

Published by the European Federation
of Organisations for Medical Physics (E.F.O.M.P.)

Letter from the President

This is my first letter to you as President of EFOMP and I would like to use the opportunity to thank all colleagues from the EFOMP affiliated national organisations and the Officers of the Council for their kindly and diligent co-operation during the last three years.

Since its foundation, in the late seventies, the Federation has become a well known and accepted organisation for Medical Physics. Co-operation between EFOMP and various scientific and governmental organisations is established. This position is, in my opinion, the best way to bring the interests of Medical Physics to international bodies and from there to national governments, for the benefit of Medical Physics throughout Europe. One of the main problems in maintaining this momentum is the speed and integrity of EFOMP internal communication. At the last Council meeting in Bratislava, kindly hosted by our Czechoslovak colleagues, this problem was discussed. The council strongly recommended the national organisations to appoint their EFOMP contact person for a period of five years and to make the contact person one of the two National Council delegates. If this principle can be established in all our affiliated organisations then communication problems may be reduced.

Among the activities of EFOMP mentioned elsewhere in this journal I would like to draw your attention to the meeting of the Austrian and German Society for Medical Physics to be held in co-operation with EFOMP in Innsbruck on 9-12 September 1987. The 1987 EFOMP Council meeting will be held in Innsbruck and also a full day of the Scientific Programme is reserved for international papers to be presented in English. I look forward to meeting as many members as possible in Innsbruck.

H.-K. Leetz

Second Symposium of Radiological Physicists, with International Participation.

Smolenice, Czechoslovakia, 22-25th September, 1986

This symposium was organised by the Czechoslovak Medical Society J.E. Purkyne and the Czechoslovak Society of Oncology. One aim was to attract international participation. With almost 100 delegates, from 13 countries, this aim was very obviously achieved. There were seven 'western' countries represented, some present because of the EFOMP involvement and the associated EFOMP Council meeting. The venue for the symposium was the picturesque castle at Smolenice, near Bratislava and on the edge of the Low Carpathian Mountains. Since June 1953 Smolenice Castle has been a centre of the Slovak Academy of Science.

Participants were welcomed to the symposium by Dr. V. Laginova. During the opening ceremony the Medal of Honour of the Czechoslovak Medical Society J.E. Purkyne was presented to Mr. J.S. Clifton, President of EFOMP between 1980 and 1983. This medal, presented by Docent Ivan Maňka, Vice President of the Society, was awarded in recognition of the encouragement of the development of medical physics and international collaboration in Europe.

The first session of the symposium was devoted to Treatment Planning considerations. Jessen and Jørgensen (Denmark) drew attention to the fact that absolute CT numbers obtained from different systems vary. Also optimal adjustment of the scan field to the patient on individual machines is required. The authors wished that the implications of these details in relation to treatment planning needs should be considered. In the second paper Clifton (U.K.) reviewed 3D reconstruction and presentation technology. The computer system described can handle data from CAT, NMR, or laser topography equipment. Both surface morphology and skeletal data can be reconstructed for use in planning surgery. Present reconstruction speeds are of the order of 35 seconds and plans are in hand for a 'real-time' system. Use of newer techniques (parallel processing and optical processing) were discussed, as well as the potential in the monitoring of multiple sclerosis and in radiotherapy planning. Treatment of carcinoma of the uterine cervix was considered; Matula et al (CSSR) dealt with the problems of combining intracavitary and external beam therapy dosimetry; Pleško et al (CSSR) described the experience gained in treating 200 patients with the Selectron LDR afterloading system. Two papers by Mach and Potměšil (CSSR) presented a semi-empirical pencil beam model for megavoltage 3-D treatment planning. The code has been implemented in Fortran on an IBM PC/AT machine. Breast treatments were considered by Rasovská et al (CSSR), who discussed the detail of external beam treatments and Löffler (FRG) who dealt with practical and dosimetry problems when using Ir 192 wire in an afterloading system.

The second session, on Clinical Dosimetry, began with a review by Karsmark (USA) on total skin electron therapy. Theoretical models and experimental dose distributions, for electron beams, were presented by Hlaváčová et al (CSSR). The selected model will be used in the development of a planning system for electron therapy. Isodose measurements on a new Cobalt-60 unit were described by Penchev et al (Bulgaria) and further considerations on output factors in relation to non standard geometries were discussed by Tobola et al (CSSR).



