COMP OCPM
CANADIAN ORGANIZATION OF MEDICAL PHYSICISTS
ORGANISATION CANADIENNE DES PHYSICIENS MÉDICAUX

CANADIAN COLLEGE OF PHYSICISTS IN MEDICINE
LE COLLÈGE CANADIEN DES PHYSICIENS EN MÉDECINE

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From the Editor:

In the last Newsletter, I had mentioned that one of the themes highlighted in the issue was the scientific success of COMP/CCPM members. As an addition to that theme, it should be mentioned that scientific honours have been bestowed on three COMP members - David Rogers of the Ionising Radiation Standards laboratory of NRC, Martin Yaffe of the SunnyBrook Health Science Centre, and Jake Van Dyk of the London Regional Cancer Centre. All three became Fellows of the AAPM, for their life-time contribution to the scientific and educational activities of the AAPM. This is a very special honour since only a few of these Fellowships are awarded each year. Congratulations to you all!

There is a wide variety of articles in this issue of the Newsletter. Despite the cutbacks in health care, construction of cancer centres continues. We have one article describing the new cancer centre in Kelowna and another describing the expansion of the radiation therapy facilities in London. On a historical note, I have an article from Jack Cunningham describing the life and career of Harold Johns. This article is the text of Jack's acceptance speech for the Award of Merit that he received from the IUPESM (see Vol. 44, Issue 1, pp. 11). And on the subject of Harold Johns, I have discovered that an award in the name of Harold E. Johns has been created by the Canadian Cancer Society/National Cancer Institute of Canada. While I have been able to find out some details of the award (see page 48), what I could not find out is how Harold Johns's name became associated with the award. If anyone knows this information (does anyone have colleagues at the NCIC?) I would be pleased to publish this information.

COMP members continue to get international recognition. The cover of an issue of the Int.J.Radiat.Oncol.Biol.Phys. has a connection to London, and Ervin Podgorsak and his colleagues in Montreal will be hosting the 2002 Annual Meeting of the AAPM. If the COMP meetings of 1990 and 1995 are anything to go by, this too should prove to be a high quality meeting.

In the past three months there have been two big events for the Newsletter. The first is that I received the first completely unsolicited article for the Newsletter from William Que. This article describes a new program in prostate brachytherapy that has been started at the Toronto Sunnybrook Regional Cancer Centre. After all of the efforts to cajole or badger people to contribute to the Newsletter, it is gratifying to receive a contribution without expending any effort. Thank you William! The second big event is that the Newsletter has hit the big time. On 9th March 1998 I received a phone call from Avis Favaro from the Toronto News Bureau of CTV. She was doing some research for a story on radiation and restenosis and somehow she had been directed to me because of the summary that I had written in the Newsletter. After some initial confusion (I thought that she had said cornea irradiation not coronary irradiation) I arranged to send her a copy of that part of the Newsletter. [What can you expect, it was early Monday morning.] So let this be an encouragement to all potential contributors to the Newsletter. Perhaps you too may become a TV celebrity if you contribute to the Newsletter.

As always, feedback, especially positive, is welcome. And if you have any suggestions about how to improve the Newsletter or the COMP/CCPM web site, please let me know. Finally if you have any contributions (scientific successes, interesting graphics or photographs, humorous stories, gossip, information about people on the move, restructuring information, opinions, etc.) do not hesitate to send them this way. Who knows, maybe the contribution could lead to a Pulitzer Prize!

Finally, COMP is beginning to plan an initiative to improve the Web site. We are looking for some enthusiastic COMP members to help out with this initiative.

Peter Munro
London Regional Cancer Centre

COMP Chair's Report

With a rather unusual winter behind us our annual COMP/CCPM conference is fast approaching. I hope that as many Canadian medical physicists as is possible will attend the London meeting June 18-20. We last met in London in June 1989; the College Symposium that year was on Vascular Imaging. In 1989 we were still the DMBP of CAP, and in part the success of that standalone Canadian medical physics meeting encouraged us to go our own way with the formation of COMP over the following year.

Medical physics has grown extensively in London over the last 9 years and Aaron Fenster and his LAC promise an exciting conference for 1998. When not partaking of the scheduled activities - the College Symposium on Functional Imaging and the Workshop on Dosimetry, proffered oral papers and posters, the JR Cunningham Young Investigators' Symposium, the CAP Lecture, and tours of the facilities in London - there will be opportunity to meet with the commercial exhibitors, to interact socially and professionally with our colleagues, and for the golfers, to make some practical ballistics experiments on Sunday. There will be a welcome barbecue at the Delaware Hall residence on Wednesday evening, a Poster Reception on Thursday, and the conference Banquet on Friday. As has become our standard practice, all registrants will receive a full book of proceedings upon arrival. For those interested in an extra few days of science, the CAP Congress immediately precedes our conference, and is not far away, in Waterloo.

All COMP members should have received registration and accommodation material in the mail a few weeks ago. Please reserve your accommodation early. There is another conference being held at the same time, while there are also penalties to COMP for overbooking. At the Annual General Meeting in London the members will be asked to approve four changes to the COMP Bylaws. These are detailed in this issue of the Newsletter. The first two are being proposed to increase the efficiency of your Executive in carrying out its tasks; the latter two are merely ones of clarification. The first proposed change is to make the Treasurer's term of office start in coincidence with a new financial year. This is the most logical time for the handover from one Treasurer to the next, and will make it much easier for the new Treasurer to get on top of the books. The second proposed change aims to enhance the ability of the COMP Chair to lead the organisation. In the second year in office the responsibility of putting together the annual conference will be shifted to the Chair-Elect. I have concluded that while the annual conference is the most important short-term task of the Chair, there are many long-term policy and political issues that need additional attention and leadership. At present, the Chair is pre-occupied with the conference. Some years ago the conference responsibility rested with the Chair-Elect; when this led to difficulties because of the long lead time required for conferences, the responsibility was shifted to the Chair. Now that the Chair-Elect, Chair, and Past-Chair positions are all two years, we can move the responsibility back by one year, so that conferences are organised by an individual in their second year as Chair-Elect and then in their first year as Chair. The Executive believes that these changes will help strengthen COMP and asks you to approve them in London.

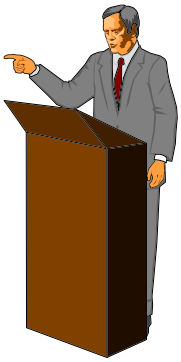
Starting this year the annual Directory will be produced in the summer after the conference, rather than in the spring. This will enable inclusion of all members joining just before the conference, and all new CCPM Members and Fellows to be so designated. For most of its 12 month life the Directory will be more up to date than it is now.

Our discussions with other health care societies (CAR, CAMRT, CDSMS, CARO, CANM) on forming a coalition continue to move forward. We are now in the process of registering CRISM - the Canadian Radiation and Imaging Societies in Medicine - as an official organisation under the Industry Canada regulations. Its aims are to promote common objectives with government policy makers and the public, and to promote communications between our organisations. In some spheres our organisations compete with each other, but in other spheres there is much to be gained by working together. The first meeting on official footing of representatives to this umbrella organisation will take place in 1998.

I look forward to seeing you in London.

Paul Johns

President's Report



This report will be very short and to the point. Having spent a large chunk of the last month trying to meet abstract deadlines for COMP and the AAPM, the tasks that I actually get paid for are piling up on my desk demanding attention.

First of all, thanks to all of you who participated in the CCPM-CAMRT survey on the certification of dosimetrists. 1500 forms were sent out and 600 returned which isn't bad. The responses are currently being analysed so hopefully we'll have a good idea of how the main professions involved in radiation therapy feel on this issue fairly shortly. The analysis will be distributed as soon as it's available. I am sure you can tell both from my comments in this column and the effort I have devoted to the issue of dosimetrists' certification that I would like to see this initiative succeed. The medical physics community as a whole should, I believe, be looking for opportunities of working with related organisations, such as the CAMRT. By pooling our resources and expertise we are more likely to advance the applications of radiation in medicine to the advantage of patients in particular and society as a whole. My guess is that the responses to the survey will not yield a clear cut opinion on many of the key issues involved with this joint initiative. We can probably look forward to a lively discussion at our AGM in London. Anyway, I'll keep you posted.

As I mentioned in my last column the ABR is changing at least the mechanics of its certification process for physicists. I have been corresponding with Geoff Ibbott on this issue so I understand a little more about how things work in the States than I used to. It seems at this time that our best approach is to establish a closer and more formal relationship with the AAPM and its appropriate committees. The AAPM sponsors the ABR and we don't so that's why this route appears to make sense. Hopefully, we can initiate discussion in San Antonio this year with the aim of safeguarding recognition by the AAPM of Canadian certification.

