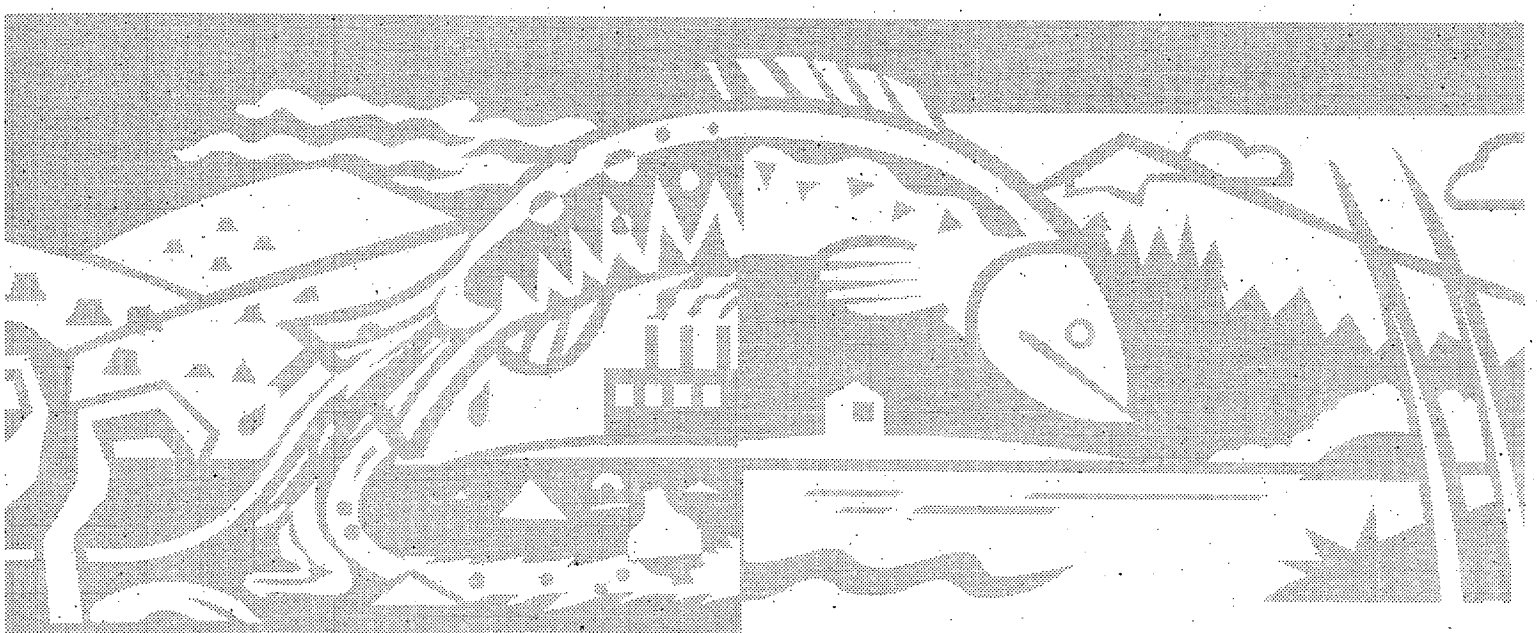


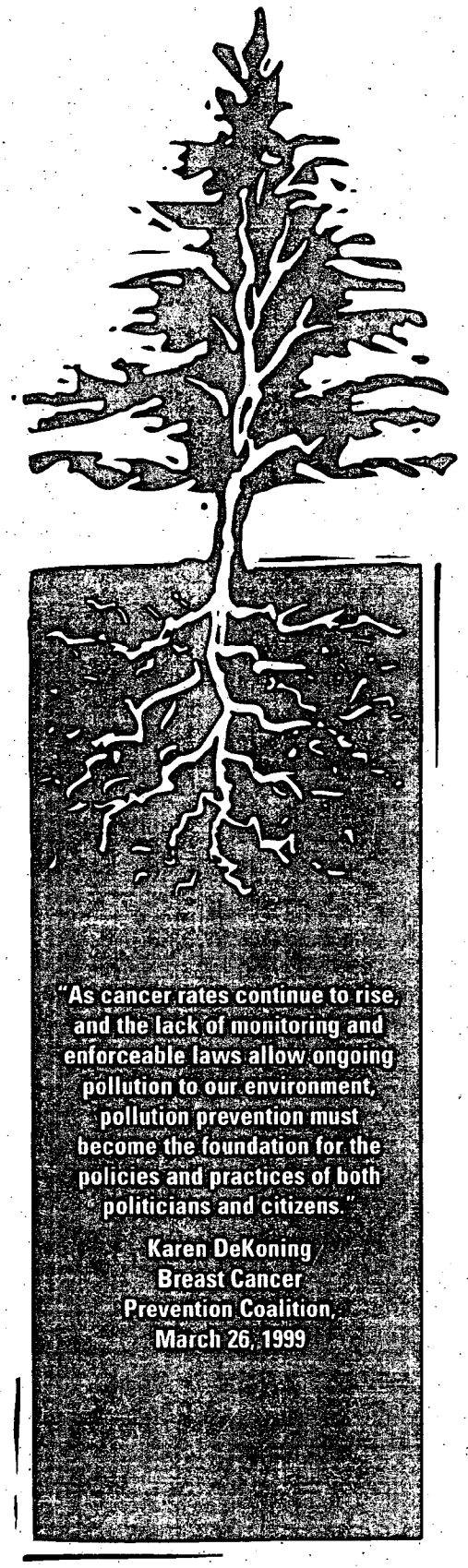
EVERYDAY CARCINOGENS:
Stopping Cancer *Before* It Starts

PROCEEDINGS FROM THE
MARCH 26 & 27, 1999

WORKSHOP ON PRIMARY CANCER PREVENTION

McMaster University
Hamilton Ontario Canada

"First, do no harm." Hippocrates



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PROCEEDINGS FROM

EVERYDAY CARCINOGENS:

Stopping Cancer *Before* It Starts

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INTRODUCTION

This booklet contains proceedings from the conference, 'Everyday Carcinogens: Stopping Cancer Before It Starts', held March 26 & 27, 1999 in Hamilton Ontario, and attended by over 300 people.

The purpose of this conference was threefold:

- to present the big picture of cancer in Ontario, focusing specifically on the badly neglected subject of cancers related to occupational and environmental poisons.
- to bring various constituencies together to act for primary prevention. While many labour unions, First Nations, grassroots health and environment organizations, cancer survivors, women's groups, health professionals and others are doing excellent work on their own on cancer prevention, little collaboration had previously occurred. There is strength in numbers, of course, and in putting shared strategies into action.
- in the face of the continuing cancer epidemic, now striking one in three Ontarians, to explore several credible pollution prevention programs for possible application in Ontario, such as Health Care Without Harm, the City of Santa Monica Environment Program and the Massachusetts Toxics Use Reduction initiative, known to reduce human exposure to carcinogens. Many of these initiatives don't cost a penny, and in fact, save money and create higher profits for the industries and institutions which put them into practice. They also save lives.

Clearly, as these proceedings show, there is a wide gulf between the official Cancer Care Ontario policy on primary prevention of cancer, which focuses almost exclusively on 'lifestyle' factors (smoking, dietary fat, alcohol consumption and physical exercise), and the desire of many primary prevention proponents to get occupational and environmental hazards on the agenda for action – or, for starters, at least to the table.

We all agree on the grim link between smoking and cancer. After that, Cancer Care Ontario, despite confusing and often contrary scientific evidence, puts dietary fat as its next priority, followed by other lifestyle factors. Only a tentative nod is made toward the importance of occupational cancers, estimated in 1991 by the Ontario Cancer Treatment and Research Foundation to kill over 2,000 workers (and retired workers) in this province every year. So far, Cancer Care Ontario has ignored possible links between cancer and the thousands of tonnes of known and suspected carcinogens dumped annually into Ontario's air, water and soil by industry, agriculture and government agencies such as our nuclear power stations.

At the time of the Everyday Carcinogens conference, this province had the dubious distinction of being North America's third worst polluter, after Texas and Louisiana. In July '99, we moved into second place. While over a dozen US jurisdictions, including oft-maligned New Jersey, have recently enacted stiff pollution prevention laws, Ontario is marching backwards, relentlessly downsizing and deregulating our health and environmental safeguards.

This province's current primary prevention initiatives are rooted in an old, contentious and, as many credibly argue, an erroneous report by Richard Doll and Richard Peto, *The Causes of Cancer: Quantitative Estimates of the Avoidable Risks of Cancer in the United States*, published in 1981. Those who dismiss Dr. Samuel Epstein's critique of this document (see page 26) might well look back at Doll and Peto's original text to understand that the authors themselves were highly uncertain about several of their numbers, which even they called guestimates. Even the 1995 *Task Force on the Primary Prevention of Cancer*, one of very few government documents to acknowledge links between cancer and workplace and environmental carcinogens, is based on the Doll and Peto hierarchy of cancer causation. The lower end of the list – where occupation and pollution hover – are easy to lop off when budgets dollars are allocated. As the cancer epidemic continues to flourish, it's time to sweep the Doll and Peto gospel aside, make room for the new science of hormone disruption, the weight-of-evidence approach, and the Precautionary Principle, which states:

> "When an activity raises the threat of harm to human health or the environment, precautionary measures should be taken even if some cause-and-effect relationships are not established scientifically. This means that we need to take action in the face of uncertainty; place the burden of proof of harm on the proponents of the activity instead of the potential victims; explore alternatives to possibly harmful actions before taking action; and use democratic processes to carry out and enforce the Precautionary Principle." (Toxics Use Reduction Institute definition. See page 94.)

There are some who plead for patience and cooperation on these issues, for working together on all causes of cancer, so that eventually environmental and occupational carcinogens do get on the agenda. This would be terrific, but after many years of trying, little progress has been made.

We also need to remember that while we debate about how to work together on causes of cancer, Ontario's budgetary commitment to prevention is minuscule. As Cancer Care Ontario's Richard Schabas told conference attendees on Saturday morning, March 27: "The budget for the prevention unit in Cancer Care Ontario at the moment is $700,000 a year. I tried to figure out on my way down (to Hamilton) what percentage of the Ontario health care budget that is, but I got lost in the zeros. It's an infinitesimal investment in an issue of such pre-eminent importance."

Thankfully, there is much that can be done on the local level to reduce or eliminate exposures to man-made carcinogens without waiting for government and cancer agencies to act. The latter part of this booklet is brimming with good ideas and opportunities for action. Our web site, sponsored by the Breast Cancer Prevention Coalition, contains this information in the form of electronic proceedings, and much more. The address is: www.stopcancer.org

The Steering Committee for Everyday Carcinogens (now re-incarnated as StopCancer Ontario) continues to meet and reach out to develop our emerging provincial coalition for primary cancer prevention. We welcome you on our journey. There is a such long way to go!

Liz Armstrong,
Conference Coordinator,
October 1999

BIOGRAPHIES OF SPEAKERS

in order of presentation

Karen DeKoning:

Karen DeKoning is a founding member of the Breast Cancer Prevention Coalition. She was born in Toronto, graduated from the University of Toronto in political science, and now lives in Chatham, Ontario. Since her diagnosis with breast cancer in 1993, Ms. DeKoning's volunteer activities and activism have been geared toward helping support other women with breast cancer, as well as providing them with information to help empower them to take control of their lives. She volunteers for The Cancer Connection and Reach to Recovery, is founder and facilitator of the Chatham Breast Cancer Support Group and writer/publisher of its newsletter, *Health Chat*, is director for Ontario and second vice-president of the Canadian Breast Cancer Network, a member of the Management Committee of the Ontario Breast Screening Program, a member of the board of the Canadian Breast Cancer Research initiative, and a lay reviewer on the scientific review panels of the National Cancer Institute of Canada in 1998-99.

"My personal involvement with these issues stems from a trail of deaths which has left immeasurable scars on my life."

Ross Hume Hall, Ph.D.

Ross Hume Hall is formerly Chairperson of the Department of Biochemistry, McMaster University Health Sciences Faculty in Hamilton – now emeritus professor. He is a graduate of the universities of Toronto and Cambridge, and blends expertise in the fields of human biochemistry, nutrition, and the health effects of environmental toxicology. During the 1980s, Dr. Hall was Chairperson of Pollution Probe, Toronto. He was a member of the Canadian Environmental Advisory Board, a body that advises the federal Minister of the Environment, and past chair of a panel that advises on priority environmental contaminants. Dr. Hall is past Co-Chair of the Human Health Committee, International Joint Commission. He is also author of three books, the most recent being *Health and the Global Environment.*

"Think big. One dollar for the search for the cure, one dollar for prevention. One for one."

Samuel S. Epstein, M.D.

Samuel Epstein is professor of Occupational and Environmental Medicine at the School of Public Health, University of Illinois Medical Center in Chicago. He is an internationally recognized authority on the toxic and carcinogenic effects of environmental pollutants in air, water, and the workplace, and of ingredients and contaminants in consumer products – food, cosmetics and household products. He is author of close to 300 scientific articles and 10 books including the prize-winning 1978 *Politics of Cancer* and the 1998 *Politics of Cancer Revisited,* and co-author of the 1976 *Legislation on Product Safety: Consumer Health and Product Hazards,* the 1982 *Hazardous Wastes in America,* the 1995 *Safe Shopper's Bible* and the 1997 *Breast Cancer Prevention Program.*

Dr. Epstein's activities in the interface between science and public policy include: consultant to the US Senate Committee on Public Works, drafting Congressional legislation, membership on key federal agency advisory committees including the Health Effects Advisory Committee of the Environmental Protection Agency, and the 1973 Department of Labor Advisory Committee on the Regulation of Occupational Carcinogens. He was the key expert involved in the banning of hazardous products

"The cancer establishments' focus on damage control and basic molecular biology is compounded by very pervasive conflicts of interest..."

"To all intents and purposes there has been minimal progress in cancer prevention."

"So we're starting from a zero baseline (on prevention) and were certainly starting very small because our resources are very limited..."

"And if there's ever a need to invoke the Precautionary Principle, it is here inside the chest walls of nursing mothers..."

"Workers experience the realities of capitalism from the 'dark side' often unseen and unheard by the rest of society..."

and pesticides including DDT, aldrin, and chlordane, and is the leading international expert on the public health hazards of biosynthetic growth hormone (rBGH) used for increasing milk production, and of sex hormones used for fattening cattle in feedlots. He is past Chairman of the Air Pollution Control Association Committee on Biological Effects of Air Pollutants; President of the Society of Occupational and Environmental Health; Founder and Secretary of the Environmental Mutagen Society; advisor to a wide range of organized labor, public interest and citizen activist groups; and President of the Rachel Carson Council. He is currently Chairman of the nation-wide American group, the Cancer Prevention Coalition.

Dr. Epstein's numerous awards and honours most recently include the 1998 Right Livelihood Award (the 'Alternative Nobel Prize') for his international contributions to cancer prevention.

Richard Schabas, M.D.

