

# STC

# NEWS/NOUVELLES

OFFICIAL  
NEWSLETTER OF THE SOCIETY OF TOXICOLOGY OF CANADA

BULLETIN OFFICIEL DE LA SOCIÉTÉ DE TOXICOLOGIE DU CANADA

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VOLUME XIX, NUMBER 3 OCTOBER, 2000

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## OFFICERS OF THE STC

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## FROM THE EDITOR'S DESK

### Michael Prior

At the recent 18th Festival of the Written Arts in Sechelt, I had the pleasure of introducing Robert Sawyer, the well-known Canadian science fiction writer. In answering a question after his main presentation, he made an interesting point about how we debate issues and communicate ideas. When two people discuss controversial issues, each tends to recognize where the other stands, maybe resulting in blocks to communication that pigeon-holing, non-listening, preparing rebuttals, and stereo-typing engender. But this is not true if one of the debaters is an alien (I did say he was a fiction writer, and the science is reliable). In his latest novel, "Calculating God"(1), one of the themes is evolution. Many of us are familiar with the evolution versus creationism arguments; so how to charm readers into getting to take in both sides? A non-human character serves just that purpose in this novel. For we, the readers, are not sure of the alien's point of view. So we must continue reading rather than jumping to conclusions.

That way we get both sides of the argument, including some novel twists. A refreshing way to communicate scientific issues, and to encourage readers to think about science. Can you imagine a public meeting with a role-playing exercise involving a "human" and an "alien" discussing a high-concern low-risk toxicological issue? Would this help people to listen to each other and truly dialogue?



Many people complain about air pollution. They see it as a brown haze that irritates eyes and throats, triggers asthma attacks, corrodes structures, smells bad, and harms flora and fauna. Their view may be alien to the toxicologist who sees it as the summation of adverse effects caused by each of a variety of toxic chemicals. One sees the effects caused by a disagreeable and perhaps life-threatening complex mixture; the other the summation of exposure to a variety of known and unknown chemicals, studied one by one. It must be noted that focusing on single chemical toxicities can bring about corrective action. As one who grew up with the infamous London "pea soup" fogs, the reduction of sulphur oxides and particulate matter brought about much improvement. Air pollution is a major challenge. We are familiar with the arguments of reduction versus elimination, environment versus industry, private car versus public transport, pigeon-holing versus non-listening, rebuttals versus stereo-typing. Can we imagine two beings, one human the other alien, discussing air pollution and clean air?

Why try to imagine a human and an alien discussing air pollution? The latter is really the toxicology of complex mixtures. As an inhalation toxicologist I am only too aware of the many technical difficulties of generating complex mixtures and carrying out the subsequent exposure studies. As an aside, it can be difficult enough with just one compound! Might that alien ask why didn't I move the equipment to the location where the complex mixtures are and study the effects there? He/she might also ask if it wouldn't be easier to generate clean air for the controls at that location, rather than recreating the complex mixture for the test groups back in the laboratory. But, I reply, how will we evaluate the biochemical, anatomical, physiological and behavioural changes under field conditions, when we don't know which chemicals were present in what quantities. The alien might say that is what the human John Snow faced with a certain communal water tap and a spreading fatal illness in London two centuries ago.

The literary device of an alien is a means to introduce objectivity into the narrative, and to balance the inherent subjectivity. Just in case you were wondering, searching for extra-terrestrial intelligence (SETI) is not a branch of toxicology, at least not yet (2), or check their web site at <http://www.seti-inst.edu/>. Though not part of the SETI project, there is an interesting associated project using personal computers, and is described at <http://setiathome.ssl.berkeley.edu/>. An interested computer owner downloads free software from SETI@home. Then, when their computer is idle, this software downloads a 300 kilobyte batch of data for analysis. The results of this analysis are ultimately sent back to the team, combined with the crunched data from many thousands of other participants, and used to help in the search for extraterrestrial signals. The advantages of this scheme are that masses of data can be processed in a timely and inexpensive manner, and that interested people become active participants in and supporters of the program.

Yes, well, OK, maybe toxicologists don't go searching for aliens. So let us segue to air pollution monitors linked to personal computers. It is being done already for one's local meteorological data. With the use of suitable sensors, a myriad of locations could monitor air quality. No longer would we have to rely on ground dispersion models for distribution of pollutants; for these would now be close to "real time". If human health and environmental effects were to be similarly localized, it would enhance population studies. For while epidemiological studies cannot prove causality, the credibility of a causal connection can be enhanced if several criteria are satisfied. A systemic approach to determining the nature of an association was used by the U.S. Surgeon General to establish that cigarette smoking caused lung cancer (3). This approach was further elaborated by Hill (4), and subsequently by others, to a set of criteria to be considered in determining an inference of causality from health effects data.

Would you suggest analyzing for selected chemicals, or measuring something like the haze index? At the very start of my research career, I was told about some alien ideas on immunology coming from Australia. I'm sure you know the rest of this human story: T and B cells and the Nobel Prize for the originator.

It has been stated that serious literature, at least in Europe, no longer reflects reality; at least not the reality of

new technology, globalization, the leisure industry and communications. If one wants a deep and wise analysis of these, one has to read science fiction (5).

By the way, is clean air like virginity, once lost it is irretrievable?

### *References*

1. Robert J. Sawyer (2000) "Calculating God" New York: Tor Books. ISBN 0-312-86713-1
2. Arthur, C. (2000) "Honey, I can hear aliens on my PC" The Independent, Sept 29, Friday Review, p8.
3. US Public Health Service (1965) Smoking and health: report of the advisory committee to the Surgeon General of the Public Health Service. Washington, DC. PHS Publication No. 1103.
4. Hill, A. Bradford (1965) The environment and disease: association or causality? Proc. Royal Soc. Med. 58: 295-300.
5. Evangelisti, V. (2000) Science fiction and the literature of reality: The truth is in here. Le Monde diplomatique. p 15, August.

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## **FROM THE DESK OF THE PRESIDENT**

### **Heather Durham**

Where did the summer go? Some of you are saying '*What summer?*' I retreated out to the West coast again this year with my office in a carry-on bag. Electronic devices can be quite liberating, enabling us to work anywhere and everywhere (Isn't that an oxymoron?). We just have to remember to shut them down occasionally. I managed to do that long enough to take a SCUBA diving course. This gave me a few thoughts on how to teach motor control! Anyway, I'm ready for Australia next year, hopefully with sufficient skills not to damage the Great Barrier Reef.

As much as I am a fan of my computer, email account and internet provider, some things are getting more difficult, complicated and frustrating with technology. Any of you who have been trying to use web-based application forms for granting agencies will understand what I mean! There's a job for some enterprising computer whizz - designing web applications that are user friendly to panicking scientists.

### *ICTXI Bid Committee*

The committee is on schedule with the plan to promote and submit our bid to host the 11<sup>th</sup> International Congress of Toxicology in Montreal in 2007. Doug Arnold has been busy writing letters and updating the mailing list of IUTOX voters. Thanks to George Lulham for assisting the cause by making our literature available at Asian meetings over the summer and to Gaston Chevalier, who has just returned from promoting our bid at the Eurotox meeting.

*Update on Canadian Institutes for Health Research (CIHR)*

Alan Bernstein, formerly Director of the Samuel Lunenfeld Research Institute at Mount Sinai Hospital in Toronto, has been named President of CIHR. The first slate of Institutes has been named. As you recall, STC had advocated strongly for two toxicology-related institutes: 'Health Products and Technologies' and 'Environment, Society, Population Health'. Named was the 'Institute of Population and Public Health' with the following mandate: "The CIHR Institute of Population and Public Health will support research into the complex interactions (biological, social, cultural, environmental) that determine the health of individuals, communities, and global populations and how that knowledge can be applied to improve the health of both populations and individuals." CIHR considers this a 'home' for toxicologists and recognizes that toxicology is one of those discipline that crosses all Institutes. That means we have to be vigilant and speak up if our concerns are to be addressed. From the point of view of the STC, this means putting forth names for Institute Boards, providing input to the peer review process, and supporting toxicological consortia.

CIHR launched a recruitment drive July 25, 2000 to identify Scientific Directors and Institute Advisory Board (IAB) members for each of the thirteen CIHR Institutes. The Board of Directors sent in nominations for Jack Bend and Francine Denizeau to the Board of the Institute of Population and Public Health. Several other members of STC were nominated to other IABs by other sponsors. The drive yielded over 120 candidates for the position of Scientific Director and over 700 for IAB membership. The mechanisms for selection is outlined on the CIHR web site. Announcement of Directors is expected by late October and announcement of IAB memberships is expected in December.

CIHR is in the process of revising the peer review committees. STC's Board of Directors will be preparing a submission and I encourage everyone to send in your comments/concerns for inclusion. Send you input to me at [mddm@musica.mcgill.ca](mailto:mddm@musica.mcgill.ca).

