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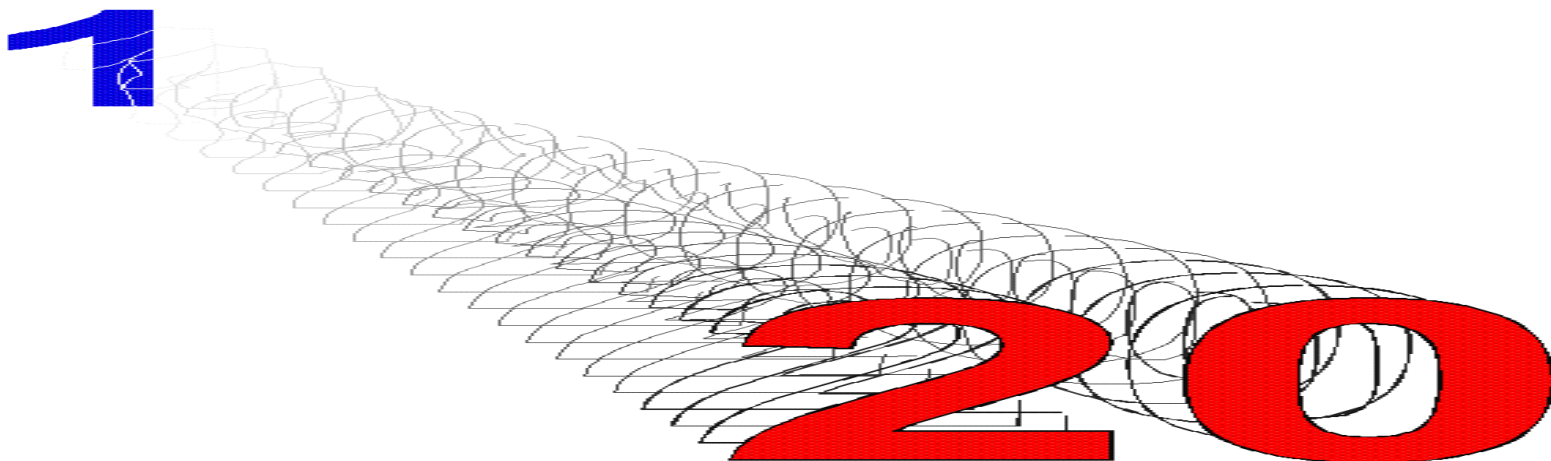
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*This is our 20th year of publication! Help us celebrate by writing something for STC NEWS/NOUVELLES in 2001.
Looking forward to hearing from you.*

*En 2001, nous célébrons notre 20ème année de publication! Participez à cet événement en faisant parvenir votre contribution à **STC NEWS/NOUVELLES**. En espérant recevoir de vos nouvelles bientôt.*

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Come to our 34th Annual STC Symposium

Dec 6-7, 2001, Montréal, Québec, Canada

Theme & Program ["The times they are a changing"](#)

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FROM THE EDITOR'S DESK

Michael Prior



We've just been counted in BC: first for the Census, then for the election.. Quantitative information about the population, necessary for a miscellany of federal, provincial and municipal financial matters. Then we summarized all received qualitative information from political candidates and decided for whom to vote. It will be many months before the census data is available to the public. In contrast, anyone who wanted could have known the election result within hours of closing of the polling stations. Actually, we knew the results *before* the polling stations opened; but that is another story.

Both counts, affecting our lives in different ways, illustrate difficulties in handling and processing data. There are a myriad of publications on the Human Genome Project. This information has been referred to as the biobibliome (after the genome). A Norwegian research team carried out an automated extraction of explicit and implicit biomedical information

from publicly available gene and text databases to create a gene-to-gene co-citation network for 13,712 named human genes by automated analysis of titles and abstracts in over 10 million MEDLINE ¹ records. The associations between genes have been annotated by linking genes to terms from the medical subject heading (MeSH) index and terms from the gene ontology (GO) database. The extracted database and accompanying web tools for gene-expression analysis have collectively been named "*PubGene*"². The researchers showed, in three trials, that co-occurrence does reflect biologically meaningful relationships.

An obvious component of this work is the primary scientific literature. Ownership of a prestigious title is the publisher's trump card, with validation, peer review, and high standards. However, publishers of science and medical journals face criticism and efforts to undermine their business. The average cost of an annual subscription to an academic journal rose by 207 % between 1986 and 1999 (3). During that same period, the number of journals bought by libraries dropped by 6 % ³. Some argue that publishers should relinquish the rights to published bio-medical papers after six months. Others urge academics to "*liberate*" their research by posting papers online from the start.

Recently, American antitrust officials gave the go-ahead to Reed Elsevier, an Anglo-Dutch publishing giant, to buy Harcourt General, an American publisher³. When combined with Harcourt, Reed Elsevier will control some 20 % of the science-journal market, and add a further 500 journals to its 1,200 strong stable. At the time of writing, this takeover has not cleared Britain's competition authority; and the Nature Web Debate topic is "*Should access to scientific research be free?*"⁴.

As if the cost of publishing wasn't enough, there is the matter of sponsorship of research. Financial interests may bias the results of sponsored research. This concern will be nothing new to those of you who were reading the *New England Journal of Medicine* or the *Journal of the American Medical Association (JAMA)* in 1998. Whilst recognizing it is impossible to eliminate bias, some editorial boards require researchers to disclose their financial interests. Examples include the *British Medical Journal*, *Lancet*, and JAMA. Both *Nature* and *Science* are reported to be considering policies on the disclosure of financial interests. Perhaps not so different from the political realm, with the debate over "*soft*" and "*third party*" funding, which might bias advertisements or public statements.

In the nineteenth century, Alice learned of the connection between the message and the messenger: "*He's an Anglo-Saxon Messenger - and those are Anglo-Saxon attitudes*"⁵. In science as in politics, know the messenger as well as the message.

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2. Anon (2001) Journal wars. *The Economist*, Vol 359, No. 8221, p 66, May 12.
3. MEDLINE and other databases can be found at the [National Library of Medicine Gateway](#)
4. Go to [Nature](#) and click on the icon in the top left corner of the screen.
5. Lewis Carroll (1954) "*Through the Looking Glass*", London: Dent.

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DEPLETED URANIUM

Gregory Hartl, World Health Organization

Editor's Note: These are extracts from a letter by Gregory Hartl in Le Mode Diplomatique, p11, April , 2001.

... The World Health Organization (WHO) is concerned to know whether diseases in potentially exposed populations have increased. In search of answers, the WHO has undertaken a number of activities - publications, meetings, and missions to affected countries - the results of which are reported to the press and public regularly and transparently.,,

... [The WHO Fact Sheet on Depleted Uranium](#) is consistent with all major reviews recently conducted on possible health effects of exposure to depleted uranium (DU). From the beginning the scientific review process undertaken to produce the forthcoming WHO monograph on DU addressed both the chemical and radiological toxicities of DU

... A WHO fact-finding mission on DU and health in Kosovo took place in January; [it's report is available](#) ...

Editors Note: The Royal Society has also published [their report on DU](#)

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THE VIEW FROM MY CANOE

Don Ecobichon



A number of events have occurred over the past four months, including Spring which was well behind the geese this year. They arrived to find little open water on which to rest. We had quite large concentrations of both geese and ducks on available open water at river mouths, etc. The MIR space station came down in chunks of blazing wreckage, a spectacular site for those sitting in mid-Pacific (or watching on television). With the unseasonably warm weather, black fly season has arrived too. Betty, no longer housebound, is out in her garden, suited up in her bug outfit and threatening to dig out anything that has been tardy (in her mind, at least) in showing itself. My desk is a mess with half-completed winter projects, galley proofs to read and revise and one chapter to prepare.

Kudos to Gabbie Plaa who received a prestigious award by the Pharmaceutical Manufacturers (USA) at the annual

SOT meeting in San Francisco in March. While on the subject of awards, Hanspeter Witschi, an old colleague and friend of both Gabbie and myself, "retired" as the editor of TOXICOLOGY and was presented with a bound copy of a festschrift, a special dedicated issue of the journal (Vol 160, No 1, 2001) at an evening reception held by Elsevier Science at the SOT. As a measure of his dedication over the past 22 years, only 825 manuscripts (30 %) have been rejected out of 2,750 submitted. There is a nice laudatio written by Karl Netter, at the front (pages 1 - 4) of the issue. I talked to Hanspeter recently by telephone and, having agreed that the Montreal Canadiens "suck" this year, he claimed to be pleased at having more free time. I was sorry to have missed both of the above award ceremonies but, as a retired person, funds to attend meetings are restricted. Australia is out too!

As the European tragedy of bovine spongiform encephalitis and variant Creutzfeld-Jacob disease (vCJD) unfolds, it is startling to not see that we have a similar problem in North America among ranch elk herds in western Canada and the northwestern USA. While waiting for a dental appointment recently, I read an article in the February 2001 issue of Field and Stream about a chronic wasting disease among ranch elk. It appears to have "jumped" into the wild deer in Wyoming, Colorado, South Dakota, etc., and some five people have died, all hunters who are suspected to have eaten contaminated venison, the youngest individual being in his early thirties. All have showed signs and symptoms similar to vCJD. That is all that is needed to completely destroy a new industry in which a number of people have invested a lot of capital. Cautionary statements have been issued by Wildlife Department, recommending the use of rubber gloves while butchering deer and elk, and handling brains, spinal cords and lymph nodes as little as possible. It appears that the "disease" may pass between animals via exposure to urine and saliva.

A brief article on cancer research SCIENCE (291: 581-582, 2001) caught my attention and concerns a role of non-steroidal anti-inflammatory drugs in inhibiting cancer growth. Those of us taking acetylsalicylic acid to reduce coronary infarcts may also be reducing the risk of colon cancer and possibly at other sites as well. The agents work through inhibiting the COX-2 enzyme involved in converting arachidonic acid to prostaglandins, an enzyme with an over expression in colonic cancer cells compared to normal, nearby epithelial cells. COX-2 is also high in breast, lung, skin and esophageal; cancers. Other mechanisms may also be involved - an article worth reading.

I picked up an interesting letter in SCIENCE (291: 828, 2001) in reply to an earlier article on food supply in Africa which suggested that, if cultivars of cassava could be developed (GMOs) having low levels of cyanide, then Africa could "feed itself". While the idea is good, crops of such cultivars would be raided and destroyed by baboons, porcupines and a host of insects who leave the current cassava roots alone. They do not like the cyanoglycosides in the roots. At present, the great need is for virus- and mealy bug- resistant strains of cassava.

Some herbal remedies are notorious for causing drug interactions, either of the competitive/non-competitive binding type or by enhancing the biotransformation of drugs taken concomitantly with the herbs. A possible mechanism has been suggested for St John's Wort, a popular herbal remedy for depression SCIENCE (291:35-36, 2001). The hepatic defence system responds to large doses of chemicals by "turning on" the cytochrome p450 oxidative enzymes - one named CPY3A having the ability to biotransform many toxicants - a known garbage disposal system. Teleologically, this cytochrome system may have evolved to handle countless toxins which animals were exposed in the environment, including poisonous plants. How does it work? Glaxo scientists, among others, have been examining a protein in mice, the PXR receptor, that appears to have an especially large binding site capable of accommodating a variety of molecules. St John's Wort activated PXR (and CPY3A) in normal mice but did not do so in mice lacking the PXR gene. The active ingredient in St John's Wort may be "hyperforin" a chemical thought to be involved in the antidepressant activity. In human liver, there is a different protein, the SXR receptor, that has the same function as PXR. When the SXR gene was inserted in PXR knockout mice, St John's Wort induced a "humanized CPY3A effect - failing to respond to the classical triggers that activate the human system. The scientists argue that PXR and SXR are primary sentries for the "guardian" CPY3A system - a much simpler concept than specific binding sites for each enzyme-inducing chemical. However, it may not be the only mechanism, another gene called CAR, playing a similar role, inducing CPY3A in response to phenobarbital treatment.

