

The Royal Society of Canada

The Canadian Academy of the Sciences and Humanities

La Société royale du Canada

L'Académie canadienne des sciences, des arts et des lettres

Press Release

26 June 2003

For immediate distribution

Royal Society of Canada 2003 New Fellows: Making a Difference to Lives of Canadians

OTTAWA—The Royal Society of Canada, the Canadian Academy of the Sciences and Humanities, has elected **sixty new Fellows, one Specially Elected Fellow and four Foreign Fellows** to its ranks. In keeping with the motto of the Society, “*different paths, one vision*”, these newly elected Fellows, while coming from diverse backgrounds and disciplines, all are dedicated to achieving excellence in their endeavours, and thus enhancing Canada’s competitiveness on a global basis.

Fellowship in the Royal Society of Canada is considered Canada’s most prestigious academic accolade to which scholars and scientists aspire. “The Royal Society of Canada is honoured to celebrate the outstanding accomplishments of our New Fellows”, said Howard Alper, President of the Royal Society of Canada. “They add in a meaningful and significant way, to the extraordinary resource of talent and experience that constitutes the Society.”

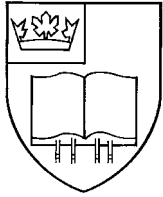
Canadians have directly benefited from research conducted by these individuals, from implementation of information technologies to health care policy, prediction of violence and replacement of natural cell functions using “artificial cells”. The new Fellows of the Royal Society of Canada are among those who, today, build the world we will live in tomorrow. Attached are a few examples of exciting research fields and issues, which are currently under study in Canadian universities and laboratories.

This year’s new Fellows will be inducted to the Society in a ceremony set to take place on Monday, November 24, 2003. The complete list of newly elected Fellows and their affiliations is attached. The nomination citation of each of them can be obtained by contacting the Royal Society of Canada or visiting our Web site at <http://www.rsc.ca>.

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For further information, contact:

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Communiqué de presse

Le 26 juin 2003

Pour diffusion immédiate

Élections 2003 à La Société royale du Canada : des nouveaux membres qui apportent un « plus » aux Canadiens et aux Canadiennes

OTTAWA – La Société royale du Canada, l'Académie canadienne des sciences, des arts et des lettres, a élu en son sein **soixante nouveaux membres, un membre à titre spécial et quatre membres étrangers**. Fidèles à la devise de la Société, « *Chemins divers, visée commune* », ces membres nouvellement élus, qui proviennent de disciplines et de milieux différents, sont toutes et tous résolument voués à atteindre l'excellence dans leurs travaux, et ainsi à accroître la compétitivité du Canada sur le plan global.

Entrer à la Société est la plus prestigieuse marque de reconnaissance professionnelle dans le monde canadien des sciences et de l'érudition. « La Société royale du Canada est fière de souligner les remarquables réalisations de ses nouveaux membres, a déclaré Howard Alper, président de La Société royale du Canada. Ils et elles ajoutent d'une façon significative et importante à la richesse de l'extraordinaire réservoir de talent et d'expérience qu'est la Société ».

Les Canadiennes et les Canadiens bénéficient déjà directement des recherches conduites par ces personnes, de l'implantation des technologies de l'information à la politique sur les soins de santé, en passant par la prédiction de la violence et l'utilisation de cellules artificielles pour remplir les fonctions naturelles cellulaires. Les nouveaux membres de la Société royale du Canada font partie de ceux qui, aujourd'hui, construisent le monde dans lequel nous vivrons demain. Quelques exemples de nouveaux domaines de recherche et de questions aujourd'hui à l'étude dans les universités et laboratoires canadiens sont joints à ce communiqué.