### *Canadian Consortium in Drug and Environmental Safety*

On the workshop front, Jack Bend is Project Leader of the Canadian Consortium in Drug and Environmental Safety: Cellular, Molecular and Clinical Toxicology. A meeting was held at the Regal Constellation Hotel near Toronto airport on September 29-October 1. On the program were invited presentations on 'Canadian Perspectives and Opportunities', 'Platform Technologies and Contemporary Toxicological Research' and 'Reports from other Networks and Consortia'. Considerable time was devoted to break out sessions on specific sub-disciplines (reproductive and developmental toxicology, adverse drug reactions, neural toxicology, metals in health and disease, environmental carcinogenesis, biomarkers of exposure and effects) with the goal of exploring possible collaborations and new directions in research with potential to for formulat group grants. One of the positive aspects of attending was to see some faces I haven't seen for some time (not confessing how long). I do confess to being old enough to remember the days when everyone attended CFBS on a regular basis and renewed acquaintances (Oh no! I'm saying 'remember when"!)). Hopefully, the consortium will expand our personal interactions and broaden our scientific ideas. STC members are encouraged to join the consortium by sending your name, address, email address, affiliation, and a brief description of research interests to Jack Bend at [jbend@julian.uwo.ca](mailto:jbend@julian.uwo.ca). Watch the consortium's web site for further developments <http://www.drug-enviro-safety.uwo.ca/>. Thanks to Jack and the organizing committee for all their work in putting the consortium and workshop together. It is planned that the next meeting of the consortium will be held in conjunction with STC annual symposium in December, 2001.

### *CFBS*

Speaking of CFBS, please see article in this newsletter on the update to Societies and notice of the 2001 meeting in Ottawa.

A list of committee members was included in the June newsletter. If you have suggestions for activities or are interested in participating, please don't hesitate to let us know. Everyone is getting more and more busy, but if everyone does a little, the Society will be healthy and the discipline will grow. Don't be shy.

See you all at the symposium in December! Once again, the program committee has done an excellent job in selecting a very topical theme and expert speakers.

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## LE CHAPITRE SAINT-LAURENT : UN ORGANISME JEUNE ET DYNAMIQUE

### Bertin Trottier

*Bertin Trottier, professor at l'Université du Québec à Montréal, and a member of the TOXEN (Laboratoire de Recherche en Toxicologie de l'Environnement), provides a brief overview of 'Le Chapitre Saint Laurent', a young and dynamic scientific organization, associated to the Society of Risk Analysis and Society for Environmental Toxicology and Chemistry (SETAC), and whose objectives are to bring together various experts in the area of environmental sciences.*

Organisme scientifique et professionnel indépendant, sans but lucratif, le Chapitre Saint-Laurent est une association québécoise affiliée à deux sociétés internationales : la Société de toxicologie et de chimie de l'environnement (SETAC) et la Société pour l'analyse de risque (SRA). Le Chapitre regroupe des spécialistes et des scientifiques provenant de différents secteurs (universitaire, industriel, consultation et gouvernemental) dans les domaines aussi diversifiés que la chimie et la toxicologie environnementale, l'écotoxicologie, ou l'évaluation et la gestion du risque pour la santé et pour l'environnement. Parmi les objectifs du Chapitre mentionnons:

- Servir de tribune d'échanges et de concertation pour ses membres dans leur domaine d'expertise;
- Favoriser la recherche scientifique et identifier les besoins de développement dans les domaines d'intérêt du Chapitre;
- Promouvoir la formation des membres dans les différents champs d'intérêt du Chapitre par la mise sur pied de cours sur mesure;
- Favoriser l'interaction et les échanges entre les spécialistes du Chapitre Saint-Laurent par le biais de ses différentes activités régulières (ex. : séminaires), ses comités permanents ou ad hoc, son site Internet et son colloque annuel.

LeIl importe de souligner que le Chapitre sert essentiellement à des fins scientifiques et éducatives et ne participe donc pas à des activités de nature politique ou dirigées au profit d'un membre en particulier.

Fondé en 1996, le Chapitre a rapidement pris son envol sous la présidence de Madame Louise Houde d'Hydro-Québec (1996-1997), cheminement qui s'est poursuivi sous la gouverne de Monsieur Louis Martel (MENV

Québec, 1997-1999) puis sous celle de Monsieur Sylvain Loranger (QSAR, 1999-2001). Depuis quatre ans, la principale activité du Chapitre a consisté en la tenue d'un colloque annuel de deux jours en alternance entre les villes de Montréal et de Québec. À cela s'ajoutent des séminaires présentés dans ces villes par différents conférenciers invités.

Voici les thèmes des quatre colloques tenus à ce jour:

- 1997 : L'environnement : une ressource à gérer
- 1998 : Gestion environnementale au Québec : le rôle de l'approche basée sur les risques
- 1999 : Santé et environnement : un lien à développer et
- 2000 : Qualité de l'environnement : concepts et outils .

Avec ses 125 participants et le succès qu'il a connu, le dernier colloque à Québec deviendra à coup sûr une référence et en voici un bref compte rendu. Madame Suzanne Giguère, Chef de l'évaluation environnementale et de la direction de la coordination du Ministère de l'environnement du Québec a ouvert le colloque avec une présentation sur la complexité croissante de la gestion de l'environnement et la nécessité correspondante d'aborder les problèmes environnementaux avec des approches multi-disciplinaires. Monsieur Émilien Pelletier de l'Institut des Sciences marines de Rimouski a ensuite enchaîné avec le thème suivant : "Santé des écosystèmes: avons-nous bien compris le message?" et a présenté des pistes de solutions à partir de l'exemple du tributylétain. Puis Monsieur Éric Dewailly de la Direction de la santé publique du Québec a discuté de l'importance de la protection de l'environnement aquatique pour l'espèce humaine avec le pétillant titre de « Homo aquaticus : espèce menacée? ». Cette séance plénière de la matinée a été suivie de deux ateliers parallèles portant sur les biomarqueurs/bioindicateurs et sur la qualité du milieu aquatique, puis ce furent les affiches. Pour la seconde journée, le programme comportait encore deux ateliers parallèles, l'un sur le milieu récepteur et l'autre en chimie environnementale puis en gestion/réglementation.

Le colloque s'est terminé avec une réunion plénière intitulée « La qualité de l'environnement : jusqu'où faut-il aller? ». Animée par Monsieur André Delisle, cette activité a retenu la grande majorité des participants jusqu'à la dernière minute du colloque tant par les présentations des panélistes de l'industrie, du gouvernement, de la santé et du monde universitaire que par de vivantes interventions de l'auditoire.

Avant de terminer cette présentation sommaire du Chapitre Saint-Laurent, deux éléments très importants doivent être signalés, qui témoignent du dynamisme de ses membres. D'une part, les frais d'inscription couvrent à peu près les dépenses du colloque et différentes instances (industrie, gouvernement et universités) apportent une précieuse aide financière qui contribue à assurer la pérennité du Chapitre sous la forme d'un bilan positif et même à la hausse. D'autre part, la participation étudiante au colloque annuel est très significative et en croissance elle aussi.

Or, dans le but d'encourager les jeunes chercheurs à œuvrer dans le champ d'intérêt du Chapitre, celui-ci a commencé à offrir des prix tant pour les présentations orales que pour les affiches soumises par les étudiants et ce, dès sa troisième année d'existence. Les récipiendaires bénéficient même d'une bonne visibilité par le biais de comptes rendus du colloque publiés avec photos dans les revues des sociétés mères! De plus, l'Assemblée générale a voté la création de bourses d'études de deuxième et de troisième cycle, et ce, dès la présente année d'activités, l'affichage étant prévu pour aussi tôt que l'automne 2000.

Par ailleurs, pour alimenter les interactions, les échanges et la collaboration entre les membres, le Chapitre met sur pied à l'heure actuelle deux principaux outils de communication. Le premier est un site Internet où l'on retrouvera l'information courante (par ex. séminaires) ainsi que les renseignements généraux sur le Chapitre. L'autre outil est un groupe de discussion supporté par un serveur de l'UQAM à l'intention des membres du Chapitre, lesquels

seront d'ici peu invités à s'y inscrire.

Nous vous incitons donc à consulter notre site <http://www.chapitre-saint-laurent.qc.ca/>. Qui sait, peut-être y découvrirez-vous une information qui vous sera utile, une ouverture intéressante pour une collaboration, et pourquoi pas, le goût de devenir membre et de participer vous aussi à nos diverses activités!

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## **ANNOUNCEMENT**

*Mark your calendars!*

**Society of Toxicology of Canada 33<sup>rd</sup> Annual Symposium**

**Emerging and Topical Issues in Food and Herbal Product Safety**

**December 7-8, 2000**

**Holiday Inn Montreal Midtown in Montreal, Quebec**

*Highlights*

herbal product safety

naturally occurring food contaminants

genetically modified foods

*See you in Montreal !*

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## **THE VIEW FROM MY CANOE**

**Don Ecobichon**

Our canoe is still high and dry and has not had its bottom wet this summer. I did not even renew my fishing licence this year. What with spending much of June in southeast Asia teaching, revising a set of lecture notes for publication and preparing to return in late October to Indonesia, as well as other family activities including a wedding in the USA of a former graduate student, both of us have had an extremely busy spring and summer. Following the religious application of MiracleGro, the flower garden has turned into a jungle. My "job jar" is overflowing with projects and only a few have been completed. However, I have been reading extensively, both professional, historical and "light" reading.



