medical Center, 1753 West Congress Parkway, Chicago, Illinois, U.S.A. 60612).

November 17 - 22

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, U.S.A. 10017 [212-661-9404]).

1992

August 23 - 27

American Association of Physicists in Medicine, 34th Annual Meeting, Calgary, Alberta, Canada (AAPM Executive Officer, 335 East 45th Street, New York, New York, U.S.A. 10017).

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, U.S.A. 10017 [212-661-9404]).

*Readers are invited to send to the **Calendar of Events** Editor, Geoffrey Ibbott (address on p. 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.*

Medical Physics in Canada - An Historical Overview - 1987

to Fellowship in the College on the basis of his or her credentials (including years of experience, peer-reviewed publication record and recommendations from medical colleagues). Fellowship was later granted after passing a comprehensive written examination followed by a searching oral examination, both conducted by the Examination Board of the College. The written examination is based on a published bank of 110 questions, which serves as both syllabus and examination format, and which is revised gradually to reflect developments in the various areas of medical physics.

While the Fellowship was designed to establish "excellence" in medical physics, by 1983, there arose a need to certify "competence" in the medical physics specialities. This was met by the establishment of a Membership category, which can be attained after a shorter period of experience and by passing the written examinations only. A Member is expected to attempt to attain the Fellowship when his or her experience and publication record meet the required standards.

In recent years, the College, following its original

mandate, has established a coordinated series of seminars with a view to the continuing education of its Fellows and Members and of others in the physics community. It is also involved in presenting the position of the medical physicist in discussions with governmental regulatory bodies and other professional organizations, within and outside Canada.

As a consequence of these latter developments, there has arisen the question of the relationship between, and the respective responsibilities of, the College and the Division of Medical and Biological Physics of the CAP. This question is now being examined.

The evolutionary process described above shows the problems encountered by a relatively small group of medical physicists in attempting to establish and demonstrate its presence and identity. While the problems are not unique to Canada, and the solutions are by no means ideal, we hope that our experience will be of some help to physicists in other countries who have to go down the same path.

Photographic Illustrations

Readers are urged to send the Editor any photographs which may be of interest to IOMP members.
The Editor

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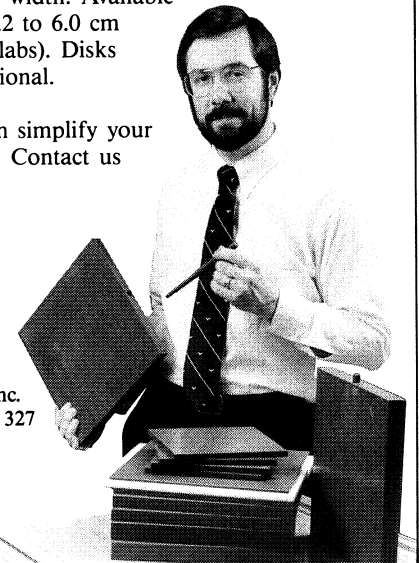
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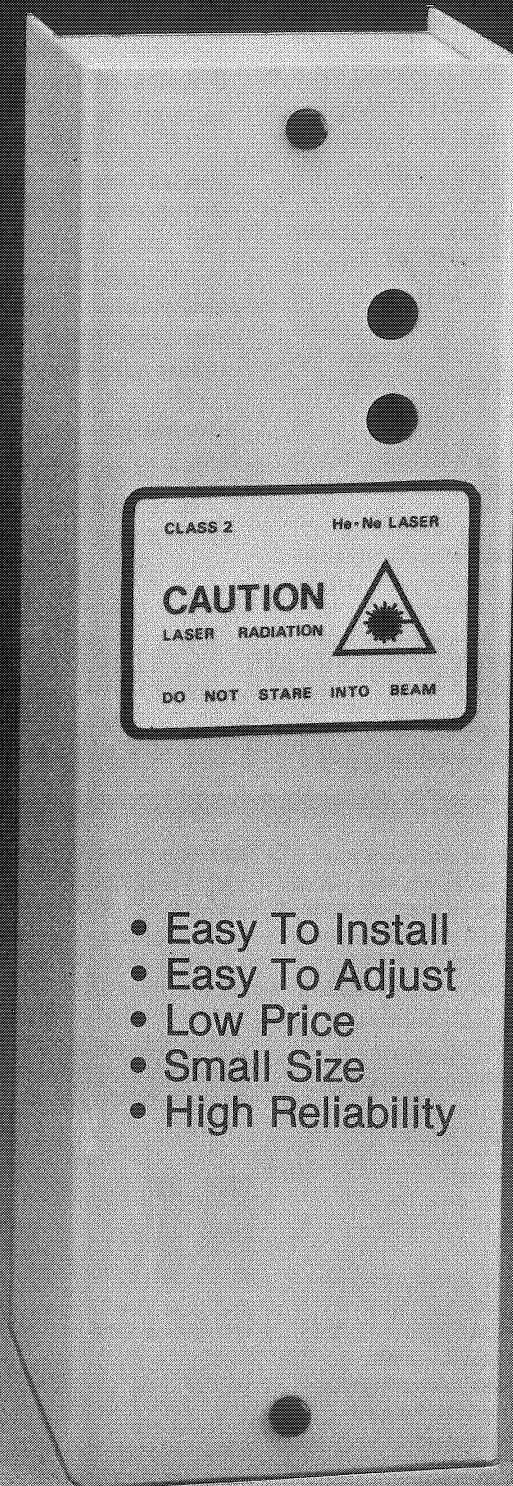
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Medical Physics in Hong Kong