Finally, I have been concerned for some time that in these days of documentation, that the College could be perceived as being deficient in this regard. I've raised the issue several times at the Board but much to my surprise nobody volunteered to lead the way in rectifying the situation. I've typed up about twenty policies and procedures so far and these are going out to the Board for review so we finally have made a start. My intention is to have a complete draft by June for the Board to consider. If we succeed in meeting that deadline I estimate it will take another year to review, amend and finalise. However, this is a task we must undertake.

It was nice talking to you. See you in June.

Peter Dunscombe

PROPOSED BYLAWS CHANGES

Paul Johns
COMP Chair

Proposed Bylaw Change # 1: Article IV.B.7
Change of date of when the Treasurer takes office

Current wording:

The executive thus elected will take office at the conclusion of annual general meeting.

Proposed wording:

The Executive thus elected, with the exception of the Treasurer, will take office at the conclusion of the Annual General Meeting. The Treasurer will take office on the first day of the next financial year (see Article VIII.B).

Discussion:

The current practice of handing over the responsibility of Treasurer at the annual meeting is awkward. This is the busiest time of the year and does not match the financial year, which is the calendar year. (This is specified in Article VIII.B). By the end of the calendar year the financial activity from the annual conference is largely settled, thus simplifying matters for the new Treasurer. Under the existing Bylaw, the term of office of the current Treasurer ends at the 1999 Annual General Meeting. If this Bylaw change is accepted, Michael Evans has stated that he would be willing to extend his term until the end of the financial year on December 31, 1999. The person elected at the 1999 AGM would then take office for a term of 3 financial years, ending December 31, 2002.

Proposed Bylaw Change # 2: Article IV.C Paragraph 1 and Paragraph 2
Change of who is responsible to be conference chairperson

Current wording:

The Chairperson shall be the chief executive officer of the COMP and shall preside at the annual general meeting and at the executive meeting. (S)He shall chair the Scientific Program Committee for that year.

The chairperson-elect shall, in absence or disability of the chairperson, perform the duties and exercise the powers of the chairperson and shall perform such other duties as shall from time to time be imposed upon him (her) by the executive. (S)He is a member of the Scientific Program Committee.

Proposed wording:

The Chairperson shall be the chief executive officer of the COMP and shall preside at the Annual General Meeting and at meetings of the Executive. (S)He shall chair the Conference Organizing Committee and the Scientific Program Committee during the first year in office as Chairperson.

The Chairperson-Elect shall, in absence or disability of the Chairperson, perform the duties and exercise the powers of the Chairperson and shall perform such other duties as shall from time to time be imposed upon him (her) by the Executive. (S)He shall chair the Conference Organizing Committee and the Scientific Program Committee during the second year in office as Chairperson-Elect.

Discussion:

A few years ago the terms of office of Chair-Elect, Chair, and Past-Chair were each one year, and responsibility for the conference rested with the Chair-Elect. The growing size and complexity of the annual conference made it difficult for the Chair-Elect to carry out this responsibility since the necessary lead time was greater than their one year term of office. Therefore, at the 1994 AGM the members were asked to approve a Bylaw revision to shift responsibility to the Chair. Subsequently in 1996 the terms of office of Chair-Elect, Chair, and Past-Chair were doubled to two years. Thus each person passing through these offices now organizes two conferences, in the 3rd and 4th years of the 6 years they spend in the pipe. Responsibility for the conference requires many hours and impedes the Chair's ability to lead COMP in other respects. The proposed change moves the two years of conference responsibility back by one year to the 2nd and 3rd years of the 6 years. This permits the Chair-Elect to spend their 1st year learning the ropes, and then to take responsibility in their 2nd year for that year's conference, capitalizing on the experience gained as Chair-Elect. In their 3rd year, which is the first half of their time as Chair, they organize their second conference. In their 4th year, the second half of their time as Chair, they are able to focus more of their attention on issues other than the conference.

Proposed Bylaw Change # 3: Article IV.B.1 Clarification regarding re-election of a member who served as Chair-Elect, Chair, or Past-Chair

Current wording:

The officers of chairperson-elect, chairperson and past-chairperson shall be held consecutively by one member. After serving two years in each of these offices in turn, a member shall not be eligible for re-election to any of the executive positions for a period of two years.

Proposed wording:

The offices of Chairperson-elect, Chairperson and Past-Chairperson shall be held consecutively by one member. After serving two years in each of these offices in turn, a member shall not be eligible for re-election to any of these three Executive positions for a period of two years.

Discussion:

This proposed change is to clarify the wording with respect to re-election of an individual who has completed the passage through the three offices of Chair-Elect, Chair, and Past-Chair. Re-election to the Chair-Elect/Chair/Past-Chair stream (a most hypothetical situation), could not take place before two years. However, the person could be elected immediately to another position on the Executive. This is symmetric with respect to the other positions on the Executive, as given in the item below.

Proposed Bylaw Change # 4: Article IV.B.2 Clarification regarding re-election of Councillor for Professional Affairs

Current wording:

The secretary, treasurer, and the Councillor (for the Newsletter) shall hold office for three years. The election of these three officers shall normally be held in successive years. After a full three-year term, a member shall not be eligible for re-election to the same office for two years. The Councillor (for Professional Affairs) shall hold office for four years.

Proposed wording:

The Secretary, Treasurer, and the Councillor (for the Newsletter) shall hold office for three years. The election of these three officers shall normally be held in successive years. The Councillor (for Professional Affairs) shall hold office for four years. After a full term in any of these positions, a member shall not be eligible for re-election to the same office for two years.

Discussion:

This proposed change is to clarify the wording with respect to the re-election of an individual who has served as Councillor for Professional Affairs. The limitations are the same as for Secretary, Treasurer, and Councillor (for the Newsletter), and also the same as for Chair-Elect, Chair, Past-Chair.

NCIC Harold E. Johns Award

Peter Munro

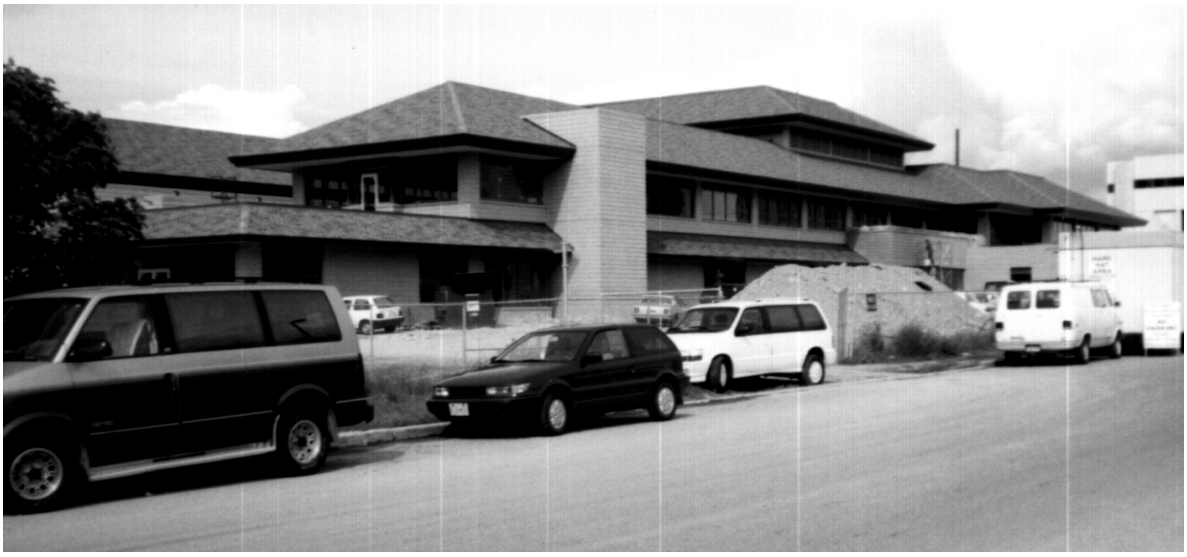
While I was reading the Canadian Cancer Society's annual report, I noticed an award called the Harold E. Johns Award. I received the following information about the award from the National Cancer Institute of Canada.