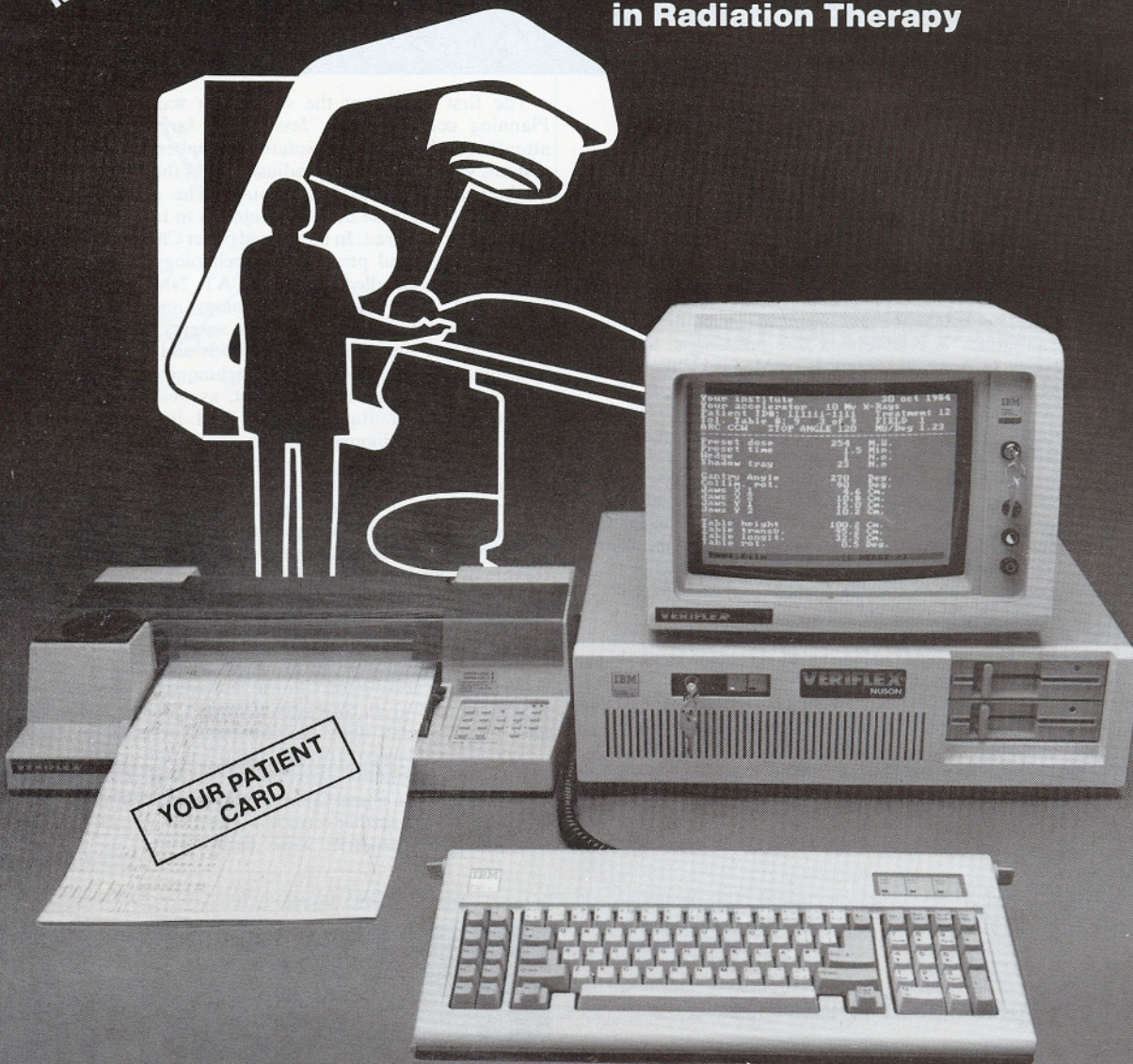
Mr J S Clifton (left), receiving the Medal of Honour of the Czechoslovak Medical Society J E Purkyne, from Docent Ivan Maňka, in Smolenice Castle, Czechoslovakia.

MORE THAN 30 SOLD

VERIFLEX[®]

Integrated Therapy System

**For unmatched flexibility
and increased safety
in Radiation Therapy**



VERIFLEX is compatible with any accelerator
(with read-outs).

Network systems to dose planning/simulator.

Complete range of record and verify facilities
among others:

Test block for daily beam quality assurance.

Real time flatness/energy measurements.

Request further information from:

NUSON

Trading & Engineering ApS

Midtager 26B
DK-2600 Glostrup, Denmark
☎ +45 2 45 56 33
Telex 33 605 nuson dk

Details of ionisation chamber construction and correction factors were discussed by Kovář and Novotný (CSSR). The use of solid state and polyester film detectors in dosimetry and personnel monitoring, for neutrons was explained by Spurný (CSSR). Further dosimetry problems, relating to TLD systems, were presented by Gantchew (Bulgaria). With care in relation to the starting temperature of the heating cycle and with doses of about 2Gy accuracy with powder of $\pm 1.6\%$ was claimed but $\pm 5\%$ with rods, where planchette coupling can be an additional problem. New Cs-137 encapsulated sources for intracavitary therapy have been produced in Czechoslovakia. The dosimetry and testing, prior to clinical use, was presented by Žáčková et al (CSSR). Heavy charged particles deposit energy in tissue in characteristic ways. The effects have been modelled by computer and the details can be experimentally investigated by irradiation of aniline compound films. Following irradiation the data can be read out by ESR techniques. The concepts were described by Hansen (Denmark) and suggest that the technique will meet a wide range of monitoring requirements.