For those of you interested in such things, SCIENCE (291:#5507, 2001) has achieved a significant milestone with the February 16th publication of an issue describing the completed human genome, with many articles and a map. Worth

obtaining a copy for historical purposes!

In a recent discussion in SCIENCE (291:1477-1479, 2001) the People's Republic of China has become "westernized" in their approach to funding research. Scientists are now learning to publish or perish. Not only does it reflect in the amount of research funds you get but also in your salary, renewable long-term contracts and the authority to choose the rest of your research team. The Chinese Academy of Sciences began a Knowledge Innovation Program in 1998 in an attempt to control an empire of 123 institutes, 40,000 member workforce and an attitude of a lifetime social support system for the staff. The Academy has allocated nearly \$600 million for the first phase,. With a view to increasing the pool of young, talented students - 20,000 graduate students and 5,000 post-doctoral students by 2005, up from the current 12,000 graduates and 1,500 visiting scholars.

Always interested in geriatric hair loss, I encountered an article in SCIENCE (291: 134-137, 2001) on a potential treatment for receiving cancer chemotherapeutic drugs (etoposide or cyclophosphamide-doxorubicin combination). The new drug targets - cyclin-dependent kinase 2 (CDK2), an enzyme which drives a key step in the cell division cycle. In one experiment, immunodeficient mice received human scalp hair transplants, followed by a dermal application of the CDK2 inhibitor, with a reversible inhibition of hair follicle cell division being observed. In a second experiment, 13-day old mice (actively growing hair) received a dermal application of the new drug on the head at 4- and 2- hours before receiving etoposide. Hair loss was assessed at 21 days of age. Etoposide caused alopecia in controls but, in those having a head rub with the CDK2 inhibitor, alopecia was seen only on non-treated skin areas. The paper includes an interesting photo of naked mice with little skullcaps of fur. Of greater interest was the fact that this drug was developed through x-ray crystallography of the structure of CDK2 bound to a previously identified but relatively weak inhibitor, subsequent modification of the inhibitor molecule to make it bind more tightly and in a form that would be suitable for dermal application.. A nice study from chemistry re cancer chemotherapy.

A final word on drinking water. Having spent a number of years representing the New Brunswick government on the federal-provincial-territories drinking water guidelines committee before 1997, it stresses me that the provinces have not seen fit to govern what is their responsibility - health as it pertains to community drinking water. The federal government, through the above inter-governmental committee, has established minimum guidelines on a wide range of parameters (inorganic, organic, and microbial) for drinking water. Provinces can use these guidelines as is or even develop more stringent ones if they see fit to do so. Water quality cannot be less than the established guidelines. Most provinces have off-loaded the responsibility of water quality onto the communities, requiring them to carry out analyses (and pay for them) although reporting the results to a mandated provincial department (Environment, Natural Resources, Health). It's called "saving money" or "cost recovery" in cash strapped provincial governments. The communities, other than the larger ones, also want to save money, don't conduct the number of analyses that they should and, frequently, do not have trained employees or water management engineers under contract to look out for and intercept problems. Walkerton, Ontario, and North Battleford, Saskatchewan, were accidents waiting for t a time to happen. That they would occur was predictable. How many other small, semi-rural communities are there with problems lurking in the wings? There are media screams and about national standards (as opposed to agreed-upon guidelines - and that the federal government should take charge of water quality (not their responsibility - health is a jealously guarded provincial right). It is time for provincial governments to wake up, smell the coffee, and to accept their responsibility for what has and will go wrong with systems in their domains. There are few things as important to quality of life as potable drinking water.

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CALL FOR NOMINATIONS FOR STC BOARD OF DIRECTORS

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Development, Sheridan Park Laboratories, 2270 Speakman Drive, Mississauga, Ontario, L5K 1B4. Telephone (905) 403-3094. Fax (905) 822-1049. E-mail len.lillie@pfizer.com

This is a second call for nominations for STC Board positions coming open in 2001. Nominations should be submitted by August 31, 2001 to Dr. Len Lillie.

Vice-president (President Elect) - *The incumbent serves 2 years as Vice-president, 2 years as President and 2 years as Past president. The Vice-president serves as liaison to the Scientific Program and Symposium Committees. The President is the Chief Executive Officer of the Society. He or she is responsible for directing the work of the Board, managing the affairs of the Society and representing the Society in the scientific community. The Past president is responsible for the Awards and Nominations Committees.*

Secretary - *The Secretary serves a three-year term. He or she is responsible for agenda, and minutes of meetings of the Board of Directors and the Annual General meeting, correspondence and interactions with other organizations on behalf of the Society.*

Councillor - *The Councillor serves a three-year term. He or she participates as a member of the Board of Directors, provides advice and counsel and acts as liason with specific committees of the Society as directed by the President. This year we are particularly looking for nomination for Councillor from the government sector.*

To maintain a strong and vibrant Society it is essential to have good people prepared to stand for election for Board positions and to be prepared to serve if elected.

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SULPHUR IN CANADIAN GASOLINE

Gerry Ertel and Darwin Rounding, Shell Canada

Editor's Note: The Vancouver Sun of May 21, 2001, carried an article on the front page "Canada's fuel among the worst - sulphur blamed for foul auto emissions" by Paul McKay. The basic message was that sulphur levels in Canadian gas are among the highest in the world.

The level of sulphur in gasoline in Canada varies across the country. In 1999 it averaged 190 ppm in BC and 460 ppm in Ontario, and the Canadian average was 320 ppm. This is about the same as the USA 49 state average of 340 ppm. There are some countries that have lower sulphur concentrations in gasoline and some that have higher levels. Are we among the highest? It would be more accurate to state we are currently somewhere in the middle of the pack and will go down as modifications are made to refining facilities over the next few years.

Canadian refiners are on record as supporting reducing sulphur in gasoline in concert with the rest of the world. It is important to recognize that dramatic reductions of sulphur levels in gasoline are planned in many countries. For Canada, the first step occurs in 2002 when we go down to 150 ppm S avg. and then to 30 ppm S avg. in 2005. Canadian refiners are investing over \$1B in sulphur reduction at their plants, and it is happening as quickly as design and construction schedules allow.

USA and Canadian governments have announced more stringent vehicle emission standards for cars and light duty

trucks Lower sulphur in gasoline is needed for the sophisticated emission control technology that will be required to comply with the revised regulations. A notable reduction in vehicle emissions will result. This drop will be significant, particularly in urban areas with heavy traffic congestion, but it won't resolve all air quality problems (i.e. ozone concerns will remain).

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LA RECHERCHE EN TOXICOLOGIE ET ÉPIDÉMIOLOGIE ENVIRONNEMENTALE À L'UNITÉ DE RECHERCHE EN SANTÉ PUBLIQUE DU CENTRE HOSPITALIER UNIVERSITAIRE DE QUÉBEC (CHUQ)

Pierre Ayotte, Ph.D.

In this article, Pierre Ayotte describes the activities of the Public Health Research Unit (PHRU) at the CHUQ, and recounts some aspects of the pioneering work conducted by its team on the health impact of organochlorine compounds in native populations. Pierre Ayotte is a member of the PHRU, and professor at the Department of Preventive and Social Medicine at l'Université Laval in Quebec City.

L'Unité de recherche en santé publique (URSP) du CHUQ regroupe 50 chercheurs dont les activités sont coordonnées par le docteur Éric Dewailly. La programmation de recherche de l'URSP porte tant sur l'étiologie des problèmes de santé publique que sur leur prévention. Ces chercheurs sont réunis en équipe selon leur champs d'intérêts : environnement, maladies infectieuses, santé au travail, habitudes de vie et maladies chroniques, sécurité dans les milieux de vie, adaptation familiale et sociale ainsi que l'évaluation et l'organisation des services de santé.

environnement rassemble des chercheurs de diverses disciplines (épidémiologie, toxicologie, psychologie, géomatique, anthropologie, santé publique, nutrition) qui unissent leurs efforts afin de mieux comprendre les caractéristiques des individus et les habitudes de vie amenant une exposition aux contaminants environnementaux, l'importance de cette exposition par différentes voies/sources d'exposition et enfin les liens possibles entre cette exposition et différentes maladies importantes pour lesquelles une composante environnementale est suspectée. Ainsi, au cours des dernières années, des projets de recherche ont été réalisés sur les maladies respiratoires telles que l'asthme, des dysfonctions du système immunitaire, des troubles de la reproduction, le cancer du sein, les intoxications ainsi que les maladies hydriques. Ces études sont rendues possibles grâce à notre étroite collaboration avec le Centre de Toxicologie (Institut National de la Santé Publique du Québec) et plusieurs collaborateurs dans d'autres unités de recherche du CHUQ.

Compte tenu de cette exposition élevée de la population inuite aux organochlorés et métaux lourds et des propriétés toxicologiques de certains de ces composés, des études épidémiologiques ont été réalisées pour vérifier si ces contaminants représentaient un facteur de risque pour certains problèmes de santé. Nous avons d'abord étudié la relation entre l'exposition prénatale aux organochlorés et la susceptibilité des enfants inuits aux maladies infectieuses durant leur première année de vie. Une association a été trouvée entre l'exposition prénatale aux organochlorés, notamment le p,p'-DDE et l'hexachlorobenzène, et le risque d'infections de l'oreille moyenne chez l'enfant (Dewailly et al., 2000). Par la suite, nous avons débuté en 1997 une étude épidémiologique portant sur développement et du système nerveux des enfants inuits, en relation avec l'exposition pré- et postnatale à ces contaminants (financée par le NIH) (Muckle et al., 2001). Des déficits neurocomportementaux chez des enfants des mères qui consommaient des poissons des Grands Lacs ont été précédemment reliés à l'exposition prénatale aux BPC (Jacobson et al., 1990). Une hypothèse attrayante veut que les BPC et leurs métabolites hydroxylés puissent interférer avec les hormones thyroïdiennes et ainsi perturber le développement foetal. Nous avons récemment mis en évidence la présence de métabolites hydroxylés des BPC dans des échantillons de sang provenant

d'adultes inuits (Sandau et al., 2000). Par ailleurs, des résultats encore non publiés suggèrent une relation inverse entre les niveaux de thyroxine dans le sang fœtal et la concentration de composés phénoliques chlorés dont les hydroxy-BPC. En incluant des biomarqueurs d'exposition et d'effets dans le design des études épidémiologiques, nous augmentons notre capacité à mettre en évidence des associations avec l'exposition qui sont pertinentes d'un point de vue toxicologique.