> **This award is given annually to honour the investigator selected by the Institute (through the peer review process) as the most outstanding applicant for a Canadian Cancer Society Research Scientist Award. Research Scientist Awards are given to investigators in the early stages of their independent career in cancer research. The Award is made possible through funds from the Canadian Cancer Society, in that the Award is a named award and no extra funds (over the amount awarded for the Research Scientist Award) are given.**
>
> **The Award was created in the name of Harold Johns, a long-time cancer researcher supported by the NCIC. Dr. Johns developed the Cobalt Unit in the early 1950's, which rapidly became the most effective form of radiation therapy for treating human tumours. Cobalt radiotherapy is still widely used as a cancer treatment throughout the world.**
>
> **Inaugurated in June 1996, two awards have been made to the following people:**
>
> **Dr. David Kaplan, Montreal Neurological Institute – Brain Tumour Research Centre (1996)**
>
> **Dr. David Malkin, Hospital for Sick Children (1997)**

While it is gratifying to see Harold Johns recognised, it is surprising that the medical physics community seems to be unaware of the award. If anyone knows more about how the award was initiated, I would be happy to publish this information.

Commissioning the Cancer Centre for the Southern Interior

Darcy Mason, Cancer Centre for the Southern Interior



Early photo of the Cancer Centre for the Southern Interior taken in the summer of 1997. The building has two floors, with the linacs in the centre of the ground floor, surrounded by the radiotherapy department and patient clinics. The second floor contains chemotherapy, medical records, and staff offices.

Commissioning new equipment is part of what radiation therapy physicists do - and it can be a challenging, interesting, fast-paced part of the job. Commissioning a whole new centre is a rare opportunity that doesn't come along often, and the excitement is multiplied many times over.

The Cancer Centre for the Southern Interior (CCSI) will open its doors for patients on April 6, 1998. Getting to the point of opening has been some time in the making. Alistair Baillie, the Professional Practice Leader for Physics, started working for CCSI out of Vancouver in July 1997. From mid-September to early November, the other 4 physicists (Rasika Rajapakshe, Cynthia Araujo, Darcy Mason, Patrick Rapley) joined in, and began the process of commissioning the equipment arriving in stages through the fall and early 1998.

Physics staff at the first Physicists meeting. From left to right: Rasika Rajapakshe, Alistair Baillie, Cynthia Araujo, Darcy Mason. Patrick Rapley had not yet started.

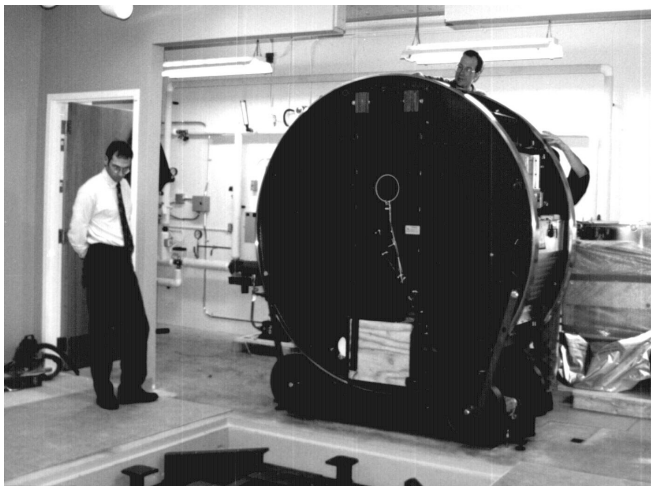
CCSI is located in the Okanagan valley in the interior of British Columbia, in the city of Kelowna. The Okanagan is known for its sunny, dry weather, fruit growing, wineries, and winter skiing. The centre is located next to Kelowna General Hospital, one block from Lake Okanagan. Kelowna has a population of about 100,000 but the "southern interior" catchment area served is much larger (see map). The projected caseload is 2800 new patients per year by 2006.

CCSI's radiation therapy equipment is listed in the text box at then end of the article. The major equipment is 4 Elekta linacs, with the possibility of expanding to a fifth vault in the future. The plan was to have 3 linacs available at startup, with the second SL20 to be commissioned after April; we are on target to achieve these goals. As of this writing (late February), the second SL20 will be accepted in the next couple of weeks; other than a few odd items, the data is ready for all the other machines.

The treatment planning system, which will eventually be installed throughout BC, is the CADPLAN system. For a variety of reasons, the selection process and delivery were delayed, and thus installation of the CADPLAN system in CCSI is now scheduled for mid March. We certainly expect to be very busy during our "last month" commissioning the treatment planning system, along with all the other business that needs to be done.

Other than the late treatment planning system, the only other major problem has been the lack of a nationally calibrated ion chamber, because of two shipments of faulty ion chambers. This seems to have finally been resolved, and we should have our local standard soon.

Looking back on the experience of starting up this centre, it is amazing how things have changed. When I started, there was a staff of 6 all working out of one room while building construction was still finishing. By early November, when we moved in to our final offices, Physics comprised almost half of the staff on site. Now, many of the Radiation Oncologists, Dosimetrists, and Therapists have just arrived or are soon arriving. The work of Physics is shifting from a single focus on data collection to things such as data presentation, QA, training, and treatment technique preparation. In some ways it is sad to leave the "simpler" days behind, but it is also satisfying to stand ready for the ultimate point of it all - treating the patients.



Physicist Patrick Rapley inspecting the installation of the second SL20 linac.

CCSI Quick Facts:

Opening:	April 6, 1998.
Size:	75000 sq ft on two levels
Capacity	2800 new patients/year (by 2006)
Constr. Cost:	$16 million
Staff:	145 (at capacity)
Operating budget	$14-15 million

CCSI Major Equipment

- 2 x SL20 (6 MV, 18 MV, electrons)
- SL75/5 4 MV
- SL75/5 6 MV
- SLS simulator
- CT-Sim (future)
- Selectron (future)

Electronic Portal imaging will be available on all 4 linacs; MLC on the two SL20's

HONOURING HAROLD ELFORD JOHNS

J. R. Cunningham
960 Teron Rd., Apt. 910, Kanata, Ont., K2K 2B6
Canada

Given as acceptance of the IUPESM Award of Merit, World Congress on Medical Physics and Biomedical Engineering, Nice, France, September 13, 1997.

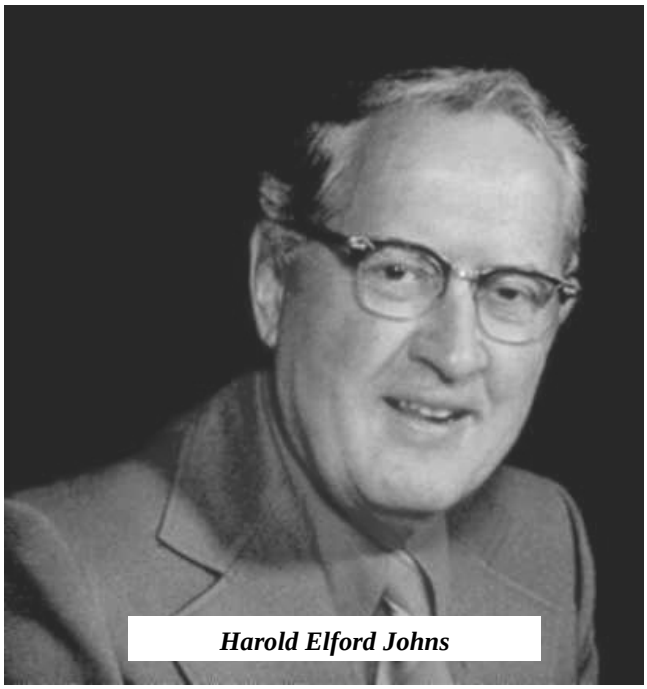
Mr. President, Members of the Organizing Committees and Ladies and Gentlemen: I was notified about two weeks ago that I had been chosen as the recipient of the IUPESM Award. Of course I was delighted by the news and I accepted gladly. I consider that it does not in the least diminish the award to be told that John Laughlin had been chosen first. The rules stipulate that the Awardee should be present and give a speech. Unhappily, John, for medical reasons, was not able to attend, and he requested that the next in line should be chosen. I can assure you that I am very honoured to be chosen second to John Laughlin.

The Awardee is given rather free reign in the subject matter of his speech and it is usual to spend some time reminiscing and to tell the story of his major scientific contribution to his field. It is not easy, on short notice, to talk in an interesting way about oneself, so I am going to talk about someone else: my mentor, my colleague and my friend, Harold Johns. Without him I would not be standing here accepting this award.