G.F. Mauldon, M.Sc.

Secretary,

Hong Kong Association of Medical Physics

Introduction

Radiotherapy services within Hong Kong during the first decade after World War II were rather primitive by modern standards. Two major centres were developed for the treatment of malignancies by the mid fifties, pioneered within the Government run University of Hong Kong teaching hospital, the Queen May Hospital (QMH) by Dr. (now Professor) Ho Hung-Chiu and within the privately owned Hong Kong Sanitorium and Hospital (HKSH) by the late Dr. Stephen Sturton. The equipment consisted of a 400 kVp Maximar X-ray machine installed at the QMH in 1937 followed in 1952 by a Bryan Simmons short treatment distance Cobalt-60 teletherapy unit while two orthovoltage X-ray machines were operational at the HKSH. The population at that time in Hong Kong was 2.75 million, many of whom had taken up residence in Hong Kong from the China mainland while some of the population in the adjacent Guangtung province also visited Hong Kong for treatment. Treatment planning procedures were also limited both for external beam radiotherapy and for brachytherapy with a variety of radium sources being used for the latter. Planning for external beam therapy consisted in the overlay of isodose curves on body cross-sections, making use of window panes and diagnostic viewing boxes as light sources, and undertaken by doctors and radiographers alike. In both the QMH and HKSH, Diagnostic Radiology and Radiotherapy shared the same general accommodation.

History

In an endeavour to improve the therapeutic facilities within Hong Kong, a young hospital physicist was seconded for two years from the Peter MacCullum Clinic (Cancer Institute) in Melbourne, Australia. This physicist arrived in Hong Kong in the latter part of 1956 and is still, some thirty years later, working in Hong Kong. It is effectively from this time that Medical Physics in Hong Kong began. Other physicists were recruited and a team of Hospital Physicists were at work by 1957, all of whom subsequently received some medical physics training in the U.K.

Although in these earlier years the major concern of Hospital Physics was to put Radiotherapy dosimetry on a sound footing, much time was spent in the training of the staff, the development of therapeutic and diagnostic techniques in Nuclear Medicine, and investigating radiation protection requirements and exposure levels in Diagnostic Radiology. Hospital Physics at that time followed

the general world trend and was exclusively related to Radiology.