Richard Schabas is the Head of the Division of Preventive Oncology at Cancer Care Ontario, the agency created in 1997 as the provincial government's principal advisor on cancer issues responsible for long-term planning of all aspects of the cancer care system, as well as setting direction for treatment, prevention research and support services. Dr. Schabas's responsibilities at Cancer Care Ontario include cancer surveillance, cancer prevention, screening and preventive oncology research. Before joining CCO in 1998, Dr. Schabas was Ontario's Chief Medical Officer of Health for 10 years.

Sandra Steingraber, Ph.D.

Sandra Steingraber received her doctorate in biology from the University of Michigan. Author of *Post-Diagnosis*, a volume of poetry, co-author of a report on ecology and human rights in Africa, *The Spoils of Famine*, and *Living Downstream: A Scientist's Personal Investigation of Cancer and the Environment*, she has been called 'a poet with a knife' (*Sojourner*). She has taught biology for several years at Columbia College, Chicago; held visiting fellowships at the University of Illinois, Radcliffe College, and Northeastern University; and was recently appointed to serve on the US National Action Plan on Breast Cancer. As an ecologist, Dr. Steingraber has conducted field work in northern Minnesota, East Africa, and Costa Rica. In 1997, Dr. Steingraber was named a Woman of the Year by *Ms* magazine. In 1998, she received the Will Solimene Award for Excellence in Medical Communications by the New England chapter of the American Medical Writers Association, and the Jenifer Altman Foundation Award for 'the inspiring and poetic use of science to elucidate the causes of cancer.'

Jim Brophy

Jim Brophy is Executive Director of the Occupational Health Clinics for Ontario Workers (OHCOW) in Windsor, Ontario. For six years, he was a member of the (now dismantled) Occupational Disease Panel in Ontario. Along with Margaret Keith and Matt Firth, Mr. Brophy co-authored a book on occupational cancer, entitled *Workplace Roulette: Gambling with Cancer*. Mr. Brophy is a Senior Research Fellow at DeMontfort University in England, and is writing his Ph.D. dissertation on occupational cancer. He is also a member of the editorial board of the journal *New Solutions*. Mr. Brophy has four children, three grandchildren and one dog.

Eva Johnson

Eva Johnson is a member of the Bear Clan, Mohawk Nation at Kahnawake near Montreal. In 1986, while working with the Quebec Native Women's Association, she travelled extensively and saw that environmental conditions in Canada were very poor, both in Indian country and the rest of Canada. In 1987 a huge landfill fire was for Eva Johnson the proverbial "straw that broke the camel's back" and she thereafter dedicated most of her time working to improve the quality of the environment at Kahnawake, including recycling, discouragement of toxic herbicide and pesticide use, and promotion of organic gardening and reforestation.

"Environmental degradation has no boundaries, no borders, no ethnicity, no choices about who is impacted..."

Paul Connett, Ph.D.

Paul Connett received his undergraduate degree from Cambridge in England and did his Ph.D. in Chemistry at Dartmouth in the USA. He is a professor of chemistry at St. Lawrence University in northern New York and for the past 14 years has researched the issues of waste management with a particular interest in dioxin. During that 14 years, he co-authored and co-published with Dr. Tom Webster seven papers on dioxin. He has given 1400 public presentations in 48 states of the United States, five provinces in Canada and 39 other countries. He co-produced with Roger Bailey over 30 videos on waste management and ten on dioxin. Dr. Connett recently set up his own video operation called Grassroots and Global Video. He co-authors the newsletter, *Waste Not*, with his wife Ellen. Ralph Nader has said of Paul Connett, "He is the only person I know who can make waste interesting."

"We need to replace short-term economic plans with long-term ecological plans... We need to shift from being clever to being wise."

Beverley Thorpe

Beverley Thorpe is a founder of Clean Production Action, a network of consultants who specialize in Clean Production implementation strategies. Ms. Thorpe worked with Greenpeace International in Europe for nine years helping to coordinate the international toxics campaign. She was the person in charge of developing the clean production concept with Greenpeace and has spoken extensively at international clean production conferences. She currently lives in Montreal.

"Ask that all chemicals listings for products be actively, publicly disseminated via free phone access, disks and websites."

Cathy Walker

Based in Toronto, Cathy Walker is the National Health and Safety Director of the Canadian Auto Workers Union (CAW), appointed in 1992. She began involvement in the union movement in factories in Vancouver in 1970, when she worked as a machine operator at the Phillips Cable plant, where she also served as shop steward. In her local union, Ms. Walker served as trustee, vice president and finally president of her local in 1973. She has been a national union representative responsible for collective bargaining since 1974. In 1974, she assumed the duties of health, safety, the environment and workers' compensation. Ms. Walker was a member of the Regulation Advisory Committee that the developed the new ALARA (As Low As Reasonably Achievable) health and safety regulations in British Columbia. She is currently a member of the Council of Governors of the Canadian Centre for Occupational Health and Safety, and a member of the Legislative and Regulatory Review Committees for Part 2 of the Canada Labour Code. As well, she serves on the Canadian Labour Congress Health and Safety Committee.

"We also try to bargain toxics-use reduction and a lowering of exposures in our collective agreements."

"We don't have to pollute the environment with plastics. Corn, soybeans and others can make dependable, high-performance plastics."

"Our assumption is that the transition to a more sustainable system of production depends on the involvement of industry, government and the public."

"Muncipalities have untold chemicals marketed to them every day to help them get through the business of government."

"I think we have to believe that it is the visible hand of policy that will deliver the kind of goals that will protect both human health and the environment."

Rahumathulla Marikkar

Rahumathulla Marikkar is the Technical and Environmental Manager at Interface Inc.'s Belleville, Ontario facility. (Interface is the world's largest manufacturer of commercial flooring). A chemical engineer by profession, he is a member of the general manufacturing task force of the Canadian Industrial Program for Energy Conservation, a member of the Industry Round Table on Climate Change, and a member of the Advisory Committee for Criteria on Green Energy. Mr. Marikkar is also a participant in the feedback group for the International Joint Commission on the Great Lakes, and a member of the Society of Plastic Engineers.

Cathy Crumbley

Cathy Crumbley is Program Director of the Lowell Center for Sustainable Production at the University of Massachusetts Lowell. She has served as Program Manager for the United Nations Environmental Program at Tufts University and was Program Coordinator of the Coolidge Center for Environmental Leadership in Cambridge, Massachusetts. She has also worked as an environmental consultant with Stedman Environmental Associates. Ms. Crumbley holds degrees in biology and environmental science.

Brian Johnson

Brian Johnson has served as Environmental Programs Coordinator for the City of Santa Monica for ten years. Current responsibilities include management of the Sustainable City Program, the Certified Unified Hazardous Materials Program, the Underground Storage Tank Program, including oversight of permitting, operation and assessment/remediation activities, the Household Hazardous Materials Consumer Awareness Ordinance, the Ozone-Depleting Compound Ordinance, the Urban Runoff Control Ordinance, the Toxics-Use Reduction Program, including the Integrated Pest Management Program and the Environmentally Preferable Procurement Program. Mr. Johnson currently serves as Chair of the California Peer Review Project, and has served on numerous ASTM, regulatory and Governor's environmental advisory committees. Additionally, Mr. Johnson is a California Registered Environmental Assessor, Senior Certified Hazardous Materials Manager, and Registered Environmental Manager. Mr. Johnson holds a Bachelor's degree in geography and a Master's degree in Geography/Environmental Science from the University of California, Los Angeles, and has served as an instructor and lecturer at West Lost Angeles College, and the University of California, Los Angeles.

Paul Muldoon

Mr. Muldoon is the Executive Director of the Canadian Environmental Law Association (CELA) in Toronto. CELA is a non-profit, public interest organization established in 1970 to use existing laws to protect the environment and to advocate environmental law reforms. Mr. Muldoon has written articles and books on a number of topics, including environmental rights, toxic water pollution, biotechnology and international environmental law. He has a Masters of Arts degree from McMaster University and a Masters of Law degree from McGill University. Mr. Muldoon has sat on various advisory boards, such as the Science Advisory Board to the International Joint Commission, and the former MISA Advisory Board from 1989

to 1995. He was a member of the Environmental Bill of Rights Task Force and the CCME National Advisory Group to the Environmental Harmonization Accord.

Valerie Hepburn

Valerie Hepburn is a consultant to the City of Toronto in health planning and policy. She is the senior coordinator of the Toronto Cancer Prevention Coalition, a network of citizens and community groups addressing a comprehensive cancer prevention agenda across the Greater Toronto Area. Ms. Hepburn is Vice-Chair of the Canadian Breast Cancer Foundation in Ontario and Chair of the CBCF's Education Committee. She is also a citizen member of the Preventive Oncology Committee of Cancer Care Ontario and the Ontario Network for Cancer Prevention.

Angela Rickman

Angela Rickman is Deputy Director of the Sierra Club of Canada, a national environmental organization. She directs the Sierra Club campaigns on pesticides and toxics, and shrimp aquaculture. Ms Rickman coordinates CPR!, the Campaign for Pesticide Reduction, a national network of labour, health and environmental groups, farmers' organizations, and individuals concerned with pesticide issues in Canada. CPR! is currently working with local activists and Councils at the municipal and regional levels to ban or reduce pesticides, and to educate the public on the health and environmental problems surrounding pesticide use. Ms Rickman is a founding member of ISANet, the Industrial Shrimp Activist Network, an international coalition of development and environment NGOs (non-government organizations) set up to respond to the social and environmental impacts of shrimp aquaculture on coastal communities. She coordinates the network's global public education network. Ms Rickman sits on the Steering Committee of the Pesticide Action Network of North America, and is a member of the Pest Management Advisory Council.

"We need to roll back the rollback of environmental regulation and protection in our province."

"If we can protect that six week old fetus that Sandra Steingraber was talking about earlier, then every single one of us will be adequately protected."

Everyday Carcinogens:
Stopping Cancer Before It Starts

Friday Evening
March 26, 1999

Moderator:

Liz Armstrong
Conference Coordinator

Welcome:

Karen DeKoning,
Breast Cancer Prevention Coalition

Opening Remarks:

Ross Hume Hall,
Professor Emeritus, McMaster University; Former Co-Chair,
Human Health Committee, International Joint Commission

Keynote Address:

Dr. Samuel Epstein,
University of Illinois School of Public Health

WELCOME

Karen DeKoning

It is my pleasure on behalf of the Steering Committee to welcome everyone to our program for this evening. It is my sincere hope that all of you who are here tonight share our concern for the health of this province and the future for our children.

As we approach the year 2000, we have the opportunity for a new beginning. As cancer rates continue to rise, and the lack of monitoring and enforceable laws allow ongoing pollution to our environment, pollution prevention must become the foundation for the policies and practices of both politicians and citizens. Although many of our problems are attributable to budget cuts to the Ministry of the Environment and Energy, we also can be held accountable. For example, when addressing the issue of pesticides, we use more chemicals on our lawns and gardens per acre than farmers do on their crops. Despite who is culpable, I am sure that we all agree that there is no more important asset than our health, and at the present time, no one is protecting it. Current statistics are now one in three of being diagnosed with some form of cancer within our lifetimes, or one in two, if you factor in non-melanoma skin cancers. Who among us has not already been touched by the loss of a loved one or friend to cancer?

Epidemic is not too strong a word to describe what is happening around the world with respect to escalating cancer rates, particularly in industrialized countries. Breast cancer rates in North America are the highest in the world, followed by Western Europe.

My personal involvement with these issues stems from a trail of deaths which has left immeasurable scars on my life. When I was growing up in the west end of Toronto many years ago, I will always remember my mother telling me how fortunate I was to have inherited good genes. At that time I believed her...I had four wonderful grandparents and a great grandmother, all of whom lived well into their eighties. None of them died of cancer. One generation later, the tide had turned. In 1975, within three months of each other, my father was diagnosed with lymphoma and my mother with breast cancer. My dad died a year later, my mom in 1987. During this same time frame, both my aunt and first cousin were battling bladder cancer. Then, in 1993, I was diagnosed with breast cancer and my life was forever changed. I now ponder Dr. Susan Love's statement, "You can inherit perfectly good genes and something in the environment can come along and screw them up." My concern is now for what chance my sons have of escaping this epidemic.

Epidemic is not too strong a word to describe what is happening around the world with respect to escalating cancer rates, particularly in industrialized countries. Breast cancer rates in North America are the highest in the world, followed by Western Europe. 129,200 people will be diagnosed with cancer this year in Canada, which is more than the entire population of Burlington, Ontario. Similarly, 62,700 people will die of cancer this year, which equates to wiping out the entire city of Peterborough. This represents a 30 per cent increase from a decade ago, and is expected to rise another 30 per cent by the year 2010. Cancer deaths have also climbed 24 per cent from 1988, while cancer care costs are still escalating from $3.5 billion in 1993.

We are here this weekend to learn how to make a difference. When the steering committee met to plan the agenda for this conference, the consensus was for an event that would be unique, in that it would bring together for the first time, people from different sectors and occupations, in order to network and learn how to take the agenda of cancer prevention forward in our own communities, homes and workplaces.

Tonight we have present public health professionals, politicians, cancer survivors, union representatives, aboriginal people, health and environmental activists.

We each come to the table with our own issues and problems, while representing divergent geographical areas of the province. However, despite these variations, our hope is that a new energy to work together will emerge from our time together, as we put aside differences and focus on the issue of cancer prevention and what we can do about it. There are positive initiatives happening as we speak, in many instances spearedheaded by concerned citizens such as us. Individuals *can* make a difference. Last year, in Chatham, where I live, it was announced that the city was planning to spray all the local schoolyards with pesticides. Kim Isles, the owner of a local health food store took on this issue, called in the media and singlehandedly had the spraying stopped.

We can't afford to wait for the politicians to act. We must show initiative and demonstrate that green alternatives are not just better for the environment and for human health, but that they also make sense economically.

We can't afford to wait for the politicians to act. We must show initiative and demonstrate that green alternatives are not just better for the environment and for human health, but that they also make sense economically.

Although some of the increases in cancer rates are attributable to an aging population, as well as to the direct link between cigarette smoking and lung cancer, and sun exposure and skin cancer, scientific evidence proves that there is much more to the picture. There are clusters of cancers which are not just coincidence, and rate increases of types of cancers which are not connected with aging.

As an aside, we not only have to worry about exposure to cancer causing agents at home, work and play, but also at school. Verna, a First Nation's woman with metastatic breast cancer, who is a member of my local breast cancer support group, attended a Mohawk school in Brantford as a child. When cases of head lice occurred, all the children had their heads bathed in DDT. This woman has three sisters. All four have breast cancer, and her youngest sister recently died from this disease.

A story from another friend and local breast cancer survivor is equally frightening. She worked for many years in a local shoe factory, until she developed emphysema and later breast cancer. This factory still has no union. Her job involved handling dyes, glues which contained ammonia, and inks which carried warnings that they should only be used in well-ventilated areas. Many other women in the factory were also diagnosed with breast cancer during the years she worked there. Respiratory problems were also common. She recounts a room which the employees nicknamed the "suicide room," where air quality was very poor. This room was never part of the tour when the plant was visited for Health and Safety checks. Employees were and still are afraid to speak up, as they cannot afford to lose their jobs.