Harold Elford Johns was born of Canadian Missionary parents in 1915 in the city of Chengdu, West China. His father was a mathematics teacher at a medical college operated by a Church group in Canada. Harold was the second of four boys in the family and was 10 years old when they all left a China, torn by military and social unrest, to return to the Canada that the children had never seen. He remembers the journey down the Yangtse River, through the gorges, some of the most spectacular scenery in the world - the boat being steadied in the water by men pulling ropes and walking along paths on the river bank.

Harold Batho

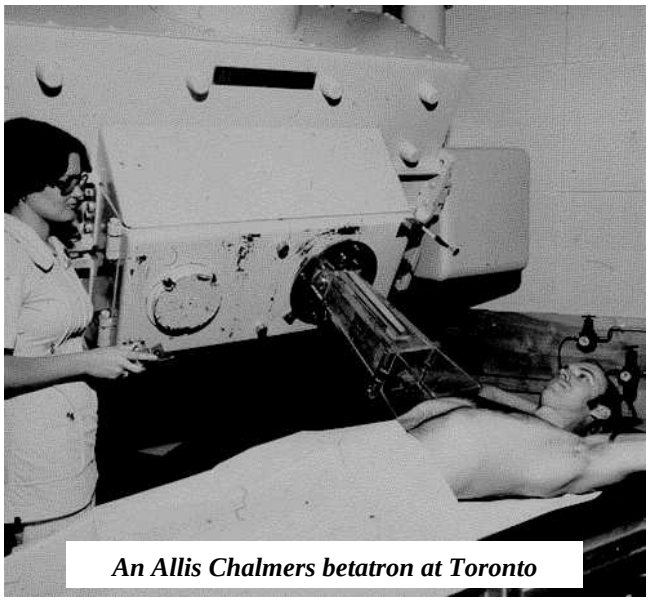
Their home in Canada was Hamilton, Ontario, which is Canada's "Steel City". Both Harold and his older brother Martin studied Physics at McMaster University in Hamilton. Harold finished his Ph.D. at the University of Toronto in 1939. Another student receiving his Ph.D. at that institution, was Harold Batho, another early Canadian medical physicist who contributed much to this profession. Dr. Batho is well known for his many contributions to dose calculations for brachytherapy and for the "Batho Power Law" which is used for making allowance for inhomogeneities in dose calculations for external radiation beams. Dr. Johns' thesis at Toronto dealt with aspects of the problem of predicting eclipses.



Harold Elford Johns

Dr. Johns' had won a scholarship to study at Cambridge University but the war intervened and his first university appointment was at the University of Alberta in Edmonton, teaching the physics of electromagnetic radiation, particularly radio waves as applied to RADAR, to airmen. His Medical Physics career began in 1945 when he was offered the post of physicist to the Saskatchewan Cancer Commission and the University of Saskatchewan at Saskatoon. This was a rather new kind of physics appointment, and when Dr. Johns asked what his duties would be, Allan Blair, Director of Cancer Services for the Province of Saskatchewan, replied with honesty, "I don't know Johns, you must tell me". As part of the process of finding out, in May 1946 he was awarded a traveling scholarship to visit leading centers of radiation physics in North America. As a result of this trip, at least three distinctly different and truly important projects were started; his textbook, cobalt teletherapy and the use of high energy accelerators for radiation therapy.

W.V. Mayneord, from the Royal Marsden Hospital near London, was in Canada as part of a program involving Great Britain, the United States and Canada to investigate and develop nuclear weapons. In the summer of 1946



An Allis Chalmers betatron at Toronto

Mayneord was lecturing in North America and in August was in Toronto where Harold Johns attended his lectures. Most of the students were from the medical profession and Harold, as an already senior physicist, was designated to prepare notes for the group. The notes that he took from these lectures provided much of the material and much of the impetus for his textbook, first called The Physical Basis of Radiotherapy, later to be named The Physics of Radiology. As part of the second project he had numerous discussions, with Mayneord and others, about the possibility of using radioactive cobalt as a source of radiation for the treatment of cancer. The third project involved the use of a 24 MeV Allis-Chalmers betatron, purchased, by the University and the Government of Saskatchewan, for physics research and treatment of cancer.

Honours

LL.D	**University of Saskatchewan**	**1959**
D.Sc.	**McMaster University, Hamilton**	**1970**
D.Sc.	**Carleton University, Ottawa**	**1976**
D.Sc.	**Univ. Western Ontario, London**	**1978**
D.Sc.	**University of Toronto**	**1994**

The use of the betatron was the first of these projects to actually get underway. The betatron was purchased in the summer of 1948 from Allis-Chalmers, a farm equipment manufacturer in Milwaukee, WI. Patient therapy with this machine started in the spring of 1949. The physician associated with this project was Dr. T.A. (Sandy) Watson, a New Zealander, who had also been in China. My own first association with Harold Johns was on this project. It was my Masters task to extract the electron beam from the betatron and perform range-energy determinations for electrons. Interestingly, this was also my first interaction with John Laughlin, as I used techniques and equipment developed by him, then at Urbana, Illinois. I did not meet Dr. Laughlin at that time however. The betatron shown in the picture is a later installation at Toronto under Dr. Johns.

The story of the start of cobalt therapy is complicated and interesting. It is not clear who actually originated the idea, but in 1950 the Physics team of the Eldorado Mining and Refining company, which operated the nuclear reactor called NRX at Chalk River Ontario, and which had the highest neutron flux available in the world, received three requests for irradiation of cobalt to produce sources for radiotherapy. One of these requests came from Harold Johns and Sandy Watson in Saskatoon. Another came from the company itself and the third came from a project proposed jointly by The Oak Ridge Institute for Nuclear Studies, the M.D. Anderson Hospital in Houston and the General Electric Company. The Saskatoon source was removed from the reactor and delivered on July 30, 1951 and the second source was delivered to London, Ontario on the 16th of October of that same year. The third source was delayed by the sudden death of the designer, Dr. L.G. Grimmett, of the machine for the M.D. Anderson Hospital in Houston and was not delivered until July of the next year.

It is typical of Johns' methods that the Saskatoon cobalt unit was used for almost three months for measurements of its radiation characteristics, before either he or T.A. Watson, the clinician in charge, would consent to its use on patients. The first patient was treated on November 8, 1951, by T.A. Watson and was still alive and well in 1985, 34 years later. Moreover, much of the data produced from those measurements, made by Johns and his group in 1951 are still in use in 1997. In the photo on the following page, he is shown beside the cobalt unit designed in Saskatoon. This particular machine however was in the clinic of the Ontario Cancer Institute in Toronto. It was made by the Picker X-Ray company and was in use from 1958 until 1990.

In 1957 Johns moved to Toronto to head the physics department of the Ontario Cancer Institute. Later he also became head of the Department of Medical Biophysics of

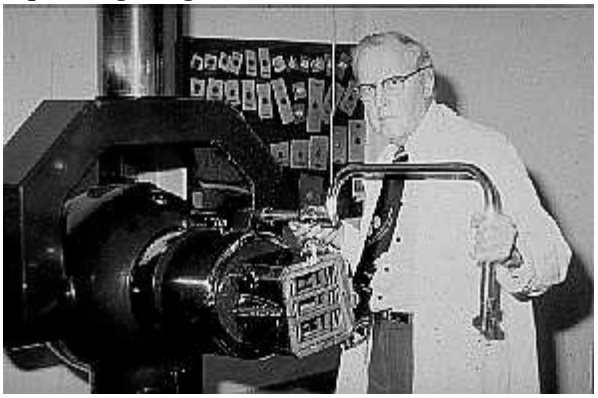
Event	Saskatoon Saskatchewan	London Ontario	Houston Texas
Source delivered	**30 July 1951**	**16 October 1951**	**July 1952**
Source installed	**17 August 1951**	**23 October 1951**	**September 1953**
First patient treated	**8 November 1951**	**27 October 1951**	**22 February 1954**

Awards	
◆ Fellow of the Royal Society of Canada	1951
◆ Saskatoon, Saskatchewan. Citizen of the Year	1952
◆ Roentgen Award, British Institute of Radiology	1953
◆ Canadian Centennial Award	1967
◆ Gairdner International Award	1973
◆ Sylvanus Thompson Lecturer, British Inst. Radiology	1975
◆ Coolidge Award, American Assoc. Phys. Med.	1976
◆ Officer of the Order of Canada	1977
◆ Gold Medalist, American College of Radiology	1980

the University of Toronto. He remained in these positions until his retirement in 1980. He trained many eminent medical physicists both at Saskatoon and at Toronto and made important contributions to the improvement of treatment units, radiation measuring equipment, radiobiology, and radiological imaging physics.