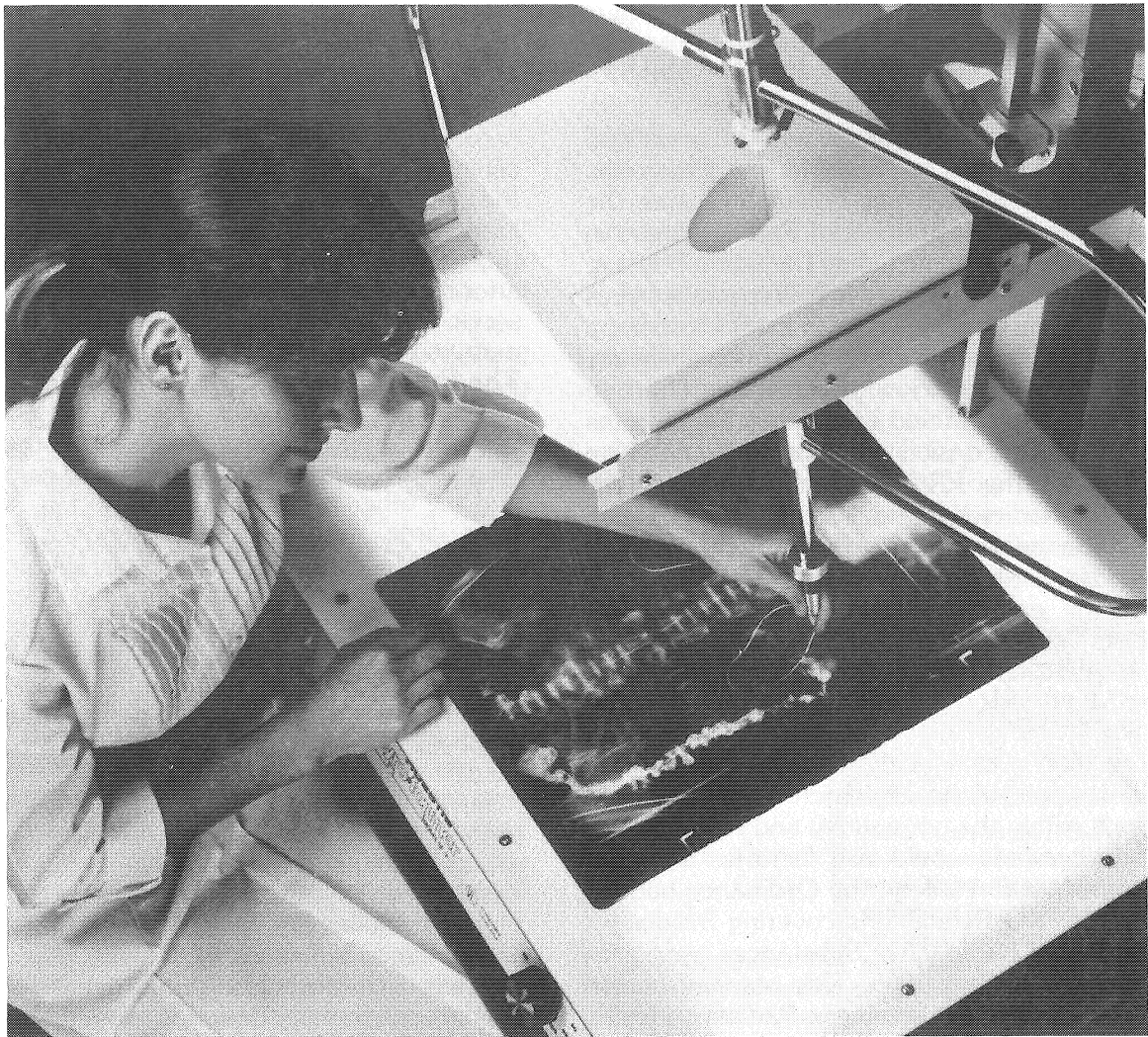
In early 1964 a large Government Hospital, the Queen Elizabeth Hospital (QEH), opened its Royal Hong Kong Jockey Club Institute of Radiology and with the acquisition of two 6 MeV Linear Accelerators and a 35 MeV Betatron, became the operational headquarters for Physics. This hospital in 1964 had 1,400 beds, since increased to over 2,000. The acquisition of the Betatron gave added impetus to dosimetric investigations into the properties of high energy electron beams (10-35 MeV) and in cooperation with the Radiobiology Division of the Institute, the RBE values of electron beams at depth within tissue were measured. Maintenance of linear accelerators, the Betatron and other radiological equipment both at QEH and QMH was the responsibility of the hospital physicists and thus over the years Workshop and Physics staff had been built up to care for this requirement. Several of the Hospital Physicists became, in effect, electronic equipment maintenance engineers. This procedure is still followed and has more than proved its value. The Institute subsequently became known as the "Institute of Radiology and Oncology" (IRO) and the term "Hospital Physicist" has been replaced by "Medical Physicist".

The Present

It is the decade of the eighties which has seen the most rapid growth in Hospital Physics in Hong Kong. The opening of the large 1,600 bed hospital in the New Territories of Hong Kong in 1984, the Prince of Wales Hospital (PWH) as the teaching hospital for the Chinese University of Hong Kong also gave rise to the new challenge to the 6 young recruited physicists under a Senior Physicist at that hospital. The provision of whole body CT X-ray Scanners and other modern electronically controlled diagnostic X-ray systems at four Government operated hospitals meant a greater emphasis on the need for electronic expertise amongst physicist and X-ray Workshop staff alike.