Les membres élus cette année seront officiellement accueillis par la Société lors d'une cérémonie d'investiture qui aura lieu le lundi 24 novembre 2003. La liste complète des noms et titres des nouveaux membres figure en annexe; pour tout complément d'information et pour obtenir les notices académiques détaillant les travaux des lauréats, veuillez communiquer avec les bureaux de la Société royale du Canada ou consulter notre site Internet, à l'adresse <http://www.rsc.ca>

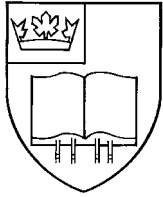
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Renseignements :

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New Fellows 2003

Nouveaux membres 2003

ACADÉMIE DES LETTRES ET DES SCIENCES HUMAINES

BARKI, Henri
COUTURIER, Guy
GJEDDE, Albert

Service d'enseignement des technologies de l'information, HEC Montréal
Faculté de théologie, Université de Montréal
Centre de tomographie par émission des positions (CPET) et Centre hospitalier universitaire Aarhus, Université d'Aarhus, Danemark
Département d'études françaises, Carleton University
Département des lettres françaises, Université d'Ottawa
Département de sociologie, Université Laval
Centre for Comparative Literature, University of Toronto
Faculté des lettres, Université Laval
Faculté des lettres, Université Laval
Service d'enseignement du marketing, HEC Montréal

HALSALL, Albert W.
KUNSTMANN, Pierre
LANGLOIS, Simon
LE HUENEN, Roland
SADETSKY, Alexandre
TETU, Michel
ZACCOUR, Georges

ACADEMY OF HUMANITIES AND SOCIAL SCIENCES

BIALYSTOK, Ellen
BUMSTED, John M.
EICH, Eric
FELTHAM, Gerald A.
GERTLER, Meric S.
GILL, Stephen R.
JOHNSON, Ralph H.
KATZENBERG, M. Anne
KWONG, Julia
KYMICKA, Will
LEMIRE, Beverly J.
LEVENSON, Jill
LITTLE, John (Jack)
MACKLEM, Patrick
RICE, Marnie E.

Department of Psychology, York University
Department of History, The University of Manitoba
Department of Psychology, The University of British Columbia
Faculty of Commerce and Business Administration, The University of British Columbia
Department of Geography, University of Toronto
Department of Political Science, York University
Department of Philosophy, University of Windsor
Department of Archaeology, University of Calgary
Department of Sociology, The University of Manitoba
Department of Philosophy, Queen's University
Department of History, University of New Brunswick
Department of English, Trinity College, University of Toronto
Department of History, Simon Fraser University
Department of Law, University of Toronto
Penetanguishene Centre for the Study of Aggression and Mental Disorder, McMaster University
Frost Centre for Canadian Studies and Native Studies, Trent University
Department of History, The University of Western Ontario
Department of Classical, Near Eastern and Religious Studies, The University of British Columbia
Department of Political Science, University of Toronto
Department of Political Science, Carleton University

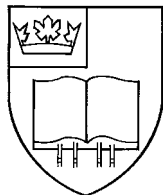
SANGSTER, Joan I.
SHATZMILLER, Maya
SULLIVAN, Shirley D.

TUOHY, Carolyn H.
VICKERS, Jill

Foreign Fellows / Membres étrangers

CHOMSKY, Noam
LIPSET, Seymour M.

Department of Linguistics and Philosophy, Massachusetts Institute of Technology (USA)
School of Public Policy, George Mason University (USA)



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ACADEMY OF SCIENCE / ACADÉMIE DES SCIENCES

Applied Science and Engineering / Sciences appliquées et génie

ANGELES, Jorge	Department of Mechanical Engineering, McGill University
BLAKE, Ian F.	Department of Electrical and Computer Engineering, University of Toronto
CAINES, Peter Edwin	Department of Electrical and Computer Engineering, McGill University
HOEFER, Wolfgang J.R.	Department of Electrical and Computer Engineering, University of Victoria
SEDRA, Adel S.	Department of Electrical and Computer Engineering, University of Toronto

Earth, Ocean and Atmospheric Sciences / Sciences de la terre, de l'océan et de l'atmosphère

BUSTIN, Marc R.	Department of Earth and Ocean Sciences, The University of British Columbia
MUIR, Derek C.G.	National Water Research Institute, Environment Canada
PAULY, Daniel	Fisheries Centre, University of British Columbia
WEST, Gordon F.	Department of Physics, University of Toronto