Dr. Johns received numerous honours during his career, only a very few of which are shown. These are all honorary degrees from first rank Canadian Universities. He also received many awards during his career and a few of them are shown in the tables along with the year in which he received them. I would like to read from the citation from the LL.D. from the University of Saskatchewan of 1959:

> **"From 1945 to 1946, when he was here a Professor of Physics and Physicist to the Saskatchewan Cancer Commission, he was sometimes a stimulant, sometimes an irritant to his colleagues and students alike, but always a force causing them to rise to higher levels of achievement. Possessed of exceptional talents for devising scientific experiments and equipment, blessed with a confidence that financial support can always be found for worthwhile projects; demonstrating that every action, be it a curling game or a complicated physics experiment, should be pursued with vigour and enthusiasm, he sparked many an enterprise that might never have got beyond the planning stage. One of the first was our betatron laboratory for nuclear research and cancer treatment; another was the development of the first unit for the treatment of cancer cases with radioactive cobalt. Undoubtedly, his successes and those of his colleagues were responsible for the Saskatchewan Cancer Society building a Cancer Research Laboratory on our Campus – the first of its kind in Canada."**



Dr Johns and one of the cobalt units he designed

Harold Johns was a prolific worker who influenced many students, indeed many of those who worked under him, both at the University of Saskatchewan and at the Ontario Cancer Institute, went on to make important contributions of their own in the field of medical physics.

It was a pleasure and an honour to be associated with him. I fully recognise and acknowledge the part he played for the award that has been presented to me today.

Litchenberg Figures at the LRCC

Peter Munro

For those who have access to the journal, take a look at the cover of the Feb. 1st 1998 issue of the Int. J. Radiat. Oncol. Biol. Phys. (Vol. 40, Issue 3). On the cover is a photograph of a Litchenberg Figure; the discharge pattern formed in a plastic insulator after irradiation to a high dose with a high-intensity electron beam. The charge deposited by the electron beam generates an electric field that is sufficiently strong that it can mechanically disrupt the plastic. The Litchenberg Figure shown on the cover of the journal was created by Randy McVittie, an electronics technologist at the London Regional Cancer Center, during the decommissioning of our Therac-25 linear accelerator. The photograph was taken by Glenn Bauman, a radiation oncologist at the centre. The "owner" of the piece of plastic is Jake Van Dyk. Pieces of plastic were placed at the rear exit port of the Therac-25 accelerator, near the 180^0 bending magnet, and irradiated using the small ~2 mm diam, 13 MeV, electron beam generated by the first pass through the accelerator section. The electron beam was scattered using a 3 mm thick aluminum plate and the objects being irradiated were placed about 30 cm from the exit port. The objects were irradiated for 7-8 minutes and the total charge deposited into the plastic was estimated to be 4×10^{-3} C. The photograph, which was acquired using a long exposure under low illumination, shows the light emitted during the electrical discharge process. A metal rod is being hammered into the piece of plastic, initiating the discharge process, which generates the distinctive light pattern. [Care had to be taken to wear thick rubber gloves, so that the person doing the hammering did not become part of the electrical discharge path.] This photo is the only one that I know of that actually records the light generated by the electrical discharge process. Despite the recent appearance of a Litchenberg Figure on the cover of the Int. J. Radiat. Oncol. Biol. Phys., medical physicists have known about this phenomenon for a lengthy period. The earliest reference in the literature that we could find is R.L. Tanner and A.G. Fingerhut "Electron beam produced Letchenberg Figures" J. Tenn.Acad. Sci. **40:** (3) 110-112 (1965).

While Litchenberg Figures are a very visual and attractive result of charge build-up in plastics, charge build-up in plastics also has a practical aspect for radiation therapy. As Duncan Galbraith, and Alan Rawlinson have shown, charge build-up in plastics can influence the dose measured inside the plastic [see Galbraith, et.al., Dose errors due to charge storage in electron irradiated plastic phantoms. Med Phys. **11(2):** 197-203 (1984) and Rawlinson et.al., Theoretical and experimental investigation of dose enhancement due to charge storage in electron-irradiated phantoms. Med Phys. **11(6):** 814-821 (1984)].

As shown by its appearance on the cover of the Int. J. Radiat. Oncol. Biol. Phys., charge build-up in plastic phantoms continues to be an important phenomenon for medical physicists.

Expansion of the Radiation Therapy Facilities at the London Regional Cancer Centre

Kevin Jordan and Peter Munro, London Regional Cancer Centre

During the last three years LRCC's staff has been devoting it's efforts to the improvement of radiation therapy services. When completed, this expansion and renovation of existing facilities will result in 3 new treatment bunkers and 5 new accelerators, for a total of 7 dual energy accelerators, one single energy accelerator, and one Cobalt-60 machine in our centre. This project had been anticipated even while the centre was under construction on the Westminster campus of the London Health Sciences Centre (formerly Victoria Hospital) in the late 1980's. By late 1993 the patient load for radiotherapy was exceeding the capacity that could be handled by a single treatment shift. Longer treatment hours resulted from the continuing increase the number of patients being referred for treatment. By June 1995 the expansion plan was awaiting formal approval from the Ontario Ministry of Health when the NDP government held and lost an election. The new Conservative government instituted a one year moratorium on capital expenditures, which included the LRCC expansion.

During this waiting period, the initial plan of a 1-1/2 story expansion of radiotherapy capacity evolved into a 4 story expansion including additional medical oncology and research facilities. The increase in the scope of the expansion was due to changes in long term plans within the Ministry of Health. The project was later modified to include an additional 3 stories for future research facilities by the host hospital, resulting in the final 7 story structure.

The radiation therapy expansion includes 3 new bunkers, which have several unusual features. The general layout of the bunkers is visible in the photograph taken during the early construction period. The most unusual feature is that the bunkers are doorless. Doorless bunkers are not common in North America especially for high-energy accelerators, because of the need for neutron shielding. Our maze walls have been designed with a chicane shape and the appropriate use of neutron absorbing materials, so that the maze will offer a high degree of shielding without becoming too large. In addition, a sophisticated entry system has been developed to prevent accidental entry when the beam is on [see D.J. Dawson, W.W.F.M. Wissing, and R.E. Tonks "A doorless entry system for high-energy radiation therapy rooms" Med. Phys. **25**(2): 199-201 (1998)]. Measurements show that our bunkers can safely house the high energy (18 MV) accelerators that have been installed. The other unusual feature of our new bunkers is the construction of a false wall in front of the stand that supports the gantry. This creates a sizeable space at the back of the treatment room for physics and engineering equipment. While such a wall is a standard feature in some accelerator installations (see the photograph of Patrick Rapley in the article on the Cancer Centre for the Southern Interior), it is quite unusual for Varian accelerator installations.

Varian was chosen as the sole supplier of our new accel-

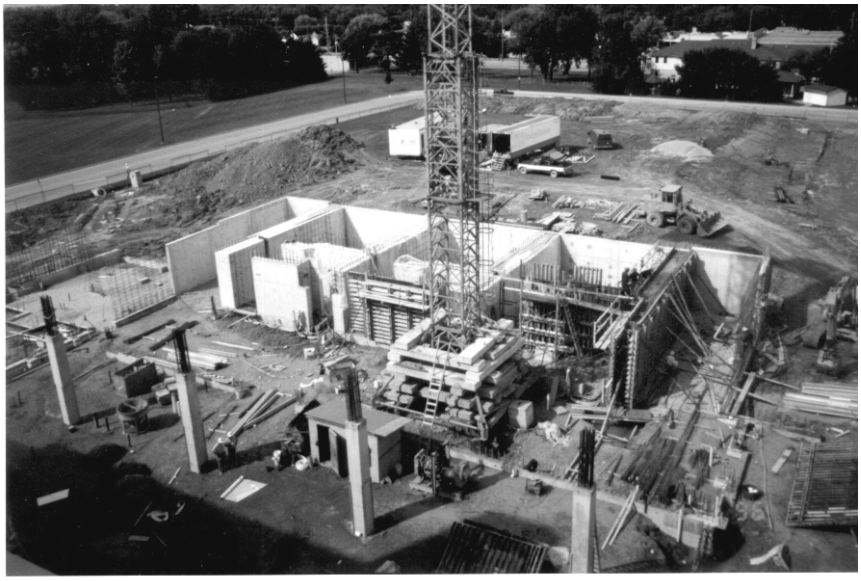
Renovation highlights

Therac 25 decommissioned, patient load routed to Toronto Sunnybrook	Apr. 1996
Simulator replacement and upgrade	May-Sept. 1996
Installation and commissioning of Varian 2100 C/D (6,10MV,e^-'s) – the Therac 25's replacement	May-Sept. 1996
starts clinical treatments with doorless bunker	Jan. 1997
Two existing Varian 2100C (6,18MV,e^-'s) upgraded to 2100C/D's	May-Aug. 1997
2100C/D (4,10MV,e^-'s) replacement for Therac 6	Nov. 98