When we examine the cancers which continue to rise, it is interesting to note that some are inter-related. For example, escalating breast, prostate and testicular cancers, along with declining sperm counts are all linked hormonally. Some say that increased incidence is due to better and earlier detection. Others say that we have ignored similar rises in cancers and abnormalities in fish and wildlife, which may have been "the canary in the coalmine" for the human race. A recent Ontario study published in the *Canadian Medical Journal* shows testicular cancer up 60 per cent between 1964 – 1996. The greatest increase was among men 15 – 29. If we are concerned about the future, focus is needed on the significant increase in childhood

cancers since 1950. Cancers are now the leading cause of death among children, after accidents.

Where I live in southwestern Ontario, both the counties of Essex (which encompasses Windsor), and Chatham-Kent, have extremely high cancer rates. Not only is cancer a major problem, but Chatham has the highest rate of heart disease in Ontario. McMaster University is now doing a study of our area to assess whether high pesticide use or something in our water is the cause. We also have escalating rates of a rare cancer, multiple myeloma, which has risen 79 per cent in men since 1965. This cancer is directly linked to pesticides and Chatham-Kent has the highest use of pesticides in Ontario for corn and soybeans.

If we are concerned about the future, focus is needed on the significant increase in childhood cancers since 1950. Cancers are now the leading cause of death among children, after accidents.

Although we already have very high cancer rates in our country, I expect that they will escalate dramatically in the near future, due to the expansion of a dump 15 minutes from Chatham at a 750-acre site, which will take garbage, industrial and hospital waste from Toronto and other cities throughout the province. In Ontario, we are also contending with a provincial government that continues to deregulate environmental safeguards, which were once put into place to protect our health.

Organizations such as the International Joint Commission on Great Lakes Water Quality and the Ontario Task Force on the Primary Prevention of Cancer have long recommended the adoption of the 'precautionary principle' and have stated that 'no dose of a carcinogen can be deemed safe'. Unfortunately, government continues to ignore sensible and health smart suggestions and instead places more power in the hands of industry, permitting it to monitor itself.

Today, everyone is carrying at least 500 chemicals in their bodies which were not in anyone's body before 1920. It is a given and can be verified by numerous statistics, that toxic chemicals abound in our environment and continue to be released into our food, water and air, many which have not been tested for impact on human health. Due to the fact that by the end of 1999, the Ministry of the Environment and Energy will have lost 45 per cent of its operating budgets, and 81 per cent of its capital budget, monitoring of carcinogens in our environment is at an all-time low. This is evidenced by the fact that fines for 1997 were the lowest in the last decade, and less than one third the total for 1995. Headlines in the newspaper have stated that the Ministry has almost stopped prosecuting water polluters, as well as ordering government inspectors who enforce pollution laws to ignore public complaints on several environmental threats, including pesticide infractions.

There are also serious gaps in Ontario's capacity to monitor activities which may threaten health, safety and the environment. The worst of these was the four-day-long July 1997 fire at the Plastimet PVC recycling facility here in Hamilton. One of the by-products of the burning of PVCs is the highly toxic chemical dioxin. Recent German studies, presented to the World Health Organization, concluded that dioxin can be responsible for 12 per cent of human cancers in industrialized countries. This past year has witnessed the delivery of numerous reports from independent and authoritative bodies identifying major threats to the health of Ontarians from their environment. Many are documented in: *The Common Sense Revolution, A Third Year Report.* Two of the most serious allegations identify Ontario as the third worst polluter in North America, as well as stating that the Great Lakes Region is the #1 in the release of endocrine disrupting chemicals,

#2 in carcinogens such as benzene, and # 3 in reproductive toxins such as lead.

What I have presented tonight are the sorry facts that should be the catalyst for our joint action. Tomorrow, we will hear about positive initiatives which we can use as patterns for progress to make a difference in our local communities. I would like to conclude with a quote from David Suzuki's book, *The Sacred Balance*, which summarizes my hopes for the future:

"Just as the key to a species' survival in the natural world is its ability to adapt to local habitats, so the key to humans' survival will probably be the local community. If we can create vibrant, increasingly autonomous and self-reliant local groupings of people that emphasize sharing, co-operation, and living lightly on the Earth, we can avoid the fate warned of by Rachael Carson and world scientists, and restore the sacred balance of life."

OPENING REMARKS

Dr. Ross Hume Hall

If Martians took a look at planet earth and the basic needs of its human population – food and water – they'd be puzzled. For they'd see that we had polluted one fifth of the world's total supply of fresh water with chemicals. This contamination has sickened and killed wildlife, perverted a whole ecosystem and contributed to human disability and illness, including cancer. The Martians would say how could these humans be so stupid. Well, that's the conclusion reached in 1992 by the International Joint Commission (IJC) – sheer stupidity.

If Martians took a look at planet earth and the basic needs of its human population - food and water - they'd be puzzled. For they'd see that we had polluted one fifth of the world's total supply of fresh water with chemicals.

That one-fifth of the world's fresh water is right here, on our front door, the Great Lakes, a body of water shared equally by the United States and Canada. The IJC, an agency set up by the two governments, oversees the quality of the Great Lakes water. And yes, in 1992, the six IJC commissioners declared that relentless chemical dumping had degraded water quality to an intolerable point.

A drastic situation requires drastic action. No time to dither. The IJC said this chemical burden has to be lifted from the Great Lakes ecosystem and from the animals and people who live in the region – now. To start lifting that burden, IJC identified a major source of Great Lakes contamination: organic chemicals based on chlorine – such as polyvinyl chloride (PVC), PCBs, dioxin, industrial solvents, and many common pesticides.

This class of chemicals consists of some 11,000 commercial products. We have no time to talk endlessly about each of these chemicals, IJC said. So let's get on with lifting the chemical burden. Let's stop making the whole class, period. After all, few of these chemicals existed a generation ago and we managed without them. Besides, there are non-polluting alternative products. The IJC sent their warning to Ottawa and Washington, DC about the harm caused by organochlorines and their recommendation to phase out their production.

The IJC warning had as much impact on the two governments as a dud artillery shell hitting a sand dune. The two governments treated the idea of stopping production of organochlorines as if it came from a fringe environmental group,

The IJC warning had as much impact on the two governments as a dud artillery shell hitting a sand dune. The two governments treated the idea of stopping production of organochlorines as if it came from a fringe environmental group, unworthy of any attention.

unworthy of any attention. This off-hand dismissal was surprising in view of fact that the IJC is a conservative agency, hardly given to extravagant claims. The agency in the three or four years prior to its 1992 conclusion about Great Lakes water quality, had gathered together several groups of scientists and policy experts to assess the situation.

At the time I was co-chair of one of the committees, the one dealing with human health. Our committee was responsible for pulling together data on the impact of Great Lakes pollution on people of all ages. The negative impact on human health, however, was just one piece of evidence. What made IJC's analysis of the Great Lakes situation unique was its 'weight-of evidence' approach. This approach takes in every scrap of evidence on the negative effects of chemical pollution: on fish, on all animals and birds living in the Great Lakes Basin, on the whole ecosystem and, of course, on the some 35 million people living in the region.

This weight of evidence was much more complete, much broader, and more damning than any documentation ever gathered by Environment Canada or by the United States Environmental Protection Agency.

These government bodies use selective data to regulate chemical discharge into the Great Lakes and to set chemical tolerance levels in food and water, in comparison. They exclude much of the evidence of harm that our IJC committees dug up. So it was disappointing to me and others when this more complete evidence of chemical damage to people, this weight of evidence, failed to move the two governments.

They refused to take serious action against the organochlorines. In fact, since 1992, production of organochlorines has jumped. Production of PVC, for instance, has risen 60 per cent. Although the IJC's 1992 report was largely ignored in Ottawa and Washington, DC, it had a positive impact on those interested in working towards a clean environment. I believe there are two lessons we can draw from the IJC report that bear on policies and actions for preventing cancer:

• First, the IJC Commissioners looked at the problem of the chemical pollution from the point of view of the pollutee, the Great Lakes and those who live around the lakes. They said the chemical burden on the lakes and on citizens is much too great.

The IJC reversed the usual way of examining a pollution issue, which put it at odds with government policy. Governments set laws and regulations from the point of view of the polluter. Governments grant chemical companies legal rights to pollute, such as discharge permits, legal residues of chemical contaminants in food and water. Governments, on the other hand, grant no legal rights to the pollutee – and that includes you and me – *not* to be polluted.

Thus the IJC's proposal to start thinking about chemical contamination from the point of view of the pollutee struck the United States and Canadian governments as outrageous. The very idea of taking the pollutee's viewpoint as a basis for setting public policy...Well, what kind of public policy?

• Here is the second lesson that bears on cancer prevention – total burden. IJC didn't examine one chemical at a time. The agency said, 'Look at the weight of evidence.' A fish's body, an otter's body, a human body, integrates all contaminants, every toxic chemical, into one big negative impact. You, as a pollutee, feel that impact on your health and on your ability to pass healthy genes to your children.

So, when you look at the issue of chemical pollution from the point of view of the pollutee, the action that needs to be taken becomes obvious. Reduce the total chemical burden.

The IJC came up with a plan to reduce that total burden by a substantial amount: phase out production and use of organochlorines. But, although the IJC report landed with a dull thud, I'm quite optimistic. Why? Like the camel's nose poking under the tent, a willingness on the part of public policymakers to take the pollutee's point of view is beginning to show.

Consider the action taken to prevent destruction of the upper atmosphere's ozone layer. The ozone serves as a protective shield against excessive penetration of ultra-violet radiation to the earth's surface. Destruction of the ozone layer might, in fact, make the earth quite unlivable. What to do? Scientists concluded a class of chemicals, the chlorofluorocarbons (CFCs), is responsible for ozone destruction. These chemicals are used to sterilize hospital equipment, as solvents in the electronics industries, and most widely as refrigerants in your household refrigerator and air conditioner.

The technical problem is that the chemicals are stable and are gases. So when released, they migrate to the upper atmosphere. There, under the influence of sunlight, they react and destroy ozone.

Like the camel's nose poking under the tent, a willingness on the part of public policymakers to take the pollutee's point of view is beginning to show.

In a remarkable spirit of cooperation, the majority of industrial nations in the early 1990s agreed to phase CFCs out of production. The agreement, called the Montreal Protocol, set in motion a timetable for the phase-out. Already, some ten years later, production of this class of chemicals has fallen to about one tenth of what it was formerly.

The initiative to phase out production of CFCs requires an enormous adjustment by the chemical industry and by those industries that use these chemicals. The point I wish to make is that, given a set of circumstances, a feeling of urgency and a clear plan of action, aggressive preventive action can happen.

But so far this idea of taking the pollutee's viewpoint is not widespread. The speed with which the Montreal Protocol to save the ozone layer has been implemented contrasts with efforts to implement policies to prevent cancer. When I started my career in cancer research in the 1950s, good data were coming out that cancer, to a large measure, is preventable. This fact was certainly obvious by 1962 when Rachel Carson published her book, *Silent Spring*.

Her book makes the case that the way to deal with the cancer problem is to take an aggressive stance towards prevention. Clearly seeing the issue, she advocated getting rid of the toxic chemical burden – pesticide and waste chemical residues – that contaminate every human being.

Thirty-seven years have passed since *Silent Spring's* publication. We have taken some steps to deal with chemical carcinogens on the human population but not what I would call aggressive steps. We have not seen any aggressive measure, such as that recommended by the IJC to phase out of existence a class of problem chemicals.

The lack of an aggressive public posture to prevent cancer is puzzling, particularly when we have a long and successful history of public health measures to deal with other diseases. In the last century, typhoid, cholera and other infectious disease were the main health worries. Public health measures to provide safe drinking water went a long way toward eradicating those diseases.

EVERYDAY CARCINOGENS: Stopping Cancer *Before* It Starts

In view of the fact that we know that much of cancer can be prevented, in view of the fact that the search for the cure is very much a gamble, you'd think that at the very least we'd put equal resources into a search for cure and into preventive measures.

Cancer, of course, is far more complex than an infectious disease. Yet, as I say, the evidence is there: much of cancer is preventable. Women in Asian countries, for instance, experience a breast cancer rate about one fifth that of women here in Canada. In the last 12 months, about 18,000 Canadian women were newly diagnosed with breast cancer. If the rate were the same as that in these Asian countries, 14,500 of those women would not have been diagnosed this year or for that matter, at any time in their lives. Consider Copp's Arena here in Hamilton, filled with 14,500 women. We are talking about a lot of individuals and their families.

There are undoubtedly many reasons why women living in Asia have the lower breast cancer rate, but those reasons can be researched. The fact that the breast cancer rate is so much lower in Asia has been known for 40 years, yet the research into the reasons why, to my knowledge, is not being undertaken. I often wonder why it is so hard to budge public policy on this issue of cancer prevention. But I will cite just one, an imbalance of resources.

I'm impressed by the international agreement to save the ozone layer. Why has this protocol moved so quickly compared to anything like it in the cancer field? I come up with a simple answer. No one is trying to cure the hole in the ozone layer. There is no organized establishment saying: don't worry about CFCs, discharge all you want into the atmosphere. We are going to research a cure. Don't know when we will find it. Just wait.

Of course, that hasn't happened. The agreed way to deal with the issue of disappearing ozone is to take preventive steps. I'm not suggesting that we stop searching for a cure for cancer, not at all. Let me quote Rachel Carson. She wrote, in *Silent Spring*: "For those in whom cancer is already a hidden or a visible presence, efforts to find cures must, of course, continue. But for those not yet touched by the disease and certainly for the generations as yet unborn, prevention is the imperative need."

Dealing with the cancer issue thus has two components: the search for a cure, and prevention. In view of the fact that we know that much of cancer can be prevented, in view of the fact that the search for the cure is very much a gamble, you'd think that at the very least we'd put equal resources into a search for cure and into preventive measures.

But public policy for dealing with cancer has taken on a grotesque, out-of-balance shape. Enormous resources go into research to find a cure, while comparatively little goes into developing and implementing preventive measures.

This imbalance in use of public money – and all the money for the search for a cancer cure comes out of your pocket, whether through voluntary agencies or tax dollars – has a side effect. It excludes the general public from participating in making policy to deal with the total cancer picture. It's an axiom that you need information to make effective public decisions. Cancer research goes on in a private world. Unless you have the same training as a cancer scientist, you have no way of assessing the significance when that individual says, "We are making progress." What does it mean, you don't know. You don't know if the researcher knows. Cancer research is invisible to the general public. All you can do is hand over your money. Not exactly public participation.

As I said, an unfortunate fallout of the imbalance towards the search for a cure discourages public participation. People generally aren't aware that of the second and equally valid way to attack the cancer problem – prevention. People aren't

aware that taking preventive action is not a gamble. Rachel Carson in the 1960s identified a course of action – deal with chemical pollution. And the IJC in its 1992 report offered a specific action – phase-out of production of organochlorines. From the weight of evidence we know that eliminating the organochlorine burden from the entire population will bring positive results – no gamble here.