Foreign Fellow / Membre étranger

HUNTEN, Donald Mount	Lunar and Planetary Laboratory, The University of Arizona (USA)
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Life Sciences / Sciences de la vie

CHANG, Thomas M.S.	Faculty of Medicine, McGill University
GRANT, Peter R.	Department of Ecology and Evolutionary Biology, Princeton University
GROS, Philippe	Department of Biochemistry, McGill University
HOLLENBERG, Morley D.	Department of Pharmacology & Therapeutics, University of Calgary
JENKINS, David J.A.	Department of Nutritional Sciences, University of Toronto
MASUI, Yoshio	Department of Zoology, University of Toronto
MCMANUS, Bruce M.	MRL/iCAPTURE Centre, St. Paul's Hospital Site, The University of British Columbia
QUIRION, Rémi	CIHR Institute of Neurosciences, Mental Health and Addiction, Douglas Hospital Research Centre
SCHRADER, John W.	The Biomedical Research Centre, The University of British Columbia
SUES, Hans-Dieter	Science and Collections Division, Carnegie Museum of Natural History
WINSTON, Mark L.	Department of Biological Sciences, Simon Fraser University
WOOD, Christopher M.	Department of Biology, McMaster University

Mathematical and Physical Sciences / Mathématiques et sciences physiques

BAIRD, Michael C.	Department of Chemistry, Queen's University
DARMON, Henri	Department of Mathematics and Statistics, McGill University
GRIFFIN, Allan	Department of Physics, University of Toronto
HARRISON, D. Jed	Department of Chemistry, University of Alberta
MUNRO, J. Ian	School of Computer Science, University of Waterloo
PINTO, B. Mario	Department of Chemistry, Simon Fraser University
SINCLAIR, David	Department of Physics, Carleton University
WORSLEY, Keith J.	Department of Mathematics and Statistics, McGill University
ZIDEK, James V.	Department of Statistics, The University of British Columbia

Foreign Fellow / Membre étranger

RAO, C.N.R.	Jawaharlal Nehru Centre for Advanced Scientific Research (India)
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Specially Elected Fellow / Membre à titre spécial

DAVIDSON, Walter F.	National Research Council of Canada
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Examples of exciting research fields and issues / Exemples de nouveaux domaines de recherche et de questions aujourd'hui à l'étude

HENRI BARKI

Professeur titulaire et titulaire de la Chaire de recherche du Canada en implantation et gestion des technologies de l'information à l'École des HEC Montréal, Henri Barki est un chercheur de renommée internationale. Ses travaux en gestion de projets d'informatisation ont fait leur marque dans le domaine des technologies de l'information.

La plupart des organisations contemporaines se fient énormément sur l'utilisation des technologies de l'information afin d'accroître leur efficacité et leur efficacité, ce qui leur permet de mieux réussir dans les marchés de plus en plus concurrentiels et globaux. Pour ce faire, les entreprises développent, implantent et utilisent des applications informatiques et des solutions d'affaires. Mais malgré plusieurs décennies de recherches, ces tâches complexes et difficiles ne sont toujours pas bien maîtrisées et un nombre très élevé de projets d'informatisation dépasse leurs budgets et leurs échéanciers de façon importante ou bien échoue complètement.

Les recherches du docteur Barki portent sur la participation, les conflits et la gestion du risque dans l'implantation des technologies de l'information. Elles ont permis de mieux comprendre ce phénomène complexe en identifiant plusieurs facteurs qui contribuent à son succès et en proposant des approches et des méthodes pour mieux le gérer. Par exemple, ses recherches ont démontré l'importance de la distinction à faire entre la participation à un projet d'informatisation des utilisateurs éventuels d'une application et leurs sentiments d'engagement, ainsi que celle du rôle que joue leur responsabilisation dans le succès éventuel du projet. Les résultats de ses recherches sur les conflits qui surgissent entre les utilisateurs et les analystes quand on introduit des nouvelles applications informatiques démontrent l'effet négatif des conflits sur le succès éventuel d'un projet. Ses recherches ont également permis d'identifier des approches permettant une meilleure gestion et résolution de ces conflits. Par ailleurs, ses recherches sur la gestion du risque des projets d'informatisation ont mené à des mesures du risque d'un projet de même qu'à l'identification des modes de gestion les plus appropriés selon le degré de risque. Les résultats de ses travaux ont paru dans les revues les plus prestigieuses du domaine des systèmes d'information, telles *MIS Quarterly*, *Information Systems Research*, *Journal of MIS* et *Management Science* et sont reconnus comme des classiques.