By 1986 the number of Physicists working in the three Government hospitals totalled 15 including two of Senior status and although largely deployed in radiotherapy and nuclear medicine, programmers for Dental and Diagnostic Radiology Quality Assurance and Equipment Acceptance Testing at Government Hospitals and Clinics have also been initiated. Physicists are responsible for Radiotherapy Quality Assurance and Radiation Safety. The major items of equipment covered include seven linear accelerators, one betatron, two teletherapy machines (Co-60 and Cs-137), one high activity after-loading system, several superficial machines, three Planning Computers, three simulators, and five gamma camera systems.

Continued on page 22



CUTTING WITH CONFIDENCE

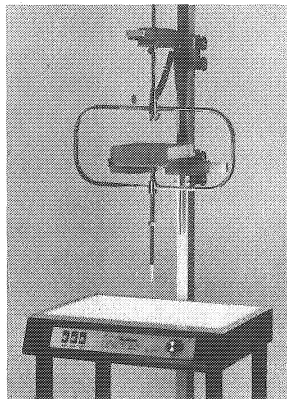
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Medical Physics in Hong Kong

Training

Every Radiology Department needs trained staff and training involves serving Medical Physicists. Although the Hong Kong Polytechnic has the responsibility for the training of Radiographers in Diagnostic Radiology, including Radiation Physics, Medical Physicists are invited to give special lectures as thought necessary. However, in the Radiotherapy field, Medical Physicists carry full responsibility for the training in radiation physics for Therapy Radiographers and Mould Laboratory Technicians while a similar responsibility is accepted for the Part I training for the FRCR Examinations in both Diagnostic Radiology and Radiotherapy. These examinations are held in Hong Kong once every two years and local Medical Physicists are invited to be part of the examining team. Newly recruited Physicists also receive comprehensive in-house training. All teaching is conducted in English.

Radiation Health

In 1957 the Hong Kong Government first enacted its "Radiation Ordinance". This Ordinance was designed to control the unrestricted use of ionizing radiations within the community and although the hospital physicists would visit factories and give advice on radiation safety, the Ordinance had no "teeth" until the Regulations covering Irradiating Apparatus and Radioactive Substances were promulgated in October 1965. This resulted in the hospital physicists also serving as Radiation Health Inspectors with visits to factories, commercial enterprises, private clinics, hospitals etc., to assess the existing situations, draw up special requirements for licences to be issued, ensure where possible their compliance, attend the odd police raid and law court and check on educational requirements for the use of radioactive sources in schools. In co-operation with the Radio-isotope Unit of the Hong Kong University, problems of general contamination in industry by radioactive materials were tackled and in large measure brought under control. In 1965 the Radiation Monitoring Film Badge Service in use within the Government hospitals was expanded to cover the private and commercial sectors of the community, with assessments made on a fortnightly basis. Investigations during Hong Kong's hot and humid summers of 1973 and 1975 showed the vulnerability of the monitoring films in use to the effects of latent image fading due to the high humidity, fully justifying the fortnightly measurements. TLD replaced photographic film monitoring in 1984 and is issued on a four-week cycle.

Owing to the weight of the demands of the Ordinance, a separate Unit, known as the Radiation Health Unit (RHU) under the leadership of a Senior

Physicist was set up in 1982. Three physicists head the Inspectorate team of the RHU. Although technically separate from the IRO, the two units work constantly in close collaboration. This Unit is responsible for the inspectorate duties to factories, clinics, commercial concerns etc., the running of the (TLD) Radiation Monitoring Service throughout Hong Kong and Macau, preparing the conditions for the various licences issued by the RHU, attendance at courts, and facing the media. Physicists serving in the RHU are also trained overseas in matters relating to Radiation Safety and Health.

The Future

Two new large hospitals, each of about 1600 beds, are also in process of construction, one in the New Territories is due to open very early in 1989 and the other on Hong Kong island in 1991. Both have large Radiotherapy, Diagnostic Radiology, Nuclear Medicine and Radiobiology Divisions within the IRO and much physicist time has been spent in planning arrangements, equipment requirements, protection details, vetting of plans etc. as well as with the provision of equipment specifications and tender assessments. This is a general involvement by physicists which was followed in the building or modification of the existing hospitals.

In 1987 it is expected that a further seven physicists will be recruited to service the requirements of the new hospital at Tuen Mun in the New Territories. This team will be headed by a Senior Physicist while it is possible that a further three will be recruited to join existing hospital physicist staff. There is currently in Hong Kong a massive hospital building programme designed not only to meet the needs of our present population of 5.5 million but also the expected growth in the next decade or more.

Conclusion

Medical Physicists, as is Medical Physics, are recognised as an essential part of Radiology and Public Health in Hong Kong. This may be seen in the part played by Medical Physicists, not only in the routine investigational activities within the IRO but also their intimate involvement in the planning procedures for new hospitals, staff training requirements and their activities within the RHU.