I read recently that the Canadian federal government has allocated $40 million to once more study the impact of toxic chemicals in the environment on human health. That's $40 million of your money. The government could save you the $40 million simply by reading and digesting the weight of evidence behind that 1992 IJC report. We don't need any more such studies. The information is already available to set a clear course of action.

I have no illusion that preventive action presents serious challenges. For instance, after the IJC issued its report to phase out organochlorines, they held a public meeting in Windsor, Ontario. The chemical industry bused in hundreds of workers from area chemical plants. A lot of the workers brought their spouses and kids. They stood up and told the IJC Commissioners, "You talk about phasing out organochlorines. Our jobs our at stake." They were genuinely alarmed, and rightly so. The social issue of job loss and transfers must be addressed with any talk about changing industrial practice – all part of the preventive measures.

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The important point about cancer prevention is that, in contrast to the search for the cure, the public can see what is going on and get involved. The cancer problem is built into the way we live. It is a social issue as much as a technical issue. The government has a role to play but I think the most important role is that of public groups and individuals like those represented here at this meeting. But to make the public's role effective, it is going to take resources on another scale. What do I mean by that?

Let me return to Rachel Carson's eloquent plea and say that it is time to redress the balance between search for cure and preventive measures. I have been involved with trying to move the cancer prevention agenda forward in one way or another for three decades. It has been frustrating. Most of the activity has been done on the proverbial shoestring. I don't have to tell folks in this audience about shoestring budgets.

It is time to change all that. Cancer prevention deserves to be put on a resource footing equal to that of the search for the cure. I'm not saying stop or even reduce the current efforts searching for a cancer cure. I say that for every dollar spent on the search, a dollar must be spent on preventive action.

We have at this point in time an excellent technical base, a core of knowledge, that would allow us to launch effective preventive initiatives. One initiative: lift the chemical burden off of every person now alive and from the genes that will create forthcoming generations. But if we are going to move such initiatives forward, we have to have the resources.

Think big. One dollar for the search for cure, one dollar for prevention. One for one.

FRIDAY EVENING KEYNOTE ADDRESS

Dr. Samuel Epstein

Topic: Losing the war on cancer: Who is responsible and what to do

One of my key themes is going to be the primary responsibility of the cancer establishments worldwide for the current cancer epidemic. That may surprise you. You way well take the position that it's the primary responsibility of industry recklessness.

I'm not really sure that I've got anything to say tonight after the splendid talks; the two talks, from Karen (DeKoning) and from Ross (Hume Hall), pretty well covered all the front, so I'll have to scratch around and see what I can come up with. But before I do I want to comment on Liz Armstrong's splendid pamphlet or monograph. I went through it on the plane and I was deeply impressed. I went through it from cover to cover. It is a beautiful, elegant, and meticulous piece of work. I do have some criticisms. I think Liz has been little soft on one or two of our friends, Doll and Peto, and Ames. But perhaps you have a quality of understatement that I don't possess.

Anyway, it's a great pleasure to be here this evening.

I really felt that when I was coming to Hamilton, I should find out something about Hamilton. Perhaps that was a great mistake because the more I dug into what's going on around here, the more interested I became and the more convinced I was that Hamilton was a banana republic that really would be very comfortable in one of the South American dictatorships.

The story of the Plastimet fire and the local unresponsiveness of the region at the SWARU incinerator is just an unbelievable pattern of lack of accountability, unawareness, low priority, ignorance, conflict of interest, in a fascinating package. As I say, I've been bombarded with information from a very wide range of people and I feel I have the sense of what's going on here. But it took a little bit of getting into. But I'm glad I did.

Now, clearly I'm going to be a little bit repetitive of the most splendid talks you've had so far. But I intend to add some additional political dimensions and suggestions to what we've already heard.

One of my key themes is going to be the primary responsibility of the cancer establishments worldwide for the current cancer epidemic. That may surprise you. You way well take the position that it's the primary responsibility of industry recklessness. Well, I don't share that view and I'll explain why as we proceed.

But let's run through a few of the basic facts, some of which you've heard already this evening. And the reason why I think we need to run through them is we need to be able to forcefully dispose of some of the mythologies associated with these facts which may not have not been adequately presented or which you may not have adequately appreciated so far. So we are going to run through some basic facts now.

Clearly, we are losing a winnable war against cancer. Since 1950, where we do have good statistics, the National Center for Health Statistics in the United States, and more recently, from a New York Academy of Sciences' international assemblage of worldwide statisticians and epidemiologists on cancer rates in sixteen major industrialized nations, one can piece together the following sets of facts. That overall in the US and in general, elsewhere, the overall increase in age-standardized cancer from 1950 has gone up somewhere in the region of about 55 per cent, somewhere in that ballpark.

For certain cancers, like non-Hodgkin's lymphoma and multiple myeloma, the rates have gone up by about 200 per cent. For testes cancer well over 100 per cent. For prostate cancer well over 100 per cent too. For brain cancer in adults about 80 per cent. Breast cancer, male colon about 60 per cent. Childhood cancer, brain and nervous system childhood cancer, by about 40 per cent in the last two and a half decades. Incidentally, when we were talking about testicular cancer before, if you want to break it down as we've done in the United States, to the age group of 28 to 35, you see a 300 per cent increase in the incidence of testicular cancer.

Now, in the meantime, as cancer rates have escalated, so have the budgets of the cancer establishments escalated. I really should define what I mean by 'cancer establishment'. I mean members and staff of cancer institutions, such as the National Cancer Institute in America, the National Cancer Institute of Canada, American Cancer Society, or Canadian Cancer Society, and equivalents in England and elsewhere. In 1971, when President Nixon declared the war against cancer, when he was promised by the cancer establishment doctors...that if more money was put into the National Cancer Institute and if NCI was made autonomous from the National Institutes of Health, then within a decade we would have solved and cured the cancer problem.

From a US budget of about $170 million in 1971, we are now approaching $3 billion, and at the same time there is great pressure on the Clinton administration to increase the budget to $5 billion by the year 2003. Now you might think that with all this vast amount of money going in, there would have been significant progress in cancer prevention and significant progress in treating/curing cancers. Well, there has been, to all intents and purposes purposes, minimal progress in cancer prevention and our track record in treating/curing cancers has been equally abysmal. For the overwhelming majority of cancers, the survival rates now are not significantly better than they were thirty or forty years ago. There are striking exceptions such as a childhood cancer. But while in childhood cancers one indeed can get prolonged remissions, the incidence of delayed recurrences of these cancers ten, twenty years later and the incidence of secondary cancers from the treatments are, however, surprisingly high.

I should also point out, to set the record straight, when it comes to breast cancer, we do have extensive data that tamoxifen, which you know is also being used for chemoprevention of breast cancer – and that's another story which we probably won't have time to get into tonight, although I might mention it in relation to aspirin. When it comes to tamoxifen, tamoxifen does modestly improve survival rates for estrogen-receptor positive breast cancers. When we're talking about breast cancer, I should point out to you something you might like to think about. And that is, you do know that breast cancer rates have escalated from rates of about one in twenty in 1950 and about one in eight in a lifetime now. But what you may not know is that in the last two and a half decades to three decades there's been an overwhelming disparity in the increase of estrogen-receptor positive breast cancer. The last time we looked at the figures, the last two and a half decades, we've had about a 135 per cent increase in estrogen-receptor positive breast cancer, and only about 23 to 24 per cent in estrogen-receptor negative breast cancer.

Translating that into simple language, what it really means to say, is the breast cancers which are a reflection of estrogenic factors have soared, while those which are unrelated to estrogenic, exogenous exposures have remained almost static. And

Clearly, we are losing a winnable war against cancer... For the overwhelming majority of cancers, the survival rates now are not significantly better than they were thirty or forty years ago.

that's a very interesting point which you might want to dwell upon. Now, so while I've given you the basic figures for United States, the New Academy of Sciences, a very fine international analysis, shows a similar pattern in virtually every industrialized nation.

Faced with these facts, and if you have interest in denying the reality of the facts, what do you do? Well, you create an ingenious set of reasons for trivializing them, saying this is an overstatement, or possibly even denying the reality of the epidemic. And let me offer you the standard ones of these so that you may more easily dispose of them.

Faced with these facts, and if you have interest in denying the reality of the facts, what do you do? Well, you create an ingenious set of reasons for trivializing them.

The first is that the increase in cancer incidence is a reflection of aging. Nothing could be further from the truth because we age-standardize our data. We statistically adjust them to reflect the fact that people are living longer now. And secondly, if you just look at childhood cancer, you see the overwhelming increase in incidence of childhood cancers and they don't seem to be aging, at least they do but they don't age in the sense that I was talking about before. So, aging cannot possibly be a factor.

What about smoking? Now, there's no question at all that smoking is the single most important cause of cancer. However, let us try to tease out the role of smoking and see how that fits in with the overall increase in cancer rates. First of all I should point out before getting into that, that the incidence of lung cancer in men is on a fairly sharp decline while that in women is gradually rising.

Now, the way you try to tease out the role of lung cancer is to make the assumption that lung cancer is attributable to smoking, and that's a faulty assumption incidentally because the sound data show that probably in the region of 20 per cent of lung cancers are occupational and of that figure of 20 per cent, perhaps 5 per cent could be urban atmospheric pollution from diesel fuel. But be that as it may, let's make the assumption that all lung cancer is attributable to smoking.

So you have the 55 per cent overall increase in all cancers. Let's deduct from that the increase in lung cancer, which is about a quarter of that, about 12 or 13 per cent, you're then left with a residual of three quarters of the increase due to causes other than lung cancer. And this is the very important point – that the major increases in cancers over the last few decades have been the non-smoking related cancers. Therefore, you can't use smoking as part of the triad of 'blame the victim': you get cancer because you've chosen the wrong parents or you have genetic predisposition, or you smoke too much or eat too much fat.

But more about these other factors in a moment. So smoking is important. But smoking itself, while it plays a significant role, by no means does it account for the overwhelming cancer epidemic.

The second is, what about genetics? Well, clearly the genetics of human populations haven't changed over the course of a few decades.

Finally, what about fat? Well, the cancer establishment for a long, long time, and I'll come back to this when I talk about our friends Doll and Peto, has been insisting that fat, per se, is a major risk factor for breast cancer and for colon cancer. In fact, nothing can be further from the truth. Tens of millions of dollars have been spent on pointless and fruitless searches for trying to incriminate fat and high fat diets as a cause of breast cancer and these have all proven to show no relationship whatsoever.

However, it's not the fat per se, but what's in the fat, we'll come to that in a moment, but I don't think really this should come as a surprise to any of you who have traveled. Because if you go to the Mediterranean countries where 45 per cent of the diet is fat, olive oil, you see low rates of colon and breast cancer.

So, these are some of the fundamental mythologies which have been used to try and trivialize the cancer epidemic. Oh, there is one other. And this is one the National Cancer Institute is very fond of: the real reason for the increase in cancer rates is because our ability to detect them has increased a great deal. This is the formal position of the National Cancer Institute. Now, this seems to me an extraordinarily strange argument because if we're detecting them say a year or two or three later, what difference does it make?

You'll still have the same incidence but it'll all be with a short time lag. However, having said that, I should point out that there is an element of over-diagnosis when it comes to prostate cancer and there is an element of over-diagnosis when it comes to carcinoma 'in situ' for breast cancer. But when you look at the figures carefully, you find that, although you do recognize this over-diagnosis, I think its role is somewhat limited.

So, we're faced with a grave situation. Escalating budgets. Escalating cancer rates. And virtually static cure rates. Now, how do you come to view this set of problems? And how do various interested groups come to view them?

But let me first of all explain what the cancer institutions position in all these matters are. The cancer establishment, the National Cancer Institute, the American Cancer Society and their equivalents in this country, the senior staffing, the top decision makers in these organizations, have been and remain oncologists, radiotherapists, surgeons, who are fixated on what I call 'damage control'. Damage control is diagnosis, or screening and treatment, apart from basic molecular biology, with virtual indifference or with minimal priorities to cancer prevention.

When you examine carefully the budgets of the American Cancer Institute, and I've been a close follower of the National Cancer Institute and the American Cancer Society for well over three decades or so, the following facts emerge. Of a budget of nearly $3 billion, approximately one per cent goes to occupational cancer. And by minimal estimates, occupation is responsible for at least 10 per cent of cancer mortality in industrialized countries. That's a substantial underestimate. But be that as it may, estimates which I favour are much closer to 20 per cent, that occupation is responsible for at least 20 per cent of cancer mortality.

Then when you look at cancer in the ethnics and the impoverished groups, you find that the National Cancer Institute spends about one per cent on that too. All in all, my estimates are, that apart from smoking, the amount of money that is spent on cancer prevention is somewhere in the region of three to four per cent of its total budget.

Now, the NCI has become extremely adept at playing shell games with its money. And largely responding to my criticisms, and to criticisms of members of Congress with whom I work, they have become rather ingenious at this. First of all, they try to include secondary prevention or early diagnosis or screening under the budgetary allocation for prevention. And when we try to strip that away, they say that any research program in which the word prevention was mentioned or risk for

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First of all, they try to include secondary prevention or early diagnosis or screening under the budgetary allocation for prevention. And when we try to strip that away, they say that any research program in which the word prevention was mentioned or risk for cancer was mentioned, that is primary prevention.

cancer was mentioned, that is primary prevention. And they managed to inflate the amount of money they spent on that even, although prevention could have been mentioned purely parenthetically.

But even in the last year when we addressed questions to the National Cancer Institute and tried to nail them down, you'll find some very interesting correspondence between them and David Obey, a Congressman from Wisconsin. He is the leading authority in Congress on the National Cancer Institute and American Cancer Society, and incidentally, he wrote the foreword to the original *Politics of Cancer* in 1978 and also *The Politics of Cancer Revisited* (1998).

Dave Obey and I crafted questions for NCI Director Richard Klausner and tried to nail him down on this. And it was extraordinary. In the course of about nine months he gave us two sets of different figures for primary prevention. One was $480 million. And the second, he obviously reconsidered, the second was $970 million. Well, that was pretty good a shift in the course of one year and at that stage we said to Klausner, would you mind giving us a breakdown of this $970 million?

And he then sends in a list and you'll find this laid out in Chapter 17 of *The Politics of Cancer Revisited*. He sent in an extraordinary document in which he threw in anything... including community oncology programs and called that primary prevention. And so really what it amounts to is there is overwhelming manipulation of the data; similarly there is minimal interest in prevention in the American Cancer Society. Worse still, detailed in the book are some 15 examples of frank hostility to cancer prevention.

