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From the Editor

Our first year as a web-based journal has been only partly successful, in my opinion. I hope that members will get in the habit of checking the journal on the CPS web-page. We will send out e-mail messages to those for whom we have addresses when a new issue appears, as a reminder.

One of the tasks I am currently undertaking is to set up a web-page for a new course. It takes a bit of work for someone like me who is not highly computer-literate, but it seems not as difficult as I had imagined. I think it will add significantly to the ease with which students can get information about the course, and ask questions about the course material. This is becoming quite common in other Faculties at our university, and I am sure that it is also happening elsewhere. I would be grateful if I could find someone who is more at ease with setting up web-pages to contribute an article to Physiology Canada on the methods, and advantages/disadvantages of setting up a course web-page, particularly in the physiology/life sciences area. If any of our readers would do this, or knows someone who could, I would be pleased to receive a name.

I am pleased to have received up-dates from two of the country's largest physiology departments for this issue. Both indicate very significant changes over the past several years, and both exude some optimism for future developments. I hope a recounting of a recent post-humous award to Dr. Harold Copp will also be of interest.

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Induction of Harold Copp into the Canadian Science & Engineering Hall of Fame

I had the pleasure on November 30, of attending a ceremony for the induction of two new members into the Canadian Science and Engineering Hall of Fame. The new inductees were Dr. **Harold Elford Johns**, a radiation physicist (particularly known for originating the Acobalt bomb@, and Dr. **Douglas Harold Copp**, a physiologist well-known to most of our members. The award to Dr. Copp was posthumous (he passed away in 1998) and was accepted by his daughter, Carolyn Malchy, who lives in Ottawa. Dr. Copp was President of the CPS in 1963-64, and was the inaugural Sarrazin lecturer at the 1977 Winter meeting. A fine tribute, and description of his work was given in the obituary in the April, 1998 issue of Physiology Canada.

The Hall of Fame is housed in the Canada Science and Technology Museum in Ottawa. This is a bit out of the way for visitors to downtown Ottawa, and may have been missed by many travellers to the city. It is situated at the extreme east end of the Aold@ City of Ottawa (before amalgamation on January1, 2001), about three km from the downtown area.

The citation for Dr. Copp in the Hall of Fame reads:

> *Dr. Douglas Harold Copp distinguished himself early as an astute medical researcher and a gifted teacher. After receiving top marks in medicine at the University of Toronto, he was awarded a fellowship at the University of California, where he earned a Ph.D. in biochemistry in 1943.*
>
> *An expert in bone and calcium metabolism, Dr. Copp was recruited for the Manhattan Project, to study the effects of bone-seeking nuclear fission products. He worked at the University of California until 1950 then returned to Canada to head the Department of Physiology at the University of British Columbia. He pursued the rest of his career there, devoting much of his energy to establishing the reputation of the Faculty of Medicine.*
>
> *Among his scientific contributions was the discovery of calcitonin, a hormone that is used in the treatment of osteoporosis and taken by cancer patients to relieve pain.*

Since I had not previously visited the Canadian Science and Engineering Hall of Fame, it was interesting to have a look at the gallery of inductees. Since its inception in 1991, 26 scientists have been named to it, and they represent a wide spectrum of fields of endeavour. The inductees include Alexander Graham Bell, and closer to our own field, Sir Frederick Banting, Wilder Penfield, and Michael Smith. The Hall is well represented by a web-site, for those who may not have the pleasure of visiting Ottawa in the near future, and it can be accessed at: http://www.science-tech.nmstc.ca.

I was aware that Dr. Copp had also been inducted into the Canadian Medical Hall of Fame, and was interested to visit their web-site. The Medical Hall of Fame was established in 1993, and has named between six and eleven inductees each year since 1994. Dr. Copp was one of the ten inductees in the first year, and was present to accept the honour. This is another site worth visiting, if you have not yet done so: http://www.cdnmedhall.org/.

My connection to Dr. Copp was twofold. I did my Ph.D. in Physiology at UBC while he was Head of the department, but more significantly, my wife Ilona worked for a number of years in his lab, and that is where I met her. Accordingly, we were both very pleased to be invited to the ceremony in his honour.

I still recall with relish an anecdote about Dr. Copp that was popular when I arrived at UBC in 1967. It involved an idea he had that while calcitonin was derived from glandular cells lying within the thyroid and parathyroid glands of mammals, they form a separate gland in fishes, the ultimobranchial gland. A team of technicians and other department members was convinced to go out fishing for dogfish so that the idea could be validated quickly, while Dr. Copp stayed in the department to write the first draft of the paper that would describe the study. The story was second hand to me, but it caught my attention as an expression of the excitement of research, and I have thought of it many times.