En parallèle à l'approche épidémiologique, des études chez les animaux de laboratoire et sur des cellules en culture sont également réalisées afin de mieux cerner les composés responsables des effets néfastes et d'étudier les mécanismes d'action. Nous avons récemment complété une étude portant sur le développement et l'exposition prénatale et postnatale à un mélange complexe d'organochlorés dont la composition ressemble à celle du mélange présent dans le gras de mammifères marins, chez le modèle porcin. Les effets sur le développement de l'appareil reproducteur mâle et sur le fonctionnement du système immunitaire sont principalement examinés. Ces études sont réalisées en collaboration avec Janice Bailey du Centre de Recherche en Biologie de la Reproduction à l'Université Laval et Raynald Roy de l'Unité de recherche en Rhumatologie-Immunologie du CHUL/CHUQ. D'autres études sont également prévues chez le rat pour vérifier l'interaction possible entre les BPC et le méthylmercure sur le développement neurologique et sur l'effet protecteur des antioxydants. Ces études sont effectuées en collaboration avec Marc-Édouard Mirault de l'Unité santé environnement du CHUQ ainsi que François Doré et Sonia Goulet du Département de psychologie de l'Université Laval.

Au cours des cinq prochaines années, plusieurs projets novateurs permettront d'élargir le cadre des recherches et leur impact au niveau international. L'équipe vise à étendre son système de surveillance des contaminants persistants et de ses effets chez l'enfant à d'autres régions à risque de la planète comme les régions côtières éloignées des cinq continents. Nous visons le développement de nouveaux indicateurs de suivi pour d'autres contaminants et déterminants de la santé, ce qui permettrait de réaliser des études multicentriques. La surveillance de la mise en place du protocole international de réduction des POPs en est l'une des applications des nouveaux indicateurs en développement.

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CANADA RESEARCH CHAIRS: THE GAME BEGINS

David Josephy

With the announcement of the decisions on the first round of applications, the Canada Research Chairs program has become reality. Advertisements for Chair positions are now prominently placed in Canadian academic periodicals, such as CAUT Bulletin and University Affairs. As a member of the College of Reviewers, I have had some insight into the administrative operation of the program. While these are still the early days of a multi-year program, I think we can already see some patterns emerging.

How a university chooses to use the CRC funding is largely at the university's discretion. A wealthy institution may be able to "up the ante" by contributing additional money from endowment funds or other sources, making the Chair even more attractive. A poorer university may demand that part of the funding be pulled back to the central budget, making the Chair less attractive. This differential implementation of the program is already evident, and threatens to accelerate the division of Canadian universities into "have" and "have-not" campuses. Receiving the CRC provides a faculty member with real advantages. There will be a salary boost, which may be larger or smaller, depending on a variety of individual factors. In addition to salary, the CRC funds may be used to cover other types of expenditures associated with the position, such as a research stipend, travel funds, or support for a secretary or students. Teaching "relief" will be provided to allow more time for research. Probably, the most attractive features of a Chair are its prestige value and the associated opportunity to apply for funding from CFI (Canada Foundation for Innovation), which is a safe bet to provide substantial money for new research equipment.

The CRC program was "sold" by the Prime Minister as a vehicle for reversing the brain drain, that is, attracting top Canadian scientists to leave positions in other countries (translation - the U.S.A.) and come back to Canada. I was skeptical that this would be possible, and I don't see much evidence that it has happened. We now have the stats. on the second round of Canada Research Chair nominations. Of the nominees, 86% are internal candidates, 7% are being recruited from other institutions in Canada and 7% are being recruited from abroad.

The \$200,000 per year in funding provided for the senior chairs certainly sounds like a lot of money to most of us. But it's rather less than it may appear. Even if all of the funding were available as salary (and, as mentioned above, it isn't) the sum is still less than the pay of "star" researchers at top US institutions. Perhaps the prospect of getting a Chair will convince some faculty to stay in Canada rather than look elsewhere.

So, if the CRCs are not luring expatriate Canadians back to the land of Medicare and maple syrup, just exactly who are the people getting the chairs? Based on the applications I have seen, almost all of them are incumbent Canadian faculty. A few of the applicants for the senior ("Tier I") chairs are true "superstars" with world reputations. Most, however, are just well-established researchers with excellent grant funding and good publication records - solid actors on the Canadian stage but below the first rank of international scientists.

Applications for CRC positions have to be reviewed by the College of Reviewers and then approved by the Program's Steering Committee. Members of the college review the applicant's CV, his or her research plans, and the integration of the position into the university's Strategic Plan. In fact, the approval rate for Chair applications is well over 90%. This does not necessarily mean that the Steering Committee is simply a "rubber stamp" - after all, the universities are supposed to be offering Chairs to excellent candidates - but one does wonder whether the effort which goes into the review process is worthwhile.

Another trend is becoming evident, and it's an aspect of the CRC program that many smaller universities had feared

from the start: stronger institutions using the offer of a CRC position to lure a leading academic away from a weaker campus. This is the phenomenon of "poaching", and it is likely to become more prevalent as the anticipated shortage of Canadian faculty overwhelms the university system in the next few years. It is very difficult for the "minnow" university to fight off the attack from the "shark" university, which can probably offer more money, more space, and other perquisites. The "shark" also has the vital advantage of flexibility: having many more CRC positions available, it can quickly shuffle those positions around, as needed, to poach attractive candidates who come "on the market". Smaller campuses with fewer CRC slots are much more constrained in their allocation decisions.

I anticipate that the "shark" universities will not exercise much self-restraint in their eagerness to poach leading faculty from smaller universities. An academic "feeding frenzy" is likely to develop. Ultimately, this will have political consequences. If the CRC program comes to be seen simply as a mechanism for drawing faculty out of Halifax, Peterborough, Regina -- with all the magnetic lines converging on Toronto, Edmonton, and Vancouver -- it will lose credibility. Ultimately, the government will find itself forced to change the ground rules, in the interest of regional equalization.

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CONFERENCE OF ENVIRONMENTAL MUTAGEN SOCIETY

The Environmental Mutagen Society is sponsoring a Special Conference entitled "Breast Cancer and Environmental Mutagens: Bridging Molecular Research to Medicine and Public Health". This meeting will be held from Saturday, Sept. 22 to Tuesday, Sept. 25, 2001 at the Sheraton Imperial Hotel, Research Triangle Park, NC, USA. Co-chair of the meeting is Dr. David Josephy, Univ. of Guelph. Discounted registration is available until June 1. The abstract deadline is Aug. 15. For complete details, please contact [Dr. Josephy](#) or visit [the web site](#) and click on the "Meetings" Link.

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TOXICOLOGY RESEARCH IN THE FOOD DIRECTORATE AT HEALTH CANADA

Olga Pulido, Rudi Mueller, Elizabeth Vavasour, Peter McGuire and Santokh Gill, Health Canada.

The following is one example of a variety of sub-disciplines of toxicology being researched in the Toxicology Research Laboratories of the Bureau of Chemical Safety, Food Directorate, Health Canada. It is a report of experimental work conducted on excitatory neurotoxins, and is an article that had been invited for publication in the Press Book, Part II, pp.121-123 for the 29th Annual Meeting of the Society for Neuroscience in Miami, October 23-28, 1999. Demonstration of Glutamate Receptors in Body Tissues and Their Relation to Food Safety and Excitotoxicity. Olga Pulido, Rudi Mueller, Elizabeth Vavasour, Peter McGuire and Santokh Gill. Pathology Section, Toxicology Research Division, Health Canada, F G Banting Research Center, 2202D2, Ross Avenue, Tunney's Pasture, Ottawa, ON K1A 0L2, Canada. Presenting author: [Olga Pulido](#)

Food toxicology data is used to establish the safety of chemicals that enter the human food supply or the food chain as natural constituents, contaminants or as additives during food processing. The chemical in question may be a toxin

produced naturally within food, or it may be a man-made chemical such as a pesticide residue. In order to assess the safety of such chemicals, tissues or organs which are highly susceptible to the effects or accumulation of these compounds are examined for abnormalities. Such investigations help to determine the safety margins of chemicals consumed by humans/ animals either as food or as therapeutic products. The goal is to set proper regulatory levels for public safety. Natural original products, commonly accepted dietary practices or lack of knowledge should not be equated with safety. Product safety requires continual assessment in the light of new information obtained through the advances in technology. One group of chemicals of concern in food safety are the excitatory neurotoxins.

Neurotoxins are chemicals that are capable of specifically damaging the nervous system. Some of these chemicals can cause hyperexcitation (excessive firing) of brain cells to the point of exhaustion and death. This type of toxin is referred to as excitatory neurotoxins or "excitotoxins." Some of the natural constituents of food capable of inducing nerve cell excitations are the amino acids: glutamate, aspartate and cysteine. In certain conditions they can be excitotoxic. They are common constituents of proteins and also serve as neurotransmitters.

Neurotransmitters are chemical messengers that relay information throughout the brain. To do so the neurotransmitter released from one neuron (brain cells) binds to specific receptor sites in the next neuron, which in turn initiates the firing of the neuron. This excitatory neurotransmission is an integral component of the brain cell to cell communication pathways. This process can be visualized as a lock and key. The chemical is the key that is needed to unlock the receptor in the next cell. In this case the receptors are glutamate receptors and the key is glutamate. Some substances which resemble glutamate are known to bind to glutamate receptors and therefore are also capable of inducing excitation of the nerve cell. In foods, two of the most widely used and studied of these chemicals are monosodium glutamate (MSG, a flavor enhancer) and aspartame (an artificial sweetener). Both of these compounds have the chemical structure that could induce an excitatory reaction in nerve cells. However, the numerous studies have shown that both of these chemicals are safe at the intakes consumed by the general public.

To protect itself from toxic compounds, the brain possesses a protective barrier which blocks the passage of some toxic compounds. This barrier is called the "blood brain barrier." However, the concentration of excitotoxins could still rise above normal, acceptable levels if the barrier has been damaged or if the chemicals can gain access to brain tissue via vulnerable areas not protected by the blood brain barrier. Domoic acid (DA) is one of the most potent neurotoxins that can enter the food chain. Domoic acid is made by a small marine phytoplankton that is ingested as food and accumulated in the digestive system of seashells such as mussels. Domoic acid was found to be the agent responsible for the outbreak of shellfish associated poisoning that occurred in Canada in 1987. Some of the survivors of this poisoning were left with severe residual memory deficits.

Previous work from this laboratory and from others confirmed that domoic acid preferentially damages areas of the brain involved in memory. The clinical manifestations of domoic acid intoxication are numerous, and many are related directly to its effect on brain cells, including severe seizures. However, there are other clinical symptoms that were described with DA intoxication including gastrointestinal disturbances, cardiovascular collapse, and abnormalities of the cardiac (heart) rhythm. After initial toxicological investigations at Health Canada and at other institutes, acceptable levels of domoic acid in cultured mussels were established.

Most of the work conducted on domoic acid by us and others focused on the acute brain damage. In recent years, clinical observations have reoriented our attention to a possible long term, chronic low dose effects of DA in organs other than the brain. We know that conduction of impulses between cells is not limited to the brain and that there is a rich supply of nerve circuits outside the central nervous system. The clinical finding of cardiovascular disturbances seen with domoic acid intoxications, and the milder cardiovascular effects associated with MSG ingestion, prompted our initial choice of the heart as a possible key target organ for excitotoxins. Since it has been established that glutamate or its analogue such as DA interact with the post-synaptic membrane of glutamate receptors in the CNS, the existence of a similar relationship was explored in heart.