The session on 'Equipment and Quality Assurance in Radiotherapy' was opened by an update on the Scandinavian CART project from Walstam (Sweden). Computer Aided Radiation Therapy (CART) is a major attempt at collaboration between user centres and industry and is likely soon to bring a number of new products to the market place. The individual contributions from Tampere, Malmö, Uppsala, Reykjavik and Oslo were indicated. 3D planning, record keeping, contour collection, and the use of computer networks are some of the aspects involved. Further insights into the commercial offerings of the future were given by Voogt (UK). This presentation was based on the philosophy of the Philips company, and showed how an integrated radiotherapy facility could be based around the SL25 linear accelerators. A representative of CGR/MEV presented a review of the products currently available from his company. At the first symposium, three years ago, preliminary details of 10–50 MeV medical microtrons had been presented. The philosophies were reviewed by Walstam (Sweden) and scanning beam techniques for conformation therapy were considered. Proton treatments have been used on 1250 patients in Moscow since 1969. The generator was described by Koroshkov (USSR) and as well as physics applications has three rooms available for therapy use. Various jigs are available for eye and brain treatments. A scanned beam system is being developed. In contrast a paper from Frencl et al (CSSR) considered the decision making concerned with a radiotherapy centre due to be opened in 1988. After careful review it had been decided that there was a continuing place for the Cobalt-60. Bednář and Očec (CSSR) considered details of the control of linear accelerator arc treatments. An expert system should lead to progress in the early detection of breast cancer. The work described Schüler (GDR) uses a fuzzy recursive procedure for knowledge classification. Papers from Novotný and Kovář, and Laginová et al completed the session. The first was a review of the factors contributing to delivered dose, suggesting that there is likely improvement if quality assurance concepts are pursued. The second was concerned with work done in ionisation chamber calibration and the intercomparison of absorbed doses.

The session on 'Radiation Protection problems in Radiotherapy' began with a consideration of the bremsstrahlung and neutron scatter contributions to patients receiving high energy electron treatments, from Nikodemová et al (CSSR). Personnel monitoring results from Kuwait, from Sabol and Al-Zenki (CSSR/Kuwait) indicated that irradiations in the Cancer Control Centre were well below relevant limits and declined when after-loading techniques were introduced. A project to measure backscatter parameters in lead and concrete stratified structures was described by Sinha and Bhattacharjee (India). Modern KvP meters can be more useful if the effect of tube voltage and current are taken into account. An analytic method of doing this was presented by Porubsky (Hungary). X-ray spectra (10–300 keV), calculated from pulse height analyser data have been obtained by Pernicka — (CSSR). The data was compared with that from conventional analysis.

The final session was concerned with 'Biological Problems in Radiotherapy'. The session was introduced by a paper explaining that treatment can only be properly optimised if fractionation and other modalities such as chemotherapy and hyperthermia are included in the equation, from Prokeš et al (CSSR). Some of the available models were discussed. A radical treatment of the nasopharynx involving 43 MV X-rays, Co-60 and electrons has been developed by Pandova et al (Bulgaria). Cumulated survival rates of 76%, 64% and 46% at 5, 10 and 15 years were claimed (228 patients, 70% at stage III). Martin (UK) reviewed considerations relating to human survival following acute radiation exposure, as a conclusion to the symposium.

This brief catalogue of topics indicates the range of material covered but does little to reveal the likely nature of the proceedings. There was

an excellent translation service which enabled both presentations and discussion to overcome many of the language difficulties. Day to day concerns and the frontiers of development were included. A most enjoyable reception was held in the ornate castle building, on one evening. Another evening was devoted to a splendid barbecue in the castle grounds. Traditional fare, costume and music made this an event that will remain in the memories of those present. Some participants were also able to enjoy a visit to the nearby Piesfany Spa. In all ways this was a most successful and enjoyable Symposium and the organisers deserve congratulation.

Report from Council

A meeting of EFOMP Council was held on 21st September 1986, in Bratislava University, Czechoslovakia. 12 countries were represented and IOMP observers were present. The delegate from Hungary was especially welcomed, the technicalities for membership having been formally completed.

Reports from the Officers

Dr. Chavaudra (France) reviewed the period of his Presidency, highlighting the links maintained with various international organisations. Significant achievements for EFOMP had included the completion of the contract work for the IAEA, on training centres in Europe for medical physicists, and the organisation of two successful Trieste workshops on quality assurance in Diagnostic Radiology.

Mr. Clifton (UK), the Immediate Past President, spoke of the interest of the IEC in Technological Evaluation, which had again been demonstrated at a meeting in Budapest. Professor Rassow (Essen, FRG) represented the Federation and there is scope for EFOMP to be more active in this subject area.

The Federation had responded to the Commission of the European Communities concerning the proposal for a Council Directive on 'A General System for the Recognition of Higher Education Diplomas'. In making this response the availability of the EFOMP Policy statements had proved very helpful.

Dr. Leetz (FRG), the Secretary General, concentrated on matters of communication, now taken up in his President's letter. It was agreed that the Officers of EFOMP should prepare a specific list of the jobs required of the contact person. Dr. Leetz also commented that EFOMP receives many invitations to associate its business meetings with the national meetings of member organisations. There is a need to spread the distribution of the meetings reasonably fairly on a geographical basis and to choose venues that minimise costs. Thus it is not possible to take up all the invitations.

Dr. Bergman (Austria), the Treasurer, presented the accounts and showed that the Federation has a small positive balance. Difficulties in the collection of dues, which had been mentioned in previous years, have been resolved.

Training and Education Committee Report

A fresh enquiry into the methods of training within member organisations will be conducted.

The dialogue with the EC on the recognition of higher education diplomas is continuing and Council entrusted the Committee with the task of responding to the second draft Directive.

The paper on the Training of the Medical Physicist as a Qualified Expert, as produced in European Medical Physics News (No. 11), will be recast by the committee as a policy statement. The paper relates to the EC Directive on the Radiation Protection of the Patient. Problems with the definition 'Qualified Expert' were discussed. In several countries Health Physicists, not Medical Physicists, are regarded as responsible for all aspects of radiation protection, though they never see hospital patients. Council felt that it would be helpful to make clear that 'availability' of the Qualified Expert should imply a daily relationship between the expert and medical staff, in the patient environment. The Committee was asked by Council to modify the document for some further consultation and publication.

