

STC

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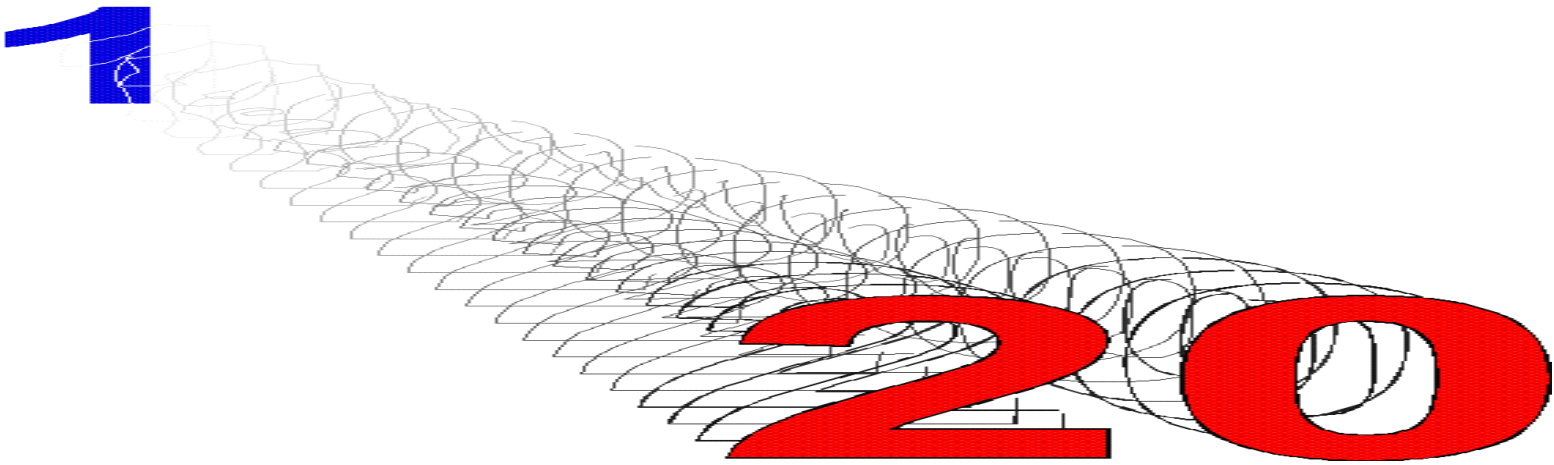
11th INTERNATIONAL CONGRESS OF TOXICOLOGY

ICT-XI

July 14-21, 2007

MONTREAL, CANADA

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This is our 20th year of publication!

En 2001, nous célébrons notre 20ème année de publication!

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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



When I was a child in England, we didn't celebrate Hallowe'en. Instead we burned Guy Fawkes on November 5th. Actually, an effigy of the man who plotted to blow up the British Parliament many years ago. Also, we ate roasted potatoes and set off fireworks. In Canada, our children celebrated Hallowe'en, which derives from the Celtic festival of Samhain ¹. The night when the dead - the departed spirits - roam the earth. What are our toxicological departed spirits?

Lead is an ongoing concern. Asbestos is a major health and insurance issue for Lloyds of London, and for the staff of Leinster House in Dublin after traces of asbestos were found in the Dáil (parliament) basement last summer ². Arsenic in drinking waters - very close to home this one.. Should we include polyvinyl chlorides in the Great Lakes? Or living near a major toxic chemical disposal site? What about pesticides - either as run off or as residues? We might include those oestrogen-mimicking compounds. Contamination from breaking mouldy beer bottles at the liquor board, as recently happened in BC? ³ Airborne particulates? There seems to be no lack of "departed spirits" that come back to haunt us.

Lest the connection between Hallowe'en and toxicology seem tenuous, let us consider the old custom of bobbing for apples. For Hallowe'en was the time when young maidens bobbed for apples - the first one to capture an apple would be the first to get married. Do you recall the fuss about apples treated with AlarTM?

An old custom of Hallowe'en is Jack-o'-Lanterns. As part of the Samhain celebration, Celts would bring home an ember from the communal bonfire at the end of the night. There is some evidence to suggest this was done in hollowed out real turnips, *not* plastic replicas. This was done to ward off Stingy Jack. Folklore from the 18th century describes this character as a good-for-nothing miser, who avoided damnation by tricking the devil. Today, has his miserly role been assumed by governments who cut funding for adequate regulation and research?

Hallowe'en is the time for "*Trick or Treat*", or should that be "*Trick or Treaty*"? Some readers may think it refers to the present countervailing levy applied under NAFTA rules on Canadian softwoods. Or perhaps government environmental and health protection programs that exist on paper but are inadequately funded?

Visitors at Hallowe'en often wear a mask - not unlike secondary carcinogens, or toxic substances with a delayed onset of adverse effects - so the real identity of the intruder (xenobiotic) is masked. The costume often extends the disguising effect of the mask. Might the visitor represent the Monster that we must name and face? Those toxicological departed spirits, for example. For example, water quality in Walkerton, North Battleford, and other places? If we don't address it, will we then be damaged in the future? Though the visitor isn't always to be feared. Macromolecular therapy works on the principle of "*tricking*" the host into not catabolizing therapeutic macromolecules by "*treating*" with antisense drugs that block the expression of the adenosine A1 receptor, found in asthmatic lungs but not in healthy ones; or by "*treating*" (coating) insulin with an acrylic gel to allow it to reach the small intestine, where it may be absorbed into the blood stream ⁴. If these novel approaches succeed, would those early Celts demand a share of the royalties? A segued thought: did you know that "*quockerwodger*" is a term for a toy pulled by strings and used to signify a pseudo-politician, someone whose strings are pulled by another person? ⁵ Talking of monsters, what about cell phones - the curse of the chattering classes, are they killing us whilst we speak? ⁶

Parents are often concerned that Hallowe'en treats given to their children may not be as innocent as they look; perhaps containing harmful substances such as acids or alkalis, pesticides or razor blades. Their grandparents remember that adulteration of foods and cosmetics was the impetus for food and drug legislation in many jurisdictions. Which poses an interesting question. Was hemp originally banned because William Randolph Hearst wanted to control the "*yellow press*" and the paper suppliers, or because of its tetrahydrocannabinol content? By the way, a cannabis-based pain spray is to be tested at Ottawa Hospital's Rehabilitation Centre. Wonder if some of this spray will come with our income tax demands? These days might we wonder if banning hemp was to promote the sale of Viagra? After all, if you believe in conspiracy theory, British Columbia's major industry is reputed to be marijuana, and BC males consume more Viagra than the rest of Canada! ⁷

Many parents accompany their younger children whilst they trick or treat, for many worry about the strangers on the

street who may do harm to their children.. Yet the child's family is the most likely source of injury or death! We in North America, and especially Europeans, worry about genetically modified foods, the so-called Frankenfoods. Looking at our eating, drinking, and smoking habits and lifestyles, which poses the greater risk?

The Celts may have dressed in costume at Hallowe'en to lead the wandering spirits away from human homes. As toxicologists, are we not guiding those departed spirits away from human contact?

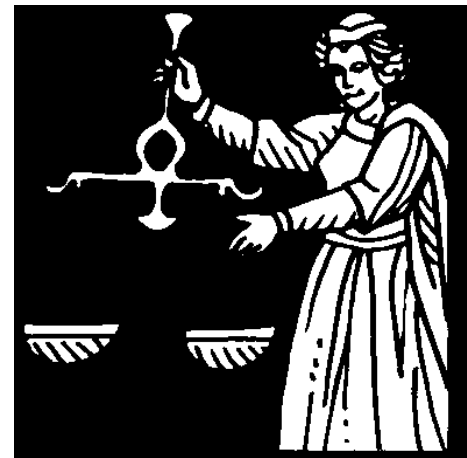
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FROM THE DESK OF THE PRESIDENT

Heather Durham



We did it! The Eleventh International Congress of Toxicology will be held in Montreal, July 14-21, 2007. A hearty and sincere thanks to all members who contributed to the effort. It was sustained right up to the last moment. We never let up. The core bid committee and STC's Board of Directors met and communicated by email over the past year to finalize the campaign and keep up the momentum. Len Lillie, Sheldon Roth, Tom Massey, Doug Arnold, Gaston Chevalier, Alain Carbonneau (from the Palais des Congrès), Laurier Forget (from NRC) and myself were the official representatives of the bid committee who traveled to Brisbane. In addition, we had invaluable help from Mark Goldberg and David Josephy, the other Board members present, several members of STC and ex-patriot Canadians from around the world. I don't think there were many attendees left who didn't have a Canadian pin on their lapel. The maple sugar cookies brought by Alain were

very popular as well at tea time. The highlight of the 'give aways' was the draw for the six Tilly hats donated by Don Ecobichon and a stuffed toy moose and a watch donated by Mark Goldberg of Globaltox. Sincere thanks for these donations. They really enhanced our presentation at the booth.

The lead up to the vote went extremely well and was fun. The staff of the Brisbane Convention Centre was terrific. They put on the "Canadian" reception for the voting delegates that was both elegant and professional from the colour scheme to the food. They even phoned somebody's mother in Canada for recipes. The tense time came with the IUTOX general assembly and the vote to determine if ICT XI would be held in Montreal or Barcelona. Len Lillie made the presentation to the Societies and did a superb job. As usual, Len was organized, clear and to the point. Thank you, Len, for standing up there and representing our Society in such a distinguished manner. Then we waited... and waited until the votes were finally counted and other business finished. There were several people outside that room pacing. Eventually, the announcement was made and it was time for some spontaneous celebrating. Somehow, Alain arranged for some Australian sparkling wine to appear at our booth (the man truly is amazing). We certainly knew what to do with that!

It is fun to reminisce and celebrate, but now we have to start working on making ICT XI the most successful in history. We have excellent partners in the Palais des Congrès and the National Research Council and our Society has a reputation for doing things well. We'll need everyone's support to carry this out. Even though 2007 seems a long way off, we'll be getting organized now and jumping into high gear to plan the program even before the next ICT in Tampere, Finland. We need to recruit members to make sure our Society is thriving. I encourage all of you to get involved. You will find it very rewarding and you'll meet great people from all over the world.