In addition to that, there are many other misdemeanours, like making contributions to political parties, like having over a billion dollars in cash assets in real estate reserves, and massive overheads and high living expenses, etc. And we have an organization in the States called the Council of Philanthropy which is a public watchdog and its criticism of the ACS from a financial standpoint, and I quote, "It's an organization more interested in accumulating wealth than saving lives." Worth repeating: "More interested in accumulating wealth than saving lives." Not my language, but the Council of Philanthropy's.

Now, let's go back a little bit. In 1978, two things happened. In 1973, the Department of Labor set up a 50-member blue ribbon commission to look at regulation of occupational carcinogens. Fifteen of us spent nine months working on this, and for the first time we developed formal mechanisms for regulating occupational carcinogens...By 1978, we decided that the thing to do was to develop generic regulations for occupational carcinogens. In other words, once a new chemical was found to be a carcinogen, automatically a new set of rule-making procedures would go into effect, which would entail either the banning or some other very strict regulatory method of using it in a closed system.

The reason why we did that is because any time you decide to regulate or to ban a particular product, you end up spending one or two years in court before an administrative law judge. I remember having got DDT off the market in 1969 as a key expert against USDA and then proceeded to work with the EPA, as their expert, in getting its replacement, chlordane, off the market. But that took 18 months of work in which industry hired its consultants and so-called experts from all over the world, and you're faced with 20 or 30 people and a battery of attorneys going at you day and night.

But I remember one evening...sitting and having a drink with a chief Shell attorney, and I said, "You know, why in the devil do you proceed with this nonsense because you know you're going to lose?" He said, "My dear chap, you really don't know what you're talking about. Let me explain the realities to you." He said, "Do you know how much it costs for us to litigate and play games with you in court per annum?" I said no, and he said, "Well, about two and a half million, bringing everybody and all our experts to court." He said, "Do you know how much money we make by selling our product (the pesticide chlordane) while we're in court with you? About $65 million. It's time you grew up Sam."

He was right. It becomes an exercise in futility to go after one chemical carcinogen after another...and I must say I spend a lot of my own time chasing one chemical after another. So Eula Bingham, who was then running OSHA (Occupational Safety and Health Association) for the Carter administration, and I got together and decided we had to try to do something about it and come up with a generic regulation for occupational carcinogens.

But before we did that I suggested that the only real way to get away with this is to produce hard data showing that occupation is a major cause of cancer. I said, "Where are our data?" And the answer was that we really don't have any good sound data. So what we did is we set up a blue ribbon commission of top scientists, epidemiologists, statisticians, from within the government, from within National Cancer Institute, National Institute of Occupational Safety and Health, and the National Institute of Environmental Health Sciences... And we said to them, "Look, what we want you to do is concentrate on six high volume carcinogens, the highest volume carcinogens there are, develop risk factors for each of these." We know roughly how many workers are exposed to each of these in the US – asbestos, benzene, polycyclic aromatic hydrocarbons. From that they came up with ballpark estimates as to total mortality from exposure to just these six carcinogens, leaving alone the wide range of others. And they came up with figures between 25 and 34 per cent of all cancers are due to occupation.

These were the world's leading experts...Now then, of course, the American Industrial Health Council, which is a branch of the Chemical Manufacturers Association set up with the object of fighting regulations, said this is hysterical nonsense and started attacking the estimates. But...the day before they came out with their blast, the American Industrial Health Council had hired two consultants, Stallones and Downs, from the University of Texas, to go over the same data and see what they could come up with. In other words, to tear apart the Califano Report (so named because Thomas Califano was then Secretary of Health, Education and Welfare) and we set it up under him, and somebody leaked me the Stallones and Downs report which arrived at my desk the day before the Industrial Health Council came up with its press release. And the Stallones and Downs report said basically, "We agree – 25 to 30 per cent seems very reasonable based on these data."

Now, at this stage, industry had its back to the wall. And the second thing that hit them, as those of you around at the time will know, that *The Politics of Cancer* came out in the fall of '78. It created overwhelming congressional interest. And Monsanto was brought before major television shows after I'd accused them and other industries of manipulating and suppressing information. They were denying the cancer epidemic, and they really got lambasted, so industry was on the defensive.

"Do you know how much it costs for us to litigate and play games with you in court per annum?" I said no, and he said, "Well, about two and a half million, bringing everybody and all our experts to court." He said, "Do you know how much money we make by selling our product while we're in court with you? About $65 million. It's time you grew up Sam."

EVERYDAY CARCINOGENS: Stopping Cancer *Before* It Starts

Richard Doll was a very distinguished epidemiologist who in his youth was a radical, a socialist and did good work on asbestos and gas plants and what have you, but as he got older his appetite for the material things increased...

So what then happened? It was decided that they were going to set the record straight...The way they 'set the record straight' is as follows. John Gibbons was then chairman of a congressional body called the Office of Technology Assessment, who was very favorably inclined towards industry. He was approached by industry to say, "Look, you've got to do something about this." So he then approached two British epidemiologists, Doll and Peto. Richard Doll was a very distinguished epidemiologist who in his youth was a radical, a socialist and did good work on asbestos and gas plants and what have you, but as he got older his appetite for the material things increased...So the combination of Doll's interest in the material and his lack of contact with scientific data, the overwhelming information that was coming out on avoidable causes of cancer, some of which he'd never heard of before, made him the ideal person to go with his sidekick Peto, who was a clever young statistician, who really didn't understand the science involved. I was called by him, just when he was getting ready to start work on this project, to say, "Look, what's this business about adenocarcinoma of the lung which you're talking about? There's only one kind of lung cancer. How can you say some cancers are occupational and often they are adenocarcinoma?" So I had to spend half an hour on the phone trying to explain this. But be that as it may, Doll and Peto, by 1980-81, came out with a report of causes of cancer in the United States and it was fascinating.

They looked at the same, basically the same data which we had now and came to the conclusion that one, there isn't a cancer epidemic and two, that industrial exposures and synthetic chemicals are responsible for no more that four per cent of cancer mortality. And this is the reason I'm going to have to talk to you about it tonight. Because the experts, when you get up and start talking about the cancer epidemic and its relation to synthetic chemicals, they'll say to you, you don't know what you're talking about. The great Sir Richard Doll said this and said that, etc. So let's look at the Doll and Peto causes of cancer.

Now, first of all they came to the conclusion based on the same data I'm talking about, that there was no epidemic and in that they were absolutely right. And you may say, "How were they right?" They were right very simply because first of all, you exclude blacks from any consideration of increase in cancer rates. Blacks are unreliable, you don't know where you are with blacks so let's exclude those first of all. The second thing is, let's exclude anybody over the age of about sixtyish or so because they're going to die somehow. Absolutely true. So when you look at people A, who are Caucasian and B, who are relatively young, then you don't find a very significant increase in cancer rates. So they were right, in that limited context.

Now, having disposed of the 'epidemic' mythology...they proceeded to come up with estimates as to the causes of cancer. And it went like this. Everybody knows that smoking is responsible for 30 per cent of cancer. Everybody knows that fat is responsible to 30 per cent of cancer. That's 60 per cent. Everybody knows that people who choose their parents badly have genetic factors, there's another 10 per cent. And everybody knows that sunshine, and this or that. And then that adds up to 96 per cent and, by god, what are we going to do with the other few per cent? Industrial chemicals, pollution! ...Now you may think that this was a bit of a joke, but I took it seriously nevertheless.

When the statements of this kind are made, that...the overwhelming cancers are due to 'blame the victim'...I decided to look into the literature supporting these claims by

Doll. I collected a total of 34 articles, all of which had come to roughly the same conclusion, and that industrial factors are only responsible for only about four or five per cent or what have you, of cancers, something in that ballpark.

So, we go to paper A, and paper A makes that statement, that only four to five per cent due to pollution, and so much due to fat, so much definitely due to smoking. Then for the references you have go to paper B. They cite references to papers B and C and what have you. So you go and look at paper B and paper B says the same thing and refers you to paper C. Paper C says the same thing and refers you to paper D. Paper D says the same thing and refers you to paper E. Then paper E refers you back to paper A! In other words, there wasn't the slightest scrap of evidence to support the fat business, and there isn't the slightest scrap of evidence to automatically equate all lung cancer with smoking.

Now, incidentally, make no mistake that smoking is the single most important cause of lung cancer, the single most important cause of cancer, but occupation is also a very major cause of cancer. With regard to the 30 per cent fat claim, Peto by 1996 sent a letter to *Science* in which he stated that he didn't really mean what he said about fat, he just meant in relation to heart disease not cancer, but it might not be a bad idea...you know if you're going to link fat to heart disease, why not to cancer? So, in other words, the Doll and Peto stuff is rubbish!

And to make matters even worse still, Doll is a closet industry consultant...Doll has been in the pay of industry in the last 15 years. And you'll find an interesting chapter in *The Politics of Cancer Revisited* dotting that i's and crossing the t's on this. So when you are faced with, "You poor ignorant non-scientist, what do you know compared to Sir Richard Doll?" that will enable you to take care of him.

So when you are faced with, "You poor ignorant non-scientist, what do you know compared to Sir Richard Doll?", that will enable you to take care of him.

Now we have one other character who we should really spend a few minutes on... called Bruce Ames. Now Bruce Ames is a geneticist who in the mid-seventies was...very heavily involved in the field of environmental mutagenesis, in other words, the genetic toxicity of chemicals besides carcinogenic chemicals and had worked on mammalian methods of testing genetic hazards in intact animals. But Ames was interested in the seventies in using bacteria to test for chemicals that induce mutations, and he developed some nice little systems. But then he started coming out with the viewpoint that anything that induces mutations in bacteria must be carcinogenic.

So in the seventies, selling his test for induced mutations in bacteria in a test tube or petrie dish, claiming that any chemical that induces bacterial mutations is automatically carcinogenic, "Here we have a quick method for screening, a quick method of testing for carcinogens." However, while indeed in certain classes of chemicals there is a good correlation, if you move from one class to another, you find asbestos, for instance, doesn't induce mutations in bacteria, and a whole host of other chlorinated hydrocarbons don't.

But be that as it may, in the seventies, that was the time when the Environmental Protection Agency had a lot of money available for research on avoidable causes of cancer, occupational cancer. Bruce Ames was coming out in the seventies, he was WARNING of cancer epidemics, the grave risks of some synthetic chemicals, the reliability of mouse tests, of the animal tests, the strong predictability.

However, in 1980, he started to say the opposite. There isn't a cancer epidemic. Cancer rates are not increasing, relying on Doll and Peto for his authority on that.

And that animal tests are very unreliable. And, in fact, the real enemy are natural carcinogens present in fruits and vegetables which protect them against insects coming to eat them. And it's these natural carcinogens that's the real risk. And you wonder...that's pretty ingenious but how is it, if that is the case, how does that explain the escalation of cancer rates since 1950?

And for those of you that want to go into the science of any of this stuff, you'll find a detailed rebuttal of the Doll and Peto nonsense in *The Politics of Cancer* book. You'll also find on two occasions, Ames wrote detailed reviews in *Science* on the natural carcinogen business, which is such nonsense, but we felt we must dispose of them. I wrote extensive replies which I had great difficulty in persuading *Science* to publish because the editor of *Science* was a man called Daniel Koshland who was a close friend of Ames, who incidentally mishandled a lot of scientific information. I wrote an editorial on scientific misconduct in *Science* and had it published elsewhere, but that's another matter, and accused it of editorial misconduct. But be that as it may, both of my rebuttals of Ames were co-signed by fifteen leading epidemiologists, statisticians and public health experts.

When public health people look at cancer, they look at it in an entirely different perspective. There is no profit motive, there is no mindset. And it's an entirely different situation.

Incidentally, Ross (Hume Hall), you made a very interesting comment before when talking about the whole question of how is it that in the cancer world we really haven't made these advances, but in the public health world, and you give several examples, there are dramatic improvements. And the answer is really very obvious. When public health people look at cancer, they look at it in an entirely different perspective. There is no profit motive, there is no mindset. And it's an entirely different situation. In fact, let me come back to that in a moment.

Reverting to the cancer establishments, their focus on damage control and basic molecular biology is compounded by very pervasive conflicts of interest, particularly between the American Cancer Society but also with the National Cancer Institute (NCI) and the cancer drug industry, the mammography industry and a wide range of other industries. So there is this mutually reinforcing complex of a mindset and accompanying economic interests. These are some of the basic facts which I feel are helpful to have so you don't feel yourself in a defensive position when you're dealing with the so-called experts who try to take you to bits.

Now, let's look a little bit at what's happening in Canada with our friends in the cancer establishment. The cancer establishment I think consists of about four different elements: the Canadian Cancer Society, the National Cancer Institute of Canada, the Medical Research Council and the federal aspects of the Medical Research Council and Health Canada. To all intents and purposes, policy is set by the Canadian Cancer Society. Their budget is about $100 million a year. Incidentally, they don't do too badly on salaries and benefits, that's about 25 per cent of their budget.

Now, of this $100 million they spend about $10 million or so themselves on research, and give about $35 or $40 million to the National Cancer Institute. When you examine the annual reports of the Canadian Cancer Society, there's not a single reference in them to environmental and occupational cancer. The words do not appear. There's major emphasis on behavioural research, not to smoke, not to eat too much fat...behavioural research. There's also a vast amount of money being spent on outreach, information to the public, telling the public what a great job they're doing in curing cancer, the latest miracle cancer cures, the greatest advances in damage control in screening and diagnosis. But the word environment or occupation is not mentioned once.

What about our friends at the National Cancer Institute of Canada? Their budget is about $150 million a year. Now, they have, again in my unfortunate compulsive fashion, I examined 109 grant applications which were funded last year, and do you know how many dealt with environmental/occupational toxic factors? Can you guess? Zero.

Cancer Care Ontario we'll dispose of very briefly. They talk about preventive oncology which is a contradiction in terms. Again, in all the paperwork, the word primary prevention isn't mentioned. They seem somewhat confused about prevention, they think that screening is prevention.

Incidentally, coming back to Hamilton which is where we started off at the beginning, one of the major reasons in my view why the regional authority, why the health and environment authorities reacted so sluggishly is because they didn't have the information on the carcinogenic effects of products of combustion, of PVC. It's not the job of the environment and regional authority to go out digging for scientific information. If that information is around, then surely it's those institutions which you support with your donations and tax dollars, it's their responsibility to provide this information, which they have failed to do.

And in the larger context, the National Cancer Institutes have never been to Congress in the States, or to Parliament in Canada, and said, "Look, there is this vast body of information on involuntary exposures to avoidable carcinogens in your air, in the water, in your food, in the workplace, and this is the body of information." And at that stage, they have the ability to develop legislative approaches, and the regulative agencies can then develop appropriate regulations. And then to go to the public, to tell you that these are avoidable and involuntary exposures to carcinogens, to give you the options about how to protect yourself. So they have totally failed, not only in their overwhelming and imbalanced priority for damage control and to budget requirements, but in their failure to inform the Congress, Parliaments, regulating agencies and the public. And also, as far as Hamilton is concerned, considering the wealth of information on dioxin in the scientific literature, it's remarkable that you would allow people to store vast amounts of PVC in an area that has a terrible track record of fires. I mean, this is lunatic! And the information on this has not been made freely available.