At the 1986 Trieste Workshop, 12 students attended. The first Workshop had trained 20 people but the number had been reduced so as to improve the provision of practical work. This initiative has proved very successful. It is hoped that annual workshops can continue to be held, but some changes in the financial arrangements need to be negotiated.

Professional Committee Report

Dr. Aget presented the completed document on Ethical Practice. This was accepted and is printed elsewhere in this issue of EMP News.

There will be further work done on the subject of the Radiation Protection of the Patient, in preparation both for the EAR meeting in Lisbon and long term co-operation with the WHO.

Council agreed to the proposal that work should be continued in a combined Education, Training and Professional Committee.

Scientific Committee Report

Mr. Clifton reported that ESTRO had held a meeting on Quality Assurance in Radiotherapy at Baden Baden. EORTEC working group activity on the subject had been reported. Professor Poretti had represented EFOMP at this joint meeting. It is likely that this dialogue will lead to a request for data from the EFOMP member organisations. Council noted the need for co-operation amongst physicists and felt that the ESTRO initiatives should be encouraged.

Details of the plans for the EFOMP/ENMRW workshop, to be held in London on 25–27th March 1987 were reviewed. Council thanked Professor Poretti for his efforts towards the arrangements. The proceedings are to be published in association with the IPSM (which now handles HPA publishing). Future workshops might be run jointly by EFOMP and ENMRW, possibly annually.

The programme of future meetings was reviewed, it is:

25–27 March 1987 London NMR Meeting (with ENMRW)

25–29 May 1987 Lisbon ESTRO Meeting
A session on Quality Assurance in Radiotherapy will be chaired by Prof-Dr. H-K Leetz (FRG), following an invitation from ESTRO to EFOMP.

31 May–6 June 1987 Lisbon EAR Meeting
An EFOMP session on 'The Radiation Protection of the Patient' will be co-ordinated by Dr. J-C Rosenwald (France) and one on 'The Role of the Medical Physicist in Imaging Modalities' will be co-ordinated by Prof. P. W. Horton (UK).

9–12 September 1987 Innsbruck
Austrian and German Medical Physics societies combined meeting.
EFOMP Scientific Meeting (Papers presented in English)
EFOMP Council meeting — 1987

Undergraduate exchange in Clinical Engineering

Since 1982 the European Commission and the British Council have been helping to support an exchange of undergraduate students between the University of Compiègne (France) and Coventry Lanchester Polytechnic (UK). In 1986 the exchange included the Department of Medical Physics and Biomedical Engineering at the Queen Elizabeth Medical Centre, Birmingham, UK. Clinical Engineering students from Compiègne work for six months in either the Clinical Systems Research unit at Coventry Polytechnic, currently concentrating on research into heart pacemakers, or the Regional Radiation Protection Service laboratories at Birmingham, where the students are investigating mammographic techniques. In exchange, Applied Biology students visit Compiègne to study techniques for characterising antibodies to blood parasites. It is hoped to extend this exchange programme to include a German institution, in 1987, and eventually to expand the link to include a programme of short, jointly run, courses.

*T W G Jones, Joint Study Programme Director,
Coventry Lanchester Polytechnic, Coventry, UK.*

Quality Assurance in Radiotherapy

More information from Belgium

Following the article on this topic in our last issue additional information has been supplied by Marie-Thérèse Hoornaert, the President of the Belgian Society of Hospital Physicists. The TLD study on Cobalt Units, started in 1984 by the Belgian Association of Radiotherapy and Oncology (BARO), uses TLD material provided and evaluated by the laboratory for standard dosimetry of the University of Gent, directed by Professor O. Segaert. BARO has also produced a common treatment sheet, which is being assessed in several radiotherapy centres.

In addition the Belgian Society of Hospital Physicists has been working on the physical problems associated with the intercomparison of ionisation chambers, prior to the anticipated establishment of a national standard laboratory.

1989 Paris International Congress on Radiology
Mr. J. Clifton (UK) is the EFOMP contact for this Congress.

1990 UK EFOMP 10th Anniversary (with HPA)

1995 November Wurtzburg DGMP and EFOMP Scientific Meeting

Further Quality Assurance Workshops are likely in Trieste, in May 1987 and 1988 and a further NMR workshop in spring, 1988. The IOMP Congress will be held in San Antonio, USA in July 1988, and in Japan in 1991.

Officers' Meetings

Council accepted that the Officers should invite the Chairmen of EFOMP Committees to attend their meetings.

The Chernobyl Incident

Dr Reece commented on the problems experienced within the UK. The hospital service had borne the responsibility of much monitoring and reassurance work. He suggested that it might be useful to collate details of the experience amongst all the EFOMP members. In future the role of medical physics might be more clearly defined. Council agreed that Dr. Reece should prepare a questionnaire for circulation to member organisations.

Other business

The meeting closed with a discussion introduced by the IOMP observers, on organisational problems which IOMP is seeking to resolve. Also the training of medical doctors in physics was considered, with particular reference to a question from a Council delegate on developments in his country.

The chairman thanked the Czechoslovak hosts for the welcome extended to Council and closed the meeting.

E Claridge

The Polish Society of Medical Physics

The Polish Society of Medical Physics has recently produced a newsletter which has been distributed to friends and kindred organisations in other countries as a means of fostering cooperation and exchange. The newsletter will be published at irregular intervals in the future. Some of the items from it are summarised below.