Other Highlights from the IUTOX General Assembly

- IUTOX Executive Committee 2001-2004: President E. Dybing (Norway); President-Elect A. Karakaya (Turkey); Vice President Y. Kurokawa (Japan); Secretary-General M. Karol (USA);
- Treasurer T. Malmfors (Sweden); Past President G. Sipes (USA); 1st Director J. MacGregor (USA); 2nd Director C. L. Galli (Italy); 3rd Director K. Rydrynki (Poland) 4th Director K. Chipman (UK); 5th Director P. Wright (Australia)
- Dr. Bus reported on the background, purpose and Constitution of IART, and the role of IUTOX in the organization. He presented a draft Memorandum of Understanding between IART and IUTOX. After discussion, support was given for IUTOX's active participation in IART and acceptance of the Memorandum of Understanding.
- Drs. Dybing and Di Marco led a discussion of plans to coordinate ICT and CTDC. Factors to be considered include Congress cycle, timing of the General Assemblies, terms of office, Statute changes and economy. A task force will be formed to consider the proposal and report back to the Member Societies and the Executive Committee.
- According to the treasurer's report, the assets of IUTOX are in excess of \$ 280,025 USD.
- IUTOX had grown by 10 Societies and the Croatian Society has just been approved. Thirty-three fellowships were awarded and eight speakers were supported at ICT IX.
- Electronic communication is being used widely.
- For more news, please consult the [IUTOX web site](#).

The Australian Experience

What a fabulous country! The Australians are quite something - very straightforward, genuinely friendly and always

helpful. I never heard anybody complain about anything. That sure is different from Quebec. I mentioned this to someone and he answered "What's to complain about". They also tend to understatement. Everywhere you go, you can encounter some flora or fauna that can kill you. They take most of it in stride. The only thing they seem to really worry about is the box jellyfish because it is harder to control encounters. It was interesting to see many deadly species that I have read about in neurotoxicology books: stone fish, lion fish, scorpion fish and funnel web spiders, puffer fish and cycad nuts. Even the reef fish can be full of ciguatera toxin. At the ICT banquet, I sat next to a specialist in marine toxins from the University of Queensland. He watched me eat the reef fish for dinner. Then I went and heard his talk the next morning about ciguatera poisoning from these species. Apparently, I wasn't really in danger. However, he indicated that if you don't feel well after eating fish you can get a clue whether or not it is ciguatera poisoning by drinking alcohol. If you get a lot worse it is, but if you feel much better it isn't. There you go. Life really boils down to something simple.

Most of us were able to take advantage of having flown half way around the world to have a holiday. A big highlight for me was going on a live aboard dive boat to the outer great barrier reef. WOW! My big purchase was an underwater camera and I managed to get some good pictures. Even aside from diving, there was so much to do. I went river rafting, horse back riding, hot air ballooning at sunrise, fishing and on several 4WD adventure tours of the countryside. It is so easy to travel there and I can't wait to go back. However, now it is back to reality and a "to do" list that runs several pages.

Electronic Communications

If the only time you hear from us is when you receive something in the post, you are missing out. It means we don't have your correct email address in our system. Please let us know. We quite often distribute time sensitive information electronically and request input on specific issues.

CIHR

The Board of Directors continues to provide input whenever possible to the development of the Institutes. The Institute for Population and Public Health will be holding stake holders meetings across the country in September and October. The dates were circulated by email and several STC members will participate. We have to keep up the pressure to make sure toxicology doesn't get lost in shuffle. Whatever institutes you identify with, please write the Scientific Directors and provide your input. That means even if you don't have a CIHR grant. Through all those lean years of MRC, I know many toxicologists had difficulty with funding. However, we want our opportunities restored. The establishment of CIHR certainly hasn't meant increased availability of funds. The last competition was brutal and so will be the current one. With the recent world events, tough times may continue, but we must keep up our lobbying.

STC Annual Symposium

Once again, our program committee has put together a really hot and topical symposium. As previously announced, the meeting of the Canadian Consortium in Drug and Environmental Safety will be meeting in conjunction with STC. STC will sponsor a joint session on the Friday afternoon entitled "Emerging Opportunities for Collaboration and Funding in Toxicology". Mark Bisby, Director of Programs CIHR, relevant CIHR Scientific Directors, Chief Scientist Health Canada, and a TSRI representative have committed to participate in this discussion. It is simple - we need to fill the room and show them the importance and strength of toxicology in Canada. Please, please attend. I look forward to seeing you there.

Terrorist Actions Reach North America

I am writing this column just after the terrorist hits in New York and Washington, but didn't want to start out on a down note. Everyone has been devastated by these events and some may even have lost family or colleagues. A friend of mine captured one aspect of our emotions as "everything just feels very heavy". In my experiences with the Biological and Chemical Defence Review Committee, we keep hearing that it is not a matter of if, but a matter of when something would happen here; however, I don't think any one anticipated the magnitude or the level of organization behind it. North

Americans now have to live with what most other countries have already experienced. Let's hope this event does bring the world together to deal with this menace without the loss of more innocent lives and that something positive for the peace process emerges from this devastation.

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REPORT ON THE 9th INTERNATIONAL CONGRESS OF TOXICOLOGY

Sheldon Roth, David Josephy and Tom Massey

The 9th International Congress of Toxicology was held this year at the Convention and Exhibition Centre in the city of Brisbane, Queensland, Australia July 8-12, 2001. The Centre is located near the Brisbane River and the Southbank Park Lands. The facilities were excellent, especially the integrated computer system for the presentations, which appeared to function with very few glitches. Brisbane is located midway up the east coast of Australia, 25 km upstream from the mouth of the Brisbane River. It is the state capital of Queensland and the third largest city (population ~1.6 million) in the country, and provides excellent access to Gold Coast to the south and the Sunshine Coast to the north.

The theme for the meeting was Toxicology and Sustainable Development - meeting the challenge. This was very appropriate considering the challenges by society to industry, government and academia about managing chemical and biological safety while maintaining sustainable development. In addition to a large representation from Australia, there were delegates from Argentina, Belarus, Belgium, Brazil, Bulgaria, Croatia, Cuba, Czech Republic, Denmark, Egypt, Finland, France, Georgia, Germany, Hong Kong, Hungary, India, Indonesia, Iran, Ireland, Italy, Japan, Korea, Lithuania, Malaysia, Mexico, Netherlands, New Zealand, Nigeria, Norway, Philippines, Poland, Pr China, Russia, Saudi Arabia, Slovak Republic, Slovenia, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, Tunisia, Turkey, Ukraine, United Kingdom, USA, Venezuela, Yugoslavia and of course Canada. In total, there were just less than 900 participants, less than anticipated, but perhaps reflecting the current status for travel funds and the distance from most places.

The scientific program consisted of plenary lectures, symposia, workshops, continuing education sessions, debates and poster sessions. Since the meeting encompassed all of toxicology, it generally ran with four parallel sessions plus plenary lectures. Dr. David Vaux of the Walter and Eliza Hall Institute, Australia, presented the Deichmann Lecture on the relevance of apoptosis in toxicology. Dr. Vaux urged investigators to exercise caution when studying apoptosis as a mechanism of cytotoxicity. He pointed out that apoptosis could be a final result, occurring after numerous stress responses have been initiated. On a more positive note, he suggested that inhibition of stress-induced apoptosis may be of value for decreasing toxicity in non-target cells during cancer chemotherapy.

Plenary lectures were presented by Dr. Steve DeArmond on the neuropathology of prion diseases, Dr. Takashi Sugimura on food and cancer and Dr. Kenneth Olden, the Director of the National Institute of Environmental Health Science (NIEHS), on the Environmental Genome Project. Dr. Olden reviewed the future impact of the new genomic knowledge on toxicology. This project is aimed at identifying alleles that confer susceptibility to environmental agents. It involves three different phases, which are being conducted concurrently: 1) resequencing human genes to identify polymorphisms or sequence variations; 2) functional studies (biochemical and population-based) of allelic variants; 3) production of animal models (e.g. knockouts). One of the STC members felt that this presentation emphasized political generalities rather than toxicological insights.

Dr. Dan Nebert (USA) made an interesting comment about genetic polymorphisms and susceptibility to toxicants. Over the past decade, much of the focus has been on genes that code for xenobiotic biotransformation enzymes, since differences in the ability to bioactivate or detoxify chemicals can clearly be factors in toxicity susceptibility. In fact, several

years ago, some investigators believed that biotransformation genes were relatively unique in this regard. However, it is becoming clear that virtually all of the approximately 31,000 genes in the human genome are polymorphic, and it stands to reason that numerous genes involved in cellular signalling processes, and undoubtedly other processes, will turn out to be "susceptibility genes", with each one providing a piece to the overall puzzle of the genetic basis for susceptibility to environmental diseases.

A session on the topic of "toxicological implications of xenobiotic transporters" got the attention of at least one STC delegate. The identification of the role of the MRP family of transporter proteins (which were discovered by Cole and Deeley at Queen's University in Canada) has radically changed our understanding of drug metabolism. There is increasing evidence for the importance of transport of substrates into biotransforming cells, and that the transport can be rate-limiting in overall biotransformation. One of the workshops that was particularly enjoyed included talks by Dietrich Keppler and Richard Kim, the latter an expatriate Canadian now at Vanderbilt University. There were also excellent presentations on transgenic and knock-out animal models by Frank Gonzalez, oxidative stress by Christine Winterbourn from New Zealand and a lecture on the role of mitochondria in cell death by Sten Orrenius.

A symposium was devoted to a plea for more interaction between toxicologists and epidemiologists to optimize human risk assessment. Toxicologists can be invaluable to epidemiologists when it comes to trying to overcome some of the challenges of epidemiological studies (e.g. optimizing design of questionnaires, establishing cause-and-effect, etc.). On the other hand, the importance of human studies for establishing public policy means that interacting with epidemiologists can give toxicologists opportunities for greater input into such policies. Perhaps on a lighter note, Fred Guengerich reported that indigo, the dye used for colouring bluejeans, is an Ah receptor ligand with affinity similar to that of TCDD. Clearly, the scientific program provided exciting sessions for everyone.

There were a number of exhibitors representing scientific companies, booksellers, government agencies, etc. In my opinion, the most attractive booth was that of the Society of Toxicology of Canada. We were indeed fortunate to have had the talents and enthusiasm of Alain Carbonneau of the Palais des Congres, who performed miracles in designing the booth, and provided thousands of maple cookies to hungry participants. The cookies as well as the maple syrup kept all visitors to the booth happy and eager to return.



A moment of celebrating by some members of the ICT XI bid committee. Left to right: Heather Durham, Gaston Chevalier, Doug Arnold, Len Lillie, Laurier Forget, and Alain Carbonneau. Tom Massey and Sheldon Roth must have been hiding.