It should be mentioned that a new Radiotherapy Centre at the privately owned Baptist Hospital in Hong Kong has recently (1986) recruited a Medical Physicist. This is the first non-government Medical Physicist in hospital service within Hong Kong and represents a recognition in the private sector of the need for physicist services in radiotherapy. The hospital concerned will commence operation of its 25 MV linear accelerator in early 1987.

Although Medical Physics in Hong Kong as yet does not effectively extend beyond the use or control of ionizing radiations, its development into other clinical fields is a matter for the future to decide.

First Asian Conference on Medical Physics, Bombay, India

Larry Beach, USA
and

Agnette Peralta, The Philippines

The First Asian Regional Conference in Medical Physics was held in Bombay, India, from December 8 to 12, 1986. It was hosted by the Association of Medical Physicists of India (AMPI) and co-sponsored by the International Organization for Medical Physics (IOMP) and the Bhabha Atomic Research Center (BARC). It was the 8th National Meeting of AMPI, which is one of the earliest members of IOMP and one of the largest, with nearly 1000 members.

The meeting was held at the BARC, a lovely, spacious site nestled between the hills of Trombay and the sea. The center is about 1 hour's drive from downtown Bombay, and its surroundings are in stark contrast to the big-city atmosphere there. Bombay, with an area of 25 square miles, is home to nearly 8 million people, many of whom have migrated there from rural areas to find jobs in this rapidly growing economic center of India. The resulting crowding and shortage of housing give Bombay an especially intimate feeling, with much of the day-to-day commerce taking place on the streets. India is self-sufficient in agricultural production, and the food is plentiful and delicious.

The BARC has been the central focus for the development of medical physics in India. It provides training for medical physicists, production and disposal of radio-isotopes (^{198}Au and ^{192}Ir in addition to ^{60}Co and, soon, ^{137}Cs), instrumentation and computer program development, nationwide radiation protection and quality assurance programs, and basic radiation research. It also has a major role in sponsoring and hosting national and international meetings such as this one.

The conference was attended by 152 delegates from India and 102 delegates from 24 foreign countries in Europe, North America, the Middle East, Africa, and Asia. There were 33 invited talks, 86 proffered papers, and 91 posters. In addition, 18 companies from India and abroad were represented in 9 trade exhibits. The program also included panel discussions on the status of medical physics and radiation protection in the various countries represented, as well as refresher courses on Quality Assurance, Computer Applications, and Time-Dose Fractionation.

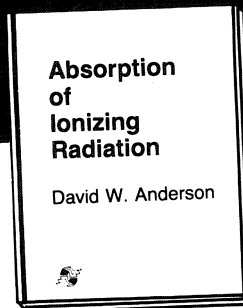
Dr. V.K. Iya and the organizing group put together a comprehensive program which covered both the very advanced and the very practical areas of medical physics. This allowed the nations with emerging medical physics programs and those with

a longer history in this field to compare notes both scientifically and professionally. The symposia covered a wide diversity of topics, including IORT, microtrons, altered fractionation, CT treatment planning, brachytherapy, personnel monitoring, advanced techniques and quality assurance in diagnostic radiology and nuclear medicine, small computers, radiobiology, hyperthermia, and fast-neutron therapy.

In keeping with the needs of radiation therapy and medical physics in developing countries, the program included a number of papers and posters on the design and operation of new centers, quality control and maintenance of therapy machines, cost effectiveness of radiation therapy hardware, isotope production, radiation safety programs, and the role of medical physicists in all of these areas. India has approximately 100 cobalt teletherapy units (60% of

Continued on page 24

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First Asian Conference on Medical Physics, Bombay, India

which are antiquated 60 cm SAD units) and has acquired 9 linacs since 1980. The estimated present need is for 750 therapy units, but the country lacks the resources to purchase and maintain these units. Engineering back-up for linear accelerators in developing countries is practically nonexistent, except at a few major centers. Thus, the BARC has set out to produce larger quantities of Cobalt-60 at its CIRUS reactor, which is presently producing about 24 kCi per year. It takes 5-6 years to reach a specific activity of 100 Ci/gm. India has also begun to produce its own cobalt teletherapy treatment units.

It must be kept in mind that cancer is not the most prevalent medical problem in developing nations, falling behind disorders such as gastroenteritis, tuberculosis, infectious disease, respiratory infections, and heart disease. Cancer in the third world has an incidence roughly half that in the industrialized nations; yet it represents roughly 60% of the cancers in the world. Because of the prevalence of cancers of the head and neck, the upper thorax, and the extremities, cobalt teletherapy is considered adequate for nearly 80% of cancers in India.