One excellent piece of news is that the Society has now completed the internal negotiations required as a prelude to joining EFOMP. The final formalities will be completed as soon as possible.

In September 1986 the Medical Physics Department of the Maria Skłodowska-Curie Memorial Institute of Oncology, in Warsaw, celebrated its 50th anniversary. The laboratory was conceived by Mme. Curie but opened after her death. Her pupil, Professor C. Pawłowski, became the first Head. Mme. Curie's sister donated 10mg. of Radium and M. and Mme. Joliot-Curie a large electromagnet. After wartime damage the present accommodation was opened in 1951. Prof. Pawłowski resigned in 1956 and the department was headed by Drs. Malesa and Gwiazdowski, supervised by Prof. Jasiński. The present Head, Dr. Barbara Gwiazdowska, took up her post in 1972. There are three sections: a Dosimetry Laboratory, a Radiation Physics Laboratory and a Radiodiagnosis Laboratory. There is considerable interest at present in quality control and standards, in relation to Radiotherapy, and in the application of computer systems. After a period of development in radioisotope studies there is a fresh growth of activity in x-ray diagnostic methods.

The 50th anniversary celebrations included talks on the role of the Department in the development of oncology in Poland; the history of the Department; the history of oncology studies in Poland since 1926 and 'The history of Radiotherapy from the physicist's point of view'. The first three talks were given by distinguished local speakers; the latter talk by guest speaker Prof. Rune Walstam, from Sweden. A party for all those who had ever worked in the laboratories followed. On the next day the guests could visit the new Teletherapy Unit, in the outskirts of Warsaw, where a panel discussion on "Dosimetry in Megavoltage Therapy" was held.

At the General Assembly of the Polish Society of Medical Physics, held in Augustów in 1985, Honorary memberships were awarded to Professor J.W. Boag and Professor J. Keller. Professor Boag has long standing links with Polish medical physicists, particularly through training Polish physicists at the Royal Marsden Hospital, UK, and visiting Poland to lecture. Professor Keller was instrumental in founding the Polish Society, in 1965, and was its President for a ten year period.

Drs. Gwiazdowska and Tolwiński, of the Institute of Oncology, Warsaw, attended the 1986 EFOMP/ICTP Trieste Workshop on Quality Control in Medical X-ray Diagnostic Equipment, with nine other medical physicists from Bulgaria, Egypt, Spain, India, Malasia, Pakistan, Portugal and Turkey. The Polish representation was made possible through the invitation and support of the organisers. The delegates were delighted with the contacts made and the opportunity to learn the latest techniques. The workshop initiated activity which should lead to an improvement in quality control practice in Poland (and elsewhere?).

The editor looks forward to receiving further newsletters from Poland and commends the practice to other EFOMP member organisations.

New Officers and Committee Members

At the September Council meeting new Officers and committee members were elected. Details of the appointments are given below and were effective from 1st January 1987.

President: Prof Dr H-K Leetz
Institut für Radiologische Physik
Universitätskliniken
D-6650 Homburg
FRG

Secretary General: Dr P Inia
Harlingerstraatweg 29
8913 AC Leeuwarden
The Netherlands

Treasurer: Dr B L Reece
Department of Medical Physics and Biomedical
Engineering
Regional Radiation Physics and Protection Service
Queen Elizabeth Medical Centre
Birmingham, B15 2TH
United Kingdom

Immediate Past President: Dr J Chavaudra
Unite de Radiophysique
Institut Gustave Roussy
39 rue Camille Desmoulins
94805 Villejuif Cedex
France

Education, Training and Professional Committee

H Aget Chairman
Clinik de Radiophysique
Centre Hospitalier Régional de Tours
37044 Tours Cedex
France

P P Dendy	(UK)	Secretary
A Benini	(Italy)	
A-M Schmitt	(FRG)	
K Jessen	(Denmark)	
B Breyer	(Yugoslavia)	
M Tautz	(GDR)	
W Kallinger	(Austria)	

Scientific Committee

J Clifton (Chairman)
Department of Medical Physics and Bio-engineering
University College Hospital
1st Floor, Shropshire House
11-20 Capper Street
London, WC1E 6JA
United Kingdom

A Benini	Italy
S Gurski	GDR
L Sundbom	Denmark
J Rassow	FRG
G Van Herk	The Netherlands
J-C Rosenwald	France
P Horton	UK
J Novotny	Czechoslovakia
N Molko	Italy

Ethical Practice Guidelines for Medical Physicists

The Professional Committee of EFOMP completed work on the consideration of ethical guidelines during 1986. The proposed guidelines were circulated to member organisations, accepted at the 1986 Council meeting in Bratislava and are presented below:

- 1 Medical physicists should strive continually to expand their knowledge and develop their skills. Experience and knowledge should be shared with colleagues with the aim of improving the medical care of patients.
- 2 The level of knowledge, training, skill and experience will form the basis of competition for posts within medical physics.
- 3 Medical Physicists should exhibit a high level of professionalism in dealing with patients.
- 4 The privacy of patients must be respected and the confidentiality of patient data must be maintained.
- 5 The appropriate approved codes of practice relating to the health and safety of patients must be followed at all times.