The heart, in order to have synchronized contractions to pump blood, has to transmit and conduct electrical

impulses through specialized cardiac cells and structures known as the conducting system. Our experiments showed glutamate receptors in the heart with preferential localization within the conducting system, the nerve terminals and intramural ganglia cells. The latter are nerve cells usually found embedded in specific parts of the heart and other body tissues. They are important in the relay of nerve impulses that modulate the rhythm of the heart and other autonomic (acting or occurring involuntarily) body functions. The presence of glutamate receptors in the conducting system, ganglia cells and the nerve fibers suggest that these receptors might be involved in the control of heart rhythm. Therefore, these receptors could be key target sites for the toxic effect of various compounds such as domoic acid.

Encouraged by our findings in the heart, other tissues and organs were also examined. Glutamate receptors were identified in other tissues examined: blood vessels, ovary, testes, lungs, kidney, and within ganglia cells and nerve fibers in other systems such as the gastrointestinal tract.

Considerable scientific advances have been made recently toward understanding the role of these glutamate receptors in the brain through their activation by certain chemicals. Since the receptors are present in many of the tissues and organs examined, they are potential target sites for the excitatory compounds such as domoic acid, aspartate and glutamate. In the brain, all glutamate-like compounds have keys which compliment the lock of glutamate receptors. Without these receptors, compounds may not be recognized by the tissues and hence will not have any ill effect. The observation that these receptors are in peripheral tissues, suggests that glutamate and glutamate like-substances such as domoic acid, can potentially have a widespread effect. This can be achieved by activating an excitatory reaction and inducing cell injury in many organs and organ systems, such as heart/ circulatory system, gut/gastrointestinal system, and reproductive system.

In peripheral tissues, it is not known if the different chemical keys are able to unlock the same glutamate receptor. This becomes particularly important for long term, low dose exposures since many peripheral tissues and organs lack the protective blood barrier which is present in the brain. It also opens new possibilities for pharmaceutical development and biotechnology as compounds designed to interact with glutamate receptors in the brain could also act at these peripheral sites and modulate specific organ functions. Hopefully, our work and that of others will provide an impetus for further investigations to elucidate the role of these receptors in peripheral tissues. We are currently testing if compounds such as domoic acid and kainic acid do in fact exert a toxic effect in the heart and other peripheral tissues.

In summary, glutamate receptors have a wide and a unique distribution outside the central nervous system. Based on the pattern of anatomical distribution, we suggest that glutamate receptors mediate and modulate important functions throughout the body. Some of the most striking locations are nerve fibers, ganglia cells, hormone producing cells, inflammatory cells, smooth muscle and specialized structures in various organs including heart, kidney, lungs, ovaries, testes. Based on the tissue distribution of these receptors, we suggest that glutamate receptors in peripheral tissues may be involved in functions such as hormone regulation, heart rhythm, blood pressure, circulation, and reproduction. Potentially these tissues could be target sites for the toxic effect of glutamate or its analogs. Some of the idiosyncratic (individual hypersensitivity to a drug or food) reactions such as palpitation, chest pains, nausea, bronchospasm (observed in asthmatics only), which have been reported due to the ingestion of MSG, aspartame and possibly sulfites, in a subset of the population could be explained due to the presence of the glutamate receptors in peripheral tissues. Perhaps the glutamate-glutamate receptor interaction occurs more readily in some sensitive individuals.

We do not believe that there is enough new information that warrants the reassessment of the safety levels for any products in food. Little is known on how these receptors work in each of these organs. More research will be needed to assess the extent that these receptors participate in normal cell functions, or in the development of disease, or to mediate toxic effects of excitatory amino acids. We hope that this initial work will stimulate further research that could provide additional information on the safety of excitatory neurotoxins.

Note: Parts of this work have been presented and published in the following:

- Gill SS, Pulido OM, Mueller RW, McGuire PF (1999) *Brain Res. Bull.* 46:429-435.
- Gill SS, Pulido OM, Mueller RW, McGuire PF (1998) *Brain Res. Bull.* 48 (2):143 -146.

- Pulido OM, Mueller RW, McGuire PF, Gill SS (1999) *Society for Neuroscience*. Abs: 1544.
- Gill SS, Pulido OM, Mueller RW, McGuire PF (1998) *Society for Neuroscience*. 24(l) Abs: 135.15 p.341.Nov.7-12.
- Gill SS, Pulido OM, Mueller RW. (1996) *Society for Neuroscience* 22 (3): Abs: 782.19, p. 1997.
- Mueller RW, Gill SS, Pulido OM.(1996) *FASEB J*. 9(4LB 146).
- Tryphonas L, Truelove J, Iverson F, Todd ECD, and Nera EA (1990) *Can. Dis. Pwly. Rep. 16 Suppi. IE): 15-19.*
- Truelove J, Mueller R, Pulido O, and Iverson F (1996) *Food Chemical Toxicology* 34: 525-529.

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FROM OUR PAST

In this, the 20th year of publication of STC NEWS/NOUVELLES, we are proud to bring you extracts culled verbatim from previous issues. We pay a note of thanks to Don Ecobichon, the first Editor, who provided a selection from his files. Please note that not all items are equally serious.

From Vol VI, November 1987: HISTORY AND ORIGINS

We are all interested in our roots and, recently, when some queries were being made concerning "old" and founding members of the Society, John McColl (our only member in Chattanooga, Tennessee) unearthed a copy of the minutes of the first official meeting held. I thought that it might be interesting to paraphrase the minutes for the membership.

The original name of the society was the Canadian Association for Research on Drug Safety (CARDS) and many of the original founding members were just that, cards. The first meeting was held on March 3, 1965 at 9.30 a.m. in the conference room of the Ayerst, McKenna and Harrison Ltd research laboratories. In attendance were Drs. A. Hajdu, J.R. MacDougall, P. Nash, C. Ledoux, N. Share, R. Martel, G. Marier, E.N. Terry, G. Sagritalo, F. Herr, E. Groselin, L.P. Chenier, C. Chappel, J.D. McColl and A. Moriarity. Dr. C.I. Chappel was appointed as chairman for a term of one year and J.D. McColl was appointed as secretary-treasurer for a two year term. There was discussion concerning the organization of a symposium on the topic of "Preclinical Toxicity Requirements". It was felt that the group should not become involved in endless argument about government regulations but should spend its efforts on being informative, calling on qualified individuals from industry, government and clinical medicine. The association should not be considered as a pressure group for industry but should be concerned mainly with the scientific problems of toxicology in general. Affiliation with the Pharmaceutical Manufacturers Association of Canada (PMAC) was discussed but the decision was to wait and see what future developments might occur within the association. With other lively discussion about "where do we go from here", the meeting adjourned at 11.45 a.m. on a motion by Dr. Share, and the group retired to Dagwood's for lunch which was kindly provided by Ayerst, McKenna and Harrison.

In the intervening years, the association changed its name twice, first to the Canadians Association for Research in Toxicology (before 1967) and then to the Society of Toxicology of Canada. The first formal annual symposium was held April 13-14, 1967, in the Queen Elizabeth Hotel in Montreal and was entitled "Perinatal Pharmacology and Toxicology". Over the years, some of the original members have retired or, with changing professional interests, have dropped out of the Society. A few (C.I.Chappel, G. Marier, P. Nash, J.R.MacDoiugal, J.D.McColl) are still members and still active in the profession and the society. Looking at the minutes, I can see that the topics of discussion - funds, topics for symposia, a role for the association, etc, have not changed with the years and are still current. Nothing has changed!

From Vol. X, June, 1991: CLASSIFICATION SCHEME FOR CARCINOGENS

The following scheme was presented at the February 1991, Toxicology Forum meeting in Washington DC, being as

equally suitable as the U.S. Environmental Protection Agency or International Agency for Research on Cancer categories of identifying carcinogenic compounds.

| | | |
|----------|---|--------------------------------|
| Positive | 1 | Yes, it is! |
| | 2 | Very close |
| | 3 | Sure looks like a duck |
| | 4 | Would not be totally surprised |
| | 5 | Up for grabs |
| | 6 | Betcha, it ain't |
| | 7 | Give me a break |
| Negative | 8 | Doesn't count |
| | 9 | No, it is not |

From Vol XV, February, 1996: HOW TO BE A SHARP SENIOR

As I get older, I become more interested in this topic. No Sheldon, the plaques have not started to form yet! A small box in SCIENCE (Nov 10, 1995) discusses how to keep your wits for as long as possible - the results of a study done by University of California at Berkeley (UCB) psychologist Arthur Shimura. Intellectually active people develop dementias at a later age than others and other studies suggest that they also compensate better for normal deterioration in mental facilities. Three groups of UCB. professors - ages 30- 44, 45- 59, and 60-71, took a series of tests including reaction time, associational memory, pattern memory and prose memory, the score being compared with data from standard, control groups of young and old subjects. The results (in Sept issue of Psychological Science) demonstrated that professors showed much less cognitive decline with age than did the general population. The professors showed no decline at all in prose recall (remembering passages played to them on tapes) but did show a decline in reaction time but not as much as did the controls. Hallelujah!

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BOOK REVIEW

Michael Prior

Haruki Murakami (2001) *"Underground: the Tokyo Gas Attack and the Japanese Psyche"* Vintage Books. ISBN 0375725806 CAN\$21.95

Haruki Murakami is a fifty something Japanese writer who usually writes novels depicting urban emptiness and dislocation. This time he has extended his talents to a non-fiction atrocity. His latest book is the result of interviewing 40 of the people involved in the sarin gas attack in the Tokyo underground in 1995. As our readers will remember, this attack killed 12 people and injured thousands. For this book, Murakami talked with victims exposed to the sarin gas, subway staff who evacuated them, health professionals who cared for them, and members of the Aum Shinrikyo cult that carried out the attack. From his research, some victims are still suffering from the after-effects; and cult members still find it impossible to condemn its leader Shoko Asahara. A disturbing read, one that informs toxicologists about the human dimensions of sarin toxicity.

NEWS FROM OTTAWA

Rekha Mehta, Health Products and Food Branch, Health Canada



Health Canada Science Forum

Once again, Health Canada with participation of scientists from the Health Products and Food Branch (HPFB), Healthy Environments and Consumer Safety Branch (HECS), and Population and Public Health Branch (PPHB) will be holding a Science Forum in conjunction with the upcoming Annual Meeting of Canadian Federation of Biological Societies on June 21, 2001 in Ottawa. The Health Canada Science Forum will consist of a half-day symposium with a keynote address by Dr. Kevin Keough, Chief Scientist, Health Canada, and poster presentations. The Health Canada organizing committee is being co-chaired by Drs. Genevieve Bondy (HPFB), Renaud Vincent (HECSB) and Bernard Choi (PPHB). See you there!!

Royal Society Expert Panel Report on the Future of Food Biotechnology

In 2000, the Government of Canada (Health Canada, the Canadian Food Inspection Agency (CFIA), Environment Canada and the Department of Fisheries and Oceans (DFO)) asked the Royal Society of Canada to convene an independent expert panel to examine scientific developments in food biotechnology, and to advise the Government on the science capacity necessary to continue to ensure the safety of new generations of genetically-modified foods (GMF) under development. A report from this panel was released in February, 2001, and the complete report with recommendations is available on the website of the Royal Society (www.rsc.ca).