Without doubt, the highlight for the Canadians was a superlative reception that was hosted on Monday afternoon, with the aim of promoting our bid for the 11th International Congress. The following day, the IUTOX General Assembly was held to vote on the Society that would host the 11th International Congress in 2007. At this meeting Drs. Len Lillie and Heather Durham presented our bid while several other delegates waited anxiously outside the venue for the final decision. The presentation was very well received, and we were delighted to learn that we had been successful. You will be hearing more about ICT 11 to be held in Montreal, in this, and future editions of STC news.

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BOOK YOUR REEF-VIEWING TRIP SOONER RATHER THAN LATER

The Editor hopes that our President enjoyed her diving at Australia's Great Barrier Reef. For, according to a report from the recent British Association science festival, global warming could raise ocean temperatures to levels that would bleach the great reefs of the Pacific and Indian oceans, the Caribbean, and the Red Sea. This bleaching seems to be due to a steady rise in ocean temperatures, now climbing at a rate of 1-2°C every 100 years. A major challenge in reversing this trend is the 50 -year time lag between controlling carbon dioxide emissions and the temperature of the oceans beginning to drop. Lest you think reef-viewing is only for Presidents, please be aware that reefs are critical service areas for fishing, tourism, biodiversity and coastal protection.

Reference

- Radford, T. (2001) *Coral reefs "face total destruction": global warming will kill underwater habitat within 50 years.* Guardian Weekly, September 13-19. Page 23.

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THE VIEW FROM MY CANOE

Don Ecobichon



This will be an abbreviated column for this issue since the deadline came at a time when I was working in Chile finishing up a three year joint Canada (CIDA) - Chile project on pesticides. All in all, it was a good project., some objectives being attained, others not, with the major thrust being to get different government departments to talk to one another. A second phase of the joint project is in the planning stages, and what we, the Canadian consultants, have learned is that much better local control of activities is needed and must include much more biological monitoring. It has been a pleasure to visit Chile on a number of occasions, a beautiful country, and to work with some great people.

In a recent weekend Globe and Mail was a notice that George Feuer had died. George was a longtime member of University of Toronto's faculty and a member of STC for many years before his retirement. Our condolences to his family.

While spending little time in my canoe this summer, I have noticed that our lake on the Rideau Canal system has been invaded by zebra mussels. This was expected to happen since pleasure craft coming from the St Lawrence River and Lake Ontario travel through the Rideau Canal every year, bringing this pest with them. The only good thing about them is that they improve the clarity of the water by filtering our a lot of particulate materials.. More to be said about voyaging pests in a future column.

Kudos to Bill Racz of Queen's University who was recently appointed Associate Dean, Life Sciences, in the School of Medicine. This will be a challenge for Bill, but it will not make the piles of paper in his office any neater.

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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.

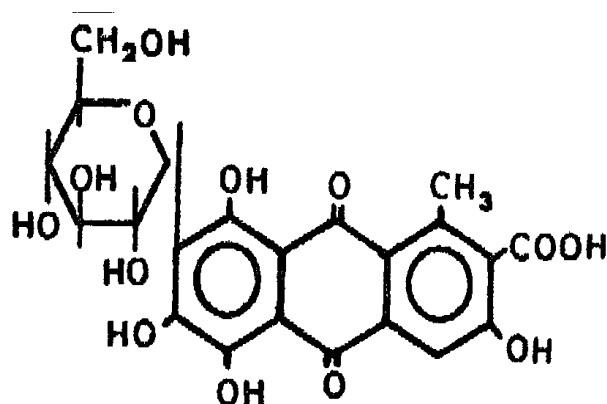
From Volume V (2), 1986: Cochineal Red

In reading an article recently in Natural History (Vol. 95 #3, 1986) on the use of natural dyes in the weaving industry in Mexico, I came across reference to the use of the cochineal bug (*Dactylopius coccus*) used by the Zapotec and Mixtec Indians since before the arrival of the Spanish to produce brilliant hues of crimson, scarlet, maroon, mauve, coral pink and

lavender in wool used to weave tapestries, cloaks, etc. The cultivation of the cochineal insect by the Zappotecs saved them from extinction at the hands of the Aztecs since they possessed something that these despots did not have, brightly coloured cloth. In fact, the closely guarded secret saved those Indians from destruction by the Spaniards as well and the dye was one of the most sought after imports from New Spain in the 1600s-1700s, far surpassing the colours produced from madder root and from European insects (kermes, lac, Saint John's blood).

The female of the insect is the source of the pigment, the deep maroon colour pervading their tissues and body fluids and accounting for approximately 10 % of the body weight. The female insect sets up house on the surface of the nopal cactus under a covering of cotton-like wax coating. The males can fly away but the females are flightless and colonies of the sex expand on the cactus. The females are scraped off, dried and have the appearance of small gray seeds, giving rise to the Spanish name "*grana*". The tiny insects are ground to a fine powder which is used in dyeing the wool, adding lime juice to control the pH and the dried leaves of a tree (tejute leaves) thought to contain oxalic acid which is known in the dye literature as a colour intensifier and mordant for cochineal, forming an insoluble "lake" in the fibres of the wool. The colour is fixed and retains its brightness for 2300 years plus.

The active ingredient is carminic acid, this dye seeing some limited use in the food, cosmetic and pharmaceutical industry in such commodities as pork sausages, dried fish and shrimp, jams and jellies, ice-cream, canned fruit, soft drinks, candies, cider, medicinal pills, laboratory stains, lipsticks and rouge, and the famed maraschino cherry. Cochineal was gradually replaced by inexpensive synthetic dyes derived from the old coal tar dyes which are of concern because of cancer induction in laboratory animal studies. Many manufacturers appear to be turning back to the biological world for safe colour additives. Cochineal, already approved by the US FDA, is being reconsidered for more extensive use. The supply is rather limited. Currently, the only region where the insect is cultivated in Peru and the cost, \$47/lb (approximately 70,000 insects) is small considering that each insect must be picked by hand, killed swiftly by immersion in boiling water which dissolves the wax coating, and dried in the sun for several weeks.



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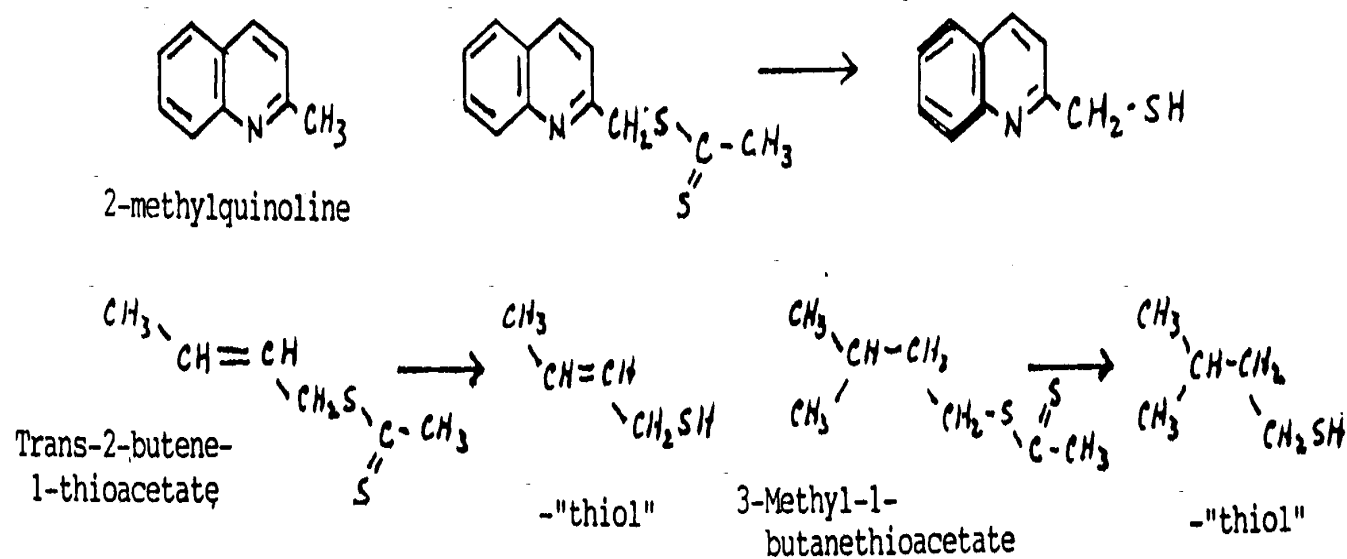
From Vol VI (3), 1987: Annual Symposium, December 1-2, 1987.

Speaking of annual symposia, it came to the attention of the Board that this year is the 20th anniversary of that 1967 meeting, and we shall celebrate accordingly. The title of the 20th annual symposium is "Current Concepts in Carcinogenesis, Clinical Toxicology in the Elderly, and the Role of *in vitro* Assays", three topics of considerable interest and concern to toxicology. In conjunction with this meeting, for the first time, it will be possible for graduate students, student members of the Society or those sponsored by Society members, to participate in a poster presentation of their research on Tuesday, December 1st. The posters will be displayed from 8.30 until 17.30 hrs on that date, the students being available during coffee break intervals in the morning and afternoon as well as between 13.00 and 14.00 hrs during lunch to answer questions and to discuss research in general. Hopefully there will be a good turnout.

[Editor's Note: 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".]

From Vol X (2), 1991: STINKY SKUNKS

Have you ever wondered what produced the odour in skunk "squirt"? Most people surveyed would claim mercaptans. Partly right, partly wrong! A very brave scientist, William Wood, at Humbolt State University, Arcata, CA, anesthetized skunks and obtained samples of the glandular secretion by hypodermic syringe, separating the components in the vapour by capillary (12 metres) gas-liquid chromatography and identifying them by mass spectrometry (see *Journal of Chemical Ecology* 16: 2057, 1990).



There are 7 major components, each at a concentration of more than 1.0%. Three are thiols and three are thioacetates (structures below). The thiols are trans-2-butene-1-thiol, 3-methyl-1-butanethiol and 2-quinolinemethane-thiol. The thioacetates are the components that give a skunk the ability to remind its victim of their encounter for several days. The thioacetates react slowly with water to release the more strong-smelling thiols. Both the thioacetates and thiols react with the proteins in animal hair, natural wool.

From Vol XI (1), 1992: CHRISTMAS COOKIES

This is presented in the hope that it will take your mind off depressing topics (grants, literature burnout, etc).