H. Aget.
Chairman of Professional Committee, 1986.

Staff Mobility

During 1986 the Federation was asked to comment on the draft EC Directive on the 'Recognition of Higher Education Diplomas'. The eventual aim is to seek equivalences in qualifications which will enable the free movement of individuals between member countries. The EFOMP reply was able to draw upon the content of the EFOMP Policy documents and so indicate that positive steps are being taken to promote adequate Training and Education in member organisations. The suggestion was made that a Special Directive for Medical Physics would be acceptable.

The Commission replied to the Federation and commented that when a General Directive has been issued it may be possible to consider Special Directives under it, if professions can justify the requirement.

A second draft Directive has now been received. This pays more regard to vocational training and calls into question the definition of a Higher Education Diploma. It appears to those who have seen the document that the professions would need to object strongly, if standards are to be maintained. At the 1986 Council meeting, the Education, Training and Professional Committee was therefore asked to review the revised Directive and prepare a suitable response.

Medical Physics '87 Innsbruck 9-12th September

The annual scientific meeting of the Deutsche Gesellschaft für Medizinische Physik and the Osterreichische Gesellschaft für Medizinische Physik, jointly with EFOMP.

The Programme will cover Radiotherapy, Nuclear Medicine, Quality Assurance procedures, Digital Image Processing, Applications of Non-ionising Radiations, Magnetic Resonance Techniques, Dosimetry of Radionuclides and the impact of Chernobyl on Medical Physics.

Contributions from EFOMP members will be welcomed. There will be parallel poster sessions during the meeting and oral presentations in English on Friday 11th September.

Further details from:
MEDICAL PHYSICS '87, c/o Professor Dr H Bergmann,
Divison of Nuclear Medicine, 2nd Medical Department,
University of Vienna,
Garnisonsgasse 13, A-1090 VIENNA, Austria

Tel. 43-222-4800 ext. 2142 or 2187

The 1987 EFOMP Council Meeting will be held on Saturday 12th September, in Innsbruck.

Clinical Physics and Physiological Measurement

Members are reminded that this EFOMP journal is available to them at reduced rates, for their personal use. Enquiries should be made to Mr. D.W. Field, Institute of Physical Sciences in Medicine, 47, Belgrave Square, London, SW1X 8QX, UK. The contents of the two most recent issues and the supplement on Applied Potential Tomography are listed below:

Volume 7, Number 4, November 1986

Review article

Electromagnetic techniques in hyperthermia *J Conway and A P Anderson*

Papers

Effective airway resistance: a reliable variable from body plethysmography *W P J Holland, A F M Verbraak, J M Bogaard and W Boender*

The single-passage extraction of ^{18}F in rabbit bone *R Wootton and C Doré*

Distributions of an ultra-fine $^{99}\text{Tc}^{\text{m}}$ aerosol and $^{81}\text{Kr}^{\text{m}}$ gas in human lungs compared using a gamma camera *R N Arnot, W M Burch, D G Orfanidou, M E Gwilliam, V R Aber and J M B Hughes*

The seasonal variation of total body calcium *P Tothill, N S J Kennedy, J Nicoll, M A Smith, D M Reid and G Nuki*

Short communications

Heart rate dependence of the RT interval in the first month of life *V T Wynn*

Broadband ultrasonic attenuation in the *os calcis* and single photon absorptiometry in the distal forearm: a comparative study *V Poll, C Cooper and M I D Cawley*

Book reviews

Hospital Physicists' Association Topic Group Report 32. Measurement of the Performance Characteristics of Diagnostic X-Ray Systems Used in Medicine. Part V: Conventional Tomographic Equipment. Electric and Magnetic Fields in Medicine and Biology (IEE Conf. Pub. No. 257). Biological Effects and Dosimetry of Static and ELF Electromagnetic Fields. Mathematical Methods in Medicine. Part 2: Applications in Clinical Specialities. NRPB Emergency Data Handbook — NRPB-R182.

Forthcoming events

Abstracts of Proceedings: Measurement of Nerve Function

Author Index Title Index

Volume 8, Supplement A, January 1987

Electrical Impedance Tomography — Applied Potential Tomography

Preface

Dielectric properties of body tissues *R Pethig*

Theoretical limits to sensitivity and resolution in impedance imaging *A D Seager, D C Barber and B H Brown*

Physical study of the sensitivity distribution in multi-electrode systems *J Jossinet and G Kardous*

Current topics in impedance imaging *D G Gisser, D Isaacson and J C Newells*

Fast reconstruction of resistance images *D C Barber and A D Seager*

A comparison of impedance tomographic reconstruction algorithms *T J Yorkey and J G Webster*

A prototype system and reconstruction algorithms for the electrical impedance technique in medical body imaging *Y Kim and H W Woo*

Some physical results from an impedance camera *K Sakamoto, T J Yorkey and J G Webster*

Mathematical aspects of impedance imaging *W R Breckon and M K Pidcock*

Limitations in hardware design in impedance imaging *A D Seager and B H Brown*

The Sheffield data collection system *B H Brown and A D Seager*

A data collection system for gathering electrical impedance measurements from the human breast *R Skidmore, J M Evans, D Jenkins and P N T Wells*

A dual-frequency applied potential tomography technique: computer simulations *H Griffiths and A Ahmed*

Impedance imaging using linear electrode arrays *H M Powell, D C Barber and I L Freeston*

Applied potential tomography: a new non-invasive technique for assessing gastric function *Y F Magnall, A J Baxter, R Avill, N C Bird, B H Brown, D C Barber, A D Seager, A G Johnson and N W Read*