A hurdle in the development of radiation therapy in the third world is the fact that most cancers are diagnosed in late stages, where radiation therapy is least effective. One approach to improving the efficacy of radiation therapy in the treatment of cancer lies in educating the public about early detection and improving early diagnosis. It seems appropriate for medical physicists and radiation oncologists to aid in these efforts, in order to improve the successful practice of radiation therapy in the long run. It is an important function of meetings like this one to stimulate such efforts and to increase the visibility of the profession of medical physics. The local newspapers did, in fact, provide knowledgeable and accurate coverage of this meeting and of the 8th Congress of the Association of Radiation Oncologists of India held during the previous week.

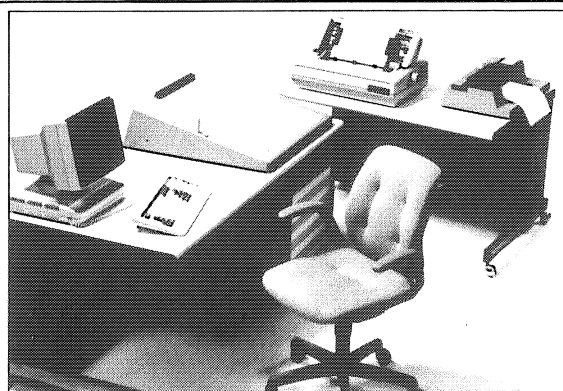
The IOMP held an open meeting on Thursday afternoon, with its current president, Lawrence Lanzl, presiding. At this meeting, the national medical physics organizations of China, Hong Kong, Australia, New Zealand, and the Philippines were accepted as new members of IOMP, bringing the total number of member organizations to 34. Plans for future meetings in San Antonio, Texas, USA (1988), and Kyoto, Japan (1991), were discussed, as were applications for regional meetings in Australia and Hong Kong and a Training Course in Radiotherapy Dosimetry, to be given in Spanish, in Monterey, Mexico. Discussion then ensued on

some of the current IOMP projects, such as the exchange of scientists between various countries and the publication and distribution of 8500 copies of Medical Physics World, which is now self-supporting. Eight delegates to the Bombay meeting were supported by funds donated to IOMP by various companies.

The week was not all business, of course, and one is left with fond memories of elegant dinners, charming dancers, an afternoon sea voyage, new friends and old, and the colorful and vibrant city that is Bombay.

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Correspondence

It is with great pleasure that I am informing you of the founding of the Philippine Organization of Medical Physicists on June 30, 1986 with a total of 2 honorary, 13 regular and 18 associate members.

We were able to muster more than 10 regular members because 7 of the 13 are the first batch of graduates of the M.Sc. Applied Physics major in Medical Physics program of the University of Santo Tomas Graduate School. This course was established as a joint project of the Radiological Health Service and the Cancer Control Center of the Ministry of Health; the Philippine Atomic Energy Commission, the University of Santo Tomas and the International Atomic Energy Agency. Moreover, one of our colleagues, Ms. Asual-Rojero, M.Sc., who is presently pursuing graduate studies in the US was home for a six week holiday.

Nominated and unanimously approved for honorary membership were Dr. Celia T. Anatalio and Mr. Luciano Niguidula who have worked so hard for many years for Medical Physics in the Philippines. Dr. Anatalio, a radiotherapist and a radiologist, is our Director at the Radiological Health Service and we consider her the "Mother" of Medical Physics in the Philippines. Mr. Niguidula is the first Filipino medical physicist and at his present age of 79 years is still practicing his profession. He is a medical physics consultant of three Metro-Manila hospitals.

The 18 associate members are all students of the UST medical physics course which, by the way, is the only one of its kind in the Philippines.

Our POMP secretary, Ms. Aida Lobrigitto, is preparing all the necessary documents for the formal application of POMP as a member of IOMP and she shall send them to you soon.

Enclosed is a picture taken during the induction of officers and members of the POMP held at the R.H.S. on July 3, 1986 with the Deputy Minister of Health for Metro-Manila Operations Dr. Antonio Martinez as inducting official. That occasion was also a luncheon to celebrate the graduation of the first medical physics graduate, five of whom were elected officers of the POMP.

Best wishes.