Expansion highlights;

Groundbreaking of expansion site	Sept. 96
Delivery of three 2100CD(6,18MV, two MLC's)	Sept. 97
First 2100CD starts clinical treatment	Mar. 98
Near Future	
Two 2100CD's (with MLC) start clinical treatment	Apr. 98
CT simulator (Picker PQ5000, Acqsim) starts clinical use	Sept. 98


1'28'98



erators and simulators. This choice allowed us to reduce the number of individual beams required for commissioning. For example, all 6 MV beam characteristics and accessories are identical. This simplifies planning, dosimetry, scheduling, transfers, QA, maintenance, parts inventories and redundancy for emergencies. Included in the expansion has been the replacement of one simulator, the extensive upgrade of an existing simulator, and the purchase of a CT simulator. A Picker Acqsim CT simulator using a Model PQ5000 CT scanner has recently been selected for our centre. Installation of the CT simulator is expected to be complete by September, 1998.

The entire project consisted of an expansion and a renovation of existing facilities. Some of the milestones in these activities have been outlined in the accompanying tables. It should also be mentioned that the expansion could not have taken place so quickly without the dedication of the staff. The amount of effort required to install 5 new accelerators, while maintaining existing clinical service is daunting. Often 18 hour days, for weeks at a time, were required from some of the physics staff, so that the project would not fall behind schedule. In addition, the LRCC owes a huge debt of gratitude to the Toronto Sunnybrook Regional Cancer Centre. For over two years, Toronto was treating ~40 London patients per day, while the replacements and upgrades to our existing accelerators occurred. Without this assistance, the radiation services offered by the LRCC would have been extremely restricted.

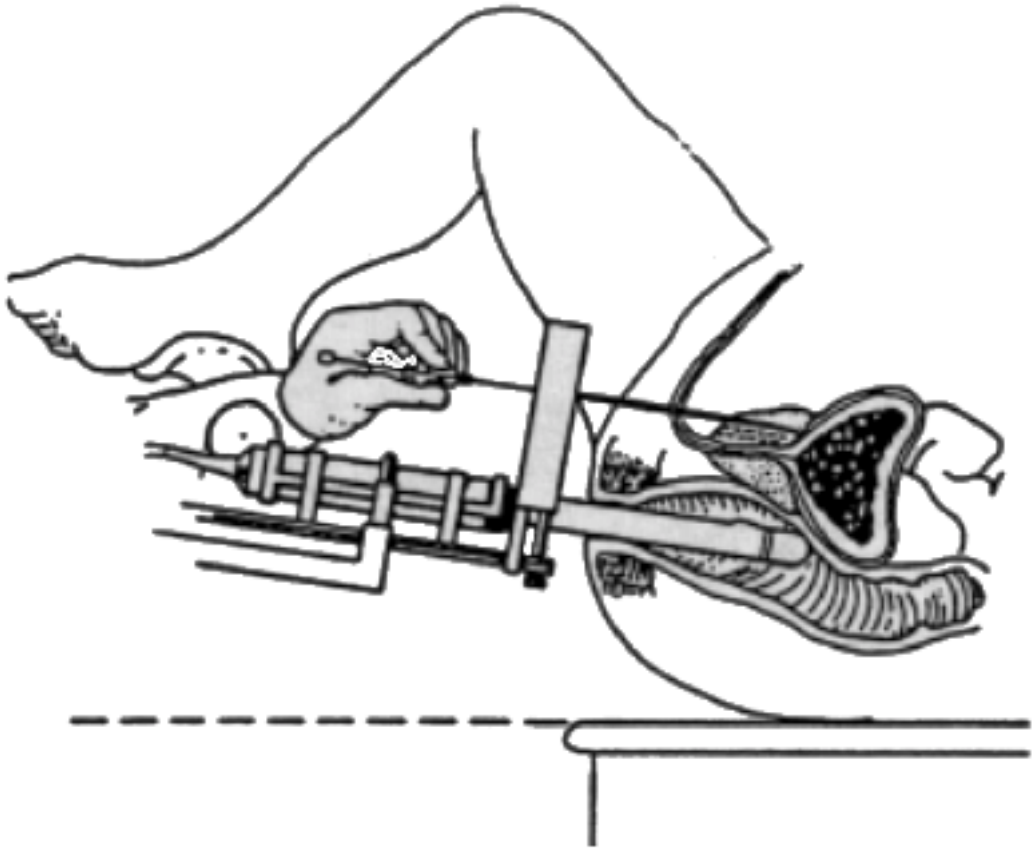
The accompanying photographs show some of the steps in the expansion process. Upper left photo shows a pre-expansion view of the north side of the building, while the upper right shows the building after the expansion has been (mostly) completed. The lower left photo shows the layout of the new bunkers, viewed from the roof of the LRCC, early in the construction process. The lower right photo shows the atrium built above the control areas of the new treatment machines. The aim was to create a bright cheery atmosphere for the patients and we think that this goal has been reached.

Those COMP members who attend the COMP Annual Meeting in London this year will have an opportunity to visit these facilities. We hope that COMP visitors will be as impressed with these new facilities as we are.

TSRCC Starts New Program of Ultrasound Guided Prostate Implants

William Que, Ph.D., Toronto Sunnybrook Regional Cancer Centre

With the help of a private donation, the new year marked the start of a new ultrasound guided prostate permanent implant program at Toronto Sunnybrook Regional Cancer Centre. The first implant was performed without a glitch on January 20, 1998.



This minimally invasive procedure is offered to prostate cancer patients with a small prostate volume (<50 c.c), stage T1c or T2a disease, PSA< 10 and a Gleason Score of ≤6. Using needles loaded with I-125 seeds, radiation sources are inserted into the prostate under the guidance of ultrasound imaging. This outpatient procedure is performed under spinal anaesthesia and takes about one hour.

The flow chart of this program has the following steps: (1) An ultrasound volume study of the prostate is performed with the patient in the same position as during the procedure of inserting needles. The prostate volume is outlined by a physician and the total volume calculated. Transverse images of every 0.5 cm are printed on hard copy as well as recorded on video tape. (2) If the volume is small enough, the patient is scanned on a Picker CT scanner, and the images are transferred to a Voxel_Q station, where virtual simulation is performed to view the prostate relative to the pubic arch. This step is to make sure that needle access to the prostate will not be interfered by the pubic arch. (3) Ultrasound images are transferred to our MMS planning system via video capture. A pre-op treatment plan is generated. (4) Ultrasound guided implant is performed using pre-loaded needles. Fluoro x-ray is used during the procedure to help visualise the needles and seeds. Cystocopy is performed after implant to find seeds in the bladder and if found, they are flushed out. (5) One week after the implant, the patient is CT scanned. The CT images are used to generate a post-op verification plan for evaluation.

I plan to give a talk at the upcoming COMP conference in June on the physics aspects concerning this program. In the meantime, if your centre is starting up a similar program, feel free to contact me if you need any help.

1998 CAP Congress

The University of Waterloo is pleased to host
the 53rd Annual Congress of the Canadian Association of Physicists
from June 14-17, 1998
in Waterloo, Ontario.