1 or 2 quarts rum
1 cup butter
1 tsp sugar
2 large eggs
1 cup dried fruits

1 tsp baking powder
1 tsp soda
1 tsp lemon juice
brown sugar
nuts

Before you start, sample the rum to check for quality. Good, isn't it? Now go for it. Select a large mixing bowl, measuring cup, etc. Check the rum again - it must be just right. To be sure the rum is of the highest quality, pour one level cup of rum into a glass and drink it quickly ... repeat. With an electric mixer, beat one cup of butter in a large fluffy bowl. Add 1 seaspoon of thugar and bear again. Meanwhile, make sure the rum is of the finest quality. Try another glass .. Let it stand for 10 minutes ... repeat. Open second quart, if necessary. Add 2 arge leggs, 2 cups fried druit and beat 'til high. If druit get stuck in beaters, just pry it loose with a drewscraver. Sample rum to check for tonicistricy. Next, sift 3 cups of salt or pepper? (It really doesn't matter), sampling the rum as you work. Sift pint of lemon juice as you fold in chopped nutter and strained butts. Add 1 bableton of brown thugar, or whatever colour you can find. Wix well. Grease toven and turn shokey ceet to 350 gredees. Now ... pour the whole mess in the oven and ake 'til throughly brownish. Check the rum again and bo to ged.

[Editor's Note: We were requested to include this world famous recipe in the fall issue. Has any a spare spell checker for my word processor, mine just blew up!]

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From Vol XV (1), 1996: Long-lived Greeks

Do elderly Greeks live longer and is it due to their traditional diet? A small note in SCIENCE (Dec. 8, 1995) reports the results of a study of 182 villagers over the age of 70 for 6 years, examining current eating habits, most of them following traditional diets of 8 food categories. During the study period, 53 people died but those who followed 6 or more food categories or who ate large amounts of beans or bread, or by using olive oil, instead of saturated fats, were only half as likely to die as those who adhered to 3 or fewer food categories. No special food category showed any relation to survival, but, taken together, they worked. The villager's regimen included whole grain bread, beans, yogurt, feta cheese, vegetables cooked in olive oil and moderate amounts of wine. These people have relatively long life-spans despite their total fat intake and high rates of smoking. Should we all eat Greek cuisine? These people survived longer despite the olive oil and red wine, not because of them.. Nothing was said about exercise or hard work all of their lives or climbing up and down hills tending fields, goats, etc!

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WHAT IS RESPONSIBLE CARE?

Brian Wastle, Vice President, Responsible Care(r), Canadian Chemical Producers' Association

Begun in 1985 by the Canadian Chemical Producers' Association (CCPA), responsible care is a new 'ethic' for the safe and environmentally sound management of chemicals over their life cycle - from cradle in the lab to ultimate resting place.

The need for this new ethic became obvious to the chemical industry over the course of the 1970s and early 1980 as concerns grew about the health and ecological effects of emissions from chemical plants, spills of chemicals along transportation routes, long term effects of low level exposure to chemicals in consumer products, depletion of the ozone layer, etc. A key event leading to the adoption of the ethic was the disaster in Bhopal India in the mid 1980s when over

2000 people were killed by a release of isocyanates.

The Canadian Chemical Industry was a pioneer in the development of this ethic which has now spread to over 45 countries around the world. A panel of activists provided input to the development of the ethic and codes of Responsible Care, and continues to meet with the CCPA to identify new challenges and improvement needs.

The Responsible Care ethic is captured in a set of 6 codes of practice, containing over 150 requirements for robust management processes to sustain this new way of life. Each member and partner company must commit to implement the ethic and codes of practice of Responsible Care within three years of joining CCPA. The most senior executives of each member company meet quarterly in Leadership Groups to share problems, successes and to exert peer pressure. These groups can ultimately request removal from membership of any company failing to live up to their Responsible Care commitments.

Verification teams consisting of activists, industry experts and neighbours visit every member company every three years to confirm to the public and the company's peers that the ethic and all the code systems are in place and producing performance that is continually improving to meet stakeholders' expectations.

With Responsible Care as its foundation, the CCPA and the chemical industry can point to many proud achievements in our quest for continuous improvement, including:

- We keep improving Responsible Care(driven by input that companies receive from local Community Advisory Panels and also input we get from the National Advisory Panel which includes the public and activists. Our most recent improvement has been the introduction of a verification process which, as described above, includes an external verification program that involves environmental activists and community representatives checking that member companies are meeting the commitments of Responsible Care.
- CCPA has developed an agreement with the Federal, Ontario and Alberta governments, representatives of environmental groups and members of our Responsible Care(Advisory Panel to review what we are doing under Responsible Care(and where we need to make improvements. Currently we are focusing on reducing our emissions of volatile organic compounds that contribute to smog. Our record is a reduction from 1992 to 1999 of 53%.
- Responsible Care (is an environmental management system that achieves results. Today a unit of chemical product is manufactured with 71% less chemical emissions than in 1992. This is estimated to decline further to 79 percent by 2004.CCPA members have reduced their chemical emissions by 63% and increased their production (value of shipments of member products) by 26% since 1992. While there are many other examples of successes, at the same time CCPA members find themselves increasingly challenged to reduce emissions of greenhouse gases such as carbon dioxide and other large volume substances primarily related to combustion. We are working on this challenge.
- Our members carry the same Responsible Care commitments internationally when they invest abroad (METHANEX CORPORATION in Chili and Nexen Chemical Canada Ltd. in Yemen are prominent examples).

How does Responsible Care work?

This new ethic is captured in a set of 6 codes of practice, containing over 150 requirements:

- Community Awareness and Emergency Response (CAER)
- Research and development
- Manufacturing
- Transportation

- Distribution
- Hazardous waste management

Each member and partner company must commit to implement the ethic and codes of practice of Responsible Care within three years of joining CCPA. The most senior executives of each member company meet quarterly in Leadership Groups to share problems, successes and to exert peer pressure. These groups can ultimately request removal from membership of any company failing to live up to their Responsible Care commitments.

Community Awareness and Emergency Response (CAER)

CAER requires each member company to have ongoing processes to identify and respond to community concerns, inform the community of risks associated with company operations, and have its own emergency plan integrated and tested with the community's emergency response plan.

Research & Development

The R&D code challenges companies to fully understand and minimize the risks arising from new chemical products, processes, equipment and uses, or from new applications for existing products. This code covers each stage of development, from initial research to the product's arrival in the marketplace. This means that no research may be performed by the company or by outside laboratories unless it complies with the code. And no new product can be introduced unless it conforms to the code.

Manufacturing

This code covers new and existing manufacturing sites, and deals with all aspects of their operation. It covers the design of new plants and the decommissioning of old ones. It requires systems to be in place to protect employees, the community and the environment from any harmful effects -whether immediate or long-term - stemming from manufacturing operations.

Transportation

The transportation code requires that each member company transport chemicals and chemical products in a manner that minimizes environmental damage and risk of injury to people living along transportation routes. Selecting and assessing carriers and informing communities along the way of safeguards being taken are key aspects of this code.

Distribution

The distribution code covers members' activities related to the sale and use of chemicals, chemical products and services. It calls for standards, procedures and training for the storage and handling of chemical products. Suppliers, distributors and customers are assessed for compliance with the code. Business dealings are suspended if this requirement is not met.

Hazardous Waste Management

This code challenges companies to avoid the production of wastes in the first place. For unavoidable wastes that can't be reused, recycled or recovered, it calls for the sound management of all aspects of waste, including storage, treatment, disposal, destruction, and the care and closure of hazardous waste sites. Previously contaminated sites must be assessed, communicated to authorities and appropriately cleaned up.

How does the public and the association know companies are living the ethic?

Once a company has completed their 3-year implementation of the codes of practice and instilled the ethic, a verification team spends three days confirming this and writing a public report. The team, made up of industry experts, public advocates and local citizens, spends several days visiting plants and offices, checking documentation, interviewing company management, employees, contractors, customers, neighbours and others.

This verification process is repeated every three years, and in the intervening two years the CEO sends to CCPA an annual re-commitment statement confirming that deficiencies identified by the team are being corrected and that the sound processes confirmed by the verification team are still in place and being continuously improved. As well, companies annual report publicly and to CCPA their performance in such areas as plant emissions and waste reduction, employee health and safety, process integrity and transportation safety.

The National Advisory Panel of activists and advocates who first helped the industry develop the ethic, codes of practice and ongoing processes of Responsible Care continue to meet with the industry three times each year to point out where further improvement is needed, and writes a challenge letter that forms the basis for the annual Responsible Care status report. While they see great improvement, they still see challenges in such areas as understanding and elimination of the long term health effects of chemicals, community dialogue and spread of the ethic to all who create, transport, use or dispose of chemicals and other hazardous materials.

Where from here?

Since the key element of the Responsible Care ethic is seeking out and responding to ever-increasing public concerns, complacency and resting on a few laurels will never be possible for Responsible Care adherents. Whether the concerns are with children's health, climate change, depletion of resources, corporate responsibility or globalization, the chemical industry will be constantly challenged to change and improve and earn the right to operate.

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BOOK REVIEW

Michael Prior

Eric Hansen (2000) "Orchid fever: a horticultural tale of love, lust, and lunacy." Toronto: Random House. ISBN 0-679-45141-2

Developmentally, our sense of smell was probably a defence system, for example, detecting rotten meat to avoid in our diet, or the presence of malodorous and poisonous gases. Yet this same sense of smell can also get us into trouble. Really? Have you ever smelled the fragrance of the orchid *Vanda dearii*, known locally in Borneo as *tepekang*? Described as "wildly sexy" by "an elderly scarecrow of a woman", according to Eric Hansen.

His book is a very readable account of the world of naturally occurring and hybridized orchids. A world of heroes and rogues, honesty and knavery. Hansen provides a fascinating glimpse of a side of horticulture of which most of us are unaware. Unless we know our history! (In 1593 the Austrian Ambassador to the Turkish court introduced the tulip to the Netherlands. This started *tulipmania*, when fortunes were made and lost. The craze ended in 1637).

There are interesting discussions about the ethics of collecting wild plants and their collectors, the wonders of

bureaucracy - especially CITES, propagation from seed and tissue culture, hybridization, the reason for Kew's existence, and orchid judging.