The federal government Research Chairs Program (2000 new faculty positions in the next three years at levels of \$135,000 for established scientists, \$67,00 for rising stars) is now underway. As reported in *Science*, June 23, p 2112) the breakdown is about what one would suspect - U of T being allocated 251 "chairs", McGill 162, UBC - 160, U de M 138 and so on with some 28 universities receiving fewer than 10 chairs and 25 receiving none. The allocation system is based on a university's ability to obtain federal grants over the past three years. Thus, 15 large, research-based universities have secured 70 per cent of the 2000 chairs. The program is supposed to be divided 45:35:20 among the natural, life, social and behavioural sciences although universities can decide where to allocate the positions. Concerns are being raised about faculty raiding to enhance existing research programs with rising stars at the expense of less well-endowed universities.

There is a lot of writing going on "out there" concerning the new genetically modified "yellow rice" with the ability to make beta-carotene, enhancing its nutritional value by providing a precursor to vitamin A. An excellent article in *TIME* (July 31) lays out, in clear fashion, the approach to gene introduction into the rice embryo. It also discusses, in general terms, the development of other GM plants (corn, canola, soybean, cotton). However, it boils down to patent disputes, royalty payments and "environmental" concerns rather than feeding the world and improving health. In line with one book review (see below) some 25 to 70 patents are involved in the techniques for introducing the gene into rice and everyone wants his cut. These aspects were discussed in *SCIENCE* (Aug 11, p 843) along with the announcement that Monsanto would provide royalty-free licences to speed up the process of producing seed stock to the world. Thank Heaven for that! Monsanto has been looking rather shabby over some of their other genetically modified crops, lawsuits and all.

There was an interesting editorial, originally in *SCIENCE* (Feb 18, p 1201) but reproduced in the *SOT* *Communique* (Spring, 2000) by Senator Christopher Bond, entitled "Politics, Misinformation and Biotechnology" that everyone should read. One important point made is that in the past century, the number of people fed by a single US farmer has grown from 19 to 2129 (some 25 of those being outside the USA). By 2025, the numbers will rise to 200+. His points - "the development of biotechnology is not recreational but is being done to solve real-world problems of sickness, hunger and resource depletion" AND "the hysteria and unworkable propositions advanced by those who can afford to take their next meal for granted have little currency among those who are hungry".

Subsequent to the Durban meeting of AIDS, there has been a focus on the problems of AIDS in Africa and a movement toward supplying the required drugs and funding for research. Perhaps the most interested individuals have been Bill and Melinda Gates who have donated \$90 million to various institutions for AIDS/HIV research in July (*Science* Aug 11, p845). They have also donated heavily to malaria treatment and prevention, multidrug-resistant tuberculosis and Third World maternal and child health involving micronutrient supplements.

The recently completed review of the effects of methyl mercury on neurodevelopment by the National Academy of Sciences for the US EPA has resulted in a proposal to reduce the safe level for mercury exposure to 0.1 µg/kg body wt/day., a five fold reduction over that advocated by the US FDA (science July 21, pp371-372). This has sparked a controversy over the validity of the studies used as a database, the Seychelles Islands study of 700 5.5 year olds born of mothers who ate mercury-contaminated fish (U Rochester study) or the Faroe Island study (Danish study). The NAS placed more "faith" in the Faroe Island study since neurological effects were still seen in the children when those also exposed to high PCB levels were excluded. Everyone is waiting for the final report of the Seychelles study, expected in 2001 before adjusting the reference dose level.

The US EPA's tough new standard for particulate air pollution (PM10 down to PM 2.5) has been supported by re-analysis of two studies by an independent panel chaired by Dan Krewski (U of Ottawa) (Science Aug 4, p711). The Harvard Six Cities study (relationship between levels of PM plus sulphates and death rates among more than 8,000 people in six cities) and the American Cancer Society (over 500,000 people in 154 cities) both found a slight rise (17-26%) in death rates from heart and lung diseases in cities with higher PM2.5 levels. The re-evaluation of the data by Krewski's panel yielded results comparable to the original findings.

Toxicologists will be moving toward the use of DNA gene-arrays generated from such hardware as "ToxChip" or "ToxBlot", using this technology to profile gene expression rather than using cell systems (Science July 28, p536-537). Toxicogenomics was the topic at an Aspen Colorado meeting which highlighted what can be done. DNA arrays produce mountains of data, 30,000 - 70,000 data points for a single experiment, requiring computer recognition programs to separate "wheat from the chaff". Drug companies are most enthusiastic about the approach as a means of screening candidate drugs for toxic reactions. USA government spokespersons expect that scientists will be pushed to use these tests sooner than they would like to. However, Jay Goodman, a very conservative fellow from Michigan State University, urges scientists not to be coerced into using these techniques before they have been properly vetted by comparison with known toxicological responses.

On a personal note, a couple of interesting observations. I have found out that large frogs are cannibalistic. I have one large frog who heads for my pond in which resides a number of small frogs on whom he preys. I or the dog have to head him off when we see him coming. The second point relates to my recently reading Kathy Reichs' "Death du Jour" (a better read than "Deja Dead"), in which she discusses the measurement of drug residues in dead bodies by assaying the residues found in the larvae of flies in the corpse. They seem to concentrate the drugs in tissues but cannot metabolize them readily. An interesting concept.

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## **CANADIAN FEDERATION OF BIOLOGICAL SOCIETIES: YEAR 2000 ANNUAL MEETING AND OTHER ITEMS**

**Bruce Snell, CFBS Executive Director**

*Year 2000 Annual Meeting*

The year 2000 meeting in Ottawa was from all aspects very successful. The "Theme" approach attracted greater participation than we have seen for several years. The overall attendance was up and reached approximately 800 for the three-day meeting. What was even more rewarding were the numbers present at the individual sessions. In the Apoptosis symposia there were consistently approximately 300 individuals while the sessions devoted to Nutraceuticals and Functional Foods were equally well attended. The quality of scientific presentations was consistently high and we were, therefore, rewarded in the high participation rate. It is important to mention that this year CFBS budgeted \$60,000 for speakers which allowed us to have a larger number of internationally recognized researchers speaking at our scientific sessions.

While this approach was an experiment it was evident that a number of our supporters were willing to contribute to this "Thematic" type of conference. This year we had 40 different sponsors and 27 exhibitors displaying their products. Their involvement helped greatly to pay for our increased expenses incurred by the nature of the meeting. Consequently, with the increased sponsorship and greater attendance the year 2000 meeting was also a financial success.

Success of CFBS Annual Meetings depends in large measure to the commitment of the local organizing committee. This year's committee, chaired by Mary L'Abbé, was exemplary and we owe them a large vote of thanks.

### *Year 2001 Meeting*

Given the results of this experiment, the Board has indicated its support for continuing the thematic approach for the year 2001. The themes for 2001 will be:

1. Genetic Basis of Disease
2. Health and the Environment

The Symposium chairs have been identified and again we expect to have an outstanding group of speakers. Margaret Brosnan is this year's program chair. The year 2001 Meeting will again be held in Ottawa at the Ottawa Congress Centre from June 21st - 24th.

The decision to hold the meeting again in Ottawa warrants an explanation. First it should be mentioned that the income to support the CFBS Office is derived in part (~ 50%) from funds provided by the individual Societies. The remainder comes from revenue derived from the Annual Meeting. The financial situation of CFBS has improved over the last several years and continues to become healthier. Nevertheless, we are still not in a position to be able to provide other services to the Societies which we believe they should receive. Our Ottawa experience has allowed us to attempt a new approach and to learn how we can improve on the year 2000 conference. Ottawa is, furthermore, in the midst of a high population density from which we hopefully continue to attract a large number of participants. The Board wishes, therefore, to build a financial reserve which will allow us not only to hold meetings in other Canadian centres but also to provide support for symposium speakers who take part in the annual meetings of our CFBS Societies who organize their own meetings. There are other initiatives on which CFBS would like to embark all of which will require increased income which we hope will come in part from a highly visible annual conference of international quality. We hope that meetings in Ottawa will help us attain the level of financial health that will permit us to provide additional and more interesting services to our scientific community.

### *The Executive and Other Matters*

At the Board Meeting in June, CFBS welcomed Dr. Harvey Anderson, Professor of Nutrition, University of

Toronto, as our incoming President. Harvey takes over from Jim Fryer who now becomes Past President. Our president-elect is Dr. Peter Anderson, Professor of Biochemistry, University of Ottawa, who will take up the presidency in June 2001.

New initiatives we are considering include have a type of employment "Placement Service" if there is sufficient interest. We shall keep you informed. In the meantime we have established "Job Postings" on our web-site <http://www.cfbs.org/> under News/ Job Opportunities.

CFBS has established a Council of Advisors. These are individuals who, because of their background and accomplishments, will be able to provide input to the CFBS Board on i)future scientific themes and ii ) issues that of importance to the scientific community that need to be addressed. The names of the advisors are now on our web-site.

### *Advocacy Activities*

CFBS has been active in pursuing issues of concern to its membership with "decision makers in Ottawa. CFBS' advocacy document "Creating a Research Environment" has been sent to various MPs, Federal Ministers and senior bureaucrats. It is also present on our web-site under Science Policy. As a member of the Canadian Consortium for Research (CCR) steering committee your Executive Director has also participated in preparing "Ensuring Canada's Success in the Third Millennium", a brief submitted to Government in support of university "core funding"and overhead costs/indirect costs of research.

In May of this year your Society was involved in our team lobbying activity. Roger Keefe played an active role in our visits to parliamentarians and granting council Executives. In November of this year additional visits are been arranged through CCR.