I am very grateful to the Canada Science and Technology Museum for permission to reproduce the image and text from their web-site.

Ken Marshall, *editor*

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Report from the Department of Physiology University of Toronto

The Department of Physiology at the University of Toronto has just completed a very exciting 5 years under the leadership of Dr. John Challis. Dr. Challis is on sabbatical for the current year, and Dr. Patricia Brubaker is serving as Acting Chair. The Department was very pleased this spring when Dr. Challis was reappointed by the Dean of Medicine to another 5-year term as Chair. However, on December 5, 2000, it was announced by the CIHR that Dr. Challis has been appointed to the position of Scientific Director of the CIHR Institute for Human Development, Child and Youth Health, commencing January 1, 2001. The Department of Physiology is absolutely delighted that Dr. Challis was selected to fill this prestigious position, and we look forward to an exciting few years as Dr. Challis provides the leadership for this new Canadian research venture.

A few statistics: the Department now has over 100 faculty members, both primary and cross-appointed, spread over a large number of research institutions, including the Medical Sciences Building and the affiliated teaching hospitals (Hospital for Sick Children, Mount Sinai Hospital, University Health Network, and Sunnybrook and Women's College Hospital). Together, these faculty generated over $15M in peer-reviewed research funding last year, approximately half of which was derived from the CIHR. Our faculty members have also been the recipients of a number of national and international honours this year. These include the 2002 Transatlantic Medal from the Society for Endocrinology (John Challis), election to the Royal Society of Canada (Amira Klip), election as President of the International Association for the Study of Pain (Barry Sessle), and the Lifetime Achievement Award from the International Biomaterials Societies (Gregory Wilson).

Our graduate program has also grown this year, to 118 students at the present time, of whom 72 are currently enrolled at the M.Sc. level, and 46 as Ph.D candidates, and we have 51 post-doctoral fellows who are active members of the Department. Approximately 70% of these trainees are supported by external awards. Finally, we also have a very strong undergraduate teaching program, offering over 90,000 student-faculty contact hours each year to students in Arts & Science, Medicine, Pharmacy, Physical and Health Education, and Rehabilitation Medicine.

The Department of Physiology has undergone a number of changes over the past 5 years, in its research structure, as well as in its undergraduate and graduate teaching programs. In brief, our research activities are now focused around 8 different themes, including Cardiovascular and Renal, Education, Endocrinology and Diabetes, Cell and Membrane, Neuroscience, Reproduction and Development, Respiratory and Theoretical Physiology. These research groupings serve as a home base for graduate students, post-doctoral fellows and principal investigators, providing presentation opportunities for trainees and new faculty, as well as members for graduate supervisory and examination committees.

In our graduate program, the major change that has occurred is the replacement of our Comprehensive Qualifying Examination for Ph.D. students with a CIHR grant-style research proposal. For this proposal, which must be written at the end of their first year of the program, students write a full CIHR grant proposal based upon their Ph.D project, including budget. The students must receive a score of at least 3 (CIHR scale) to pass the written component of the exam, and then must also pass an oral defense of this proposal; a second attempt is permitted. Over the past 3 years, 25 students have successfully completed this stage of their Ph.D. program. Although somewhat stressful at the time of writing, the feedback from students about this exam has been extremely positive.

Finally, our undergraduate teaching program has undergone extensive reorganization over the past 5 years. We have moved our large, systems-based course into the 2nd year of a 4 year program, created a new, highly integrated Cellular, Molecular and Organismic Physiology course at the 3rd year level, and developed 14 new specialist physiology courses at the 4th year level (a tripling of our offerings to senior

students!). We have also increased the number of specialist programs that we offer to undergraduate students over the past 2 years, to include not only Physiology, and Theoretical Physiology, but also Biophysics (with the Department of Physics), and Neurosciences (with the Departments of Psychology and Zoology). These new programs are generating considerable interest amongst undergraduate students, and we look forward to seeing some of them in our graduate program in the next few years.

Finally, the Department of Physiology had the unique opportunity this year to celebrate the 100th Anniversary of the first Ph.D. in the Department, as well as at the University of Toronto, which was awarded to Frederick H Scott. We celebrated this event with a 2-day symposium Physiology 2000: A Century of Excellence, with invited speakers being drawn from past trainees of the Department, including Dr. Alan Cherrington, who gave the 1st Inaugural John and Mary Davidson Lecture (with many thanks to the Davidson's for a generous donation to endow this lecturership). Nobel Laureate David H. Hubel also gave a fascinating retrospective of his research experiences and philosophy of science. The Symposium was superbly Chaired by Dr. Michael Salter of the Department, and was an excellent celebration of 100 years of research in Physiology.

More information about the Department of Physiology can be found on our website, at: http://www.utoronto.ca/physio/.