Overall, in reviewing the current approach to safety assessment of GMF's, the Royal Society Expert Panel, like the American Medical Association, the British Royal Society and the US National Academy of Sciences, concluded that the safety of those foods currently on the market was not of concern. However, the panel recommended that the current scientific capacity and regulatory system will require augmentation to keep pace with the evolving science, and to ensure that products of biotechnology can continue to be safely introduced into the Canadian marketplace - a viewpoint fully recognized and supported by the Federal Government.

Among the many recommendations, the following aspects are likely to be of most interest to toxicologists. The panel supported the current approach for assessing allergenic potential, but recommended improving research and testing methodology for allergenicity. The WHO/FAO conducted an expert consultation in January, 2001 on this subject as well.

In considering the applicability of the "concept of substantial equivalence" to the safety assessment of GMF's, the press release by the Royal Society Panel stated that "the use of substantial equivalence as a decision threshold by regulatory agencies such as the CFIA was, in the panels view, scientifically unjustifiable when used to exempt new products from full scientific scrutiny." However, in its report the Expert Panel indicates that the concept of substantial equivalence represents a conservative, effective and a simple safety standard when used as a comparative approach to determine the similarities and differences between the GMF and its conventional counterpart, but not when used as a decision threshold. Similar conclusions were reached regarding the interpretation of the "concept of substantial equivalence" by the Joint FAO/WHO Expert Consultation on Foods Derived from Biotechnology (May 2000). According to Health Canada, this is exactly the way Canada applies the concept of substantial equivalence when assessing the safety of GMF's.

The report identified the need for the development of study protocols related to whole food testing, and the need for developing guidance concerning the types and instances for when such toxicological studies are required. This is a need that has been recognized internationally (OECD, WHO/FAO, Codex), and until such protocols and guidelines have been established, they cannot be incorporated into a regulatory safety assessment..

Public Health News

Following recent concerns with Aristolochia, an herb used in traditional Chinese medicine which contains a known kidney toxin and carcinogen (aristolochic acid), FDA has issued a Consumer Advisory and sent letters to industry and health professionals to communicate concern about dietary supplements and botanical products. This herb has been banned in Belgium and the UK where over 70 cases of renal failure have been reported in association with the drug product. In 1999, Health Canada had already issued a warning letter to the consumers and various stakeholders not to use products containing Aristolochia, and a Customs alert for products found to contain aristolochic acid. All products labelled to contain Aristolochia, and which make label claims without the drug identification number (DIN), require Certificates of Analysis from an accredited laboratory meeting Canadian standards that the products do not contain aristolochic acid before they are allowed entry into Canada.

Another recent issue of concern with health products has been the theoretical or potential risk of exposure to variant Creutzfeldt-Jakob Disease (vCJD) via products containing human or animal-derived materials which may have originated in countries where agents of Transmissible Spongiform Encephalopathy (TSE) are known to exist. As a precautionary measure the Therapeutic Products Directorate (TPD) has asked all manufacturers of products assigned DINs to provide full disclosure of the source of all the ingredients of products sold in Canada. Any product found to contain bovine material coming from non BSE-free countries will be pulled from Canadian store shelves. However, certain natural health products are not assigned DINs, and the responsibility for these lies with the Office of Natural Health Products (ONHP) , the Food Directorate, and CFIA who are expected to take similar precautionary measures.

On May 9, 2001, the Environment Minister David Anderson announced that Canada will sign and ratify the United Nations Convention on Persistent Organic Pollutants (POPs). The global agreement, known as the Stockholm Convention, was signed in Stockholm on May 23, 2001, and will provide a means for reducing or eliminating emissions of twelve toxic substances known to be among the most harmful substances for human health and the environment. The contaminants included are PCB's, hexachlorobenzene, DDT, chlordane, toxaphene, mirex, aldrin, dieldrin, endrin, heptachlor, DDT, dioxins and furans. The UN POPs Convention requires countries to be responsible for the production, use, import, export, and disposal of POPs, and to promote, and in some cases implement, the best available technologies and practices for emissions of POPs from industrial processes. The Convention further provides a mechanism for adding other POPs to the list in the future, and includes a requirement aimed at preventing the development of new POPs.

Reminder: current public health issues are always available at the [Health Canada](#) web site.

SOCIÉTÉ DE TOXICOLOGIE DU CANADA (STC)- STC PRIX VEYLIEN HENDERSON

Par ce Prix, la STC cherche à reconnaître l'importante contribution à la toxicologie d'un chercheur ou d'une chercheuse œuvrant au Canada. Les conditions d'éligibilité sont les suivantes:

- 1. être citoyen(ne) canadien(ne);*
- 2. être âgé(e) de moins de 45 ans en date du 1er Juillet de l'année de l'obtention du Prix;*
- 3. être mis(e) en nomination par un membre régulier en règle de la Société. Ce membre devra faire parvenir au secrétaire;*
 - 1. une lettre d'appui à sa recommandation;*
 - 2. un résumé de deux pages soulignant la contribution remarquable du candidat ou de la candidate;*
 - 3. un curriculum vitae complet et une liste des publications du candidat ou de la candidate;*
 - 4. des tirés à part d'au plus cinq (5) publications reflétant bien les activités de recherche du candidat ou de la candidate.*

Le tout doit être transmis au secrétaire, à l'adresse habituelle de la société, avant le 1er Juillet de l'année de la remise du Prix.

*Secrétaire de la STC,
CP/PO 517,
Beaconsfield, Québec
H9W 5V1*

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SOCIETY OF TOXICOLOGY OF CANADA (STC) - STC VEYLIEN HENDERSON AWARD

This STC Award honours an individual who has made a significant contribution to the discipline of toxicology in Canada. The conditions of the award are as follows:

- 1. the candidate must be a Canadian citizen;*
- 2. the candidate must be under 45 years of age as of July 1 of the year in which the award is given;*
- 3. the candidate must be nominated by one ordinary member of the Society (in good standing) who will supply the Secretary with:*
 - 1. a supporting letter of recommendation;*
 - 2. a two page resume describing the significant contribution made;*
 - 3. a complete curriculum vitae and publication list; and*
 - 4. reprints of not more than 5 papers best reflecting the candidate's research.*

All the above should be sent to the Secretary, at the STC address by July 1 of the year of application for this award.

Secretary STC
CP/PO Box 517,
Beaconsfield, Québec
H9W 5V1

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SOCIETY OF TOXICOLOGY OF CANADA (STC) - STC AWARD OF DISTINCTION

Purpose

The purpose of the STC Award of Distinction is to honour those individuals who have made outstanding and sustained contributions to the science of toxicology in Canada and/or the Society of Toxicology of Canada.

Selection Committee

Recipients shall be chosen by a committee of four members drawn from the Society: the Past-President who will act as chairperson, one of the Councillors, and two members appointed by the Board from the general membership and who are not members of the Board.

Nominations

Nominations must be made by two regular members of STC, in good standing, but no member may nominate more than one candidate during any one year. Nominations for the Award shall be made to the Chairperson of the Selection Committee before July 1 of the year of the award. Nominations must be accompanied by:

- 1. A summary, not to exceed two pages, describing the nominee's contribution to the science of toxicology and/or to the STC;*
- 2. Copies of no more than five manuscripts and other documents considered by the sponsor to be pertinent to the award.*
- 3. The nominee's curriculum vitae and a brief biographical sketch suitable for press release.*

Nominees who are not granted the award in the year of the nomination will be automatically included among the nominees in the two subsequent years unless the sponsors explicitly express otherwise. Sponsors will be invited to update previously submitted information.

Award and Presentations

The award will be in the form of a plaque or other suitable memento. Presentation of the award will be made at the President's Reception during the Annual Meeting.

Criteria

The following criteria will guide the Selection Committee:

- 1. The recipient should have demonstrated outstanding and sustained contributions to the science of toxicology in Canada and/or the recipient should have provided outstanding and sustained service to the Society of Toxicology of Canada*
- 2. The Selection Committee will exercise discretion regarding the relative contribution of the recipient to the science of toxicology in Canada and service to the Society of Toxicology of Canada.*
- 3. The decision of the Selection Committee shall be final. Only one award may be made annually, and there is no obligation or duty to make the award when, in the opinion of the Selection Committee, there is no qualified candidate.*

Information about STC's activities, awards and/or membership application forms may be obtained by contacting

*Secretary STC
CP/PO Box 517,
Beaconsfield, Québec
H9W 5V1*

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SOCIÉTÉ DE TOXICOLOGIE DU CANADA (STC) - STC PRIX DU MÉRITE

But

Le but du Prix du mérite est d'honorer les personnes qui ont apporté une contribution remarquable et soutenue au domaine de la toxicologie au Canada ou à la bonne marche de la Société de toxicologie du Canada.

Comité de sélection

Les récipiendaires seront choisis par un comité de sélection formé de quatre membres de la Société: le président sortant de la Société qui présidera le comité, l'un des conseillers, ainsi que deux membres réguliers choisis par le bureau de direction, mais qui ne font pas partie du bureau de direction.

Candidatures

Les candidatures doivent être soumises par deux membres réguliers de la Société; aucun membre ne peut soumettre plus d'une candidature chaque année. Les candidatures doivent être déposées auprès du président du comité de sélection avant le 1er Juillet de l'année de la remise du Prix. Les documents suivants doivent être soumis à l'appui des candidatures:

- 1. un résumé de deux pages décrivant la contribution du candidat ou de la candidate au domaine de la toxicologie ou au fonctionnement de la STC;*
- 2. des copies d'au plus cinq manuscrits ou documents pertinents produits par le candidat ou la candidate;*
- 3. un curriculum vitae du candidat ou de la candidate, ainsi qu'une notice biographique à l'intention du monde de la presse.*

À moins que les parrains des candidats ou des candidates ne souhaitent qu'il ne soit autrement, les candidatures non retenues l'année de leur dépôt seront réactivées automatiquement lors des deux années suivantes. Les parrains verront alors à mettre à jour les dossiers soumis.

Le Prix et sa remise

Le Prix consistera en une plaque ou en toute autre marque tangible de reconnaissance. La remise du Prix se fera lors de la réception du président, à l'occasion du Colloque annuel de la Société.

Critères

Le comité de sélection se basera sur les critères qui suivent:

- 1. le ou la récipiendaire devra avoir apporté une contribution remarquable et soutenue au domaine de la toxicologie au Canada; à ceci pourrait se substituer une contribution sous la forme d'états de service remarquable et soutenues au sein de la Société de toxicologie du Canada;*
- 2. c'est au comité de sélection qu'il incombera de porter un jugement éclairé sur le mérite de la candidature;*
- 3. la décision du comité de sélection sera finale et un seul prix sera remis chaque année. Si, de l'avis du comité de sélection, aucune candidature n'est méritante, le Prix ne sera pas remis.*

On peut obtenir des informations sur les activités et les prix de la STC ainsi que sur la façon de joindre les rangs de la Société, en écrivant à l'adresse suivante:

*Secrétaire de la STC
CP/PO 517,
Beaconsfield, Québec
H9W 5V1*

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TOXICOLOGY FROM A PHYSICIAN'S PERSPECTIVE IN KENYA

Brian Inglis M.D., Thika, Kenya

I have been asked to write a short article on Toxicology and Kenya from the viewpoint of a Canadian Physician working in a Kenyan Mission Hospital. Toxicology is defined in an Oxford dictionary as the study of poisons. This article will deal with known toxins.