A final comment should be made about the Canadian Institutes for Health Research (CIHR). This newly organized body offers much greater opportunity for the broad bio-science community. Scientists who were not in the "perceived" mainstream areas of biological science can now expect to receive sympathetic consideration in the competition for research support because of the expanded role of CIHR. CFBS hopes to develop a close relationship with CIHR in an effort to " show-case" Canadian biological/biomedical science and to create a greater presence in promoting the life sciences in Canada.

### *Final Note ...*

We are pleased to learn that your Society is bidding for the chance of hosting the 11th International Congress of Toxicology at the Montreal Convention Centre in 2007. CFBS is very supportive of this effort and our President, Harvey Anderson, will be writing a letter to encourage the International Committee to chose STC as the host for this conference.

CFBS will hold its semi-annual Board Meeting on Saturday, November 18th at the Lord Elgin Hotel in Ottawa to discuss future directions of CFBS. We look forward to your Society being represented.

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# CANADIAN JOURNAL OF PHARMACOLOGY & PHYSIOLOGY

Volume 78 Number 11 November 2000 is now available at [http://www.nrc.ca/cgi-bin/cisti/journals/rp/rp\\_tocy\\_e?cjpp\\_cjpp11-00\\_78](http://www.nrc.ca/cgi-bin/cisti/journals/rp/rp_tocy_e?cjpp_cjpp11-00_78)

Volume 78 Number 10 October 2000 is now available at [http://www.nrc.ca/cgi-bin/cisti/journals/rp/rp\\_tocy\\_e?cjpp\\_cjpp10-00\\_78](http://www.nrc.ca/cgi-bin/cisti/journals/rp/rp_tocy_e?cjpp_cjpp10-00_78).

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## NEWS FROM OTTAWA

### Rekha Mehta, Health Products and Food Branch, Health Canada

#### *Health Canada Realignment*

The new organizational structure for Health Canada, the exercise being termed, '*Realignment of Health Canada*', became effective July 1, 2000. As described briefly in the June, 2000 issue of STC News, Health Protection Branch (HPB) was split into three new Branches. Following further deliberations on the names of these new branches and on the location of the various organisational components, the names given to these Branches are: Health Products and Food (HPFB), Healthy Environments and Consumer Safety (HECSB), and Population and Public Health (PPHB). The organisational charts for Health Canada (HC), and HPFB and HECSB are included in this report to orient STC News readers with the realigned HC. The detailed charts for only HPFB and HECSB are included because these are the Branches where toxicologists from the former Foods, Drugs and Environmental Health Directorates are located under the new Foods (FD), Therapeutic Products Program (TPP) and Safe Environments Directorate (SED), respectively. The former Laboratory Centre for Disease Control is now under the new PPHB.



Health Research Secretariat (HRS), located under the new Information, Analysis and Connectivity Branch, was also created during realignment. The idea is to model the HRS on the Canadian Institutes of Health Research (CIHR) by integrating research activities and capacities across geographic and disciplinary boundaries within HC branches and regions. This would then aid in facilitating a departmental relationship with the CIHR.

As part of Health Canada Realignment, internal consultations on Science Capacity took place in June. Science Capacity, previously labeled as Laboratory Rationalisation, had already been discussed extensively under HPB Transition.. The June process consisted of two one-day sessions held with a different group participating each day. Participants focussed on one of the same four themes, previously identified and conferred under HPB Transition.: 'Priority Setting and Resource Allocation, and Continuity of Funding'; 'Science Capacity and Human Resources'; 'Interaction with Other Capacities'; and 'Roles and Accountabilities'. Each group was asked to develop

concrete and practical solutions and options, and identify and propose the next steps. The consultations began with an introduction by the Deputy Minister, David Dodge, who spoke of developing an Integrated Departmental Science Capacity that would ensure the achievement of excellence across the department. He also highlighted the importance of continued association with the academic community. Two new items, not previously discussed, included a dialogue on the roles of the Chief Scientist and the Science Advisory Board under the theme 'Roles and Accountabilities'. It was suggested that the largest part of the Chief Scientist's responsibility should be to promote and foster a science culture, and that his office should be readily accessible to all members of the scientific community. Participants agreed that the Science Advisory Board should not only provide advice to the Minister, but also that it should be more proactive in providing advice on priorities, identifying emerging issues, and validating the Department's scientific activities. The consultations ended by the organisers agreeing in principle with the great majority of the recommendations and the solutions proposed by the participants, and with a promise to keep the momentum going to implement these changes. Only time will tell .....

### *Departmental Awards*

During the National Public Service Week in June, the Deputy Minister's Award for Team Excellence was presented by Mr. David Dodge to the FD team which worked to resolve the Belgium Dioxin issue last year. Diane Gorman, Assistant Deputy Minister for HPFB, presented two HPB Team Achievement Awards, one to a Working Group on Blue-Green Algae, and the other to a Policy Review Team which worked on "Addition of Vitamins and Minerals to Foods." More details on the Belgium Dioxin and Blue-Green algae issues can be found in previous issues of STC News.

### *HPB Science Forum*

The HPB Science Forum held in conjunction with the CFBS Annual Meeting in Ottawa in June, 2000 was well attended by HPB scientists presenting over 100 abstracts of research being conducted in environmental health, therapeutics, food safety, nutritional quality, and population and public health. A morning session of oral presentations was followed by a reception and an evening poster session.

### *Public Health News*

In September, Health Canada launched a consumer awareness campaign to inform the public about the risk of illness from consuming unpasteurized juices and ciders which may be contaminated with bacteria, most often, *Escherichia coli* 0157:H7 (*E. coli*). Another purpose for raising public awareness was also to encourage producers of unpasteurized juice and cider to follow a "*Code of Practice for the Hygienic Production and Distribution of Unpasteurized Products*", and the voluntary labeling of products as "unpasteurized/non pasteurisé". The Code has been widely distributed to the juice and fruit processing industry and provincial governments. Further tips on reducing risk of *E. coli* contamination are posted on the Health Canada web site at [www.hc-sc.gc.ca/food-aliment/](http://www.hc-sc.gc.ca/food-aliment/).

Polychlorinated biphenyls (PCBs) were also in the news again recently when Health Canada advised Canadians about a potential health hazard from gathering and burning wood or other materials coated in paint containing PCBs, sometimes referred to as PCB-amended paints. Paints containing PCBs were widely used from the 1940's to 1970's in certain industrial and institutional applications. PCBs were added directly to the paint to increase durability, flexibility, and improve resistance to fire damage and moisture. Health Canada has learned that materials likely coated with such paint are being gathered from some of the 42 decommissioned Distant Early Warning (DEW) Line sites and approximately 100 Mid-Canada Line sites for use in other structures, or as a source of fuel. A greater concern in burning these materials is the risk of exposure to dioxins and furans, which are produced when

PCBs are burned at lower temperatures.