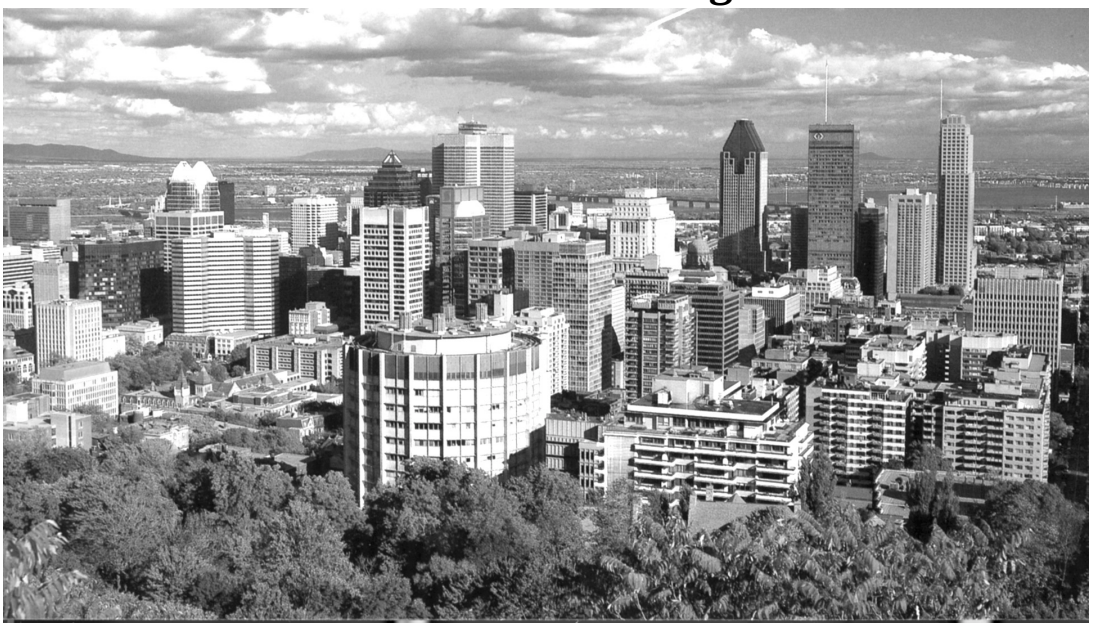
- Sunday Keynote speaker is 1997 Nobel Prize winner Dr Stephen Chu.
- Advanced registration deadline is 1 May 1998.
- The Congress Program and other information can be found on the CAP website (http.//www.cap.ca) and in the January/February 1998 issue of "Physics in Canada".

1998 CongrΠs annuel de l'ACP

l'Universitϑ de Waterloo vous invite de participer
au 53iΠme congrΠs annuel de
l'Association canadienne des physiciens et physciennes
du 14 au 17 juin 1998
B Waterloo, Ontario.

- Dimanche le conferencier spϑcial sera Dr Stephen Chu, rϑcipiendaire du prix Nobel 1997.
- La date limite d'inscription pour ceux qui s'inscrivent en avance est le 1er mai 1998.
- Le programme du congrΠs ainsi que tout autre renseignement concernant le congrΠs se trouvent sur le site web de l'ACP B http://www.cap.ca/events. L'appel de rϑsumϑs a ϑtϑ publiϑ dans le numϑro janvier/fϑvrier 1998 de La Physique au Canada.

2002 AAPM Annual Meeting: Montrϑal



During its December 1997 meeting, the Board of the American Association of Physicists in Medicine (AAPM) accepted Montreal's bid to host the AAPM summer meeting in the year 2002. The meeting will be held from July 14-18, 2002 in the Montreal Convention Centre.

New Members ...

The following are members who newly joined COMP during Jan.-Mar. 1998:

Vladimir Varchena (Ph.D. - 1980 - Physics) Toronto, ON.

Dr. Claude Nahmias, Professor, Radiology, Hamilton Health Sciences Corporation, McMaster University, Hamilton, ON

Dr. Lindi Wahl, Assistant Professor, Radiology, Hamilton Health Sciences Corporation, McMaster University, Hamiton, ON

William Parker, M.Sc., Clinical Physicist Montreal General Hospital – McGill, Montreal, P.Q.

Jeff Chen, (Ph.D. 1988 - Atomic Physics) Medical Physicist, London Regional Cancer Centre, London, ON

Shidong Tong, (Ph.D. 1997 - Medical Imaging) Medical Physicist, Princess Margaret Hospital, Toronto, ON

Chur-Bun Kwok, Ph.D. Manitoba CTRF, Winnipeg, Manitoba

Simon Graham, P.Eng., (Ph.D. 1995 - MRI) Post-Doctoral Fellow, Sunnybrook Health Science Centre, Toronto, ON

Dr. Belal A. Moftah (Ph.D. 1996 -- Nuclear Physics) General Hospital Montreal, Montreal P.Q.

Ms. Julia Wallace (Ph.D. - 1996 - MRI/MRS) Post-Doctoral Fellow, Carleton University, Ottawa, ON

Dr. Michael B. Sharpe (Ph.D. 1997 -- Medical Biophysics) Medical Physicist, William Beaumont Hospital, Royal Oak, MI

Student to Full Membership:

Dr. Christopher L. Gordon, University of California, San Francisco, CA
Dr. Mark Gertner, Princess Margaret Hospital, Toronto, ON
Dr. Shidong Tong, Princess Margaret Hospital, Toronto, ON
Dr. Ruth Wilkins, Radiation Protection Bureau, Ottawa, ON
Dr. David Wilkins, Ottawa Regional Cancer Centre, Ottawa, ON
Dr. Larry Gates, Dalhousie University, Halifax , NS
Mr. Kenneth C. Chu, London Regional Cancer Centre, London, ON
Mr. Dimitre H. Hristov, Hotel Dieu de Montreal, Montreal, PQ
Mr. Parminder Basran, Cross Cancer Institute, Edmonton, AB
Dr. Daryl Scora, Toronto-Sunnybrook Reg. Cancer Centre, North York, ON
Ms. Lara Dyke, Montreal General Hospital, Montreal, PQ
Mr. Jean-Claude Anctil, Dr. Léon Richard Oncology Centre, Moncton, NB
Mr. Karl Otto, Centre Hospitalier de Gatineau, Gatineau, PQ
Ms. Cathy MacGillivray, MCTRF, Winnipeg, MB
Dr. Mark Skwarchuk, Memorial Sloak Kettering Cancer Center, New York

New Students:

Carleton University
Pascale Sévigny (B.Sc. 1996 -- MRI)

Tom Baker Cancer Center
John C. Rewcastle (B.Sc. 1996 - Cryosurgery)

McMaster University
Rob Hunter (M.Sc. 1998 - Biomedical Optics)
George Alexandrakis (M.Sc. 1996 - Biomedical Optics)
Marie-Claude Asselin (M.Sc. 1997 - Medical Physics)
Ana Pejovic-Milic (M.Sc. 1998 - Medical Physics)

Sunnybrook Health Science Centre/University of Toronto
Mr. Marshall S. Sussman (M.Sc. 1997 - MRI)
Mr. Warren D. Foltz (M.Sc. 1997 - MRI)
Rajiv Chopra (B.Sc. 1996 - Physics)
Christopher Macgowan

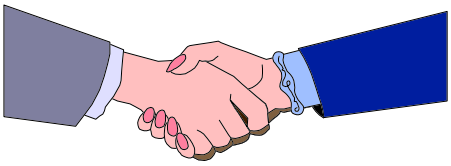
University of Western Ontario/Robarts Research Institute
Katharine Draper (B.Sc. 1996 - Physics)
Kirk W. Finnis (B.Sc. 1996 - Neuroscience)
Aleks Cenic (B.Sc. 1995 – Physics)
Daniela Galea (BSc 1997 - Physics)
Ms. Seemantini Nadkarni (B.Eng. 1996 - Biomedical Engineering)
Tom Purdie (B.Sc. 1997 - Medical Physics)

University of Western Ontario/St. Joseph's Health Centre
Robert Stodilka (B.A.Sc. 1995 - Engineering)
Raoul Pereira (B.Sc. 1993 - Medical Biophysics)
Charles McKenzie (B.Sc. 1993 - Physics)

University of Western Ontario/LRCC
Tim Craig (B.Sc. 1997 - Medical Biophysics)

Membership classes: F: full; A: associate; S: student; C: corporate.

(Please inform the Newsletter Editor if your name is left out.)



Corporate Membership

COMP would like to acknowledge the support given by our corporate members:

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Canadian Scientific Products

We hope to continue our association with these and new corporate members.