I don't really have much time to talk about the Canadian Breast Cancer Research Initiative, which is a fairly interesting initiative, because there is about $10 million a year in the budget, and about $1.5 million goes to prevention. And of that $1.5 million, about $300,000 goes to toxics/environment – about three per cent of the budget of the Canadian Breast Cancer Research Initiative – but at least they are doing something and they do have a few good studies, and I am going to mention one or two of them at the moment. They have a very interesting study on aspirin, an anti-inflammatory drug, being done by Dr. Collett.

This is very interesting because there are five studies which have been published in the last seven years, showing that with the weight of the evidence that aspirin reduces risk of breast cancer by some 30 – 35 per cent. How many of you have heard of this? (Audience says 'No'). Okay, how many of you have heard of the use of tamoxifen for chemoprevention, treating healthy women with this highly dangerous product? (Audience says 'Yes'). I don't understand. Now just try to explain this to me. Here we have clear evidence from five studies that aspirin will

And in the larger context, the National Cancer Institutes have never been to Congress in the States, or to Parliament in Canada, and said, "Look, there is this vast body of information on involuntary exposures to avoidable carcinogens in your air, in the water, in your food, in the workplace, and this is the body of information."

reduce the risk of breast cancer by about 30 per cent. It's cheap, while tamoxifen – you can die from it, you can get uterine cancer from it, you can get pulmonary embolisms from it, and there's no evidence it's effective, two European studies have shown that it isn't effective. How is it that you people haven't heard of aspirin? This is very interesting. Clearly, this is a very, very good example of information not getting out. I could give you dozens of examples like this. If I didn't have a taskmaster like Liz I could spend the next few hours giving you example after example after example like this. But let me come back to aspirin, because this is a threat to the international drug industry, when a drug like aspirin is going to be used to prevent breast cancer, and it's going to supplant the very, very ingenious drugs manufactured by Zeneca to try to prevent breast cancer.

I would like to see every single paper in this whole field of health hazard research have two automatic requirements: 1) the source of funding, and 2) a statement: What are the public health implications of this?

So, what are we going to do about it? Well, that's very simple. How does aspirin work? Aspirin works in a very complicated way, and one of the things it does is it inhibits an enzyme; it acts as an inhibitor of cytooxygenase-2 enzymes (COX-2). So here's the trick. We have four different chemical companies now doing research on what are called cox inhibitors, because this is the way to go to handle breast cancer, let's synthesize a drug which will do the same thing that aspirin will do, and we'll sell it!

I am not knocking Dr. Collett, I'm sure he is going to do a great job. But how is it that in such work, and by Dr. Goldberg in occupational breast cancer, which has incriminated organic solvents and breast cancer, how is it that these people who are doing good work, the authors don't recognize prime responsibility for public health education in what they do? I would like to see every single paper in this whole field of health hazard research have two automatic requirements: 1) the source of funding and 2) a statement: What are the public health implications of this? A far as answers are concerned, it could be one of three things:

- no relevance whatsoever (is it worth spending tax dollars on this?)
- or, there's clear evidence of risk (in which case the author of that study should make it clearly available, and do everything he could to get this information out)
- or, finally, there are serious questions, and the serious questions from a public health standpoint are more than enough if there is weight of evidence there to justify taking necessary precautions to eliminate risk.

Incidentally, there is just one other point I would like to mention that when you examine the budget of the Canadian Cancer Society; it comes largely from the cancer drug industry, and from the petrochemical industry, from GM, Owens-Corning, etc. etc.

When I received the Right Livelihood Award or Alternative Nobel Prize, I was asked to address the Swedish Parliament on my major area of interest, this being what can we do to develop a framework to look after the totality of the problems as opposed to chasing them one at a time? And this was the task that I addressed myself to in the month before I went to Sweden. I developed a set of legislative proposals to reverse the cancer epidemic. However, I was really going further than that. What I wanted to talk about was to develop legislative proposals to establish relationships between society and technology, which is far broader and more important. How can we control technology? How can we use technology in a useful way that doesn't threaten our existence?

Well, there are six proposals that I will run through very briefly:

• The first is an absolute flat ban on the introduction of products for which there is clear evidence of carcinogenic or other risk. And this is based on the precautionary principle, on the principle that prevention is far preferable than attempts to manage risks. All over Canada and America you have industry-funded think tanks like the Fraser Institute in this country, the Harvard Center of Risk Analysis, that do ridiculous mathematical analyses, quantitative risk analyses that claim to show that this particular chemical will only produce an 'acceptable' risk of cancer like one in a million or so. I don't have time to tell you how nonsensical these calculations are, but take it from me, they really are. So this is based on prevention as opposed to acceptable risk which can be managed.

• The next is toxic use reduction which Ross talked about before, and he gave some superb examples about how it is possible to phase out use of certain toxic chemicals. In 1989, the commonwealth of Massachusetts passed a toxics use reduction law, which basically reflected an agreement between the University of Lowell, public interest advocacy groups and industry, and some of the responsible industry in Massachusetts to get together to work out ways and means of phasing out hazardous products and processes and replacing them with safe ones, and let me tell you, in the last decade there has been very substantial phase-out of chlorinated organic solvents. Essentially, the chemical companies can do whatever they want to once they're beaten over the head with a stick, or once they're given financial incentives. And if you combine this toxic use reduction with a system of tax incentives, it's a very powerful combination.

• The next is 'the right to know', which should be at the absolute forefront. Politically, it's a winner. No ultra-conservative member of Congress or Parliament looking for witches to hunt to burn and savour could possibly say to you, "You don't have the right to have information that is buried in government and industry files." Or, the cancer establishment would not have the right to say to you, "You don't have the right to have information which is in the scientific literature." So the right to know is politically an extraordinarily powerful tool. Imagine a right wing conservative coming to a public meeting, to a town hall meeting and saying, "I have that information, or Health Canada has that information, but you can't have it." It's a political loser.

Now the right to know has to extend far further than access to information, for example, on cosmetics and toiletries. There's no point in just putting the names of the chemicals on the back, you've got to have a red-flag warning, because you have many chemicals which are not necessarily carcinogenic themselves, which interact with other chemicals to produce nitrosamines or combinations of the two. Or alternatively, you have contaminants, or you can have precursors, chemicals which themselves are not carcinogenic but break down.

The right to know extends to your water bill. When you get your water bill, you are entitled to information on levels of carcinogens in the water, so you can put pressure on the local municipality, you can put pressure on the industry. You have a right to have information on what pollutants there are in the air from the local industry, it can only operate if you have what's called a 'material balance study', relating chemicals lost to the environment in the manufacturing process. There's no question – no information linked to health and safety can be regarded as proprietary in the Supreme Court decisions on this.

Essentially, the chemical companies can do whatever they want to once they're beaten over the head with a stick, or once they're given financial incentives. And if you combine this toxic use reduction with a system of tax incentives, it's a very powerful combination.

Let me tell you about the FAO/WHO committees that evaluate sex hormones in meat, etc. They are composed of industry consultants, regulatory officials and of veterinary scientists and nutritionists, with no representation whatsoever of public health, carcinogenesis, or pathology...

• The other question about right to know concerns the composition of expert committees, which comes to the next matter. We have expert committees advising national governments that have fingers in the till, and perhaps lack competence, and they often meet in closed sessions, but the biggest villains in this are FAO-WHO (Food and Agricultural Organization/World Health Organization) and other related organizations in Geneva, such as the International Labour Organization Expert Committee on Asbestos which is almost entirely staffed by Canadian industry experts/consultants, but that's another matter...Let me tell you about the FAO/WHO committees that evaluate sex hormones in meat, etc. They are composed of industry consultants, regulatory officials and of veterinary scientists and nutritionists, with no representation whatsoever of public health, carcinogenesis, or pathology, or what have you. In addition, they meet in secret, they rely on unpublished industry information and their data is usually about 10 or 15 years old. And it is these groups that have given a clean bill of health to BST, to sex hormones, issues which I am overly heavily involved. Not just national advisory committees, but committees which are even more important, those which are determining patterns of food safety.

• The fifth is white collar crime legislation. Ralph Nader coined a very nice expression: "We have a dual system of justice in most industrialized countries: Jail for crime in the streets, and bail for crime in the suites." In 1978 or 1979, I was asked by the United States Congress to draft legislation on white collar crime with particular reference to environmental and public health, which I said I would be delighted to do and produced a dossier for them naming industries committing acts involved in manipulation, suppression, distortion, destruction of data. Incidentally, it's a difficult thing to do to name names, to make charges of this kind unless you know exactly where you stand. And also, having named them, I made a recommendation that criminal penalties like jail sentences and manslaughter should be levied at CEOs, executives and managers and scientists inside industry. And in California, they have taken one aspect of this a bit further in a law known as Proposition 65 – they've extended penalties to civil servants who have information and don't pass it on.

• The final thing is setting up a independent citizens' safety agency like an ombudsman with teeth which citizens and NGOs can go to, and the agency has the power to investigate and to fine similar to the cartel and anti-trust organizations. And this agency should report directly to the Parliament or the Congress, not to regulatory agencies. Very briefly, in Europe, after having spent some time in Sweden, I bounced this idea off some MEPs in Brussels, who seemed interested in the whole concept and want to support it, and surprisingly enough, our British friends have also expressed interest and want me to go to England in the not too distant future to present this to a parliamentary committee there.

And what I am suggesting to you is that you and I just don't have the energy tackling one issue at a time. What we need are two things: What we need are approaches of this kind – I'm not suggesting this is the ideal one – but approaches that can take into account the total surface of problems, not just picking one in different areas, recognizing that breast cancer, what a terrible disease it is, that one in eight is a subset of one in three on the whole, and that in fact the one in three is a subset of a much bigger picture of environmental degradation and so on and so forth. In other words, to look at the whole way we relate to technology, and not

make the mistake – as I do so much in my life – spending so much time focused on one individual aspect of a problem, so much time on one individual chemical.

But at the same time, and in addition to that, one needs national advocacy movements which are based on politically unchallengable concepts of right-to-know. And these groups have got to include labour, breast cancer groups, ovarian cancer groups, cancer survivors, etc. They are fundamental exercises in democracy. Essentially, we're living in banana republics when decisions are made which affect our lives and health and safety over which we have no control. And this is as much an exercise in fundamental democracy as it is in trying to make sure that within two or three decades that we don't move with respect to cancer rates from one in two, or one three, to one in one.

Thank you very much.

(Note: For details of documentation, see *The Politics of Cancer Revisited*, 1998. East Ridge Press, USA. Telephone: 914-887-0467; fax 914-887-5902; Dr. Epstein's web site: www.preventcancer.com)

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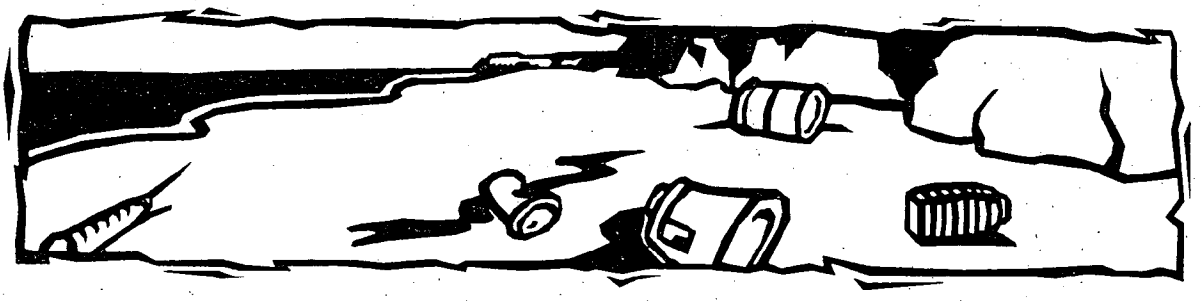


Everyday Carcinogens:
Stopping Cancer Before It Starts

Saturday Morning
March 27, 1999

The Problem of Cancer and Opportunities for Prevention

WELCOMING REMARKS AND MODERATOR:
Ruth Grier, Cancer Prevention Interest Group

SPEAKERS:

1. The Role of Cancer Care Ontario in Primary Prevention
Dr. Richard Schabas,
Head, Preventive Oncology, Cancer Care Ontario

2. Acting For Prevention in the Face of Scientific Uncertainty
Dr. Sandra Steingraber,
Author, *Living Downstream: A Scientist's Personal Investigation of Cancer and the Environment*

PANEL:
Carcinogens at Home, Work – Everywhere!

OPENING SPEAKER

Dr. Richard Schabas

Topic: The Role of Cancer Care Ontario in Primary Prevention

It's a pleasure to be here. I say that with only a small degree of fib, it being such a beautiful morning outside and no windows in this room. But it's such a pleasure to be able to talk to such a large and enthusiastic audience about an issue that I regard is of such crucial importance, crucial importance to Cancer Care Ontario and crucial importance to the people of Ontario; namely, coming to grips with the problem of cancer in this province.

I have a lot of things to say. I know that Ruth (Grier) is not only a gracious host but a ruthless taskmaster and will cut me off when my time is up. So I'll push very quickly into my talk and try to cover a lot of material in a relatively short period of time.

Like all epidemiologists, I'm going to begin by showing you some numbers and some graphs, and if you'll just bear with me for a second while I roll out my multimedia.

The important thing is the contrast with how well we're doing in other areas and how relatively poorly we're doing in controlling cancer.

The purpose of this graph (see page 43) is really to demonstrate in statistical terms why cancer control is such a pressing problem in Ontario. And what this graph shows very simply is causes of mortality in the province of Ontario and it compares age-adjusted rates over the period of a number of years, over a period of about 20 years, I'm looking at my graph, 30 years, for cancer, compared to the other leading cause of death in this province, heart disease, and all other causes. And the purpose of this is to demonstrate how different the patterns are. I think we are sometimes not sufficiently aware of how much our health has improved over the last half century, with declining rates of mortality and, in many cases, declining rates of disease incidence.

The one outstanding exception to this is cancer. And I think as this graph shows, it's not so much an epidemic of cancer, when you adjust for the aging of the population, in fact, cancer death rates have been quite stable over this period of time. The important thing is the contrast with how well we're doing in other areas and how relatively poorly we're doing in controlling cancer.

Now, one of the hazards, of course, when you show a graph like this and I should caution you that anytime anybody talks about cancer in general, they are oversimplifying. And I certainly can be accused of that because, within this relatively stable mortality for cancer, there are a whole series of different stories, probably the most significant of which is the epidemic rise of lung cancer over that period of time. The two parallel epidemics, first in men and most recently in women, which of course has driven up cancer mortality rates.

But balancing that there are some relative success stories, with declining mortality in diseases like stomach cancer and colorectal cancer, and in the last few years, even some indication that breast cancer mortality has been declining.

Of course, these numbers are age-adjusted so are the kind of numbers that epidemiologists relate to and they're a good description of individual risk, but they don't really reflect what's going on in the province, because superimposed upon these stable age-adjusted mortality rates is a rapidly aging population. And as a result the real burden of cancer by and large has been increasing in this province and

increasing, as I say, in contrast with what's happening with many other important health problems.