Directeur de la recherche de HEC Montréal de 1998 à 2001, le docteur Barki a également publié dans les meilleures revues de son domaine des recherches portant sur l'utilisation des technologies de l'information par des petits groupes. De plus, un schème de classification des mots clés qu'il a produit en collaboration avec des collègues est devenu une référence importante dans la définition de la recherche dans le domaine des technologies de l'information. Ses recherches les plus récentes portent sur les méthodes d'utilisation des technologies de l'information afin de réussir une meilleure intégration des nombreux processus d'affaires qui caractérisent les organisations modernes.

MARNIE E. RICE

Marnie E. Rice, Director of Research Emerita, Mental Health Centre Penetanguishene; Scientific Director, Centre for the Study of Aggression and Mental Disorder and Professor of Psychiatry and Behavioural Neurosciences, McMaster University; Professor of Psychiatry, University of Toronto; Associate Professor of Psychology, Queen's University.

Dr. Rice is one of the world's most prolific and innovative scientists studying violent offenders. She and her colleagues have done research addressing both theoretical and practical questions. For example, among men who have committed serious violent offenses, who are most likely to be violent again if released to the community? Contrary to popular belief, Dr. Rice's research shows that men with serious mental illness such as schizophrenia less are likely than other offenders to commit a new violent crime when released. Even among such offenders, the best predictors of future violence are the same as for other offenders-young age, criminal history, never having been married, alcohol abuse, etc. The most dangerous offenders are

psychopaths, who exhibit no obvious signs of mental illness but instead are typically charming, self-confident, and successful in attracting mates. Dr. Rice and her colleagues have developed assessments of offenders' risk of future violence and sexual offending that contribute to public safety in Canada and throughout the world. Her other applied research projects address the reduction of violence in institutions, and the assessment and treatment of sex offenders, firesetters, mentally disordered offenders and domestic assaulters. Dr. Rice has evaluated popular treatment programs for offenders. Some, as predicted, reduced the likelihood of future violence. Others actually increased violence, at least for certain groups such as psychopaths. This research demonstrates the importance of evaluating treatment outcomes before spending public dollars on widespread implementation.

On the theoretical side, Rice and her colleagues are studying the origins of psychopathy and the causes of child molesting and rape. Psychopaths exhibit fewer signs of early brain damage than other forensic psychiatric patients, and psychopathic sex offenders are more likely to have assaulted women of peak childbearing age than other sex offenders. These and other findings suggest that, unlike other forensic psychiatric patients, and contrary to prevailing professional opinion, psychopaths do not suffer from a mental illness at all, but instead are genetically adapted to take advantage of other people by cheating, lying, and manipulating. Her research on sex offenders suggests that most child molesters (including incest offenders) and many rapists have deviant sexual preferences; that is, they become more sexually aroused by images of nonconsensual than consensual sexual activities. Whereas the deviant sexual preferences of child molesters almost certainly stem from a mental disorder, the origins of deviant preferences among rapists is less clear, and may have more to do with psychopathy than mental disorder.

Dr. Rice's research is internationally recognized for its scientific rigour. Her many published scholarly articles, chapters, and books have made an enormous contribution to progress in understanding and solving these important problems. As a scientist who is also a clinical psychologist, she is the epitome of the scientist-practitioner.

CAROLYN HUGHES TUOHY

Why does Canada have universal government health insurance, while its American neighbour limits government coverage to the elderly, the disabled and the poor? Why does Canada not allow physicians or hospitals to charge privately for services that are covered by governments, when Britain combines universal government coverage with a small alternative system for some services that can be paid for privately? Why has Australia sought deliberately to promote private alongside public insurance for health care? And once these systems are in place, what difference do they make for those who need access to health care - and what does it take to change them? Questions like these have been the focus of Professor Carolyn Hughes Tuohy's work. In an era in which many governments in North America, Europe and elsewhere have wrestled with how to "reform" their systems for financing and delivering health care, these are questions that are of intense interest to policy-makers as well as to academics.