# Health Canada

**Minister**

**Deputy Minister  
Associate Deputy Minister**

**Health Products and Food Branch  
(HPFB)**

**Population and Public Health Branch  
(PPHB)**

**Information, Analysis and Connectivity Branch  
(IACB)**

**Corporate Services Branch  
(CSB)**

**Pest Management Regulatory Agency  
(PMRA)**

**Legal Services**

**Alberta and Northwest Territories Region**

**Ontario and Nunavut Region**

**Healthy Environments and Consumer Safety Branch  
(HECSB)**

**First Nations and Inuit Health Branch  
(FNIHB)**

**Health Policy and Communications Branch  
(HPCB)**

**Chief Scientist**

**G.D.W. Cameron Visiting Chair**

**British Columbia and Yukon Region**

**Manitoba and Saskatchewan Region**

**Quebec Region**

**Ontario and Nunavut Region**

**Quebec Region**

**Atlantic Region**

# **Healthy Environments and Consumer Safety Branch**

**Assistant Deputy Minister**

**Safe Environments Directorate  
(SED)**

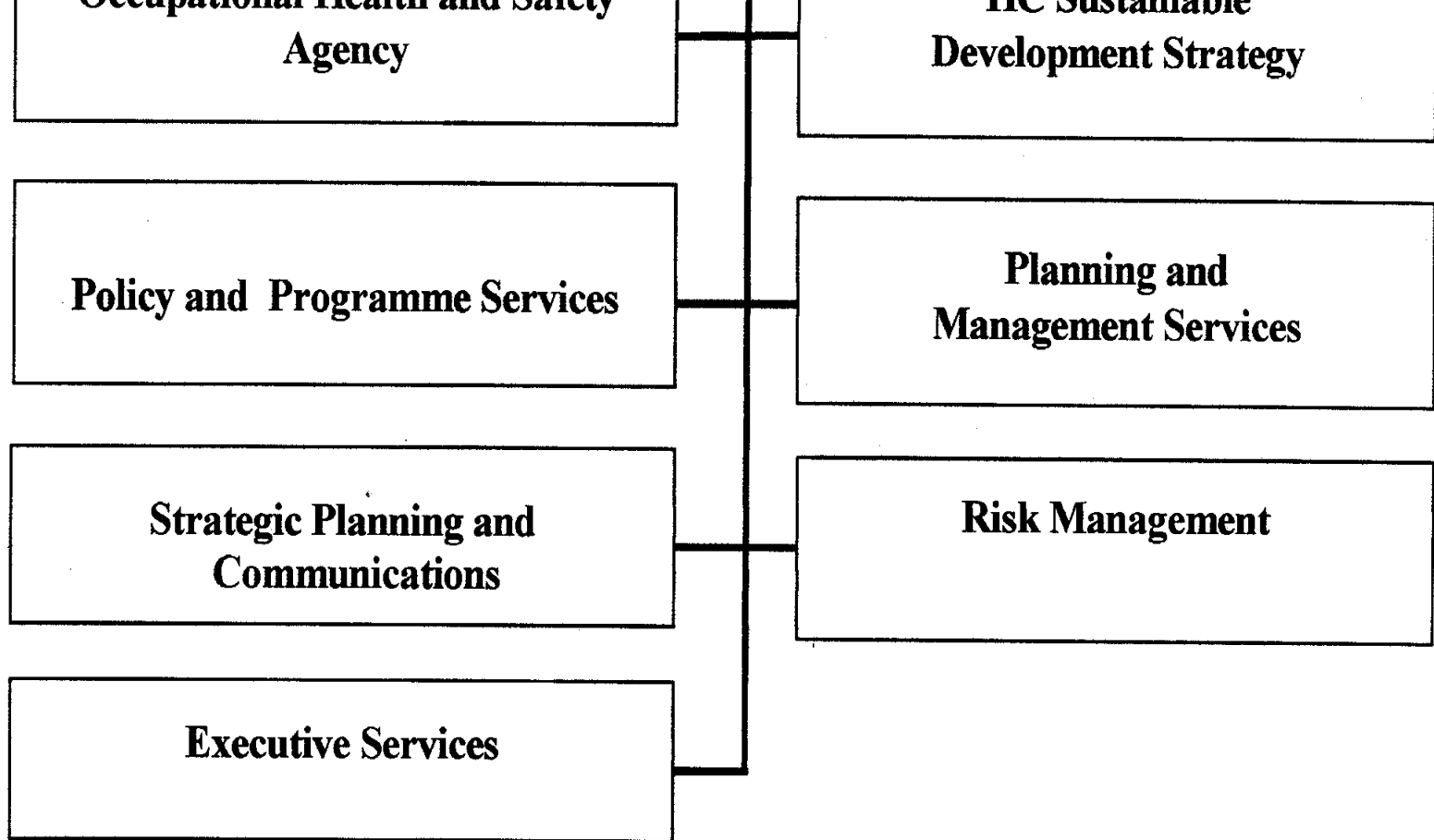
**Drug Strategy and  
Controlled Substances  
Directorate**

**Tobacco Control Directorate  
(TCD)**

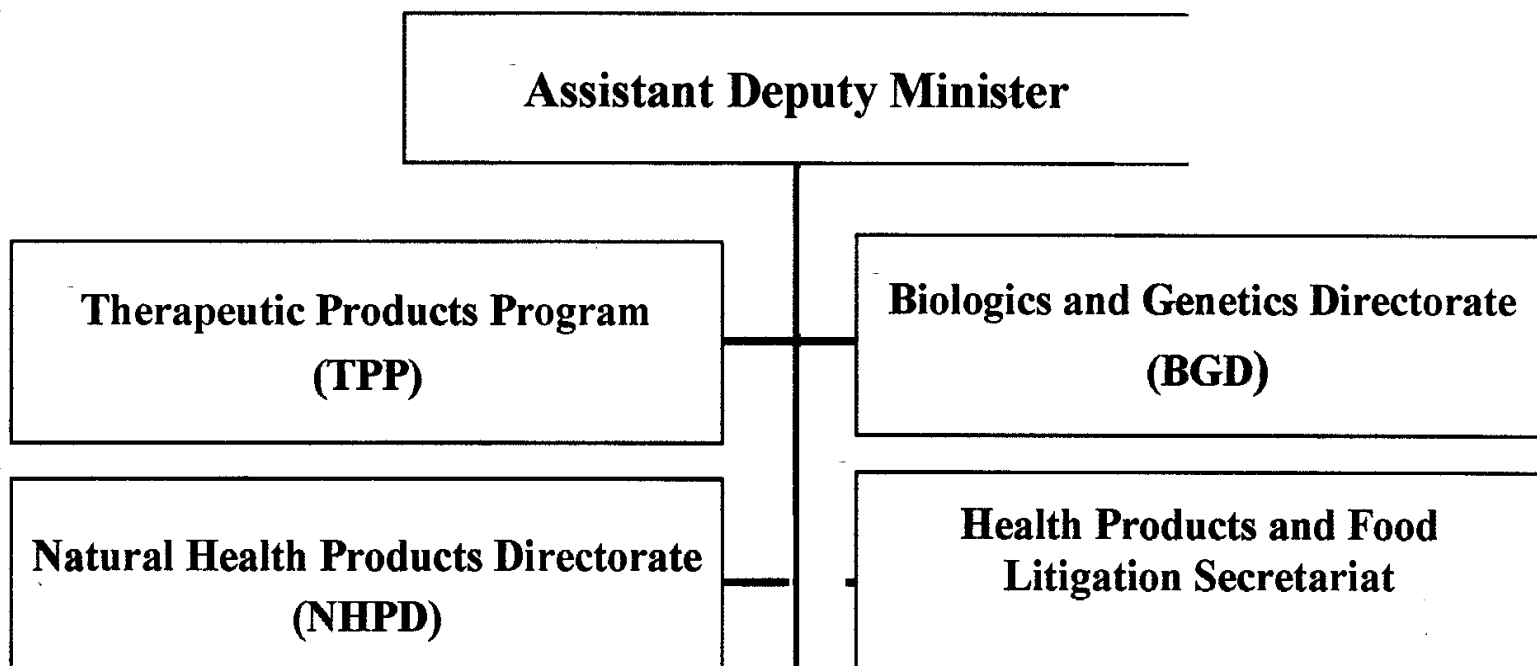
**Product Safety Directorate  
(PSD)**

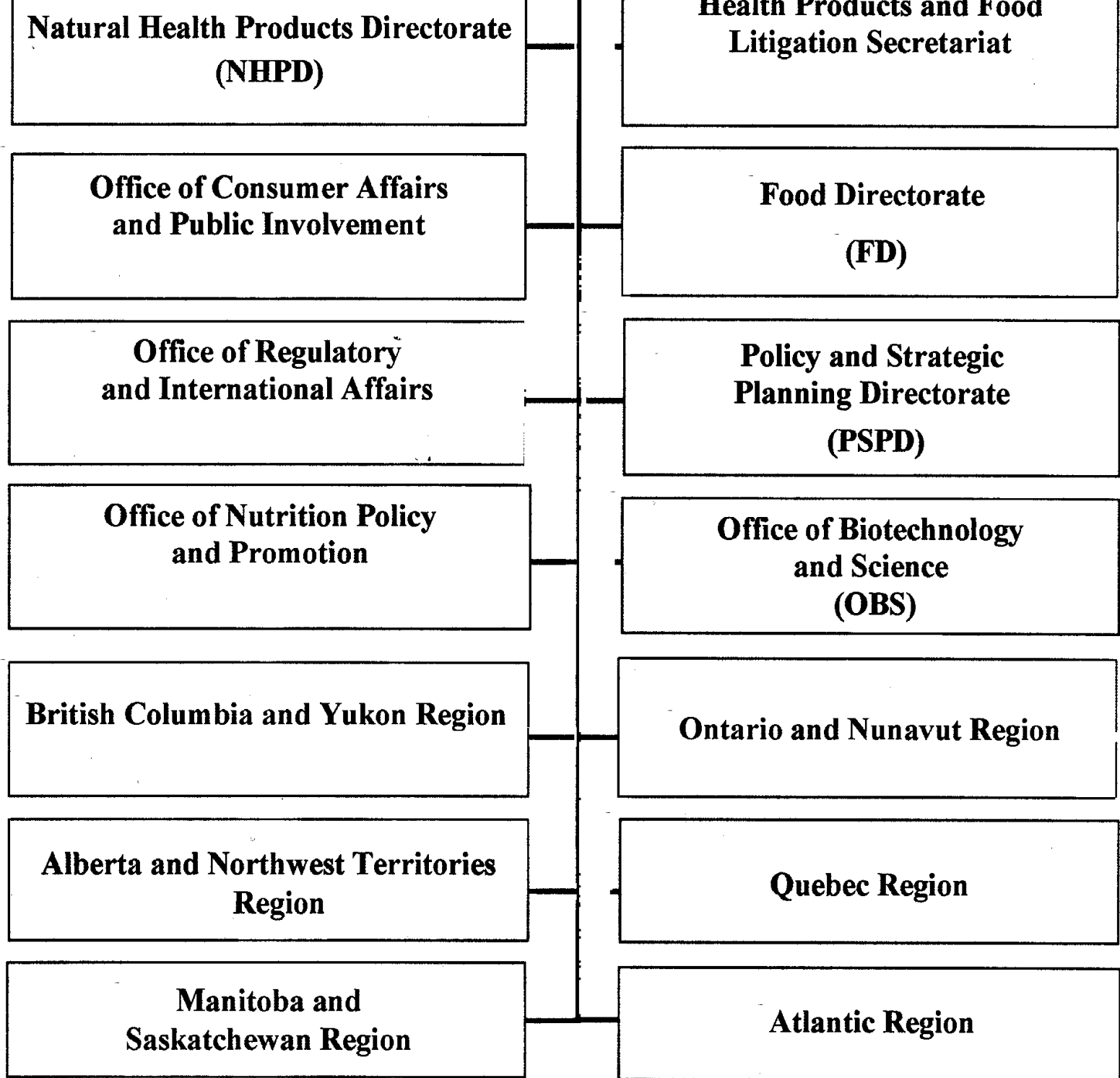
**Occupational Health and Safety  
Agency**

**HC Sustainable  
Development Strategy**



## Health Products and Food Branch





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# BOOK REVIEW

## Don Ecobichon

*Toxicology and Clinical Pharmacology of Herbal Products*. Ed: Melanie Johns Cupp Humana Press: New Jersey. 2000. US\$76.00 pp 325.