Known Toxins

Our most common inpatient problem relating to toxicology is poisoning by organophosphates. These are used to treat ticks in cattle. Due to their ready availability, they are frequently used in intentional self-poisonings and less often on the children of suicidal parents in murder-suicides. Accidental poisonings that I have encountered have mainly been accidental ingestion of Kerosene by toddlers. There was a recent episode of methanol poisoning of home-distilled liquor called Kumi-Kumi. At least 120 deaths were reported in the press in clients who regularly drink this cheap brew. (Kumi is Swahili for 10 and indicates the price in shillings of a glass of the brew) In this case what was believed to be ethanol was actually methanol and the illegal sale of ethanol by a chemical factory is being investigated along with the criminal error of accidentally providing methanol instead of the ethanol. The death of several policemen and the countrywide locations of deaths indicate the scope of the distribution of this illegal homebrew and the corruption involved in sustaining such a large commercial operation. Local distilleries and breweries opposed recent calls for legalization of this home brewing.

There are many toxic side effects of medicines prescribed by Physicians. I have seen two cases of aplastic anemia presumably as a consequence of Chloramphenicol used for treating Typhoid Fever. It is still an effective and very cheap antibiotic, which is only slowly being replaced by the quinolones. Toxicity of medications is common due to high cost and spotty availability of more advanced blood biochemistry testing.

Other toxins, playing a role in our admissions would be those causing Asthma. To the by-products of tobacco combustion must be added the effects of trees, charcoal and kerosene used in cooking. In the rural areas the burning of grasses and weeds is an asthma trigger while in urban areas plastic garbage is burned, as garbage collection is poor and fuel supplies expensive. The biggest urban air pollutant is the exhaust fumes from an ancient fleet of vehicles. While the rich can afford Mercedes Benz and Toyota Four Runners the majority of vehicles are 15-30 years old. They are imported as second or third hand vehicles from first world countries with left hand drives. They may have even failed a pollution test in their country of origin. As with anything of value they are repaired continually and not allowed to die. (Japanese models are most popular and I have ridden in a 35 year old Datsun that ran well with a push start.) I am unable to comment on the makes of trucks and lorries on the road but they are equally as old if not older and to follow one up a hill in single file leaves you choking from the emissions. I have returned from a one-hour trip to Nairobi with hoarseness and a sore throat due to emission fumes! Rarer asthma triggers include chickens being raised in houses as a source of income, fumes from burning mosquito repellent coils, scents from intensive flower horticulture farming and using hard plastic lids and containers as a fuel source. The poorest families use this last fuel and send their children out to look for plastic scraps, because deforestation has reduced supplies of cheap timber and charcoal.

Kenya and likely all developing countries have local environmental problems. These they must control and regulate themselves. Kenya is still at the stage where those who speak out are often subjected to oppression, harassment and physical danger. In Canada, it took concerned and courageous citizens raising issues repetitively until the government acted. In the developing countries we may need to support the efforts of the brave few as well.

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CANADIAN JOURNAL OF PHYSIOLOGY AND PHARMACOLOGY

The National Research Council advises that [Volume 79 Number 5 May 2001](#) is now available, as is [Volume 79 Number 6 June 2001](#). You may make changes or delete your registration at [Publication Alert](#).

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NEW MEMBER OF THE STC EDITORIAL COMMITTEE

Patricia Solbeck will be serving as the Student Representative on the STC News/Nouvelles editorial committee after joining the STC as a student member this year. She is currently pursuing her Master of Science at the University of Guelph under the supervision of Dr. David Josephy. Her project involves the detection of heterocyclic amine carcinogens in human breast milk.

Originally from Sault Ste. Marie, Ontario, Patricia graduated from the Biomedical Toxicology program at the University of Guelph in June 2000. She was active in the Toxicology Students' Association as an undergraduate student,

2:00 p.m. Short presentations by Scientific Directors CIHR, Mark Bisby - Director of Programs CIHR, and representatives from Health/Environment Canada: Opportunities for toxicological research

3:50 p.m. Open Panel and Audience Discussion

Note: This program is correct at press time.

Please check with the STC office or Dr. John Clement for any last minutes changes.

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CALL FOR VOLUNTEERS

In 1996, The STC completed a comprehensive survey of undergraduate and graduate level educational opportunities at Canadian universities in the field of toxicology. This resulted in a document titled " Toxicology Education in Canada". In the past 4 to 5 years, there have been a number of changes that justify the updating of this document. Volunteers are needed to perform this task. If you are interested, please contact [Sheldon Roth via e-mail](#) and indicate your willingness to help. It has been suggested that perhaps this group could form the Education Committee for the coming year.

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NEURAL TOXICOLOGY SECTION OF THE CANADIAN CONSORTIUM IN DRUG AND ENVIRONMENTAL SAFETY

This consortium, under the direction of Dr. Jack Bend, University of Western Ontario, was formed to bring together Canadian toxicologists who will collaborate ... to develop state-of-the-art research strategies to precisely determine how drugs and pollutant chemicals produce harmful effects in Canadians; why these effects often only occur in a small fraction of those exposed (molecular genetics; how these effects can be prevented in susceptible individuals, and how this knowledge can be used to develop new approaches for the prevention and treatment of human disease".

The Consortium met in Toronto September 29-October 1, 2000 to discuss interaction with CIHR, Health Canada, and various toxicology-related Consortia and Networks, as well as possibilities for collaboration among scientists in particular thematic areas of research interests. The report of the Neural Toxicology Section is appended. The next meeting of the Consortium will occur December 7-8, 2001 in conjunction with the annual symposium of the Society of Toxicology of Canada in Montreal (December 6-7).

A crucial step in developing the Neural Toxicology section of the Consortium is to identify interested neuroscientists and toxicologists in academia, industry or government to join and become involved. Scientists interested in the adverse effects of chemicals, drugs, materials or genetic determinants on the nervous system are encouraged to contact me by e-mail: heather.durham@mcgill.ca

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CANADIAN CANCER ETIOLOGIC RESEARCH NETWORK (CCERN)

Announcing the Canadian Cancer Etiology Research Network (CCERN)

We are pleased to announce the formation of the Canadian Cancer Etiology Research Network (CCERN). It is a broad network, open free of charge to individuals with interests in cancer etiology from the perspective of a range of cancer risk factors, from a variety of disciplines, and from relevant settings, including academia, government, cancer registries, and the health sector, anywhere in the country. With funding from the National Cancer Institute of Canada, CCERN facilitates research by forming and fostering the work of multidisciplinary research teams.

CCERN is comprised of two components designed to facilitate the network's objectives: Virtual Research Centres (VRCs) and a Communications Program. VRCs are the core of CCERN. Investigators participating in the VRCs generate and execute research in areas defined in terms of five general classes of risk factors: diet, environment/occupation, genetics, hormones, and micro-organisms. Using the CCERN Web Site and facilities of the Communications Program, investigators can identify potential colleagues with complementary skills and research resources, in order to develop competitive grant applications. CCERN's Chat Rooms and Discussion Board allow researchers across the country to work together to develop research protocols. Where applications can be made more competitive by collection of preliminary information, seed funding is available through CCERN. High quality applications are assured by establishing methods to facilitate consultation and discussion, and by rigorous peer review.

To become a member free of charge, please complete the attached registration form and e-mail, mail, or fax to the address below. Alternatively, you could go to our web site [our web site](#) and fill out the form online.

*Canadian Cancer Etiology Research Network (CCERN),
Faculty of Medicine, University of Toronto,
401B McMurrich Bldg., Toronto, ON, M5S 1A8
Voice: 416-978-0189 FAX: 416-978-8299 E-mail: info@ccern.org*

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STC BOARD OF DIRECTORS DECEMBER 2000 TO DECEMBER 2001

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| <p>Dr. Heather Durham (<i>President</i>) Department of Neurology/Neurosurgery Neurotoxicology Laboratory Montreal Neurological Institute 3801 University Street McGill University Montreal, Quebec H3A 2B4 Tel: 514 398-8509 Fax: 514 398-1509 Email: MDDM@MusicA.McGill.CA</p> | <p>Dr. Sheldon H. Roth (<i>Vice President</i>) Dept. of Pharmacology and Therapeutics Faculty of Medicine The University of Calgary 330 Hospital Drive N.W. Calgary, Alberta T2N 4N1 Tel.: 403 220-6002 Fax.: 403 283-2200 Email: shroth@acs.ucalgary.ca</p> | <p>Dr. Suzanne Desjardins (<i>Councillor</i>) Evaluation and Research Coordination Division Office of Controlled Substances Healthy Environments and Consumer Safety Branch Health Canada 123 Slater Street, A.L. 3503B Ottawa, ON K1A 1B9 tel(613) 946-4223 fax(613) 952-2196</p> |
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| <p>Dr. Michel Charbonneau (<i>Treasurer</i>) Université du Québec Institut national de la recherche scientifique INRS-Santé 245 boulevard Hymus Pointe-Claire, Québec H9R 1G6 Tel: 514 630-8831 Fax: 514 630-8850 Email: michel_charbonneau@INRS-SANTE.UQuebec.ca</p> | <p>Dr. Thomas E. Massey (<i>Secretary</i>) Department of Pharmacology and Toxicology Queen's University Kingston, Ontario K7L 3N6 Tel: 613 545-6115 Fax: 613 545-6412 Email: masseyt@post.queensu.ca</p> | <p>Email: suzanne_desjardins@hc-sc.gc.ca</p> <p>Dr. Mark T. Goldberg (<i>Councillor</i>) GlobalTox International Consultants Inc. 367 Woodlawn Road West, Unit #6 Guelph, Ontario N1H 7K9 Tel 519-766-1000 Fax 519-766-1100 Email goldberg@globaltox.ca</p> |
| <p>Dr. Leonard E. Lillie (<i>Past President</i>) Pfizer Global Research & Development Sheridan Park Laboratories 2270 Speakman Drive Mississauga, Ontario L5K 1B4 Tel.: 905 403-3094 Fax.: 905 822-1049 Email: Len.Lillie@pfizer.com</p> | <p>Dr. David Josephy (<i>Councillor</i>) Department of Chemistry and Biochemistry University of Guelph Guelph, Ontario N1G 2W1 Tel: 519 824-4120, ext. 3833 Fax: 519 766-1499 Email: josephy@chembio.uoguelph.ca</p> | <p>Dr. Gordon Krip (<i>Executive Director</i>) Merck Frosst Canada, Inc. 16711 Trans Canada Hwy. Kirkland, Quebec H9H 3L1 Tel.: 514 428-2676 Fax.: 514 428-4946 Email: gordon_krip@merck.com</p> |

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FROM THE DESK OF THE PRESIDENT

Heather Durham



On behalf of the Society of Toxicology of Canada, I extend greetings to our colleagues from all over the world who will be gathering in Brisbane this July for ICT IX. Congratulations to Professor Michael McManus, Congress Chair, and the Congress Organizing Committee for putting together such an excellent scientific program. I'm looking forward to stimulating scientific exchange and to sampling Australian wine at the social activities. This will be my first trip to Australia and I'll be taking some time to see the sites and experience Australian hospitality. A dream has been to dive the Great Barrier Reef and I have my SCUBA gear packed and ready to go.