Impedance imaging in the newborn *D Murphy, P Burton, R Coombs, L Tarassenko and P Rolfe*

Electrical impedance tomography for thermal monitoring of hyperthermia treatment: an assessment using *in-vitro* and *in-vivo* measurements *J Conway*

Applied potential tomography for non-invasive temperature mapping in hyperthermia *H Griffiths and A Ahmed*

Application of applied potential tomography (APT) in respiratory medicine *N D Harris, A J Suggett, D C Barber and B H Brown*

Localisation of cardiac related impedance changes in the thorax *B M Eyüboğlu, B H Brown, D C Barber and A D Seager*

Evaluation of applied potential tomography: a clinician's view *S G Dawids*

Bibliography

Volume 8, Number 1, February 1987

Editorial — Clinical Physics and Physiological Measurement: Its aims and scope *A Murray, C Hull, M M Black and P H Fentem*

Review Article — Blood gas measurement *C E W Hahn*

Papers

A survey of acoustic output of ultrasonic Doppler equipment *F A Duck, H C Starritt and S P Anderson*

Bone blood flow measured with microspheres: the problems of non-entrapment *P Tothill, G Hooper, S P F Hughes and I D McCarthy*

Evaluation of different formulae for the study of platelet survival *W J Strydom, D R Van Reenen and W J Pillooy*

A method for quantifying lipoprotein flux rates between plasma and arterial intima *in-vivo* *R Wootton, P Baskerville, P Turner, M Insell, M Shaikh, A LaVille, J Quiney, N L Browse and B Lewis*

Report — Medical equipment: report of the Advisory Council for Applied Research and Development *J Brydon*

Book and teaching videotape reviews

Evaluation of ultraviolet radiation hazards in hospitals *B L Diffey and F C Langley*

Introduction to electric response audiometry (Teaching videotape) *J C Stevens*

Introduction to ultrasound vascular diagnosis (Teaching videotape) *T Cochran and S B Sheriff*

Abstracts of proceedings

Non-invasive assessment of peripheral blood flow

Medical engineering and physiological measurement

Forthcoming events

Publications from Member Organisations

The proceedings of the IVth National Conference on Biomedical Physics and Engineering, with International Participation, held in Sophia, Bulgaria, in November 1984, have been published. Enquiries to Dr. V. Penchev, Laboratory of Clinical Dosimetry, Belo More str. 8, Sophia 1527, Bulgaria.

The *Journal Biomedical Physics* is published by the Italian society and includes English abstracts. An international circulation list and pool of contributors is being sought. Enquiries to Dr. N. Molko, Dip. di Fisica, Via Celoria 16, 20133 Milano, Italy.

Contents

Letter from the President	1
Radiological Physicists' Symposium	1
Report from Council	3
Undergraduate exchange in Clinical Engineering	4
Quality Assurance in Radiotherapy	4
The Polish Society of Medical Physics	4
New Officers and Committee Members	5
Ethical Practice Guidelines	5
Staff Mobility	5
Medical Physics '87	5
Clinical Physics and Physiological Measurement	6
Publications from Member Organisations	6
Forthcoming Meetings	7

Forthcoming Meetings

4th European Congress on Biotechnology.

4-7 May, 1987; The Hague, The Netherlands.

KIVI Prinsessgracht 23, NL-2500 GK, The Hague, THE NETHERLANDS.

6th Annual Meeting of the European Society for Therapeutic Radiology and Oncology.

25-29 May, 1987; Lisbon, Portugal.

Dr. E. van der Schueren, Department de Radiotherapie, Clinique Saint-Raphael, 35 Chemin des Capacines, B-3000 Louvain, BELGIUM.

6th European Congress on Radiology.

31 May-6 June, 1987; Lisbon, Portugal.

Secretariat ECR 87, S.P.R.M.N., avenida Elias Garcia 123-7 Dto., P-1000 Lisbon, PORTUGAL.

26th Congress of the French Society of Hospital Physicists.

11-13 June, 1987; Vittel, France.

Secrétariat du XXVIème Congrès de la S.F.P.H., Unité de Radiophysique, Centre Alexis Vautrin, Route de Bourgogne, 54511 Vandoeuvre-les-Nancy, Cedex, FRANCE.

6th Congress of the European Federation of Societies for Ultrasound in Medicine.

14-17 June, 1987; Helsinki, Finland.

6th E.C.U.M. Congress Secretariat, P.O. Box 824, SF-00101, Helsinki, FINLAND.

9th International Conference on the Use of Computers in Radiation Therapy.

22-25 June, 1987; Scheveningen, Tilburg, Netherlands.

Ir. P. H. van der Giessen, Dr. Bernard Verbeeten Instituut, Brugstraat 10, 5024 SB Tilburg, THE NETHERLANDS.

10th International Conference on Information Processing in Medical Imaging.

22-26 June, 1987; Utrecht, The Netherlands.

Max A. Viergever, Delft University of Technology, Department of Mathematics and Informatics, P.O. Box 356, 2600 AJ Delft, THE NETHERLANDS.

Computer Assisted Radiology (International Symposium and Exhibition).

1-4 July, 1987; Berlin.

AMK Berlin, Congress and Convention Division/KVE, attn: Mrs Bibiana Illmann-Moser, Messedamm 22, D-1000 Berlin 19, FRG.

Blood Flow '87 (BES).

7-8 July, 1987; Leeds, England.