This is an important diagram. It's one actually which I cribbed from my Chief Medical Officer of Health's Report on Cancer which was produced, I believe, in 1994. And it's drawn from the work of Dr. Tony Miller and his monograph on the causes of cancer in Canada. And what it illustrates is based on Dr. Miller's work, the most important identified causes of cancer in this country. And in rank order, as you can see, are tobacco, diet, occupational causes, family history and alcohol.

And I think this is important because not only does it give us a very nice summary of where we stand in terms of the science of the causes of cancer, I think it also gives us a template for a strategic plan or for a strategic priority in terms of the prevention of cancer. And I don't think it should come as a surprise to anyone that, in fact, the Task Force on the Primary Prevention of Cancer, which was mentioned in the early introduction, in fact adopted essentially this template in terms of its own priorization of the causes of cancer. And I think it forms a very good starting point for preventive activity by Cancer Care Ontario.

In talking about Cancer Care Ontario, I think it's important to realize, as Ruth said, that this is a new organization but it's a new organization which is built on an old foundation. We had literally a foundation, because it was based on the Ontario Cancer Treatment and Research Foundation (OCTRF), an organization which was founded about 50 years ago initially for the purpose for providing radiation treatment to people with cancer, which gradually expanded over a number of years to adopt other roles, including the provision of systemic chemotherapy, the operation of the Ontario Cancer Registry and, in more recent years, the operation of the Ontario Breast Screening Program. But, in fact, the change from an organization whose focus was on the treatment of cancer, and particularly on the treatment of cancer within established institutions to a provincial test and control agency was a very profound and significant change for the organization and, I think, for cancer control in this province.

The most important elements of that, in my view, are first of all that the mandate became a province-wide mandate. It wasn't simply a mandate to deal with the people who were the patients or the clients of the various programs and services provided directly by that organization, but rather a responsibility to oversee, to coordinate, to provide leadership to cancer control in all of its various facets across the entire province.

The other element, the other really significant change, was that Cancer Care Ontario had been given the mandate to cover the full spectrum of cancer control. And cancer control is a concept that goes all the way from primary prevention to screening to treatment to supportive care and includes elements like education and research. And so this is no longer simply a treatment-focused organization but one that had to in fact encompass all of these activities. And indeed that's when I became involved with Cancer Care Ontario, as the head of the Division of Preventive Oncology.

I think it's also important to realize that there are other major gaps in our cancer control services in this province. You read the headlines about radiation therapy in dealing with that but I think actually there are bigger problems in the areas, particularly of supportive care. And all of these have been identified as priorities by Cancer Care Ontario as we attempt to move, to deal with this burden of disease as I demonstrated in my first slide.

The other really significant change, was that Cancer Care Ontario had been given the mandate to cover the full spectrum of cancer control. And cancer control is a concept that goes all the way from primary prevention to screening to treatment to supportive care and includes elements like education and research.

The area of prevention... in my view is by far the single best opportunity that we have in this province to really turn those lines around, to make the lines on cancer resemble those of heart disease and other causes, in terms of reducing mortality and reducing incidence.

The Division of Preventive Oncology which is the part of Cancer Care Ontario that I'm responsible for has been given five general mandate areas. We're responsible for cancer surveillance. And I already mentioned the role of the Ontario Cancer Registry and I know Dr. (Eric) Holowaty, director of this surveillance unit and, for many years associated with the registry, is here today. That for many years has played an important role in keeping us up to date about what's going on in cancer cases, in cancer deaths in the province, and that's extremely important. The kind of intelligence that we can derive from cancer surveillance is extremely important in drawing attention to the causes of cancer and identifying what the trends are so that we can adjust our activities to respond to those problems.

Of course the difficulty, the shortcoming, of simply doing cancer surveillance based on a cancer registry is that you're counting cancers after they've happened. And while that's important, obviously that's not sufficient. To use the example of lung cancer, we can track and do track lung cancer incidence and lung cancer mortality very carefully, but clearly what we should be doing in addition to that is what's going on with smoking patterns. Because it's smoking patterns of twenty-five years ago that are primarily driving the lung cancer rates of today and likewise, if we want to be able to intervene to affect the lung cancer rates of twenty-five years from now, we need to know what's going on with smoking patterns, we need to know what the smoking behavior of young people is and we need also to be aware of what the policies are related to smoking so that we can take early intervention, so that we can act upstream to really make a difference.

The second area is the area of prevention and that's the major topic of today's meeting and in my view is by far the single best opportunity that we have in this province to really turn those lines around, to make the lines on cancer resemble those of heart disease and other causes, in terms of reducing mortality and reducing incidence. And as I'll explain I think we have a number of really critical opportunities to do that.

Cancer screening. Cancer screening is in the kind of a gray zone between cancer prevention and early detection of cancer and that varies from program to program. But there are a number of exciting opportunities where we can use existing technologies to intervene and make a significant difference both in cancer incidence, in the cases of cervical cancer and colorectal cancer, and cancer mortality, with the cases of cervical, colorectal and breast cancer.

Research. We have, as I'll describe, a longstanding commitment within the organization, it's an old name, the Ontario Cancer Research Foundation, and research foundation implies that, and it has a research granting mechanism foundation of its own, as well as supporting researchers who obtain grants elsewhere. But we have an important role to play in research into prevention.

And finally and most recently, a grant from the Ontario government to create an Aboriginal cancer care, cancer control program, which is going to be housed within the Division of Preventive Oncology. And although the requirements of that program extend beyond the other areas of preventive oncology, the intention here is to make sure that this program is very firmly linked and routed to cancer prevention. And I think that's extremely important.

The organization of the division is in six operational units. The first which I mentioned is the surveillance unit which operates the cancer registry, a registry which is the largest certainly in Canada, perhaps even in North America, I'm not

sure – I'll get Eric's word on that – but has about one million registered cancer cases from the last forty years. The surveillance unit is also becoming involved in the area of risk factor surveillance and, for the reasons that I mentioned, critically important to link together with the epidemiology of cancer if we're to have sufficient guidance so that we can intervene effectively.

And it produces what is a rather jargony term here, a surveillance product. But, of course, there is no point in collecting all of this information and analyzing this information unless you tell people about it. And particularly unless you can tell people about it in a way that's accessible to them and can make an impact on their own ability to make decisions. And the surveillance unit actually has a long history of doing this but in recent months has produced important monographs in the area, for example, of colorectal cancer which played a large role in directing our policy with relation to the new program in colorectal cancer screening. They're undertaking a similar job with relation to cervical cancer. And I think we have to look even more at producing materials that are accessible to the general public.

Again, Ruth mentioned the Chief Medical Officer of Health Report – an attempt to produce important epidemiological and health policy information in a way that was acceptable to most people in this province. And I would very much like to see the Surveillance Unit and the Division of Preventive Oncology act in that vein, to take advantage of the wealth of information we have and find ways of sharing it effectively with the public in this province.

And I would very much like to see the Surveillance Unit and the Division of Preventive Oncology act in that vein, to take advantage of the wealth of information we have and find ways of sharing it effectively with the public in this province.

The prevention unit – and it just so happens that today is a very auspicious day in the life of the prevention unit. This is a brand new area of activity for OCTRF/Cancer Care Ontario. There's never before been an active resource commitment to the area of cancer prevention and I think it represents, in my view, the single most important change from the old organization to the new organization. We requested funding to set prevention activities in the operating budget for this current fiscal year and that money was finally, finally approved in January.

And we've now moved to hiring our new Director of Prevention, John Garcia, who is known to many of you, and will start work in June. And the reason it is an auspicious day is that any of you who are looking for jobs and happen to look through the want ads, the classified ads in *The Globe and Mail*, will notice there's a very large ad for four positions that we're hiring to support John and to support the activities of our prevention unit. So we're starting from a zero baseline and we're certainly starting very small because our resources are very limited, but they're there and we're starting to bring on the staff that will allow us to begin to fight, I hope a very prominent role in primary prevention of cancer.

And some of the issues that we're already involved in, albeit in a rather preliminary fashion, are of course, tobacco. And our involvement as a member of the Ontario Campaign for Action on Tobacco, my own participation in the recent Ontario Task Force on the Ontario Tobacco Strategy, and a role in advocacy, we've been churning out the letters, the phone calls to (federal Health Minister) Alan Rock and to (provincial Health Minister) Elizabeth Witmer and to anyone who I hope is listening about critical issues with relation to tobacco.

The second area, and I'll remind you of that diagram of the causes of cancer in Canada. And I think as well following the priority template laid out by the Task Force on the Primary Prevention of Cancer, is that the next most important element

to address is the relationship between diet and physical activity and cancer. And this is, for anyone who has been trying to follow the literature in the last couple of months, a confused and confusing field, but one that I think there is general agreement, is extremely important.

And indeed what we have done so far is to create the Ontario Collaborative Group on Diet and Cancer, which is intended to be a multi-stakeholder group to provide some overall direction regarding what it is we can actually do, where the science stands, and what action should be taken to try to have an impact on this important issue.

And the third area in which we are becoming tentatively involved at this stage is the area of occupational cancer. Of course that follows very logically from the Miller template. And indeed I am in the process of canvassing key informants in the area of occupational cancer, really to ask the question: what is it that Cancer Care Ontario can be or should be doing in this field to bring added value to the effort of organizations, labour organizations, government and others who are already actively involved in this field? I don't know what the answer to this is yet, but it's certainly a priority undertaken by the division and from the direction of the board of Cancer Care Ontario, that we address that question.

And the third area in which we are becoming tentatively involved at this stage is the area of occupational cancer.

The screening unit in operational terms is the largest area of preventive oncology and, of course, not everything that goes on in the screening unit is prevention, at least in the purest sense. But it's worth mentioning that our Ontario Breast Screening Program currently operates from 40 screening sites across the province, a number which we very much expect to grow over the next year and that we're projecting we will provide breast screening posed in the form of mammography and clinical breast examination to 170,000 women in this province. Now that's far short of the target we'd like to achieve of 350,000 a year or 70 per cent of the target population, but it does reflect dramatic growth in the program. And we're quite optimistic about the future there and its ability to reduce breast cancer mortality by up to 30 per cent.

The Ontario Cervical Screening Program is actually much more a prevention program. The objective of cervical cancer screening through pap testing is actually to detect premalignant lesions and to treat them effectively before cancer begins. Ontario has around two hundred deaths a year from cervical cancer and we believe that at least half of those are preventable through a more efficient and more effective cervical screening program. And we're actively developing an information system which will be a major step forward as well as beginning to identify strategies which can help us to reach more effectively high risk women who are particularly hard to reach in terms of cervical cancer screening.

And what I neglected to mention because I haven't brought these slides up to date from Thursday's coordinating meeting of Cancer Care Ontario and actually, as of Thursday, we now have approval to go ahead with a screening program for colorectal cancer. Colorectal cancer, as many of you may know, is the second leading cause of cancer deaths in Ontario, responsible for around 2200 deaths each year. And there is very exciting new information that shows that screening using blood testing can substantially reduce mortality. And we now have the direction to go to the Ministry of Health and request funding and to proceed with this.

I think it's worth mentioning in the context of this meeting that colorectal cancer screening is not just an early detection program but because it detects premalignant

lesions in the form of adenomic polyps, it is in fact a prevention program. It as well opens the opportunity for us to do education about the causes of colorectal cancer, related primarily to diet and physical activity, as well as to explore the potential for chemoprevention activity, taking advantage of new information with drugs like aspirin and calcium supplements which may be effective at reducing the recurrence rate of premalignant lesions and therefore are a potential avenue for true primary prevention.

A research unit which as I mentioned involves a number of very distinguished researchers who draw grants from all around the world is mainly focusing in a couple of areas. First of all what I term ideological research and I know Nancy Kreiger, one of our most eminent researchers, is here at the meeting today and is primarily involved in those kinds of activities. And this is a very, very good step with our surveillance activities drawing primarily on the information available in the Ontario Cancer Registry. Obviously this is a long-term investment and a painstaking and difficult area. If finding the causes of cancer was an easy matter, we probably wouldn't have to have this meeting. It's been extremely difficult and continues to be a challenge but there is a continuing commitment from the organization to provide support and resources in this area.

The other major area for cancer research is in the Ontario Cancer Genetic Network which is the largest genetic testing network in North America and provides screening for genetic markers, for breast cancer and colorectal cancer at a number of sites across Ontario. And as well it's a prevention-oriented endeavour because the purpose is of course to identify people at high risk of these diseases and provide better means of prevention and better screening for them.

The other new area and again I think it reflects the changing dynamics within Cancer Care Ontario, is that we've just brought on our first behavioural science researcher, Dr. Paul Ritvo, whose been involved in a number of areas related to behavioural aspects of genetic testing, screening and tobacco use. I think this is a reflection, obviously this is the very early days, Paul started at just the beginning of this month, but I think that it reflects the change in focus. Because again it's not simply enough to examine what causes cancer, we have to be able to develop a tool to allow us to change those things. And research into the behavioral aspect of risk factor determination and of participation in cancer screening programs is obviously a critically important part of that.

I did mention colorectal cancer screening, actually I've already spoken about that with the new director. And finally the area of Aboriginal health care which is a program which we've just received the funding for, we haven't hired staff for but there is a mandate and as I've said to provide the links with cancer prevention, cancer screening and cancer treatment.

Finally, we have created another body, something which was actually called for by the Task Force on the Primary Prevention of Cancer and that's something called the Ontario Network for Cancer Prevention. And this is a group that I called together first about a year ago, still I think in its developmental stage, but its intended to be a multi-stakeholder group that reflects the key interest in cancer prevention in this province. At the present time it includes representation from the 'CCORs'. And again that jargon means the Cancer Care Ontario Regions – these are the eight regions of the province, each of which has its own local network for cancer prevention and cancer screening and the chairs of these local networks are members of the Ontario network.

Taking advantage of new information with drugs like aspirin and calcium supplements may be effective at reducing the recurrence rate of premalignant lesions and therefore are a potential avenue for true primary prevention.

We also have representation from the Canadian Cancer Society, the Ontario College of Family Physicians; the Chief Officer of Medical Health of the province is a member, and we have a number of academics.