Calendar 1998

April 18-24, 1998
International Society of Magnetic Resonance in Medicine
Sydney Convention & Exhibition Centre, Sydney, Australia

June 7-11, 1998
Society of Nuclear Medicine
Toronto Convention Centre, Toronto, ON

June 7-10, 1998
Canadian Association of Radiologists
Westin Hotel, Halifax, Nova Scotia

June 18-20, 1998
44th Annual COMP/CCPM Annual Meeting
London, Ontario
[Mrs. Brighid McGarry (COMP Secretariat),
Tel: (403) 479-1110, Fax: (403) 474-5894,
bmcgarry@compusmart.ab.ca]

August 9-13, 1998
40th Annual AAPM Annual Meeting
San Antonio, Texas
[Lisa Rose Sullivan, Tel: (301) 209-3387]

October 25-28, 1998
40th Annual ASTRO Meeting
Phoenix, Arizona
[Mrs. B. Rapp, ASTRO, 1891 Preston White Drive, Reston, VA, 22091 (703) 648-8900, Fax (703)648-9176]

October 29-31, 1998
EPI98: 5th International Workshop on Portal Imaging
Pheonix, Arizona
[(410) 269-6801; http://www.ea.net/epi98/]

Nov 29-Dec 1, 1998
Radiological Society of North America
McCormick Place, Chicago, IL,
[www.rsna.org]

INSTRUCTIONS FOR NEWSLETTER SUBMISSIONS

Articles for the Newsletter are best submitted as a file attached to E-mail. Submissions should be in ASCII, or Word 97 format. If you use another word processor please contact the editor before submitting an article so arrangements can be made. Please send a hard copy by fax so that any symbols or special characters can be verified.

Good print quality submissions are also welcome. Newsletter articles should be on 8-1/2 by 11 inch paper with one-inch margins on all sides. Contributions should in a clear font or type (default for the Newsletter is 10 point Times New Roman). Please send your submission with your name and institution. Advertisements should be submitted camera ready for direct reproduction in Newsletter or in Word 97 format. Fax submissions must be supported by original copy and will not be used directly. Please send submissions to:

Peter Munro, Ph.D., MCCPM
London Regional Cancer Centre
790 Commissioners Rd. E.
London, Ontario, N6A 4L6
Tel: (519)685-8600 x3317
Fax: (519)685-8658
pmunro@lrcc.on.ca

Deadline of submissions for the next issue of the Newsletter is 1st June 1998.

Medical Physics E-mail and WWW Services

The canada-l mailing list is now being managed by Majordomo. Send messages to:

canada-l@irus.rri.uwo.ca

If you want to subscribe or unsubscribe, you can send mail to <Majordomo@irus.rri.uwo.ca> with the following command in the BODY of your e-mail message:

subscribe canada-l you@your.email.address
unbscribe canada-l you@your.email.address

For more information, you can send mail to <Majordomo@irus.rri.uwo.ca> with the following command in the body of your e-mail message:

help
end

This will give you a list of all the commands you have access to. If you have any other questions or concerns please send e-mail to canada-l-owner@irus.rri.uwo.ca , and someone will get back to you.

Frank Sargent
fsargent@irus.rri.uwo.ca
System Manager, Robarts Research Institute

COMP/CCPM Web Site

In addition to the Canada-l burster, CCPM and COMP now maintain a www site that can be accessed via

http://www.bic.mni.mcgill.ca/ccpm

It contains descriptive pages on CCPM and COMP, and plans are to expand the range of information available on this Web site.

Suggestions for improvement of the Web site are welcomed and should be forwarded to Peter Munro in London (pmunro@lrcc.on.ca).

Carleton
UNIVERSITY

M.Sc. and Ph.D. Studies in Medical Physics

The Medical Physics graduate program in Ottawa, centred at the Carleton University Dept. of Physics, invites applications for M.Sc. and Ph.D. studies. The Carleton program is one of the most diverse in Canada, spanning the full breadth of Medical Physics from imaging to cancer therapy to medical biophysics. The Medical Physics graduate program complements the new undergraduate Bachelor programs in Applied Physics and Engineering Physics at Carleton.

All accepted students are guaranteed financial support. Currently, the levels of support are more than $15k for M.Sc. students and start at about $17k for Ph.D. students. Ideally, students will have an NSERC or MRC scholarship, or an Ontario Graduate Scholarship. Otherwise, they can expect to receive support at the levels given above through a combination of a research assistantship, a teaching assistantship and a Carleton University scholarship.

Research supervision is provided by physics faculty at Carleton and also by physicists working at the Ottawa Regional Cancer Centre, the Ottawa Hospital, the Ottawa Heart Institute, the National Research Council, Health Canada, AECL (Chalk River) and elsewhere.

Admission to the M.Sc. program requires an Honours B.Sc. in Physics or Applied Physics or a B.A.Sc./B.Eng./B.Sc. in Engineering Physics or Engineering Science with an overall average of at least B- and an average in the subject of honours of at least B+. Admission to the Ph.D. program usually requires an M.Sc. degree, ideally in Medical Physics, but an M.Sc. in another area of Physics may also be sufficient.

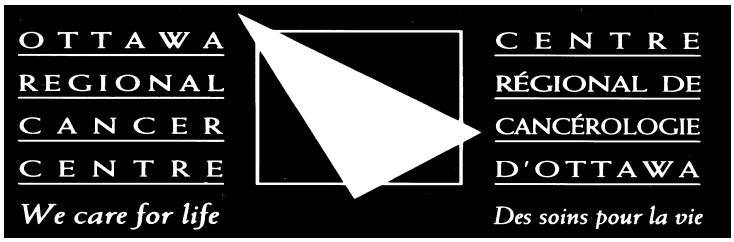
Application forms and further information can be obtained by contacting either:

Supervisor of Graduate Studies
Physics Dept., Carleton University
1125 Colonel By Dr.,
Ottawa, ON, K1S 5B6.
Tel.: (613) 520-4377
FAX: (613) 520-4061
E-mail: grad_supervisor@physics.carleton.ca

or

Prof. Giles E. Santyr, Academic Officer
Medical Physics Organized Research Unit
Physics Dept., Carleton University
1125 Colonel By Dr., Ottawa, ON, K1S 5B6
Tel.: (613) 520-2600 (x8996)
E-mail: santyr@physics.carleton.ca

http://www.physics.carleton.ca/research/Medical



THE OTTAWA REGIONAL CANCER CENTRE

is currently seeking to recruit a

MEDICAL PHYSICIST

to participate in all aspects of its high tech clinical radiotherapy physics activities.

The Centre is equipped with 6 linear accelerators, 2 cobalt units, 3 simulators. Multileaf collimators and portal imaging are also being used. The centre also has extensive programs in stereotactic radiotherapy, brachytherapy and TBI. In addition, the Centre is well-equipped with a host of other radiotherapy and physics equipment and has electronic and machine shop facilities and support.

The Medical Physics program has a strong academic component operating through the Department of Physics and Radiology at Carleton University and the University of Ottawa and includes a graduate Medical Physics program of 14 students. These programs are coupled with active research in radiotherapy and imaging physics as well as biophysics. The Medical Physics Department of the Ottawa Regional Cancer Centre currently employs 7 physicists and is offering the successful candidate an excellent opportunity for Research and Academic activities. Faculty appointments may be commensurate with experience.

This position **requires** a postgraduate degree in Physics, or equivalent (Ph.D. preferred) and a minimum one year radiotherapy physics experience, certification by the CCPM or equivalent is required.

Qualified candidate may submit a detailed curriculum vitae and list of references before **MAY 9, 1998** to:

G.P. Raaphorst, Head, Dept. of Medical Physics
Ottawa Regional Cancer Centre
501 Smyth Road,
Ottawa, Ontario K1H 8L6
Canada

Laurentian University

The Department of Physics and Astronomy invites applications for a one-year, limited term position to begin July 1, 1998, subject to budgetary approval. Applicants must be bilingual, as the position will involve teaching in both French and in English. Applications should preferably have completed a Ph.D. in the area of medical physics. The department has recently initiated an undergraduate programme in Biomedical Physics and benefits from an increasingly close relationship with the Northeastern Ontario Regional Cancer Centre (NEORCC). NEORCC is a scant 2 kilometres away from the university campus with active research programmes in neural nets, image registration, and dose optimization in treatment planning.

The University is committed to equity in employment and encourages applications from all qualified applicants, including women, aboriginal peoples, members of visible minorities, and persons with disabilities. In accordance with Canadian immigration requirements, this advertisement is directed first to Canadian citizens and permanent residents.

The position could be an ideal opportunity for a practicing clinical physicist to experience working in an academic environment.

Please submit an application with a complete C.V. and the names, addresses, and telephone numbers of three referees to Chair of Selection Committee,

Dr. L.D. Reed,
Department of Physics and Astronomy,
Laurentian University,
Ramsey Lake Road,
Sudbury, Ontario,
P3E 2C6.

Additional information about this position and the department may be found at http://www.laurentian.ca/www/physics/hire.htm or by telephone (705) 675-1151 extension 2220 or by fax: (705) 675-4868.

Screening of candidates will commence April 30, 1998 but applications will be accepted until the position is filled.

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