Mr. R. Price, Department of Medical Physics, Leeds General Infirmary, Leeds LS1 3EX, ENGLAND.

European Society for Hyperthermic Oncology.

14-16 July, 1987; Cardiff CF4 7XL, U.K.

Dr. J. L. Moore, Velindre Hospital, Whitechurch, Cardiff, U.K.

8th International Congress of Radiation Research.

19-24 July, 1987; Edinburgh, Scotland.

Dr. E. Martin Fielden, M.R.C. Radiobiology Unit, Harwell, Didcot, Oxon OX11 0RD, ENGLAND.

Megavoltage Therapy - 50th Anniversary Conference.

3-5 September, 1987; London, England.

The Conference Secretariat, Concorde Services Limited, 10 Wendell Road, London W12 9RT, ENGLAND.

L. H. Gray Trust Meeting on the Biological Effects of Low Doses of Radiation.

11-14 September, 1987; Oxford, England.

Mr. K. F. Baverstock, M.R.C. Radiobiology Unit, Chilton, Didcot, Oxon OX11 0RD, ENGLAND.

Co-operating Commercial Organisations

CGR MeV, Siège Social et Usine, Rue de la Minière. B.P.34 — 78530 Buc, France.

Mecaserto, Z.I. du Mandinet — Centre Evoloic, Lognes 77200 Torcy, France.

Member Organisations in: Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, Federal Republic of Germany, Finland, France, German Democratic Republic, Greece, Israel, Italy, The Netherlands, Norway, Portugal, Republic of Ireland, Spain, Sweden, Switzerland, Turkey, United Kingdom, and Yugoslavia.

E.M.P. News circulation — approximately 3000 copies.

Please send, as soon as possible, material for the next issue of European Medical Physics News to:

Dr. E. Claridge, Department of Medical Physics and Biomedical Engineering, Radiotherapy Building, Queen Elizabeth Hospital, Birmingham, B15 2TH, England.

General correspondence concerning the Federation should be addressed to the Secretary General, Dr. P. Inia, Harlingerstraatweg 29, 8913 AC Leeuwarden, The Netherlands.

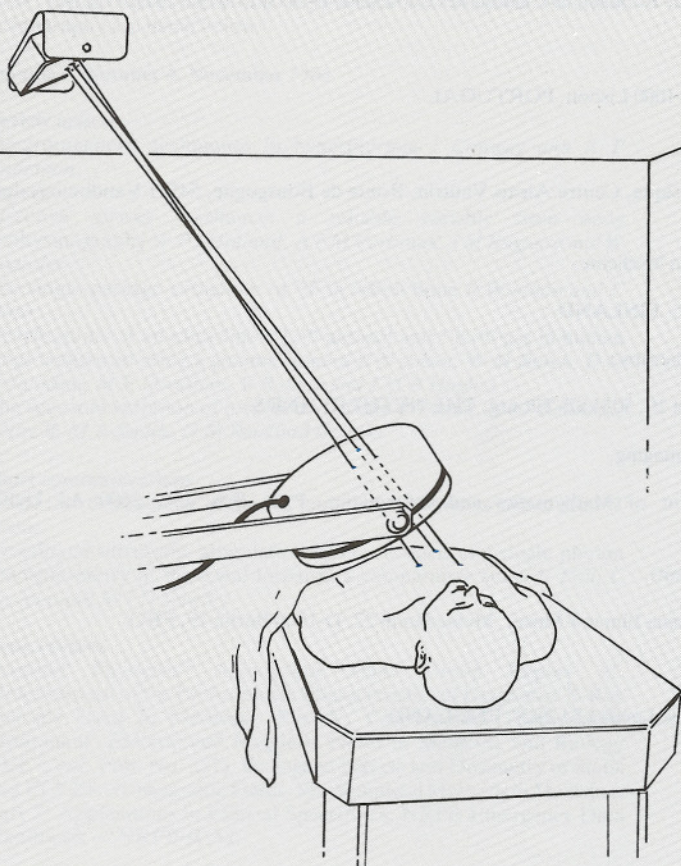
Advertisement enquiries should be sent to the Sales Department (Advertisements), The Institute of Physics, Publishing Division, Techno House, Redcliffe Way, Bristol, BS1 6NX, England. Telephone 0272 297481. Telex 449149. As well as purchasing advertising space manufacturers and publishers can arrange for leaflets, brochures or reply cards to be mailed with E.M.P. News.

Printed by the Bocardo Press Ltd, Oxford, England.

Gamma Camera Laser System

NEW!

**Reliable laser
reference
for precise
repositioning of
patient-to-detector
relationship for
thallium studies**



The problem:

Accurately reestablish the same detector position relative to the patient in timed sequential gamma camera studies.

The solution:

Our gamma camera laser reference system projects three intense dots on the detector head when optimally positioned. The position of the dots is marked. After the initial study, the detector is removed and the three dots fall upon the patient's chest. Their position is marked. When the patient returns for the four hour redistribution study, the marks on his chest are aligned with the laser beams. The detector is brought back into position and aligned with the laser marks on the detector head.

Another first from Gammex — an aid to nuclear medicine studies, and the technique is simple, efficient and accurate.



Gammex, inc.

Patient Alignment Systems

Milwaukee Regional Medical Center
P.O. Box 26708 • Milwaukee, WI 53226, U.S.A.
(414) 258-1333 • (800) GAMMEX 1 • TELEX: 260371