Contributed by Patricia Brubaker

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Report from the Department of Physiology McGill University

The Department of Physiology at McGill has evolved substantially since our last update. Since that time we have seen a proliferation of molecular biology and the development of a variety of new imaging tools that have contributed greatly to the study of fundamental physiological mechanisms. In addition, there has been a tremendous growth in our understanding of the genome of humans, mice and more primitive organisms as well as the creation of transgenic models. In the next few years, complete maps of many of these genomes will be elucidated and many of the proteins identified. We will be faced with the challenge of understanding the physiological role of these many genes and proteins. Having survived an extended period of fiscal constraint we are now into a phase of development and have begun a long awaited recruitment drive. We are facing a rebirth in the area of physiology that will employ advanced and integrated biotechnologies to study function, from the whole organism to the molecule.

Since our last update our members have distinguished themselves in both teaching and research in the tradition of Sir William Osler, Hank Macintosh and others who have led this department. This past year was marked by the retirement of Dr. Kresmir Krnjevic, a prominent figure in the field of physiology and a leader of our department as Chair from 1978-1987. Dr. Krnjevic has been distinguished with numerous awards and appointments including the Gairdner Award, the Wilder Penfield Award and the Order of Canada. He has been highly committed to excellence and served as a model of motivation, dedication and creativity for a generation of scientists. His contributions will long be appreciated. Recently, Dr. David Goltzman, the previous Chair of Physiology who has gone on to serve as Chair of the Department of Medicine and Physician and Chief of the McGill University Hospital Centre, has been named to the Order of Canada. Drs. L. Glass and M.C. Mackey were elected as Fellows of the Royal Society of Canada. Dr. Glass has also been named as a Fellow of the American Mathematical Society. Dr. J. Hanrahan was awarded a CIHR Senior Scientist Award and Dr. J. Orlowski a CIHR Scientist award. Drs. J. White, C. Cullen and U. Stochaj were awarded FRSQ Chercheur-Boursiers. Dr. P. Gold was presented the 1999 Christie Award by the Canadian Association of Professors of Medicine. Dr. J. Henry has initiated a Canadian Consortium on Pain Mechanisms for the fledgling CIHR and was awarded the Millennium Distinguished Career Award from the Canadian Pain Society. Dr. D. Watt was awarded the AD Astra Award by Dr. R. Thirsk on behalf of Canada's astronauts, to honour him for his contribution to our understanding of human adaptation to space. Dr. J. White was appointed Regional Director of the CIHR. Dr. A. Shrier is the incoming president of the Canadian Physiological Society. Finally, Pejum Haghighi, a doctoral student supervised by Dr. E. Cooper, was awarded the Gordon Maclachlan Prize for the best thesis in the Biosciences.

On the teaching front, we have seen a great deal of innovation in the department over the past few years with the development of computer and networking technologies along with a great deal of creativity, energy and enthusiasm. In order to augment our undergraduate introductory physiology Dr. K. Cullen, with Jennifer Day and Dominic Marghescu, led an initiative to develop our Undergraduate Virtual Laboratory consisting of a variety of exercises and animations that can be viewed at our website (http://www.physio.mcgill.ca/). For her efforts Dr. Cullen was awarded the Faculty of Science Interactive Teaching Techniques Award. Our department continues to pride itself on excellence in teaching as exemplified by Dr. A. Wechsler who was awarded the Osler Award by the Faculty of Medicine graduating class of 1999 as the teacher who made the most outstanding contribution to their undergraduate medical education at McGill. This year Dr. Wechsler was awarded the inaugural Principal's Award for Excellence in teaching and the undergraduate physiology students have created a teaching award in her honour. We have seen considerable additional course innovation over the past several years. This includes the introduction of three freshman seminar courses provided by our department in the areas of nonlinear mathematics (Drs. Mackey and Guevara), chaos theory (Dr. L. Glass) and molecular genetics (Dr. J. White). A new course in Cellular and Molecular Physiology was introduced by Drs. J. White and J. Orlowski and has been