Some orchids follow a fragrance cycle that makes them smell differently through the day. For example, *Catasetum expansum* smells like an industrial floor cleaner before noon, and like dill seed and rye bread later in the day. *Clowesia rosea* smells of menthol mid-morning and of cinnamon rolls in the afternoon. Vanilla is a popular fragrance and flavouring. The fragrant vanilla bean is the cured seed capsule of *Vanilla planifolia*, an orchid from Central America, the West Indies, and Mexico. Used by the Aztecs to flavour a chocolate drink, we use it today to flavour ice cream, cakes, and cookies. Vanilla has always been thought to be an aphrodisiac, and it is found in most good perfumes. What was that about getting into trouble?

Read this book, and enjoy. All work and no play makes one a dull person, right?

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LE RÔLE DU TOXICOLOGIE DANS L'INDUSTRIE PHARMACEUTIQUE

Dino Manca, Division de la Recherche et du Développement, Pfizer Canada, Toronto.

Dino Manca is a Research Associate in the Department of Drug Safety Evaluation at Pfizer Global Research and Development in Toronto. He summarizes briefly the role played by the toxicologist during the drug development process.

Le toxicologue joue un rôle particulièrement important dans l'industrie pharmaceutique lors de la recherche et le développement de médicaments. En effet, il est essentiel que les substances mises à la disposition du patient et du médecin, que se soit pour le soulagement de conditions bénignes (e.g., rhume, allergie), pour la correction de certains dérangements métaboliques (e.g., hypercholestérolémie), ou encore pour le traitement de pathologies avancées (e.g., tumeurs), soient dépourvues d'effets indésirables. Toutefois, puisqu'il n'existe que très peu de substances chimiques ou biologiques qui soient dépourvues d'effets secondaires, il est important que ce travail d'évaluation soit effectué avec une rigueur scientifique et un esprit critique qui permettent d'atteindre un compromis entre les risques encourus et les bénéfices thérapeutiques pour les populations cibles.

Le développement d'un médicament requiert un effort intensif qui s'échelonne sur plusieurs années et à des coûts pouvant atteindre des sommes considérables. On estime en effet que le temps moyen pour la mise en marché varie entre 8 et 12 ans avec des déboursés pouvant atteindre plusieurs centaines de millions de dollars. Cette démarche hautement sophistiquée et interactive requiert la coordination d'équipes pluridisciplinaires composées de scientifiques, médecins, ingénieurs, administrateurs et spécialistes de la mise en marché. En ce qui concerne le toxicologue, son travail débute suite à l'identification, par les chimistes et les pharmacologues, d'une substance (molécule, protéine ou autre) présentant des propriétés pharmacologiques intéressantes pour une lignée thérapeutique donnée. À ce stade précoce du développement, ce que l'on appelle le "Discovery Stage", le toxicologue utilise des tests préliminaires de dépistage afin de s'assurer que la substance soit exempte de caractéristiques toxicologiques indésirables qui pourraient hypothéquer son développement futur. Ainsi, on évalue de façon préliminaire, avec des modèles *in vitro*, son potentiel génotoxique (i.e., mutagénicité et clastogénicité), son interaction avec des cibles moléculaires et protéiniques spécifiques (e.g., transporteurs ioniques responsables pour l'arythmie cardiaque), ainsi que l'évaluation de son profil métabolique (e.g., interaction avec différents complexes du cytochrome P450, plus particulièrement l'iso-enzyme CYP3A4). Ces résultats, ainsi que ceux obtenus simultanément par les pharmacologues sur l'efficacité thérapeutique, serviront à déterminer si la substance en question peut progresser vers les étapes ultérieures du développement. Dans ce cas, on passera à la phase pré-clinique proprement dite ou l'on procède à une caractérisation toxicologique plus détaillée de la substance.

La stratégie adoptée lors de la phase pré-clinique, c'est-à-dire le plan d'expérimentation, suit généralement un parcours standard pré-établi tel que suggéré par les lignes directrices des agences régulatrices (e.g., International Conference on Harmonization, Food and Drug Administration). Cette démarche comporte des études aiguës, sub-aiguës (jusqu'à 2 semaines) et sub-chroniques (jusqu'à 6 semaines), des études visant à caractériser de façon plus définitive le potentiel mutagène et clastogène de la substance ainsi que des études d'innocuité pharmacologique afin d'évaluer les effets potentiels sur certains systèmes vitaux (e.g., fonction pulmonaire, rénale et cardiaque). Ces protocoles comportent toutefois des variables critiques qui font appel au jugement et à l'expérience du toxicologue, ainsi qu'à une connaissance des propriétés pharmacologiques de la classe thérapeutique visée. Ainsi, il est essentiel de choisir judicieusement le modèle animal (rongeur, chien, primate ou autre), la souche, les doses expérimentales ainsi que la durée et les voies d'exposition, tout cela afin de minimiser les incertitudes lors de l'extrapolation subséquente des données animales chez l'humain pour les besoins cliniques. De plus, une connaissance de la littérature scientifique sur la classe thérapeutique visée est essentielle afin d'identifier certains organes cibles, ou des effets indésirables potentiels. Une connaissance intime des propriétés pharmacologiques de la substance servira à complémentariser les études toxicologiques en permettant l'inclusion d'approches expérimentales supplémentaires (e.g., évaluation d'effets pharmacologiques adverses, collecte de tissus additionnels pour évaluation histo-pathologique ou ultrastructurale, développement de bio-marqueurs de susceptibilité ou d'effets pour utilisation éventuelle en clinique, quantification de certaines composantes sériques, plasmatiques ou urinaire, approches utilisant des techniques de biologie moléculaire, détermination des effets sur les complexes enzymatiques, caractérisation des voies d'excrétion, etc. ..).

Selon les résultats obtenus lors de cette phase pré-clinique, la substance pourra être admise à la phase clinique (Phase I), généralement chez des volontaires, pour ensuite progresser vers les étapes ultérieures chez les patients (Phase II, III, mise en marche, et Phase IV). Durant ces différentes phases, le rôle du toxicologue demeure tout aussi important, puisque c'est généralement durant les Phases II et/ou III que se déroulent les études chroniques et de cancérogenèse, ainsi que celles ayant pour but d'évaluer le potentiel tératogène, les effets sur le système reproducteur ainsi que les effets sur la croissance et le développement.

C'est à ce stade du développement que le toxicologue est bien souvent mis au défi. En effet, ces études, de par leur nature (expositions prolongées à basses doses), font ressortir bien souvent des atteintes métaboliques ou physiologiques, ou encore des pathologies qui peuvent freiner le développement d'une substance. Par conséquent, il est important de bien comprendre la signification de ces changements et leur impact potentiel chez l'humain. Cela exige une compréhension des mécanismes d'actions, une connaissance détaillée de la toxicocinétique et du métabolisme de la substance chez différentes espèces animales (incluant chez l'humain suite aux études de Phase I et à celles comparatives utilisant des modèles *in vitro*), la pertinence des régimes d'exposition utilisés en laboratoire ainsi que la nature du modèle animal. Ces connaissances peuvent être acquises par la conduite d'études complémentaires utilisant une combinaison d'approches conventionnelles (études *in vitro* et *in vivo*) et originales (e.g., utilisation d'animaux transgéniques, études métaboliques spéciales, utilisation de méthodes de dépistage génétique (approches toxicogénomiques), approches de biologie moléculaire, etc.). Toutes ces composantes seront éventuellement intégrées afin d'obtenir une vue d'ensemble du profil toxicologique de la substance et de son innocuité dans les conditions d'exposition thérapeutiques prévues.

Il existe plusieurs aspects propres à cette démarche toxicologique qui la distinguent des approches d'analyse de risque généralement utilisées dans le domaine environnemental et en hygiène du travail. Ainsi, les substances en question si l'on parle d'entités chimiques, par exemple sont généralement des molécules organiques ou organométalliques complexes, non génotoxiques (à l'exception de certains agents anti-tumoraux) et ayant une capacité de bioconcentration limitée dans les tissus de l'organisme. Leur temps de demi-vie est généralement court et leur biodisponibilité élevée. Malgré tout, elles peuvent présenter un profil métabolique complexe. L'exposition est connue, excluant ainsi les problèmes de dosimétrie fréquemment rencontrés lors d'études environnementales et d'hygiène industrielle. À ce titre, il est important de mentionner que la modélisation toxicocinétique joue un rôle prépondérant dans l'évaluation de l'exposition (i.e., concentrations plasmatiques, sériques, urinaires, biliaires, lait maternel, air expire, etc.), sans toutefois verser dans le besoin de recourir à des outils complexes tels que les modèles pharmacocinétique à base physiologique (PB-PK). De plus, les études conduites chez un nombre considérable de volontaires et patients éliminent bien souvent ce besoin puisqu'elles permettent de

confirmer les résultats des modélisations effectuées lors des phases pré-cliniques et de déterminer de façon précise et exacte l'exposition. Les études chez l'humain permettent aussi de mieux cerner la variabilité interindividuelles découlant de facteurs pharmacogénétiques et toxicogénétiques qui peuvent influencer les différentes phases de la gestion physiologique d'une substance chez une population d'individus (i.e., absorption, distribution, métabolisme, excrétion, réponses cellulaires et tissulaires). Ceci permet de mieux gérer les objectifs thérapeutiques ainsi que les effets secondaires adverses.

Finalelement, un dernier mot sur la place accordée aux méthodes d'extrapolations des relations dose-réponse (hautes doses - basses doses), ainsi qu'à celles interspèces. Dans le premier cas, l'utilisation de modèles d'extrapolation est minimisée (sinon absente) puisque la majorité des études animales couvrent les plages d'exposition correspondant aux objectifs thérapeutiques. Ces expositions sont généralement supérieures à celles rencontrées dans le contexte environnemental, permettant ainsi la détection d'effets pertinents sans avoir recours à un nombre démesuré d'animaux.

Dans le deuxième cas, il est intéressant de constater qu'il existe des différences qualitatives et quantitatives considérables dans la réponse physiologique et/ou tissulaire observée chez différentes espèces, sans toutefois que cette tendance respecte l'hierarchie phylogénétique sur laquelle se basent les approches traditionnelles d'analyse du risque. Ainsi, on rencontre fréquemment des substances pour lesquelles le rat ou le lapin représentent un meilleur modèle d'extrapolation interspèces que le chien ou le singe que ce soit du point de vue pharmacologique, métabolique et/ou toxicocinétique. Ce dernier point est particulièrement intéressant puisque la disponibilité de données chez différentes espèces pour une substance (i.e., souris, rat, chien, singe, homme) permet bien souvent de vérifier la validité des extrapolation utilisant les concepts allométriques.