Sincerely yours,
Agnette P. Peralta, President, POMP

Correspondence

Medical Physics Bibliography

This letter is to inform your readers about the availability of a bibliography of books in the various areas of medical physics. The bibliography is in three parts: Part I covers the physics of radiation therapy, radiation dosimetry, radiation protection, and radiobiology. Part II covers the physics of diagnostic radiology (including CT and DSA), nuclear medicine, ultrasound in medicine, MRI, imaging, quality assurance and radiologic technology. Part III covers general medical and biological physics: physics of organ systems and physiological measurements, nonradiological medical physics, such as lasers in medicine; mathematics, computers and statistics applied to medicine; and biomedical engineering.

A set of the bibliographies will be sent by airmail to any medical physics organization for duplication and distribution to its members. An officer of the organization should write to MEDICAL PHYSICS



Dr. Antonio Martinez, Deputy Health Minister, inducts the POMP officers on July 3, 1986.

From the left we have Dr. Martinez; Ms. Annette Peralta, M.Sc., president; Mr. Marlon Tecson, M.Sc., vice president; Ms. Aida Lobrigitto, M.Sc., secretary; Ms. Rosita Uy, M.Sc., treasurer; Mr. Bayani San Juan, M.Sc., auditor; Mr. Reynaldo Collado, M.Sc., public relations officer.

In the background is Ms. Marilou Asual-Rojero, M.Sc., POMP member who was the emcee during the ceremony.

PUBLISHING CORPORATION, 118 N. Breese Terrace, Madison, WI 53706 USA, phone: 608/238-3223, telex: (via WUI 650-265-1772). The bibliography is updated twice a year. The prices given are the "book store" prices in the United States which are subject to change.

Individual medical physicists can order books from the MPPC bibliography using VISA or MasterCard, dollars or United Nation Book Coupons. Orders from outside the United States must pay shipping charges.

MPPC is a nonprofit membership organization that distributes books, reports, and Ph.D. theses in medical physics and related fields. It plans to publish books (new and reprints) starting in 1988. Suggestions from medical physicists are welcome.

Sincerely,

John R. Cameron
President,
Medical Physics Publishing Corporation,
April 20, 1987.

Announcement

Election of IOMP Officers

The election of Vice President and Secretary-General of the International Organization for Medical Physics is scheduled to be held at the time of the 8th Meeting of IOMP to be held in San Antonio, Texas, August 6-13, 1988. If anyone would like to nominate someone for either of these two positions, please inform one of the following members of the Nominating Committee.

For Asia

Dr. P.S. Iyer
Medical Physics
Bhabha Atomic Research Centre
Trombay
Bombay 400 085
INDIA

For Africa

Professor A. Fregene
Department of Radiation Biology and Radiotherapy
College of Medicine
University of Lagos
P.M.B. 12003, Lagos
NIGERIA

For Latin America

Dr. Jose Telich
Hospital Espanol
Laboratorio de Fisica (5.19)
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For Europe

Professor Rune Walstam
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Sweden

For Other Countries

Professor L.H. Lanzl, Chairman Nominating Committee
Department of Medical Physics
Rush-Presbyterian-St. Luke's Medical Center
1653 West Congress Parkway
Chicago, Illinois 60612, U.S.A.

Please include a short biographical sketch about the nominee, as well as a statement from the nominee indicating that he/she is willing to be nominated.

Thank you,

Brian Stedeford, Ph.D.
Secretary-General, IOMP

Correspondence

International Centre for Theoretical Physics

The International Centre for Theoretical Physics (ICTP) of Trieste, Italy has several new programs to help physics and physicists in developing countries. These programs include support for medical physics.

1. The ICTP pays the travel costs of a consultant, who must spend at least three weeks a year helping in the host country for three or more years. I am participating in this program in Costa Rica. The purpose of my contract is to help establish a medical physics program. Costa Rica is fortunate to have a recently trained medical physicist, Patricia Mora Rodriguez, M.S. to serve as the nucleus of this program. She plans to establish a quality assurance program in the hospitals in Costa Rica, to establish a TLD laboratory and eventually a training program in medical physics at the University of Costa Rica. An important role of the consultant is to help obtain equipment and books for the program. The annual visits serve to keep the consultant informed of the progress and the needs.

If you want to know more about the program, contact Prof. Jan Nilsson, ICTP, Office of External Activities, Box 586, 34100 Trieste, Italy. Phone: 040/22407; Telex: 460392 - I.

2. Another ICTP program of interest to medical physicists is under the direction of Prof. H.R. Dalafi (same address as Prof. Nilsson). He is in charge of a program for distributing donated books and journals to physics departments and individual physicists in developing countries. Retiring medical physicists might consider donating their collections of medical physics books and journals to this program. He only wants journals since 1975 unless the earlier ones are part of a series.