Tuohy is regularly consulted by Canadian governments, political parties and associations of health care providers at both federal and provincial levels in Canada and is in demand as a speaker at international conferences on health care policy. Her work has demonstrated how and why, despite similar pressures on public finance and on health care systems, each country has followed a distinctive path. She shows that fundamental change in the roles of government, private finance and health care providers happens rarely in any given country, and requires an unusual convergence of factors in the political system. In the meantime, each system follows its own distinctive "logic," and anyone trying to make changes in the system needs to understand how that logic works. The hallmark of Tuohy's work lies in combining an understanding of the particular features of national systems with an insistence on comparisons of nations within an overall theoretical framework. She makes her case by carefully examining similarities and differences between nations over several decades, and argues strongly that we can understand the "dynamics" of any national system only by comparing it with others.

For the past ten years, as well, Tuohy has been a member of the senior administrative team at the University of Toronto, where she has applied her public policy skills to the challenges facing the University.

In particular, she has played a key role in developing the University's strategies for revamping and improving the quality of its programs in the 1990s even at a time of reduced government support, for deciding on tuition levels and balancing them with dramatic increases in student financial support, and for preparing for a major enrolment expansion in the current decade.

THOMAS CHANG

Thomas Chang invented and prepared the first "artificial cells" while an undergraduate student at McGill University. These are basically, artificial microscopic structures about the same size as biological cells and having some of the functional properties of biological cells. The artificial cells can contain the same proteins and enzymes as in biological cells. What is more exciting is that they can also be made to contain intact cells, cell organelles, synthetic materials, adsorbent and many other materials not normally found in biological cells. After medical school, Dr. Chang continued his research with graduate studies at McGill (*Science* 1964), on a full time basis as a Medical Research Council (MRC) Scholar and as MRC career investigator and professor at McGill University (*Nature* 1968, 1971) where he remains at the present time.

In the beginning, scientists around the world accepted his ideas with enthusiasm. However, there was no interest in developing these for actual applications. As a result, with the support of MRC, he decided to develop one of his simpler ideas for clinical use. He prepared artificial cells containing materials that can adsorb toxic substances or drugs. He placed these "artificial cells" in a cup like container and showed that this can very effectively remove drugs in blood that perfuse through this column - hemoperfusion. After his animal studies were shown to be safe and effective he personally carried out treatments in patients with accidental or suicidal overdoses of sleeping pills and other medications and showed that this was more effective than the standard dialysis machine. This resulted in countries around the world using his published method as a routine treatment for adult and pediatric patients.

This first demonstration of the actual use of this idea in medicine led to extensive developments of this and his other ideas around the world. Although the study and use of artificial cells is now a sophisticated marriage of molecular biology, microbiology, chemistry and biotechnology, the concept remains as straightforward as Chang's original notion. His study on enzyme therapy (*Nature* 1968, 1971) is being developed for phenylketonuria. His idea of "cell encapsulation" is being explored worldwide for diabetes, liver failure, genetic diseases and others (*Nature Medicine* 2003) - including his group's work for uremia (*Nature Medicine* 1996, 1997). It is also used for drug delivery and other applications. Since the H.I.V. crisis in donors in the 1980's his idea of artificial blood (*Science* 1964) has been extensively developed. For example, his polyhemoglobin as blood substitute is in Phase III clinical trials in North America and used routinely in South Africa. His group is working on novel blood substitutes for special conditions like stroke, severe sustained hemorrhagic shock, organ transplantation and other conditions (*Nature Biotechnology* 1998) and complete nano-dimension artificial red blood cells based on nanotechnology (Chang et al 2003 JACBSB). (Further details: www.artcell.mcgill.ca)

He has been recognized internationally as Honorary President of international societies, symposia and congresses. He is also an Officer of the Order of Canada.