In addition to participating in the scientific program, a major activity for members of our Society will be to promote our bid to host ICT XI in Montreal in 2007. The bid committee, chaired by Dr. Len Lillie, has done an extremely professional job in putting together our materials. The partnership of the Society of Toxicology of Canada, the Montréal Convention Centre, and the National Research Council of Canada provides an experienced team for excellent scientific programming and professional conference management. We are committed to a scientifically rewarding and financially successful congress should our bid be successful. I live in Montréal and can attest first hand to what a special venue this would be to host an international congress. There is just nothing else like the ambiance of Montréal!

Myself, Alain Carbonneau from the Montréal Convention Centre and several members of STC attended the Society of Toxicology meeting in San Francisco in March. We were pleased to meet representatives of several countries as well as the IUTOX executive committee and answer questions about our bid. A sincere thank you to all who participated.

Once again, Canadians were prominent as winners of various awards at SOT. Congratulations to Winnie Jeng who won the Monsanto Graduate Student Presentation Award of the Neurotoxicology Specialty Session. Her poster presentation was entitled "Prostaglandin H synthetase (PHS)-catalyzed bioactivation of 3,4-methylenedioxymethamphetamine (MDMA) and related analogs to free radical intermediates that oxidize DNA". Congratulations to Rebecca Laposa, who won the third place award from the Molecular Biology Section for her presentation titled "Regulable reduction of endogenous oxidative DNA damage in transgenic mice carrying the DNA repair gene formamidopyrimidine dna glycosylase (fpg)". Both winners are from the laboratory of Dr. Peter Wells, Pharmaceutical Sciences, University of Toronto. It is wonderful that so many areas of research appreciate the work that is being conducted in Peter's lab. Peter will be a speaker at this year's annual symposium in December and we look forward to hearing his talk on the application of transgenic technology to toxicology.

The 34th STC annual symposium will be held in Montréal, December 6-7, 2001. The program is outlined in more detail [elsewhere](#) in this newsletter, but a few things are worth special mention. First of all, the program committee, chaired by John Clement, has put together a superb scientific program focussing on application of new methodologies to toxicology and modern occupational toxicological hazards. An exciting new venture this year is that the Canadian Consortium in Drug and Environmental Safety will meet with STC. A joint session, sponsored by STC, will be held Friday afternoon, December 7 entitled "Emerging opportunities for collaboration and funding in toxicology". These are important times for toxicologists to be involved in determining how research will be funded in Canada. The establishment of the Canadian Institutes of Health Research (CIHR) to replace the Medical Research Council of Canada brings with it the challenge of making sure opportunities are created for basic and applied toxicological research. The multidisciplinary, cross-cutting nature of our discipline brings strength to the Institutes to leverage funding of specific programs, but the danger of falling short of being a priority in any specific Institute must be acknowledged and prevented. For this reason, we have invited several Institute Directors, Mark Bisby, Director of Programs of CIHR, and representatives from Health/Environment Canada to participate in this session culminating in an open panel/audience discussion. This is your opportunity to provide constructive input to the development of CIHR, whether you are in the academic, industrial or government sector. Partnerships are a key element of research today, so everyone should be concerned about how toxicology will be represented and developed. It is up to us. The Society is doing what it can by providing input at every stage and establishing communications with Institute Directors, but we need to have the support of the membership. Please attend, contribute and show the invited speakers how strong toxicology is in Canada. Let's pack the room!!

The meeting of the Consortium will continue on Saturday, December 8 at the Montréal Neurological Institute. The Canadian Consortium in Drug and Environmental Safety was initiated with sponsorship of CIHR with the following mandate:

- *to bring together leading Canadian toxicologists who will collaborate with international experts to develop state-of-the-art research strategies to precisely determine how drugs and pollutant chemicals produce harmful effects in Canadians,*
- *•why these effects often only occur in a small fraction of those exposed (molecular genetics),*

- *how these effects can be prevented in susceptible individuals, and*
- *how this knowledge can be used to develop new approaches for the prevention and treatment of human disease.*

The first workshop was held in September, 2001 and organized focus groups in reproductive and developmental toxicology, adverse drug reactions, neural toxicology, environmental carcinogenesis, and biomarkers of exposure and effects. The agreement to meet in conjunction with the Society of Toxicology of Canada is another positive step to promote interaction among Canadian scientists with interests in toxicology. If you are not affiliated with the consortium, would like to be or would like more information, please contact Jack Bend at the University of Western Ontario: jack.bend@med.uwo.ca.

In the Northern hemisphere we are experiencing the rituals of spring. The markets are full of flowers and abounding with early local produce including fresh asparagus, greens and herbs as well as fresh berries from more Southern climates. The gardens and flower beds have been planted and the outdoor cafés are open. On the down side, the dry weather has made for a bad forest fire season, particularly on the prairies. We wish you rain. Each year at this time I spend a few days in Tucson, Arizona at the Muscular Dystrophy Association's Headquarters. Strangely, they have had more rain than usual and the desert was fragrant with blossoming cacti. I used my umbrella more often in Tucson than I did during a trip to British Columbia. Now my travel challenge is to decide how to spend my time off in Australia. I hope to see you in Brisbane in July and in Montréal in December for our annual symposium.

In closing I extend congratulations to our current editor of the newsletter, Dr. Michael Prior and past editor, Dr. Donald Ecobichon, as well as all contributors for twenty years of a superb publication. The newsletters are available on [STC's website](#) for our colleagues in other countries to enjoy and find out about toxicology in Canada.

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STC COMMITTEES 2001

Standing Committees

Membership (Jan-Dec term)

- *Malle Jurima-Romet (Chair) (1 yr to Dec 2001)*
- *Mark Goldberg: - Globaltox (1 yr to Dec 2001)*
- *Randy Leeder: Leopharm (2 yrs to Dec 2002)*
- *Harpal Buttar: Health Canada (3 yrs to Dec 2003)*
- *Gordon Krip*
- *Treasurer (ex-officio) Michel Charbonneau*

Scientific Program Committee - Jan-Dec term (new committee approved at Dec. board meeting)

- *John Clement (Chair): industry (1 yrs to Dec 2001)*
- *Gordon Kirby: academic (2 yrs to Dec 2002)*
- *William (Bill) Casley: government (3 years to Dec 2003)*

Nominating Committee Jan-Dec)

- *Chair (Past President) Len Lillie*
- *2 members selected at AGM: from AGM minutes (1 yr to Dec 2001)*
- *Geneviève Bondy and George Cherian*

Appointed Committees

Editorial/Newsletter Committee: (terms end March 31 each yr to provide continuity for newsletter following the AGM)

- *Michael Prior (editor) (2 yrs to Mar 2003)*
- *Gordon Krip (publisher)*
- *Government: Rehka Mehta (1 yr to Mar 2002)*
- *Industry: Elizabeth Williams (2 yrs to March 2003)*
- *Academia: David Josephy (3 yrs to March 2004)*
- *French language/industry: Dino Manca (2 yrs to March 2003)*
- *Student member: Patricia Solbeck (U. Guelph) (two years to March 2003)*

Symposium Committee

- *Executive Director (Gordon Krip)*
- *Corporate Fund Raising (Jon Daniels)*

Awards Committee

- *Chair (Past President) Len Lillie*
- *Councillor: Suzanne Desjardins*
- *two non Board members are nominated as required for evaluation of*
 1. *Henderson award and Award of Distinction, and*
 2. *student poster awards.*

Science Policy Committee (Jan - Dec)

- *Chair: Roger Keefe (Imperial Oil, Toronto) (2 yrs to Dec 2002)*
- *Industry: Geoff Granville (Shell Canada, Calgary) (2 yrs to Dec 2002)*
- *Academia: Stelvio Bandiera (UBC) (2 yrs to Dec 2002)*
- *Board Contact: President - Heather Durham (McGill)*

Education Committee

ad hoc according to specific issues identified by the Board

Current: Toxicology Education in Canada: update

- *Sheldon Roth (Chair), Laurie Chan, Daniel Sitar, David Josephy, Francis Law, Lorraine Davison*

ICTXI

- *Core bid committee:*
 - *Len Lillie (Chair), Heather Durham (President, STC), Doug Arnold and Rekha Mehta (communications), Alain Carbonneau (Palais des Congrès), Laurier Forget (NRC), Gordon Krip and Gaston Chevalier.*

- *Larger committee also includes:*
 - *STC board of directors, Gail Bellward, George Cherian, Don Ecobichon, Barbara Hales, Gabriel Plaa, Bill Racz, and Bernard Robaire.*
 - *All members of STC are our ambassadors.*
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INTERNATIONAL CONGRESS OF TOXICOLOGY IX

The 9th International Congress of Toxicology (ICT-IX) will be held in Brisbane, Australia, on June 8-12, 2001. The Australasian Society of Clinical and Experimental Pharmacologists & Toxicologists (ASCEPT) and the International Union of Toxicology (IUTOX) will host the congress.

The congress theme is Toxicology and Sustainable Development - meeting the challenge. The objective of this theme is to equip scientists across all sectors- academia, government and industry- to meet societal demands for managing chemical safety, while being mindful of the needs of sustainable development.

The ICT-IX Organizing Committee, through its Scientific Program Committee, has developed a strong program featuring international experts in a wide range of toxicological disciplines. The meeting will cover a wide variety of topics that will interest toxicologists from research-based disciplines to industry and government bodies. Over 1,000 delegates are expected from more than 40 nations, including from developing countries and within the Asia-Pacific region. The program has a very strong component on risk assessment and deals with many of the contemporary issues associated with the use of chemicals, new technologies, and the environment.

The prestigious Deichmann Lecture will be presented by Dr David Vaux on the opening day of the formal congress proceedings. Dr. Vaux is currently a Principal Research Fellow in the Molecular Genetics of Cancer Division at the Walter and Eliza Hall Institute for Medical Research. With an outstanding international reputation as a world leader in the field of apoptosis, he showed that the Bcl-2 gene, which is often activated in lymphomas, is an inhibitor of cell death. The title of his presentation at next years meeting will be "What is the relevance of apoptosis in toxicology."

An extensive social program has also been planned that features a truly Australian welcome reception, congress dinner and a variety of activities for partners.

In the fall issue of STC NEWS/NOUVELLES, we will have a report of ICT IX from one or more of our Society members who will be attending.

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URBAN MYTHOLOGY

Wonderful what one can find on the Internet! This purports to be a bricklayer's accident report, printed in the newsletter of a national workers' compensation board, and was quoted as being a true story. Perhaps those Board members should re-open the bricklayer's file - I first heard this tale of woe from Gerald Hoffnung, as one of his humorous

monologues.

Dear Sir,

I am writing in response to your request for additional information in Block 3 of the accident report form. I put "poor planning" as the cause of my accident. You asked for a fuller explanation and I trust the following details will be sufficient.