Look in any pharmacy, health food and grocery store at the shelf space devoted to herbal preparations and you can see that this is big business. These products are unregulated governmentally, can be easily purchased and non compliance with specific dosage instructions is the order of the day. It involves the over-the-counter sales of unproven medications. Physicians, today are totally unaware of the dangers inherent in these products and, indeed, may not even know that their patients are taking such agents.

A book such as this is long overdue and, for a time, will fill a much needed gap. Each herbal monograph is organized in the same manner, discussing, in sequence, sources, history and traditional and promoted uses, available products, pharmacology and toxicology (both animal and human, by an organ- or tissue-specific approach), case reports, analysis of biological fluids, regulatory status (USA, Canada, Germany, Australia) where applicable standards have been made, and a succinct bibliography.

Twenty-eight herbs are discussed, including ma huang and ephedra alkaloids, kava, ginkgo biloba, valerian, St John's wort, chamomile, echinacea, feverfew, garlic, ginger, saw palmetto, ginseng, cranberry, borage, calamus, chaparral, coltsfoot, comfrey, skullcap, licorice, pokeweed, sassafras, hawthorn, aloe, senna, cascara sagrada, dong quai, and cat's claw.

The book is interesting reading, the most astonishing aspect being the clinical "trials" and case reports (anecdotes is all they are), demonstrating that people "into herbals" take a potpourri of products daily, not just the one described in the monograph. An example, a toxicity related to double dosing with a 40 % alcoholic extract of echinacea by an individual who took ten other vitamin and herbal products, all in a 5-10 minute period (p 90). In a recent discussion with a colleague, he told me that two thirds of cancer patients use one or more herbal preparations concomitant with their therapy and two thirds of that group did not tell their attending oncologist that they were doing so. Given the complex chemistry of herbal concoctions - glycerides, terpenoids, pyrrolizidine alkaloids, etc - potential drug interactions abound but this is a weak section of the monograph as is the chemical identification of the active ingredients. Perhaps this is the nature of the "beast", not the fault of the authors.

The text has a good cross-reference index. It contains two plates of colour photographs of only some commercially available tablets of capsules for identification purposes. However, this page was tipped into the text (between pages 134 and 135) but is not indexed anywhere. As stated, the chemistry is rather limited although it directs the reader to sources. What I would have liked to have seen is coloured photographs of the plants, the sources of these herbal ingredients. This should not be difficult to do. Just like our food, these preparations do not come from stores. Well, perhaps in the next edition! The authors have promised that. As more information becomes available on other herbal preparations, they will incorporate this into future editions.

The book is expensive and beyond the reach of all those users excepting the dedicated. It should be on an academic toxicologists bookshelf since so many questions arise about herbals, drug interactions, etc. At least the medical library should have a copy.

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# **HYDROGEN SULPHID HEALTH RESEARCH & RISK ASSESSMENT SYMPOSIUM**

**October 31 to November 2, 2000**

**Sheraton Chapel Hill, Chapel Hill, NC**

Hydrogen sulfide (H<sub>2</sub>S) is both an environmental and occupational pollutant. It is a colorless gas with a characteristic odor of "rotten eggs". At high concentrations it is very toxic, and can be fatal in accidental situations. Although there is considerable literature on the adverse effects on human health at high concentrations, little is known about the health impacts from exposure to low levels.

A symposium on H<sub>2</sub>S toxicity will be held at the Sheraton Hotel in Chapel Hill, North Carolina, October 31 to November 2, 2000. The symposium is co-sponsored by the American Petroleum Institute (API), the American Forestry & Paper Association, the Chemical Industry Institute of Toxicology (CIIT) and the U.S. Environmental Protection Agency (EPA). The symposium will be a forum to present scientific information that may be beneficial to the environmental and regulatory review process. Results from the symposium may be useful for assessment of risks, revision of existing H<sub>2</sub>S standards and development of new guidelines. New research directions will be discussed which will promote future research collaborations.

The participants from Canada include Dr. Lisa Partlo, Geoff Granville and Dr. Sheldon Roth (*Ed. Note: Dr Sheldon Roth is Vice President of the STC*). Program information, call for papers and registration details for the symposium can be found at <http://www.api.org/h2s>

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## **A NEW TOXIC: JPEG**

How safe are JPEG files? These are the ones compressed by the Joint Photographic Experts Group algorithm, which reduces digital pictures files to a fraction of their original size. The algorithm was originally developed for the transmission of photographs to newspapers and magazines. Nor is this a concern when sending family photos to friends via the Internet. In these cases loss of detail is not always apparent, or important. However, the more an image is compressed, the less accurately the reconstituted JPEG file will resemble the original. There are times when even a slight loss of image quality could have serious consequences. Often X-ray and ultrasound scans are compressed into JPEG files, either for archiving, or for transmission to distant specialists. In these situations, of course, quality is paramount.

Three recent articles (1,2,3) report that a compression ratio of 4:1 does not noticeably degrade image quality, but anything over 16:1 produces images that are blurry, blocky or grainy. Essentially, the greater the compression the higher the error in assessing the images, with a concurrent risk of misdiagnosis. More advanced algorithms, such as JPEG2000, may allow higher compression ratios without loss of quality.

Although toxicologists don't usually get into this type of diagnosis, except perhaps on themselves, this may well be relevant to the archiving of images from research studies and clinical trials.

## References

1. Tuinenburg, JC, Koning, G, Hekking, E, Zwinderman, AH, Becker, T, Simon, R, Reiber, JHC. (2000) American College of Cardiology/ European Society of Cardiology international study of angiographic data compression phase II. The effects of varying JPEG data compression levels on the quantitative assessment of the degree of stenosis in digital coronary angiography 21(8): 679-686.
2. Kerensky, RA, Cusma, JT, Kubilis, P, Simon, R, Bashore, TM, Hirshfeld, JW, Holmes, DR, Pepine, CJ, Nissen, SE. (2000) American College of Cardiology/ European Society of Cardiology international study of angiographic data compression phase I. The effects of lossy data compression on recognition of diagnostic features in digital coronary angiography. 21(8): 668-678.
3. Brennecke, R, Bürgel, U, Simon, R, Rippin, G, Fritsch, HP, Becker, T, Nissen, SE. (2000) American College of Cardiology/ European Society of Cardiology international study of angiographic data compression phase III. Measurement of image quality differences at varying levels of data compression. 21(8): 687-696.

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## A NEW WAY TO DEAL WITH VIBRIO TOXINS?

### Michael Prior

We have all heard of the Gram negative, -Protobacterium *Vibrio cholerae*, some of us may have known it intimately. It causes severe diarrhoea, vomiting and dehydration; a lethal combination unless treated quickly with oral salts or intravenous fluids to rehydrate the victims. It was a scourge of the nineteenth and twentieth centuries, and remains so today, especially after natural disasters. Improved sanitation has removed the threat from drinking water, thanks to the pioneering efforts of John Snow. But the threat is always present; in fact, not long ago I was advised against eating sea foods in a major city of the southern USA because of the risk of vibriosis.

Perhaps there is hope on the horizon, with the publication of the full DNA sequence of *Vibrio cholerae El Tor N16961* (1). The complete genomic sequence is 4,033,460 base pairs (bp). The genome consists of two circular chromosomes of 2,961,146 bp and 1,072,314 bp that together encode 3,885 open reading frames. The vast majority of recognizable genes for essential cell functions (such as DNA replication, transcription, translation and cell-wall biosynthesis) and pathogenicity (for example, toxins, surface antigens and adhesins) are located on the large chromosome. In contrast the smaller chromosome contains a larger fraction (59%) of hypothetical genes compared to the large chromosome (42%) and also contains many more genes that appear to have origins other than the - Protobacteria. The small chromosome also has a gene capture system (the integron island) and host 'addiction' genes that are typically found on plasmids; this., the small chromosome may have originally been a megaplasmid that was

captured by an ancestral *Vibrio* species.

For toxicologists, the interesting thing about the DNA sequence is that it reveals a number of unexpected metabolic pathways that may prove useful for drug development. For example, El Tor can produce all the enzymes necessary to utilize fucose, a sugar found in intestinal mucosa. One obvious approach would be to find blockers for these pathways.

### Reference

1. Heidelberg, JF, Eisen, JA, Nelson, WC, Clayton, RA, Gwinn, ML, Dodson, RJ, Haft, DH, Hickey, EK, Peterson, JD, Umayam, L, Gill, SR, Nelson, KE, Read, TD, Tettelin, H, Richardson, D, Ermolaeva, MD, Vamathevan, J, Bass, S, Qin, H, Dragoi, I, Sellers, P, McDonald, L, Utterback, T, Fleishmann, RD, Nierman, WC, White, O, Salzberg, SL, Smith, HO, Colwell, RR, Mekalanos, JJ, Venter, JC, Fraser, CM. (2000). DNA sequence of both chromosomes of the cholera pathogen *Vibrio cholerae*. Nature 406: 477-483.