The Medical Physics Publishing Corporation, 118 N. Breese Terrace, Madison, WI 53705, phone: 608/238-3223, will be glad to act as the collection point for donations in North America.

Sincerely,

John R. Cameron
President,
Medical Physics Publishing Corporation
April 20, 1987.

Announcement

Third International Conference on Dose, Time and Fractionation in Radiation Oncology, on: **Prediction of Response in Radiation Therapy: The Physical, Biological and Analytical Basis September 14-17, 1988, Madison, Wisconsin, U.S.A.**

An international faculty of guest speakers will review the state-of-the-art in prediction of response in radiation therapy.

Scientific sessions will include:

- Predictive assays;
- Normal tissue response;
- Tumor growth;
- Analytical models and modelling;
- Concepts and methods of modern data analysis;
- Optimization schemes;
- Basic mechanisms and pathogenesis of response; and
- "Mouse to Man" extrapolations

Also included in the program will be a session of "The design of cooperative experimental therapeutics" as well as **Workshops** on:

- A primer of modern data analysis;
- The biological basis of novel treatment techniques;
- The evaluation of clinical and scientific publications; and
- Clinical data acquisition, retrieval and analysis.

This Conference is being organized by Task Group I: "Evaluation of Models for Dose Response in Radiation Oncology," of the Biological Effects Committee of the American Association of Physicists in Medicine. For further information please contact:

Bhudatt R. Paliwal, Ph.D.
Chairman, 3rd Int. T.D. Conference,
University of Wisconsin,
Radiation Oncology and Medical Physics,
600 Highland Avenue, K4/B 100,
Madison, WI 53792, USA.
Tel: (608) 263-8500

Announcement

New IOMP Corporate Members

We welcome the following corporations who have recently become Corporate Members of the IOMP:

AECL Medical,
Kanata, ON, Canada

Nucletron Trading BV,
Leersum, The Netherlands

Nuson A/S,
Hvidovre, Denmark

Oldelft,
Delft, The Netherlands

Scanditronix Instrument AB,
Uppsala, Sweden

Victoreen, Inc.
Cleveland, OH, U.S.A.

Radiation Measurements Inc.,
Middleton, WI, U.S.A.

This new form of membership was approved at the recent Asian Regional Conference in Bombay, December, 1986. Funds derived from these memberships are allocated to the support of hospital physicists in developing countries. Benefits of Corporate Memberships include provision of a regularly updated list of officers in national membership organizations and a discounted rate for advertising in "Medical Physics World."

Corporations wishing to receive more information about Corporate Membership should contact: Brian Stedeford, Ph.D., Secretary-General, address on page 2.

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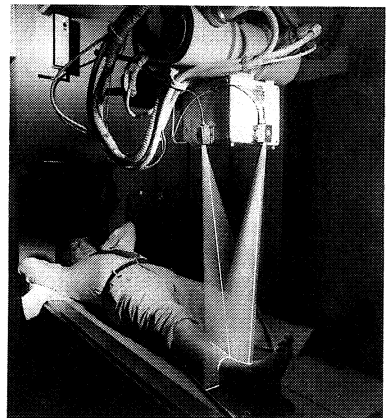
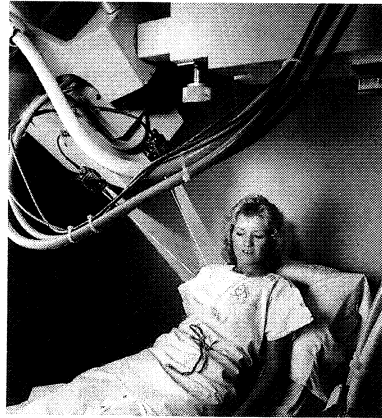
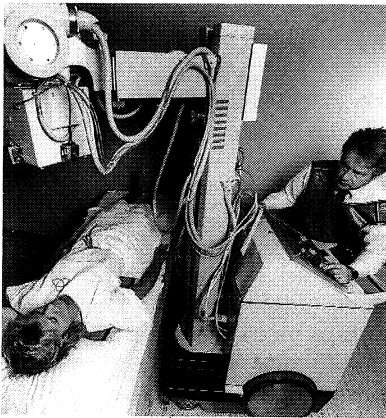
Companies interested in advertising in future issues of MPW should contact the Editor. Deadline for the next issue is November 1, 1987.

Advertising rates in U.S. dollars are:

1/6 page	\$220.00
1/5 page	\$250.00
1/4 page	\$300.00
1/3 page	\$385.00
1/2 page	\$550.00
1 page	\$1,000.00

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