I am a bricklayer by trade. On the day of the accident, I was working alone on the roof of a new six story building. When I completed my work, found that I had some bricks left over which, when weighed later were found to be slightly in excess of 500 lbs. Rather than carry the bricks down by hand, I decided to lower them in a barrel by using a pulley, which was attached to the side of the building on the sixth floor. Securing the rope at ground level, I went up to the roof, swung the barrel out and loaded the bricks into it. Then I went down and untied the rope, holding it tightly to ensure a slow descent of the bricks.

You will note in Block 11 of the accident report form that I weigh 135 lbs. Due to my surprise at being jerked off the ground so suddenly, I lost my presence of mind and forgot to let go of the rope. Needless to say, I proceeded at a rapid rate up the side of the building. In the vicinity of the third floor, I met the barrel which was now proceeding downward at an equal, impressive speed. This explained the fractured skull, minor abrasions and the broken collar bone, as listed in Section 3 of the accident report form. Slowed only slightly, I continued my rapid ascent, not stopping until the fingers of my right hand were two knuckles deep into the pulley. Fortunately by this time I had regained my presence of mind and was able to hold tightly to the rope, in spite of beginning to experience a great deal of pain. At approximately the same time, however, the barrel of bricks hit the ground and the bottom fell out of the barrel. Now devoid of the weight of the bricks, that barrel weighed approximately 50 lbs. I refer you again to my weight.

As you can imagine, I began a rapid descent, down the side of the building. In the vicinity of the third floor, I met the barrel coming up. This accounts for the two fractured ankles, broken tooth and several lacerations of my legs and lower body.

Here my luck began to change slightly. The encounter with the barrel seemed to slow me enough to lessen my injuries when I fell into the pile of bricks and fortunately only three vertebrae were cracked. I am sorry to report, however, as I lay there on the pile of bricks, in pain, unable to move, I again lost my composure and presence of mind and let go of the rope and I lay there watching the empty barrel begin its journey back down onto me. This explains the two broken legs.

I hope this answers your inquiry."

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PLANTS CAN BE FOODS, MEDICINES OR POISONS

Written as a brief introduction to "plants" for a science fiction writer with minimal biological training. Perhaps this is a new career choice for toxicologists, but am awaiting the book with interest.

Edible plants provide some of our daily nutritional requirements, e.g. fruits, nuts, seeds and grains, root and green vegetables, mushrooms and fungi. They are eaten raw (lettuce), cooked (potatoes), or processed before use (various flours).

Beverages are prepared from leaves and fruits. A few plants serve as flavourings or sweeteners. Certain leaves and barks are smoked. A few are not eaten but used to wrap food in cooking pits. Local inhabitants have specialized knowledge to aid someone entering a new environment. The hunter-gatherers know many of the local plants and their uses; whilst farmer-types have adapted some to cultivation.. Of course, a diet consisting of vegetables and fruits may require supplementation to provide any missing amino acids, vitamins, etc. Apart from serving as food , some plants have healing properties.

Plants are also healing agents and can be used to treat fevers (quinine), migraine headaches (feverfew), heart disease (foxgloves), inflammation (liquorice), upset stomachs (chamomile), skin rashes (aloe), etc. However, remember that if one mouthful of five leaves is good, two mouthfuls is not necessarily better - it may be worse! Foxgloves contain digitalis, used to treat certain heart conditions; but too much will prove fatal by blocking the heart's action. Local inhabitants and shamans have the specialized knowledge. The list of medicinal plants might be long, but efficacy is not guaranteed.

Most poisonous plants are identified from local knowledge of the flora. Plant poisons can act quickly or slowly. A few act in minutes (cyanide gas, some algal toxins); most take hours (poison ivy, ergot) to weeks (ragwort used as a tea). They may affect the major body systems (nervous, gastro-intestinal, reproductive, pulmonary and muscular) as well as internal organs such as the liver and kidneys. How much is needed? For some, a mouthful (hemlock); others, regular ingestion (ragwort). The more plant material required to cause an effect, often the longer the time for that effect to occur. Effects range from death to inconvenience, for example death (red tide), muscle paralysis causing immobilization (curare), diarrhoea (buttercup family), rash and itch (poison ivy), sensitivity to sunlight (St. John's Wort), hallucinations (jumping beans, marihuana), liver or kidney damage (ragwort), abortion (juniper), and gangrene (ergot). People are exposed to poisonous plants most frequently by eating them (ingestion), less frequently by contact (dermal). Poisonous plant material may be eaten accidentally, e.g. (1) when the poisonous plant material is hidden in other edible materials (ragwort in grass cubes for cattle), (2) when the plant (hemlock) is mistakenly used as an edible source because it looks like a known edible plant (wild parsnip), or (3) when the poison is transferred from the original organism to the one eaten (ergot on rye). Of course, sometimes someone may be deliberately poisoned, e.g. by poisoned arrows (aconite)! Another way of exposure is in the processing of plant materials. Common effects are asthma (preparation of some flours, red cedar, oak), and rashes (celery, tulip).

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DIOXINS AND FOOT-AND-MOUTH

Dioxins are released from the wooden railway ties (sleepers) used for the pyres which burn the cloven-footed animals killed as a control measure in the present foot-and-mouth outbreak in Britain. The ties had been treated with organo-chlorine compounds.

The Food Standards Agency (FSA) has warned that some dairy products from 900 small farms close to pyres may have been contaminated¹ The FSA has written to 15,000 of Britain's 30,000 dairy farmers, stating that there may be "a slightly higher, although still very small, risk for people consuming full-fat milk, cream, yoghurt and soft cheese from very small dairies." Worried consumers are being advised by the FSA to switch to low-fat dairy products, because dioxins were usually found only in products with high fat content.

Reference

1. Wilson, J. & Hetherington, P. (2001) "Foot and mouth pyres spark cancer fears." *Guardian Weekly*, May 31, 2001. p. 10

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ENVIRONMENTAL TOXICOLOGY IN THE NEW MILLENNIUM

A recent report in the New York Times¹ describes a project at Columbia University's Center for Children's Environmental Health. A project that was just a dream for many of us in the environmental human toxicology field a mere decade ago. The project team is monitoring children's environmental exposures, nutrition, health and development, from gestation through their first five years. The systematic measurement of pesticides, metals and other substances in cells or body fluids provides direct measurement of exposure rather than extrapolation and assumption. According to the Director of the Center for Children's Environmental Health, the goal is to monitor chemical exposure from foetus until adulthood in as many as 100,000 people representing a cross section of the country.

Reference

1. Revkin, A. (2001) "Scientists track contaminants, inside the body and out" *New York Times*, May 15, 2001. See also [the full article in the New York Times](#).

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EDITOR OF BMJ RESIGNS

The original letter was written by Richard Smith, (about to be former) Editor of the British Medical Journal (BMJ). It was sent to Sir Colin Campbell, Vice Chancellor of University of Nottingham, on May 16, 2001. This copy downloaded from the [BMJ web site](#).

Dear Sir Colin,

I'm writing with regret to resign my position as professor of medical journalism in the University of Nottingham. I'm doing this because the University has taken money from British American Tobacco to fund an International Centre for Corporate Social Responsibility. This is a serious mistake and has damaged the University.

If the University were to decide to return the money, then I would be delighted to retract my resignation.

We have both had ample opportunity to express our views on this issue, and I'm grateful to you both for debating with me at the medical school in Nottingham and for publishing your views in the BMJ.

As I hope you have observed, we had a great many responses to our debate - and they are still coming in. I'm enclosing with this letter copies of the responses. You will see that they overwhelmingly take the view that the University has done the wrong thing in accepting this money and that it should give the money back.

You may be most interested in the two responses [1, 2] from the Cancer Research Campaign. You give

the impression in your article that the Campaign said that it was all right for the University to accept the money so long as it was spent in a part of the University that received no funding from the Campaign. In fact, the Campaign makes clear that it does not approve of the acceptance of the money and that it thinks that you have breached the protocol that it agreed with Universities UK. Perhaps this will make you want to reconsider taking the money.

As you also know, we held a vote on our website on whether the University should return the money to BAT and whether I should resign if it doesn't. A total of 1075 people voted: 84% voted that you should return the money, and 54% voted that I should resign if you don't.

The vote on whether or not I should resign was much closer because people were divided over whether I should dissociate myself from the University or stay in position and argue my case. I am resigning both because I said that I would do what the BMJ's readers said I should do and because I've argued so strongly that the University shouldn't have taken this money. I'm also privileged to be in a position where it will be possible for me to continue to contribute to the important debate on the relationship between Universities and tobacco companies.

Finally, I want to thank the University for giving me the opportunity to interact with medical students and young researchers. I've learnt at least as much - and probably more - from them than they might ever have learnt from me.

Yours sincerely

Richard Smith

Editor

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CONFERENCES, MEETINGS AND WORKSHOPS

2001

June 10-13: British Toxicology Society Annual Congress, University of Keele, UK. Contact: Dr. TJB Gray, Meetings Secretary, Sanoff-Synthalabo, Willoburn Avenue, Ainwick, Northumberland, NE662JH, England. Tel: 01665 607370. Fax: 01665 607510

June 14-15: 5^e colloque annuel: Santé, l'environnement et le milieu urbain: de la recherche à l'application. Montréal, Québec. Contact/contactez: Alice Hontela: Hontela.Alice@uqam.ca Sylvain Loranger: qsar@qc.aira.com Website: <http://www.chapitre-saint-l-aurent.qc.ca/>

June 17-22: International Neurotoxicology Association, Eighth Annual Meeting, Estoril, Portugal. Contact: Web site <http://www.neurotoxicology.org/>

June 24-28: 20th International Symposium of the Society of Toxicologic Pathologists. Orlando, Florida USA. Contact: STP Registration, 19 Mantua Road, Mt. Royal, New Jersey 08061, USA

July 8 - 13: *Ninth International Congress of Toxicology, ICT-IX, Brisbane, Australia. Contact: Congress Secretariat, Intermedia Convention and Event Management, 11/97 Castlemaine Street, P.O. Box 1280, Milton, QLD 4064 Australia. Website: <http://www.uq.edu.au/ICT9> or e-mail: ictix2001@im.com.au*

Dec 6-7: *34th Annual Symposium Society of Toxicology of Canada. Montréal, Québec, Canada. Toxicology: The Times they are a Changing. Contact: Society of Toxicology of Canada, P.O.Box 517, Beaconsfield, Québec H9W 5V1, Canada. Tel: 514-428-2676, Fax: 514-428-4946*

Dec 10-11: *IACUCs and Research Animal Welfare. SCAW Winter Conference, San Antonio, Texas, USA. Contact by E-mail: info@scaw.com or [SCAW web site](#)*

2002

March 18-22: *41st Annual Meeting of the Society of Toxicology. Nashville, TN, USA. Contact: SOT, 1767 Business Centre Drive, Suite 302, Reston, Virginia 22090-5332, USA*

2003

March 18-22: *42nd Annual Meeting of the Society of Toxicology. Salt Lake City, UT, USA. Contact: SOT, 1767 Business Centre Drive, Suite 302, Reston, Virginia 22090- 5332, USA*

July 13-18: *9th International European Association for Veterinary Pharmacology and TOxicology (EAVPT), Lisboa, Portugal. For more information visit their web site <http://fmv.utl.pt/eavpt2003/congress.htm> or E-mail: eavpt2003@fmv.utl.pt*

2004

July: *Tenth International Congress of Toxicology, ICT-X, Tampere, Finland.*

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