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## THE STUDENT PERSPECTIVE

**Patricia Solbeck, Heather McDiarmid, Lillian DeBruin**

*The Student Perspective is a new column appearing in STC News. In this initial article, graduate students from Dr. David Josephy's research group at the University of Guelph offer the following thoughts about their studies, their progress, and their futures.*

### *The Beginning - Patricia Solbeck*

Entering graduate school brings a whole new set of challenges. Instead of the directed study that fills our undergraduate years, graduate work consists mainly of independent study. There must be a fine balance between research, lit reading, courses, teaching, socializing, and sleep, to be successful and remain sane.

Since I began my MSc in May, "off-stream" from when most students start their studies, I have yet to experience the full semester of taking courses, giving seminars, writing exams, teaching undergraduate laboratories, and marking exams. I've only heard the stories. After listening to other students, I can only wonder at how all the work gets done!

As a new graduate student, I'd like to offer the following advice for other new graduate students:

1. Find an advisor that will be willing to meet with you on a regular basis. You'll only get as much help as you ask for!
2. Take fifteen minutes at the beginning of each day to review your accomplishments from yesterday, and to plan your work for the day. Crossing items off a "to do" list is very satisfying!
3. Get involved. Attend social functions. Join clubs. Play sports. Research is your priority, but you can't forget

to have fun!

There are a number of resources available to new graduate students. To find out whether your University offers graduate workshops and seminars, contact your Graduate Student Association.

*Science and Family - Heather McDiarmid*

I am a PhD student in my second year of studies and beginning to think about starting a family. Below is a list of questions and concerns that I have had with regards to this issue, followed by some of the answers, information, and advice that I have received.

1. When, in a scientific career, is the best time to have children?
2. What added health concerns should I have as a female scientist hoping to conceive or during a pregnancy?
3. What support systems (financial and social) are in place for pregnant women and recent mothers?
4. What type of daycare is available and how long is the waiting list?
5. What are the challenges in juggling a scientific career and a family?
6. How does having a family affect one's ability to progress in a scientific career?

Naturally, there are no simple answers to any of these questions. However, in talking to people, I have gathered a lot of interesting information and advice.

First and foremost, not a single person that I have talked to has regretted having children, despite the difficulties and setbacks that they have had to deal with.

Safety is an important issue for many. Some people have voiced concerns about how their research work has impacted their fertility, be it due to stress, work with radioactive material or other potentially harmful reagents. To safeguard the health of the fetus, some women have timed their pregnancy to coincide with writing their thesis, others have suspended work with hazardous chemicals during their pregnancy, yet others have simply been more vigilant in taking safety precautions when working with potentially harmful compounds.

Financial support for parental leave has recently been made available for students with MRC (CIHR) and NSERC awards, as well as for students paid out of grants from these and other agencies. Many Canadian Universities have made allowances in their programs for parental leave and part time study. In addition, several agencies have made provisions in their granting policies for payment deferrals or grant extensions for new parents and caregivers. Most of these provisions have only recently been introduced but have already made a significant impact on the careers of women in science. These changes reflect profound shifts in attitudes of our society, not only toward welcoming women in science but also toward accepting and supporting the important role that parents play in our society.

The availability of support from spouses, family and friends has been a very important factor for many science Moms (and Dads). In addition, many have said that organization is a key component to successfully juggling family and work life. If you can afford it, hire others to do the housework for you, such as cleaning and shopping and cooking. This gives you more quality time to spend with your family.

Finally, the best advice that I have received is quite simple. There is no best time to have children; if you feel ready to start a family, then it is the right time. The rest will just fall into place somehow.

Yes, "*the sun is shining*" with respect to employment opportunities for recent Ph.D. graduates in toxicology. A glance at the current job market noted positions available in the environmental, biotechnology, pharmaceutical, and chemical industries, as well as in the government and academic sectors. Positions ranged from technical to consulting to managerial to teaching. With enrolment growth and faculty retirement, Canadian universities are undergoing faculty renewal. It is estimated that 2,500 to 3,000 new faculty are required per year over the next 12 years. Here, in Ontario, the faculty hiring process will also have to address the double-cohort of first year students arriving in 2003, due to the elimination of grade 13.

So the career choices are there, but which field does one choose and what pathway does one take? Someone mentioned to me that taking up a Post Doctoral position allows you some more time to decide. So being a great procrastinator, I will look at the possibility of a Post Doctoral position. For those with an academic career in mind, a Post Doctoral Fellowship is the next leg of the journey. Yet, there are some limited cases in which faculty have come from industry into academia. In the book, *A Ph.D. Is Not Enough: A Guide to Survival in Science*, the American author, Peter J. Feibelman, suggests that this may be the best route. (By the way, this book is best read **before** you start a Ph.D. programme.) Conversely, you can Post Doc and then easily find a position in industry. The Post Doctoral Fellowship programme is part of the pathway for those interested in pursuing active research careers whether in industry, government, or academia. The Fellowship should be a learning/ training experience and should expose the Ph.D. graduate to new areas and techniques. Of course, the Ph.D. graduate should bring complementary talents to the research group. Several recently advertised Post Doc positions requested, basically, a specialist, someone who knows all the techniques and requires no training. Is this not unfair exploitation the fellowship programme as well as the new Ph.D. graduate?

So how does one choose the right Post Doc position? There are many factors to consider. One must consider the new supervisor. Ideally, a Post Doctoral supervisor should be internationally recognized in his/her field and should act as a mentor. If the new supervisor is not readily available, a research associate may be able to fulfill the role of a mentor. The next consideration is the research area; it should complement but not be identical to your Ph.D. thesis work. Remember, this should be a growth experience for you. A third factor is the research group. Sometimes, a small group is much better than a large group. How will you fit in and work in this group? How does this research group position itself with the research institute? Is there interaction with the other groups? A related factor to consider is the research institute itself, whether it is a university, private industry, or government. Another consideration is how long to Post Doc. In the late 1980's and 1990's, many Ph.D. graduates did a 3-5 year Post Doc position or did several positions totalling about 5 years. And in the 1960's, when there was a great demand for faculty, many universities hired graduates immediately after the completion of their Ph.D. programme. Today, with the increase in job opportunities, the Post Doctoral may be only one or two years.

What about are salary and location? If you are young and single, this may not be much of a concern. For those with a family, money to help support your children and location become very important. It could be difficult to move your children and spouse to a new city for just two years. These are just a few factors to consider about a Post Doctoral Fellowship, and you should probably start planning this next step well before the writing of your thesis.

*All members, especially student members, of STC are invited to submit articles, comments, or ideas to be published in the Student Perspective. If you have any comments or suggestions with regards to the above column, or would like to contact any of the members of the Josephy Research Group, send e-mail to [psolbeck@uoguelph.ca](mailto:psolbeck@uoguelph.ca) with a copy to the Editor [michael\\_prior@sunshine.net](mailto:michael_prior@sunshine.net)*

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## BITING THE HAND THAT PERSECUTES YOU

**Michael Prior**

So what do the rattler round-ups held every year in Sweetwater, Texas, have to tell us about evolutionary toxicology?(1) After all, we all know that rattle snake (*Crotalus spp*) rarely deliver fatal bites - only one in 500 people have died as a result. Yes, people have lost the odd toe, or finger, but anti-venom from horse serum saved the day. Though it is *always* wise to avoid the Mojave rattler carrying the potent Mojave A toxin.

In general, the venom of rattle snakes produces alterations in the resistance of blood vessels, changes in blood cells and coagulation mechanisms, changes in cardiac and pulmonary dynamics, and alterations in the nervous system (2).

But there have been disquieting incidents when people have been bitten by the Southern Pacific rattler, a relatively harmless rattler, yet required 35 vials of antiserum to save their life. Or bitten by a timber rattler, and needed 0 vials of antiserum. This is about four times the usual dose. Some patients do not improve until they have been injected with between 30 and 70 vials.

Are rattler bites not what they used to be? Some argue that hybrids of two species are being created at the borders of their separate ranges, and the ability to deliver powerful neurotoxin bites is being passed from the more deadly species to the formerly less harmful. Increased venom toxicity seems to be spreading west from Arizona, and east to Texas and Florida.

Others present a different explanation. The ground squirrel has evolved an enzyme defence that breaks down rattler venom in its blood, as have other rodent prey of the rattler. So now there is the classical arms race, to combat more effective anti-venom defences, the rattlers have evolved more and more deadly venom.

Yet others disagree with both these theories. They think the cause is human beings. It is known that younger and smaller snakes have more toxic bites because they cannot inject as much venom as their elders. As rattler round-ups deplete populations of mature rattlers, younger snakes and smaller snakes are left. With more potent bites.

One study from Colorado reported an overall mortality of 25 per cent in horses bitten by rattle snakes (3). In light of the high mortality, is this species more at risk than humans? It would be interesting to learn if there has been a change in overall mortality since this report.