Il va sans dire que les approches utilisées en toxicologie pharmaceutique constituent un banc d'essais pour les hypothèses utilisées en analyse du risque environnemental.

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CANADIAN JOURNAL OF PHYSIOLOGY AND PHARMACOLOGY

The National Research Council advises that [Volume 79 Number 9 September 2001](#) is now available, as is [Volume 79 Number 10 October 2001](#). You may make changes or delete your registration at [Publication Alert](#).

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DID YOU KNOW?

- Proportion of Canadian parents who consider their homes to be childproof: 91%
- Proportion of same parents who do not lock up potentially deadly household cleaning products: 55%
- Proportion of men who would take a drug to double their lifespan, despite serious side effects: 14%
- Proportion of women who would take the drug: 6%

Reference

- Canadian Medical Association Journal (2000) 163(12): 1684.

34th ANNUAL STC SYMPOSIUM

TOXICOLOGY : "The Times They are a Changing"

December 6-7, Montreal , Quebec

December 6, 2001

Session One: Cutting Edge Techniques in Toxicology

9:00 a.m. Introduction

9:05 a.m. Tom Hudson *McGill University*

Microchip Technology and Gene Arrays

9:35 a.m. Jay Goodman *Michigan State University*

Toxicogenomics : Making Progress by Maintaining a Focus on the Fundamentals of Toxicology

10:05 a.m. Coffee

10:30 a.m. Rick Paules *NIEHS*

Interrogation of Mechanisms Underlying Cellular Responses to Environmental Stresses using Global Gene Expression Analyses

11:00 a.m. Frank Sistare *FDA*

Applications of Genomics and Proteomics to Address Recurring Regulatory Issues

11:30 a.m. Discussion and chairpersons concluding remarks

11:45 a.m. Poster Session

12:00 p.m. Lunch

Session Two: Cutting Edge Techniques in Toxicology

1:30 p.m. Introduction

1:35 p.m. Albert Li *In Vitro Technologies*

Evaluation of Xenobiotic Metabolism, Toxicity and Drug-Drug Interaction Potential in Human Hepatocytes

2:05 p.m. Peter Wells *University of Toronto*

Genetically Modified Animal Models, Use in Toxicology Research

2:35 p.m. Coffee

3:05 p.m. Marielle Delnomdedieu *Pfizer Global Research* NMR Spectroscopy of Biofluids (metabonomics): Applications in Toxicology

3:35 p.m. Enrico O. Purisima *NRC*

Issues in Computational Chemistry: Computer Simulations of Biomolecular Systems

4:00 p.m. Concluding remarks

4:15 p.m. STC Annual Business Meeting

6:30 p.m. President's Reception

8:00 p.m. Dinner

December 7, 2001

Session Three: Modern Occupational Hazards

9:00 a.m. Introduction

9:05 a.m. Greg Cook *Dept. of National Defence*

Toxicology Issues for the Modern Day Soldier

9:35 a.m. Nicola Cherry *University of Alberta*

Exposures and Health in Gulf War Veterans

10:05 a.m. Posters and Coffee

10:30 a.m. Chris van Netten *University of British Columbia* Aircraft Air Quality Incidents: Exposures, Symptoms, and Synergists

11:00 a.m. Mark Robson *Rutgers University*

Agricultural Occupational Health Risks

11:30 a.m. Henderson Award Lecture

TBD, TBA

12:00 p.m. Lunch and Posters

Session Four: STC/Toxicology Consortium Joint Meeting

"EMERGING OPPORTUNITIES FOR COLLABORATION AND FUNDING IN TOXICOLOGY" Joint session: STC and the CIHR Consortium in Drug and Environmental Safety. *Session Chairs: Heather Durham and Jack Bend*

1:30 p.m. Introductory remarks: Dr. Heather Durham, *Society of Toxicology of Canada*

1:35 p.m. Overview of Toxicology Networks in Canada: Dr. Jack Bend, *Director Consortium in Drug and Environmental Safety Toxicology of Canada*

2:00 p.m. Short presentations by Scientific Directors CIHR Mark Bisby, *Director of Programs CIHR*, Kevin Keough, *Chief Scientist, Health Canada*, Jean-Yves Savoie, *Chair, Scientific Advisory Coimmittee, Institute of Population and Public Health, CHIR*, Dr John Frank, Dr John R.G. Challis, *Scientific Director, Institute of Human Development, Child and Youth, University of Toronto*

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

4:50 p.m. Closing Remarks for the Symposium: Dr. Heather Durham, *President, Society of Toxicology of Cabnada*

December 8, 2001

Sessions continue for the Consortium in Drug and Environmental Safety, Montreal Neurological Institute, Montreal.

Note: This program is correct at press time.

There will be a special mailing shortly with final details.

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TEA COSIES¹: A NEW TOPIC FOR RESEARCH

The Home and Leisure Accident Surveillance System 1999 report from Britain's Department of Trade and Industry provides information on accidents reported by people admitted to a sample group of British hospitals ². These figures are then extrapolated for the country as a whole.

Of concern to our tea drinking readers is the 185 per cent increase in accidents caused by tea cosies, up from 20 cases in the previous year. Should you use place mats in your table settings, be advised that there were 165 accidents due to these items. However, these worrying figures are offset by the decline in sponge- and loofah-related accidents. Down to 787 from 996 the previous year. Some 5,945 people were hospitalized after a trouser accident, another 10,773 after accidents caused by socks and tights, and 16,662 from armchair-induced injuries.

Of concern to toxicologists is the 13,132 injuries inflicted by vegetables, 1,171 leaf accidents, and the 439 cases caused by rat or mouse poison. High as these numbers are, they pale in contrast to the accidents caused by bean bags (1,317), rubber boots (5,615), or clothes baskets (3,421). What else in your home may be dangerous? Remember talcum powder (73), toilet roll holders (329), and bread bins (91). More personally, false teeth caused 933 accidents. When in the garden, do watch out for the bird bath; 311 accidents reported.

But to put things into perspective: chainsaws caused 1,207 injuries, whilst printed magazines caused 4,371. You cannot be too careful.

References

1. Concise Oxford Dictionary: "cosy is a cover to retain heat in teapot".
2. [New Scientist Feedback Archives](#).

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NEWS FROM OTTAWA

Rekha Mehta, Health Products and Food Branch, Health Canada



Health Canada Science Forum

Another successful Health Canada Science Forum took place in conjunction with the Annual Meeting of Canadian Federation of Biological Societies on June 21, 2001 in Ottawa with participation of over 600 attendees from government, academia and industry. Health Canada sponsored events included the Science Forum Symposium, an additional symposium on "Safety, Nutritional Quality and Health Aspects of Dietary Phytoestrogens", poster sessions, a refreshment break and a reception.

Public Health News

On June 9th, 2001 Minister David Anderson and Health Minister Allan Rock published in the Canada Gazette, Part 1, a formal Notice of Intent to declare ozone and its precursors, nitrogen oxides (NOx) and volatile organic compounds (VOCs) toxic under the new Canadian Environmental Protection Act (CEPA) Along with particulate matter (known as PM), ground-level ozone is a key component of smog. For more information on this topic, visit the web at :

- <http://www.hc-sc.gc.ca/ehp/ehd/catalogue/bch.htm>
- http://canada.gc.ca/gazette/hompar1_e.html
- <http://www.mbnet.mb.ca/ccme/>
- <http://www.ec.gc.ca/air/>

Health Canada also has a new website on "[Health and Air Quality](#)" which covers the ins and outs of air quality and provides information on pollutants and lung diseases, to research, risk assessment and regulations.

On August 10, 2001, Health Canada announced an issuance of an order to stop the sale of the veterinary drug carbadox which is used in the rearing of pigs intended for human food. Carbadox is an antibiotic approved in the 1970s for use in swine to prevent and treat disease as well as to maintain weight gain during periods of stress. The drug and its metabolites are known carcinogens in rats. The drug had been approved for use on the premise that if an appropriate withdrawal period (35-day) is observed, the drug and its breakdown products should not be found in the food derived from the treated animal. However, reports of misuse and accidental contamination together with more sensitive analytical techniques for detection of carbadox and its metabolites in foods resulted in serious concerns about the safety of the product. The first reported incident occurred in the fall of 2000 when pigs at a farm in Quebec were accidentally fed carbadox and slaughtered without respecting the withdrawal period. All affected product was recalled and the investigation was then broadened to review the use of carbadox throughout the Canadian pork industry. In addition, Canada had made a public commitment in February 2001 to reassess the use of carbadox in response to the European Union Fall 2000 audit of the Canadian Program for the Control of Residues.

In August and September 2001, aristolochic acid again made news when Health Canada warned consumers not to use the pediatric product TAO CHIH PIEN as recent tests showed that it contained aristolochic acid known to cause mutations in human cells, and end-stage kidney failure. Health Canada further completed analysis of 48 traditional Chinese medicines labelled to contain Aristolochia, Akebia, Asarum, Clematis, Stephania, Caulus, Hocquaria Manshuriensis or MuTong that were collected during a random market survey. Five of these products were found to contain aristolochic acid, and were therefore, recalled from the marketplace. These products are listed on the [Health Canada website](#).

Toxic Substances Research Initiative (TSRI)

All the funding for 2001-2002 fiscal year has been allocated through the multi-year projects which were approved at the onset of the program. However, the Secretariat is currently facilitating activities to support the renewal of the program past the March 31st, 2002 deadline. TSRI will be holding five regional conferences, each related to one of the TSRI research areas and which anyone can attend. Check the [TSRI website](#) for further information regarding the Initiative's renewal as well as the dates and locations of the conferences!

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RATS, IT'S A LEAK

Dogs are currently used in de-mining operations. Now a Belgian charity - APOPO - is investigating the use of the

African or Gambian giant pouched rat, as potential biosensors that can locate land mines. This is part of their Rodent Explosive Vapour Detection Program. *Cricetomys gambianus* grows to between 10 and 17 inches long, with the tail about the same length or longer, weights from 2 to 6 pounds, and lives on fruit and nuts.

Currently a food source, these rats have proved to be too light to set off mines when they tread on them. Field studies in Tanzania are underway, after two years of laboratory work in Belgium. They are faster to train than dogs, using traditional methods of exposure, detection and reward. Housing and transport is easier than for dogs, and a dedicated handler is not required. The rats' only weakness is that they are nocturnal, and thus prone to heat stroke during the day. APOPO is also planning tests in Angola, with Menschen gegen Minen, a German de-mining company.