tremendously useful in teaching our graduate students about new molecular approaches. Dr. I. Shrier has introduced a course entitled AThe Body Matters@ that is being taught to the general university student population that teaches basic principles and practical applications of sports physiology and medicine. Dr. K. Cullen has initiated a new course called Integrative Neuroscience that links basic neuroscience with movement, sense and cognition. Dr. J. Henderson initiated a course on the Physiology of Bone and Dr. K. Bushnell introduced a graduate level course on the topic of Pain. In addition to our regular academic program, Drs. Mackey, Glass and Guevara are involved in the organization and teaching of a highly successful international summer school in nonlinear mathematics offered in conjunction with the Centre de Recherche Mathématique at the Université de Montréal. Our program remains very popular with undergraduate students, particularly those who are in pursuit of a career in medicine or health professions. We continue to encourage interest in research, which has been given a needed boost by the recent infusion of federal funding and promoted by our undergraduate research course and research day. In 1998-99 we had 392 undergraduates enrolled in Physiology with 302 enrolled in the Majors program and the remainder in the honours or faculty programs. Interestingly over the past five years the numbers of students in our joint honours programs with both Physics and Mathematics have about doubled with Physiology & Physics going from 8 to 14 and Physiology & Mathematics going from 9 to 20. With regard to graduate students we have maintained relatively constant numbers over the past five years, somewhere in the 50-70 range. We continue to search for high quality applicants for a program that is comprehensive and well managed.

There are many other changes taking place in the University and in the McGill related hospitals that have impacted our department. First, members of our department have been involved in a number of successful Canadian Foundation of Innovation applications. A short list includes an upgrade of McIntyre Building infrastructure that includes enhanced transgenic facilities, a multi-photon confocal microscope, and other imaging resources. McGill has obtained CFI support to rewire the campus on a Cisco switched high-speed network that will be video capable everywhere. There has been an imaging CFI for electron microscopy and others in the area of genomics and proteomics. This will lead to a new building for Proteo-genomics and also a new building for Bioinformatics. While these developments are taking place on campus, there has been a merger of McGill's four hospitals into one united McGill University Hospital Centre (MUHC). The plan is to build an entirely new facility for the MUHC for around 2005 in an area of Montreal that is well placed with respect to transportation and about a ten-minute drive from the main campus. This mega-hospital would also house the MUHC Research Institute with whom we have close relations and to which a number of us belong. Clearly these are exciting times and the department is poised to see new and exciting developments in the future.

Contributed by Alvin Shrier

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F.C. MacIntosh Senior Visiting Professorship of the Canadian Physiological Society

Each year the Canadian Physiological Society offers a Senior Visiting Professorship to an outstanding senior Canadian physiologist. This senior Visiting Professorship is named after Dr. F.C. (Hank) MacIntosh and is sponsored by the Corporate Patrons of the Canadian Physiological Society. The purpose of the Visiting Professorship is to promote collaboration and exchange between physiology departments and investigators at Canadian universities. The Visiting Professor is to be encouraged to visit two or more departments within the same region of the country so nominations can come from a single department or jointly from two or more. The Visiting Professor would be expected to spend several days at each institution giving seminars, meeting with other investigators and holding sessions with the department=s graduate students.

The selection of the senior Visiting Professor will be the responsibility of the Council of the Canadian Physiological Society and will be based upon the scientific achievements of the candidates. Nominees for this award should be members of the Canadian Physiological Society and have made a contribution to the Society. Normally the Visiting Professorship will not be awarded to candidates before the tenth year from receiving their highest degree.

Nominations should be sent to the Secretary of the Society at the address given below. Each nomination must include a letter from the sponsor/s setting out the proposed itinerary, and a curriculum vitae of the candidate.

Individuals who wish to be considered for the F.C. MacIntosh Visiting Professorship are encouraged to approach departments for sponsorship, but they cannot apply directly. Letters of nomination and supporting documents should be sent to:

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J.A.F. Stevenson Visiting Professorship of the Canadian Physiological Society

Each year the Canadian Physiological Society offers a Visiting Professorship to an outstanding young Canadian physiologist. The purpose of the Visiting Professorship is to promote collaboration and exchange of information among investigators at Canadian universities and to strengthen graduate training programs in physiological research.

The Society will provide travel expenses for the Visiting Professor; living expenses will be the responsibility of the host department. Nominations for the award are to be made normally by the Chair of the host department of physiology to enable a distinguished young investigator from another Canadian institution to spend two to seven days at the host department giving lectures and graduate seminars. The host department of physiology can be any one of the sixteen in Canadian university faculties of medicine.

The candidate chosen to receive the Visiting Professorship will also present a lecture at the Annual Winter meeting of the Society. Partial reimbursement of expenses to attend the Annual Winter Meeting will be the responsibility of the Canadian Physiological Society.

The selection of the Visiting Professor will be the responsibility of the Council of the Canadian Physiological Society and will be based on the scientific achievements of the candidate. Nominees for this award should be a member of the Canadian Physiological Society and in good standing for at least one year and should have contributed to the Society. Normally, the Visiting Professorship will not be awarded to candidates after the tenth year from receiving their highest degree. In the event that more than one host University has requested the chosen recipient, the University which first placed the request will be given preference.

Nominations should be sent to the Secretary of the Society at the address given below. Each nomination should include a letter from the sponsor setting out the proposed itinerary and include the curriculum vitae of the candidate.

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