### *References*

1. Grenard, S. (2000) Is rattle snake venom evolving? *Natural History*. July/August.
2. Russell, FE & Dart, RC. (1991) Toxic Effects of Animal Toxins. In Casarett and Doull's Toxicology. pp 756-763. Toronto: Pergamon Press.
3. Dickinson, CE, Traub-Dargatz, JL, Dargatz, DA, Bennett, DG, Knight, AP. (1996) Rattlesnake venom poisoning in horses: 32 cases (1973-1993). *J. Amer. Vet. Med. Assoc.* 208(11): 1866-1871.

## PEER EVALUATION

### Robert Prior, Richmond Hill, Ontario & Michael Prior

When we peer at something, we look very closely at the object of interest. As scientists, we are familiar with the peer review process. Or at least the format in which scientists review manuscripts prior to publication in the primary scientific literature, or research grant applications seeking financial support. Of course, scientists are not the only people doing evaluation, nor is this the only format. For example, this year, the removal of many peers of the realm from the British House of Lords, was part of their evaluation and devolution process in which fellow members voted to select those who would continue to sit in the House of Lords. Truly a peer review!

A pedestrian pier was opened this summer at Gibson's, on the Sunshine Coast; and another is planned for Sechelt. Are these ventures worthwhile? Well, scientists and teachers hear much about evaluation, but most of the easily-accessible materials deals in general theory rather than specific examples.

We present this sample rubric of six parameters as suitable for general pier evaluation (Table 1). The final evaluation is out of 24.

<b>Accessibility</b>  4 Excellent: has handicapped access  3 Good easy walk, no climbing  2 Marginal: can reach with dry feet  0 Unsatisfactory, requires wading.	<b>Scenery</b>  4 Excellent: absolutely breathtaking; you quit your job and moved here  3 Good: stunning, you'll be back  2 Marginal: hey, its just water  0 Unsatisfactory: rusted hulks and old tires.
<b>Docking</b>  4 Excellent: lots of room with bumpers  3 Good: lots of room  2 Marginal: a couple of pillars  0 Unsatisfactory: nowhere to tie up	<b>Fishing</b>  4 Excellent: fish leap into your bucket  3 Good: rod and reel get you supper  2 Marginal: other people catch fish ere  0 Unsatisfactory: stop at the fishmonger on the way home

Swimming	Pubs
4 Excellent: wide sandy beach with young, tanned single life guards	4 Excellent: micro brewery at foot of pier
3 Good: wide sandy beach with lifeguards	3 Good: great pub within walking distance
2 Marginal: beach with safe footing	2 Marginal: seedy tavern a short drive away
0 Unsatisfactory: rocks and broken glass	0 Unsatisfactory: BYOB

Table 1 Proposed criteria for general pier evaluation.

On a *much* more serious note, but still on the topic of peer evaluation. How is STC NEWS/NOUVELLES doing? What do you like, want to change, want to be added? The Editorial Committee is always delighted to receive comments and suggestions about our Society newsletter. Of course news and articles are welcome too! So please contact any member of the Editorial Committee, they look forward to hearing from you.

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## E-PUBLISHING AND E-NEWSSTANDS AND E-LIBRARIES

### Michael Prior

Do not read any further if you appreciate the long delays in getting your research published. If you prefer to have your work published sooner rather than later, then note that the first issue of "*Quality-Related (QR) Journals of Economic Theory and Macroeconomics*" will be out by the time you are reading this.

OK, we accept that most of us don't usually publish our toxicology-oriented research in economic journals! But this is the way economists are exploring to reduce the present excessive (up to three years) delays to publication.

The QR journals have an impressive panel of academic editors, promise publication delays of only two to four months, a rating system that will do away with sequential submissions, and a unique incentive system to ensure that prospective contributors are willing to act as referees. Each field of economics will have four journals, rated gold, silver, bronze and standard - to denote different levels of quality. The author will have the opportunity to revise the paper to a higher level.

An intriguing idea which will be interesting to watch unfold. Will it work? Is there a niche for something similar in toxicology? For more information about this publishing concept, go their web site at <http://www.bepress.com/>.

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## BOOK REVIEW 2

### Don Ecobichon

*Owning the Future. Staking claims on the knowledge frontier.* Seth Shulman. Houghton Mifflin Co: Boston. 1999  
CDN\$36.95 pp 224.

I mentioned this book briefly in my last column as one that should be read by all scientists, given the propensity of patenting everything. I received my copy and it is a fascinating portrayal of the complexity of patent laws and the downright foolishness of some of the situations. Do you realize that about 33 % of your own genome, now mapped, is owned privately and not by you? You do not own your own genes! Someone else does!

It is a tall order to review this book given the scope of the problem and the plethora of examples of patenting "intellectual property and technology". For example, Texas Instruments has earned a larger proportion of its \$200 million in annual profits from licencing patents (scores of them covering the basic techniques of manufacturing computer chips) and winning infringement cases than from selling products. As the author states - "Adam Smith's 18<sup>th</sup> century notion "that the wealth of nations rests on a tripod of capital, labour, and mineral resources - has been displaced by the triumvirate of patents, copyrights and trademarks". One law firm is arguing that professional athletes may have the legal right to patent or copyright unique moves that they use in competition, thereby preventing their opponents from using them!

The author deals with cases involving: killer seeds (sterile products that cannot be saved for replanting); the patenting of neem leaf products as natural pesticides; exclusive "pouring rights" of soft drink companies in cash-starved schools., colleges and universities in exchange for a cash donation and a percentage of vending machine sales; the privatization of jails - the freedom of information laws do not apply to private businesses; patenting of medical (surgical) techniques which means that other surgeons cannot use the procedure without paying a royalty to the holder of the patent; gene therapy of any kind since it uses patented techniques even though many were developed with public finding (meaning that, in the USA, such discoveries lie in the public domain); software that once functioned without patents and with a free exchange of information between the movers and shakers but who now no longer meet; the soybean problem of genetic modification and ownership by one multinational company; libraries and "metered access" arrangements with on-line database owners, threatening to change them from public repositories offering free access to a mere gateway that charges for information held by others; etc. These cases are real, often before the courts. The book gives an intelligent overview of the problem.

While the text deals mainly with the US situation, the problem has become international in scope. Once again, Monsanto has given royalty-free licences to develop seed stock of the "yellow rice" but there are a number (25-70) but-players who "own" components of the techniques used to introduce the gene and who have not signed off for humanity's sake. This little book is worth your time, if only for a better understanding of the background surrounding the media hype on these topics.

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## EMPLOYMENT WANTED

Please see the message below from someone who is seeking employment.

Marco Pagliarulo has a M.Sc. in Biology (in the field of Environmental Toxicology) and a B.Sc. in Toxicology. He has some experience working with the effects of environmental contaminants such as organochlorines and heavy metals. Also some experience working as an Environmental Scientist and as a Project Manager. Presently he is looking for employment, preferably in the Greater Toronto Area, involving effects of environmental contaminants, industrial chemicals, pesticides, or other chemicals. If you are interested, or know someone who might be, please contact Marco at [marco.p@sympatico.ca](mailto:marco.p@sympatico.ca) or at (416) 248-0356.

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## TOXIC DEFINITIONS

As part of the mandate of this Newsletter to keep STC members abreast of current thinking, we present the latest batch of definitions(1) to add to your dictionary.

- *Caernduncan* the high-pitched and insistent cry of the young male human urging one of its peer group to do something dangerous on a cliff edge or piece of toxic waste ground.
- *Spinwam* the toxic foam that clings to rocky fore shores.
- *Tomatin* the chemical from which canned tomato soup is made.

### *Reference*

1. Douglas Adams & John Lloyd (1984 ) "The Meaning of Liff" New York: Harmony Books. ISBN 0330281216

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## CONFERENCES, MEETINGS AND WORKSHOPS

### 2000

Oct 31-Nov 2 Hydrogen sulfide health effects and risk assesment symposium, Chapel Hill, NC. USA. Co-sponsored by American Petroleum Institue, the Chemical Indisutry Institute of Toxicology and the U.S.E.P.A. Contact: E-mail:

[h2s@api.org](mailto:h2s@api.org) Web site: <http://www.api.org/h2s>

Nov 12-15 American College of Toxicology 21<sup>st</sup> Annual Meeting, San Diego, CA, USA. Contact: ACT, 9650 Rockville Pike, Bethesda, MD 2082214, USA. Tel: 301-571-1840. Fax: 301-571-1852. E-mail: ekegan@actox.org

Nov 12-16 21<sup>st</sup> Annual Meeting of Society of Environmental Toxicology and Chemistry (SETAC), Nashville, TN, USA. Contact: Website: <http://www.setac.org/meet.html>

Dec 7-8 Thirty-Third Annual Symposium, Society of Toxicology of Canada, Montréal, Québec. Contact: Society of Toxicology of Canada, P.O. Box 517, Beaconsfield, Québec H9W 5V1. Tel: 514-428-2676, Fax: 514-428-4946

## **2001**

March 25-29 40<sup>th</sup> Annual Meeting of the Society of Toxicology. San Francisco USA. Contact: SOT, 1767 Business Centre Drive, Suite 302, Reston, Virginia 22090-5332, USA

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

June 24-28 20<sup>th</sup> 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](mailto:ictix2001@im.com.au)

## **2002**

March 18-22 41<sup>st</sup> 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 42<sup>nd</sup> 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

## **2004**

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

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