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THE HEALTH CANADA EXCELLENCE IN SCIENCE AWARDS - 2001

The Excellence in Science Awards are presented annually by the Chief Scientist, Health Canada to an employee or employees who achieve peer recognition for outstanding contributions to knowledge in the sciences relevant to health protection. The first awards were presented in 1998 by the then Assistant Deputy Minister of the Health Protection Branch, Health Canada. The 2001 Awards were presented to the following scientists.

Dr. George R. Douglas joined the Mutagenesis Section of the Environmental Health Directorate (presently Safe Environments in the Healthy Environments and Consumer Safety Branch) in 1974. He has systematically raised the mutagenicity testing baseline to a world-class level by improving and advancing genotoxicity methodology and criteria, and with the help of international collaborators, achieved adoption of National and International Guidelines for mutagenicity, genetic toxicology and genetic risk assessment. Dr. Douglas' tenacious leadership in this area won Health Canada respect and recognition as a WHO Collaborating Centre in Mutagenesis, and for himself and his colleagues, numerous international invitations to contribute research and serve as expert advisors.

Dr. Douglas has successfully pioneered the use of transgenic animal models for testing of environmental contaminants and hazard identification steps both within Health Canada and with partners in the US and Europe. His efforts through Ingeny BV (Netherlands) have led to a permanent transgenic colony base at Health Canada and strategic membership in a world-wide web of over 100 contributing laboratories, permitting an important window into the latest policy and data advancements in genetic risk assessment.

In addition to a list of over 150 papers covering development and collection of mutagenicity data on complex mixtures (eg pulp and paper mills), Dr. Douglas has an impressive number of externally funded projects that address work with colleagues in the Section that he manages.

Dr. Jim Lawrence was recognized for contributions to the development of analytical methods for toxic chemicals in food. During his time in the Food Research Division of the Food Directorate, Dr. Lawrence has initiated, co-ordinated, developed and completed projects that have consistently involved a high degree of ingenuity and creativity in areas where very limited or no information existed. Particular note should be made of his initiative in establishing HPLC as an invaluable technique in food contaminant analysis. Some of his specific contributions include work in chemical derivatization, electrolytic conductivity detector studies, immunochemical techniques, and identification of shellfish toxins, and arsenobetaine and arsenocholine in marine fish.

Dr. Lawrence has provided much influence on the direction of research in food analytical methods, both nationally and internationally, through his participation with the Canadian Society of Chemistry, AOAC International, FAO/WHO,

IUPAC, and IAEAC. Dr. Lawrence also holds an adjunct professorship in the Chemistry Department at Carleton University since 1990. He has published over 184 papers, including 151 research papers, book reviews, book chapters, reports and conference proceedings. He has also written 3 books and edited 8 others on various topics in environmental analytical chemistry and presented about 150 lectures at conferences, universities and institutes. Dr. Lawrence has been a recipient of several awards; most recently (1999) he received the prestigious Harvey W. Wiley Award of the AOAC.

New this year was the *Excellence in Science Award for the Most Promising Scientist*, and **Dr. Graham Tipples** was the recipient of this award. Dr. Tipples received his PhD in Medical Microbiology from the University of Manitoba in 1994 working on the "Nucleotide Metabolism of *Chlamydia trachomatis*". He did his post-doctoral fellowship with Dr. Lorne Tyrrell at the University of Alberta on hepatitis B virus from 1994 to 1997. Dr. Tipples joined Health Canada in March 1997 as a research scientist and section head of Viral Exanthemata in the National Microbiology Laboratory in Winnipeg. Dr. Tipples is a member of the Working Group on Measles Elimination in Canada and is an adjunct professor in the Department of Medical Microbiology and Infectious Diseases, University of Manitoba where he currently supervises two graduate students. A key focus of his activities over the past several years has been diagnostics and laboratory surveillance within the context of the public health system, both nationally and internationally, for measles, rubella, HHV-6 (the causative agent of roseola) and Varicella-zoster virus. These activities support the mandate of the lab, which include research, diagnostics and surveillance.

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A NEW ROLE FOR CYANIDE

Cyanide is, by my count, the most popular murder mystery's poison. It has been suggested that attaching cyanide to an antibody aimed at cancer cells could be used to kill tumours without killing the patient. Encouraging early research at Imperial College, London, has dubbed this approach Agent, for Antibody-Guided Enzyme Nitrile Therapy.

Reference

- Radford, T. (2000) "Cyanide seen as weapon in fight against cancer." The Guardian, September 7. Page 10.

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TOXLINE CONTINUES ON CCInfoDISC

TOXLINE® is a comprehensive bibliographic database offering toxicological information from 15 diverse data files. With over one million references, TOXLINE is recognized as an authoritative source for primary toxicological information. TOXLINE includes information on environmental pollution, food and water contamination, reproductive effects, occupational hazards and other impacts of chemicals. Compiled by the U.S. National Library of Medicine (NLM), TOXLINE is available through the Canadian Centre for Occupational Health and Safety (CCOHS) as a five CD-ROM set. This database is called TOXLINE on CCInfoDisc®.

As many of you are aware, NLM has been reorganizing its data files. One result is that TOXLINE no longer exists as a single database from NLM. Users of TOXLINE will be pleased to learn that CCOHS has taken steps to ensure the

continued availability of TOXLINE as a seamless, integrated database.

As in the past, TOXLINE on CCINFOdisc® offers fast, convenient searching of toxicological literature. The CD-ROM format allows unlimited access, while the user-friendly search interface is simple to use. Extensive indexing allows for precise searching by:

- chemical name
- CAS registry number
- MeSH subject headings (assigned by NLM)
- all text words in titles and abstracts
- authors, plus many others.

Toxicology specialists at CCOHS use TOXLINE on CCINFOdisc® to locate up-to-date and relevant research on all aspects of a chemical's toxicology from acute toxicity to carcinogenicity, teratogenicity, and reproductive toxicity. TOXLINE is an invaluable resource for investigating the development of new experimental methodologies and interpretive guidelines.

With the next release of TOXLINE on CCINFOdisc® in November 2001, the database will be extended back to 1980 (from 1985) to provide greater coverage of the literature. Other planned enhancements include the addition of new toxicology textbooks and reports and continued refinement of the selection criteria to ensure the inclusion of all relevant references.

TOXLINE on CCINFOdisc® is available to you on a 30-day trial and is priced at \$450 for an annual subscription (in Canada and the USA). We issue a complete set yearly with quarterly update discs. If you have any questions/comments, please contact the TOXLINE Project Leader, [Flora Simpson](#), or 905-572-2981 ext. 4526, or [CCOHS Client Services](#).

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UNE BONNE CONTINUATION: TOXLINE7 ON CCInfoDISC

TOXLINE7 est une base de données bibliographiques complète en toxicologie rassemblant des renseignements tirés de 15 fichiers différents. Comptant plus d'un million de références, TOXLINE, qui fait autorité en matière de renseignements de première importance, vous renseigne sur ce qui suit : pollution de l'environnement, contamination de l'eau et des aliments, effets néfastes sur la reproduction, dangers au travail et autres effets nocifs des produits chimiques. Publiée par la U.S. National Library of Medicine (NLM), la version de TOXLINE que vous offre le Centre canadien d'hygiène et de sécurité au travail (CCHST) se présente sous la forme d'une série de cinq cédéroms. Cette base de données s'appelle aussi *TOXLINE on CCINFOdisc7*.

Comme beaucoup d'entre vous le savent déjà, NLM poursuit la réorganisation de ses fichiers de données, dont l'un des effets est le suivant : TOXLINE ne constitue plus une seule base de données pour NLM. Les utilisateurs seront heureux de savoir que le CCOHS a pris les moyens nécessaires pour que TOXLINE soit offerte sous forme de base de données bien intégrée et complète.

Comme par le passé, *TOXLINE on CCINFOdisc* est un moyen rapide et facile de faire des recherches sur la documentation en toxicologie. Le format cédérom permet un accès illimité et l'interface de recherche est facile à utiliser. Quant à l'indexeur, qui est fort poussé, il permet de faire des recherches précises à l'aide des catégories suivantes :

- Nom du produit chimique ;
- Numéro de registre CAS ;
- Vedette-matière *MeSH* (attribué par NLM) ;
- Tout mot-de-texte figurant dans les titres et les résumés ;
- Auteurs, etc.

Les spécialistes en toxicologie du CCHST se servent de *TOXLINE on CCINFODisc* pour obtenir des renseignements à jour et utiles sur tous les aspects toxicologiques d'un produit chimique : toxicité, cancérogénicité, effets tératogènes et effets sur la reproduction. *TOXLINE* est une source de renseignements précieuse lorsqu'il s'agit de faire enquête sur le développement de nouvelles méthodologies expérimentales ou de préparer des lignes directrices d'interprétation.

Avec la prochaine version *TOXLINE on CCINFODisc*, qui sera publiée en novembre 2001, la base de données remontera jusqu'en 1980 (et non seulement jusqu'en 1985) pour fournir une plus vaste documentation. Autres améliorations prévues : ajout de manuels et de rapports nouveaux et amélioration continue des critères de sélection afin que toutes les références utiles soient trouvées.

Vous pourrez faire l'essai de *TOXINE on CCINFODisc* pendant trente jours. Le prix de l'abonnement annuel est de 450 \$ tant au Canada qu'aux USA. Nous en publions annuellement une série complète et des mises à jour trimestrielles. Pour nous faire part de vos commentaires ou vos questions, prière de communiquer avec Flora Simpson, chef du projet *TOXLINE7* (<mailto:floras@ccohts.ca>; télé phone : (905) 572-2981, poste 4526), ou encore avec <mailto:clientservices@ccohts.ca>

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MESSAGE FROM THE PRESIDENT OF IUTOX

This is my first communication to you as newly elected President of IUTOX. I am very honoured to take on this office and hope that I can further develop the Union in order to meet the expectations and needs of its members. Fortunately, I have a very competent and enthusiastic Executive Committee to support me.

I am sure that those of you who came to Brisbane and ICT-IX enjoyed the science, the social gatherings and the friendly atmosphere there. I was very impressed by the quality of the organisation of this congress, both scientifically, technically and socially. My sincere thanks go to Mick McManus and the Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists (ASCEPT).

Your new Executive Committee (EC) is already engaged in developing its strategy and work-plan for the next 3 years. We have decided to establish the following commissions for this period (chairs in parenthesis):

- Finance (Torbjörn Malmfors)
- Marketing and Promotion (Ali Esat Karakaya)
- Education and Career Development (Judith MacGregor)
- Communication (Meryl Karol)
- Science (Glenn Sipes)
- Membership and Society Development (Yuji Kurokawa)

These commissions have been charged with developing their objectives, tasks, activities, timeline and budget within the next two months. This should then give us a firm basis on how to operate until 2004. However, we are very much

interested in learning what the EC can do for its members. In this respect, we plan to make a survey of our members' needs and wishes so that the EC does not operate in a vacuum.

At the General Assembly in Brisbane, the new EC was given the charge to possibly include the activities of the Congresses of Toxicology in Developing Countries (CTOX-DC) into IUTOX in order to continue the world-wide strengthening of toxicology. We have therefore appointed a task force to evaluate how such an integration could affect the running of the Union. This evaluation will start by discussing similarities and differences of the aims and procedures of CTOX-DC and IUTOX to identify common interests and differences of opinions in order to hopefully build a foundation for future collaboration. The task force will address a number of issues involved, including timing of the International Congresses of Toxicology and the CTOX-DCs, timing of general assemblies, terms and office, possible needs for statute changes and economy. It is expected that the task force should come up with a definitive recommendation for discussion and decision at the General Assembly in 2004. The task force will be consulting with the member societies during its work.

An important charge to the Commission on Communication will be to further develop our strategy and means of contact with the Member Societies and their members. This should include a review of our Newsletter and website. Presently, it is felt that both a printed and electronic version of the Newsletter is needed. We will come back to you once this commission has developed its work-plan.

We will proceed with our continuing education efforts in countries where the science of toxicology is under development. We have already had a very successful course in Valencia, Venezuela in June of this year and will arrange another course in Nanjing in October during the annual meeting of the Chinese Society of Toxicology. Later in the year we will ask for expressions of interests to participate in the continuing education programme in 2002. Another important activity next year will be the 9th Risk Assessment Summer School (RASS IX) to be held in Malta.

IUTOX and the International Union of Nutritional Sciences have an agreement with the International Council of Science (ICSU) to develop a monograph "Genetically Modified Foods for Development, Health and Human Nutrition: The Scientific Basis for Benefit/Risk Assessment". A workshop of the steering committee and prospective authors at the end of September will discuss the contents and shape of each contribution to the monograph. Iain Purchase, our former President, is in charge of this project on behalf of IUTOX.

Erik Dybing
Oslo, 14 August 2001

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TOXIC SUBSTANCES RESEARCH INITIATIVE (TSRI) - L'INITIATIVE DE RECHERCHE SUR LES SUBSTANCES TOXIQUES (IRST)

This is a reminder of the TSRI/IRST regional conferences that will be held during the months of September through November. All the information that is needed for these conferences could be find on the URL address which are below.

- [English](#)
 - [Français](#)
-

LINDANE, IZARDS AND MILK

The mountain passes of Aubisque and Tourmalet are legendary and formidable obstacles for riders in the Tour de France. But now that is not the only obstacle. The factory that makes some of the farmhouse ewe's-milk cheeses that are the pride of the Bigorre and Béarn areas in southwest France has closed. Near the factory, a notice at the start of a hiker's path warns visitors not to pick bilberries because of "insecticide pollution". What the visitor may not know is that traces of the insecticide in question, lindane, have been found in the milk of ewes and cows that spend the summer in the mountain pastures of the Azun valley. Lindane has been banned in France for the past three years. Before then, it was used on farms as a parasiticide for sheep and cows, and in forestry. Pyrenean farmers are said to dread the prospect of a "*mad cheese*" crisis. Meat and honey producers are also worried. It all started in May, when an abnormally high number of izarids, *Rupicapra rupicapra*, died on the Pic de Bazès mountain. The izard, a chamois goat, was re-introduced to the area some 20 years ago. Preliminary investigations commenced August 27th by the Tarbes public prosecutor. Perhaps this will identify the cause and extent of the contamination.

Reference

- Thépot, S. (2001) Pyrenean valley falls victim to mysterious poison. Guardian Weekly, September 20-26. Page 34.

CONFLICT OF INTEREST AND PUBLICATION OF MEDICAL RESEARCH

The New England Journal of Medicine has recently been criticized for not declaring authors' conflicts of interest despite its declared policy of so doing. ^{1, 2} Conflict of interest has been defined as "*a set of conditions in which professional judgment concerning a primary interest (such as patients' welfare or the validity of research) tends to be unduly influenced by a secondary interest (such as financial gain).*"³ Conflict of interest is a condition not a behaviour, and there is nothing wrong with having a conflict of interest. It is common. ⁴

Stelfox and co-workers showed that authors were much more likely to be supportive of calcium channel antagonists for treating cardiovascular disorders if they had a financial relationship with manufacturers of the drugs. ⁵ They looked at 70 articles (mostly reviews or letters) published in medical journals between March 1995 and September 1996 and classified them as critical of calcium channel antagonists (23), supportive (30), or neutral (17). Then they contacted all the authors and inquired about financial relationships with manufacturers: financial support to attend a symposium, speak, organise education, or perform research, and employment and consultation. Two thirds of the authors had a financial relationship with manufacturers, but (and this may be the most important result of the study for journals) "*only two of the 70 articles ... disclosed the authors' potential conflicts of interest.*" Almost all supportive authors (96%) had financial relationships with manufacturers, compared with 60% of neutral authors and 37% of critical authors.

Barnes and co-workers looked at the characteristics which led to the conclusions of review articles on passive smoking.⁶ The authors identified 106 reviews, with 37% concluding that passive smoking was not harmful and the rest that it was. A multiple regression analysis controlling for article quality, peer review status, article topic, and year of publication found that the only factor associated with the review's conclusion was whether the author was affiliated with the tobacco

industry. Three quarters of the articles concluding that passive smoking was not harmful were written by tobacco industry affiliates. The study authors suggest that "*the tobacco industry may be attempting to influence scientific opinion by flooding the scientific literature with large numbers of review articles supporting its position that passive smoking is not harmful to health.*" A minority of the articles (23%) disclosed the sources of funding for research.

These two and similar papers provide the basis to show that conflict of interest has an impact on the conclusions reached by papers in medical journals. Perhaps replacing the term "*conflict of interest*" with "*competing interests*" will, as the British Medical Journal hopes, reduce the sense of wrongdoing and encourage people to disclose competing interests.

As Richard Smith, Editor of the British Medical Journal writes, "*some our of readers will regret such moves and remember a golden age when conflict of interest was not an issue. Times have changed however, and transparency and accountability are increasingly expected in all aspects of society. I doubt that the changes we are proposing will solve the problem, but they seem to us to be a step in the right direction.*"⁴

One consequence is that thirteen of the world's leading medical journals, including The Lancet, New England Journal of Medicine, Journal of the American Medical Association, and the British Medical Journal, have published commentaries charging the drug giants of using their money - or the threat of its removal - to tie up academic researchers with legal contracts so that they are unable to report freely and fairly on the results of drug trials.⁷ Such concerns are not confined only to drug trials, of course. Who was it who said many years ago "*he who pays the piper calls the tune*"?

References

1. Angell M, Kassirer JP. (1996) *Editorials and conflicts of interest*. N Engl J Med 1996; 335: 1055-1056.
2. Josefson D. (1998) *US journal embroiled in another conflict of interest scandal*. Brit Med J 316: 251.
3. Thompson DF. (1993) *Understanding financial conflicts of interest*. N Engl J Med 329: 573-576.
4. Smith, R. (1998) *Beyond conflict of interest*. Brit Med. J. 317: 291-292.
5. Stelfox HT, Chua G, O'Rourke K, Detsky AS. (1998) *Conflict of interest in the debate over calcium channel antagonists*. N Engl J Med 38: 101-105.
6. Barnes DE, Bero LA. (1998) *Why review articles on the health effects of passive smoking reach different conclusions*. J Amer Med Assoc 279: 1566-1570.
7. Boseley, S. (2001) *Drug firms accused of distorting research*. Guardian Weekly, September 13-19. Page 4.

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GOOD AND BAD NEWS FOR RUGBY PLAYERS

Beer, that staple diet of rugby players and others, contains the flavonoid tangeretin, which has a powerful antioxidant effect against free radicals. Thus, drinking beer is good for you. That's the good news. The bad news is that you need to drink 450 litres a daily to gain this benefit.

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TOXIC TIME

In order to encourage submission of articles and news to STC NEWS/NOUVELLES, the Editor's telephone number is listed on the front page of the newsletter. Wherein lies the rub. If once is "*happen chance*", twice a "*coincidence*", then what is the significance of three times?

- It is gratifying to know that people actually read our newsletter, whether the print or the web version. An article on depleted uranium prompted a journalist to ask for more details. Great - except that they were phoning at 8 am their local time - 4 am our local time!
- We also like to help people advertise openings for toxicologists, for example by helping the consultant who enquired about advertising a vacancy at 9 am their local time - 6 am our local time!
- The intriguing offer of an important submission to our newsletter arrived by phone, the caller bravely speaking English (not their first language) at 9 am local time - which was 1 am our local time!

One has a good feeling that people really use the newsletter, but it makes me very tired the next day, and typing becomes very hard, so please excuse any typos.

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CONFERENCES, MEETINGS AND WORKSHOPS

2001

Oct 23-24: Atelier de consultation sur l'Etude de cohortes longitudinale sur la sante des enfants et l'environnement/ Consultative Workshop on Longitudinal Cohort Study of Child Health and the Environment. Sponsors: Health Canada, Environment Canada, Canadian Institutes of Health Research. Ottawa, Ontario. For more information Contact: e-mail: [Jean-Francis Cayer](mailto:Jean-Francis.Cayer)

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

July 1-4: Accidents due to venomous and poisonous animals. Ifakara, Tanzania. Contact: Swiss Tropical Institute e-mail courses-sti@unibas.ch or [Swiss Tropical Institute web site](#)

August 27-30: 40th Triennial Meeting of the International Association of Forensic Toxicologists (TIAFT). Paris, France. Contact [TIAFT web site](#)

Sept 2-7: 16th Meeting of the International Association of Forensic Sciences. Montpellier, France. Contact e-mail:

algcso@mnet.fr

Sept 21-23: American College of Clinical Pharmacology, 31st Annual Meeting. Chicago, IL, USA. Contact: e-mail ACCP1ssu@aol.com

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.

2007

July 14-21: 11th International Congress of Toxicology. ICT-X1. Montreal, Quebec, Canada

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