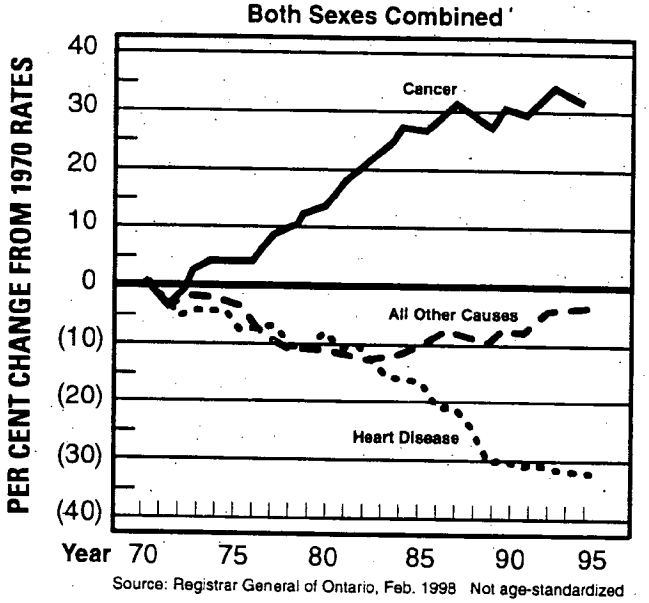
The purpose of this network is first of all is provide advice to Cancer Care Ontario, the provincial cancer agency, about what we should be doing in the areas of preventive oncology. And also to provide linkage, to provide opportunity for the various stakeholders to meet and discuss issues of common interest, to foster communication and the generation of new ideas in pursuit of our common goal.

I think the challenges – the challenges for Cancer Care Ontario, really the challenges for all of us – are to provide leadership in the area of cancer prevention. Cancer prevention is an area that has never received the attention that it deserved and I think one of the consequences has been the graph that I showed at the beginning of this talk. I think to provide leadership in the area of public policy, we have to provide leadership in the area of evidence-based guidelines, we have to provide direction towards best practices, so that when we do intervene that we're going to get the best value from that. And we have to learn to be more effective advocates. I think we have to coordinate activities. There are so many individuals and groups that have an interest in this area, but we need better coordination so that, again, we have the maximum impact from what we do.

The budget for the prevention unit in Cancer Care Ontario at the moment is $700,000 a year. I tried to figure out on my way down what percentage of the Ontario health care budget that is, but I got lost in the zeros. It's an infinitesimal investment in an issue of such pre-eminent importance.

And finally, we need to get resources. The budget for the prevention unit in Cancer Care Ontario at the moment is $700,000 a year. I tried to figure out on my way down what percentage of the Ontario health care budget that is, but I got lost in the zeros. It's an infinitesimal investment in an issue of such pre-eminent importance. So I think we need to fight to do that. We need to work closely with organizations like the Canadian Cancer Society and our local public health units, that I must say that I'm absolutely delighted to learn earlier this week that the government, after taking all the money away from public health, has now given some of that money back. I think it's our challenge to make sure that public health gives priority to issues of cancer prevention and cancer control in general, because I think the resources and – I very much hope, the will – are there.

CHANGE IN CAUSES OF DEATH IN ONTARIO – 1970-95



Source: Registrar General of Ontario, Feb. 1998 Not age-standardized

ONTARIO CANCER RATES RISING, FALLING

	30 years (1966-1996) % Increase/Decrease		1966 1996 Actual New Cases		1965/66/67 1994/95/96 per 100,00 population		1965/66/67 1994/95/96 per 100,000 population	
	Women	Men	Women & Men		Women		Men	
Breast	+29%		2,355	6,234	75.91	98.04		
Cervix	-59		792	596	26.50	9.91		
Uterus	+11		509	1,214	16.80	18.58		
Prostate		+102%	1,210	5,844			56.74	114.78
Testis		+65	84	272			3.02	4.98
Larynx	+66	+80	184	398	0.64	1.06	6.23	6.28
Lung	+349	+30	1,832	6,408	8.75	39.26	58.31	75.78
Melanoma	+116	+273	166	1,366	4.72	10.21	3.43	12.8
Kidney	+66	+47	325	947	4.41	7.35	8.39	14.04
Thyroid	+146	+133	142	729	3.74	9.21	1.34	3.12
Hodgkin's	+47	-15	179	306	2.41	3.56	3.83	3.27
Mult. Myeloma	+60	+79	137	552	2.53	4.04	3.45	6.19
Oral cavity	+11	+3	416	1,021	4.75	5.29	11.82	12.17
Colorectal	-11	+13	2,764	5,898	47.16	42.14	53.66	60.81
Brain	+56	+35	332	690	3.99	6.24	6.08	8.19
Non-Hodgkin's	+106	+115	422	1,833	6.48	13.32	8.87	19.06
Leukemias	+15	+16	587	1,360	7.82	9.00	12.17	14.17
Esophagus	-4.4	-7.5	221	476	2.27	2.17	6.55	6.06
Stomach	-56	-52	1,015	1,032	12.99	5.72	25.33	12.22
Pancreas	-2.0	-22	567	1,041	7.91	7.75	12.37	9.62
All sites	**+18%**	**+31%**	**17,386**	**45,129**	**286.54**	**337.38**	**342.50**	**448.84**

The age-standardized percentage increases/decreases of cancer rates, and rates per 100,000 population were calculated taking averages from three year periods – 1965-67 and 1994-1996 – to reduce the effect of single year aberrations. Raw data was provided by Cancer Care Ontario.

SATURDAY KEYNOTE SPEAKER

(Presented on videotape)

Dr. Sandra Steingraber

Topic: Acting For Prevention in the Face of Scientific Uncertainty

It is true that some of the apparent rise in cancers is attributable to better and earlier screening, but the most swiftly accelerating rates are among those cancers for which we have no effective screening tools. These include childhood cancers which have more than doubled since I was born in 1959.

Good morning from Boston, Massachusetts.

As a new mom I'm really happy that this kind of technology exists that allows me to bring my message to you in Canada while still staying at home with my daughter.

Living Downstream explores twelve lines of evidence linking cancer and the environment and is organized into twelve chapters. What I would like to do is talk to you about four of those lines of evidence fairly quickly just to give you a flavour of how I see these connections working.

But what I want to do first is to give away my main point right up front, which is this: There is no one study that constitutes what we in the scientific community would call absolute proof of a connection between cancer and the environment. Instead, what exists are many well-designed, carefully constructed studies that all together tell a consistent story. So I began to see that each of these studies is like a little piece of a jigsaw puzzle. By themselves they are provocative, but they really only make sense when you bring all the pieces together and look at how they form a kind of startling picture. And I think it's a picture that we ignore at our peril.

The first line of evidence I want to discuss briefly comes from cancer registries and this is what measures the incidence of cancer in a population. Here in the US we don't have a big national cancer registry. Each state has its own registry. In Canada you do it differently and all the data are pooled together. And whether you look at the Canadian data or the US data, the overall picture is very similar. In other words, incidence trends in Canada and the US show a very similar picture: And what it does show is that non-tobacco related cancers have been rising incidence among all age groups from infants up to the elderly, among all ethnicities and among both sexes. And these increases are definitely apparent since the early '70s. And if you take a longer view, you can see that they go back to about World War II.

Now changes in hereditary patterns can't account for these increases in cancer. We're not developing more tumors because we are now sprouting new cancer genes. Nor can improved detection. It is true that some of the apparent rise in cancers is attributable to better and earlier screening, but the most swiftly accelerating rates are among those cancers for which we have no effective screening tools. These include childhood cancers which have more than doubled since I was born in 1959 and have jumped 10 per cent in the last decade alone.

Another cancer rising really swiftly is testicular cancer among young men. Testicular cancer tends to strike men between the ages of 19 and 45 and there is nothing like a mammogram for the testicle. Men are very closeted about this disease. There is not a lot of public attention about it so when men find a lump they often delay a very long time before going to a doctor. Because there is not a lot of public education about this disease, because men aren't required or advised to go in for screening, the fact that testicular cancer has tripled in incidence rate since World War II in this age group, we believe represents a very real increase in the disease, not an artificial reflection of better and earlier screening.

Non-Hodgkin's lymphoma is a disease that has doubled in the last four decades. That's getting some attention now because it killed Jackie Kennedy Onassis and more recently, King Hussein of Jordan, but we still don't screen people for non-Hodgkin's. Nor do we screen people for multiple myeloma, which is a painful cancer of the bone marrow. It has also doubled in incidence rate over the last four decades or so. Brain cancers among the elderly have jumped 54 per cent just in the last two decades and brain cancers are also ascendant among children in a remarkable and tragic fashion, particularly among girls under the age of four.

We have no life-style factors that we can attribute to the diseases I've just talked about. They are not related to smoking. They don't seem to be related to diet or exercise. We have eliminated those possibilities. Since early and better screening can't explain why the increase is going up, and neither can heredity because we don't know of any hereditary factors that would explain these diseases, we need to look at the environment. Again the registry data are not absolute proof of an environmental connection but they do give us grounds for further inquiry.

A second line of evidence I want to mention comes from computer mapping and this project takes these same cancer registry data and instead of displaying them over time so that you can look at time trends, it displays their distribution over space. And when you do this the maps that result clearly show that cancer is not a random tragedy.

And again the Great Lake Basin is one the places where we see not only breast but colon and bladder cancers, highest in North America in those places.

Let's paint for a moment the picture of what breast cancer looks like in North America. So if you can picture the North American continent in your mind's eye and you wanted to draw the hotspots of where breast cancer tends to distribute itself...where do you see the big excesses in breast cancer? What you would do is colour in red from Maine down to Washington, DC, all along the Great Lakes Basin, including the area where you are now sitting, and the lower part of the Mississippi River from Baton Rouge down to Louisiana and also the San Francisco Bay area in California. Those areas, except for the California cluster, also represent the places in the US where we see the most bladder and colon cancer. And again, the Great Lakes Basin is one of the places where we see not only breast but colon and bladder cancers, highest in North America in those places. And of course, the eastern seaboard and the Great Lakes region and the lower part of the Mississippi River are historically the most intensely industrialized areas. Again these maps don't tell us that there's a causal connection between industry and cancer. It's a correlation, and correlations sometimes are causative and sometimes are not. But we need to pay attention to them and it does indicate a possible hypothesis that we need to investigate further with other kinds of studies.

Now let's draw the picture for non-Hodgkin's lymphoma. Again, conjure up in your mind's eye a map of North America. You would colour in red the Great Plains areas, particularly Kansas and Nebraska. I haven't looked at the data to see whether they go up into Manitoba and Saskatchewan or not. I know the US data better here. But in the United States, it's Kansas, Nebraska, Iowa and a little bit in a shaded pink, Illinois and Wisconsin. And of course, this is where we have the highest intensity of pesticide use in grain agriculture in those areas. And again, these correlations are not necessarily causative but they are provocative.

A third line of evidence comes from our own bodies. We know that a whole kaleidoscope of chemicals linked to cancer exists inside of all of us. These include

pesticide residues, industrial solvents, electrical fluids called PCBs, dry-cleaning fluids – all are found in the blood and breath of anyone living in urban areas. And they also include the unintentional by-products of garbage incineration and, of course, these are the very famous dioxins and furans, which unfortunately play such an important role in the recent history of Hamilton, Ontario.

These chemicals are found in various places in our bodies. They don't all go to one place, depending on the specific biochemistry of each one, they partition themselves in different organs and places in the body. I'm happy to answer questions about what goes where, but in general where we've seen these chemicals turn up are in breast milk, body fat, blood serum, semen, umbilical cords, hair, placentas and even in the fluid surrounding human eggs. So even before conception we know that we have exposure to chemicals that in the laboratory are linked with cancer. We do not know with certainty what the cumulative effect of all these multiple exposures is. All we can say is we know we have chemicals linked to cancer, both known carcinogens and suspected carcinogens, inside all the bodies of people who live in North America.

We do not know with certainty what the cumulative effect of all these multiple exposures is. All we can say is we know we have chemicals linked to cancer, both known carcinogens and suspected carcinogens, inside all the bodies of people who live in North America.

But we are not in the dark completely, even though we don't know all the interactive effects, everything about multiple exposures. There are some areas of this very new and confusing science that are becoming clearer and clearer.

For example, we are honing in on the various biological mechanisms by which these chemicals seem to be working their ill-effects. The old scientific thinking was that in order to cause cancer, a chemical had to mutate your genes, it had to cause some kind of damage on your chromosomes. Chromosomes are the part of your body that's made of DNA and the genes lie along the chromosomes like beads on a chain. And it's damage to those beads that we call mutations and we know that mutations are necessary for cancer to form. We think about eight to ten mutations are actually required before a cell is put on the pathway to cancer formation. So the old thinking was, well, if something didn't cause mutation then it probably didn't cause cancer.

Well, the new thinking is showing us that there are a whole set of chemicals called endocrine disruptors that actually don't break our chromosomes, don't bother the genes, don't cause lesions on your DNA, but they *are* able to in some way mimic or interfere with our hormones. And what the hormones are, are chemical messengers sent from one part of your body to another that by definition get inside cells and turn on and turn off certain genes. They're messengers that tell our genes to do something. So chemicals that have the ability to mimic hormones, that actually get inside our cells, they are kind of like toxic trespassers, and instead of damaging the genes, they flip a switch during a time that that switch is not supposed to be flipped. And if it's a gene that's regulating cell division then you can get runaway cell growth which of course is one of the hallmark symptoms of cancer formation. Now probably these hormone disruptors can't cause cancer all by themselves; they probably need to work together with a mutating chemical or a chemical like estrogen that's found in a woman's own body. But even though they may play the role of supporting actor rather than the prime mover in cancer, it may contribute to how swiftly the cancer develops, whether the cancer metastasizes, whether you're diagnosed at the age of 40 instead of at the age of 60, etc. So the new science is showing us that we can't just look at chemicals that cause mutations, we need to

look at this whole other set of chemicals that seem to be interfering with hormones.

Another part of the science that is getting clearer and clearer has to do with the timing of exposure. And that is turning out to be critical. The old thinking was, and you probably all heard this phrase somewhere along the line, 'The dose makes the poison.' That's actually a paradigm of toxicology that was coined by Paracelsus, a medieval monk who lived in Switzerland I think in the 1300s. And he recognized that, for example, a large amount of salt could kill a person but a small amount of salt might be very beneficial. And so the way we in Canada and the US have regulated toxic chemicals is presupposed on this idea that the dose makes the poison. The thought is if we can regulate carcinogens to a low enough level below some kind of threshold that we can all continue to have exposures but these exposures will be negligible and they won't hurt us.

But the new science is really mounting a challenge to that supposition, because it turns out that each of us go through various what we call windows of vulnerability during our lifespan, during which time we are exquisitely sensitive to the effects of small amounts of chemicals that can set us up for future cancers, even though larger amounts at some other time when we're not so vulnerable might not have an effect. So in other words, we're not all 150 pound white men, which is the basis on which we historically have regulated a lot of toxic chemicals and we are forced now by the new science to revisit that kind of regulation. We know for a fact that prenatal life represents a window of vulnerability. A six week old fetus whose entire development is being orchestrated by hormones is exquisitely sensitive to the tiniest amount, for example, of dioxin. And since I know that in Hamilton, Ontario you are very interested in dioxin, let me spend a minute to talk about some of the new studies on that.

When laboratory rats are exposed to dioxins in utero something very unusual happens. If you take a mother rat who is pregnant and expose her at a particular point in her pregnancy to the tiniest level of dioxin that we can measure on our instruments, the baby rats are born and they look perfectly healthy and then grow up into adults who are perfectly healthy. But when you then expose those adult rats who were exposed previously to dioxin in utero, when you expose the adults to a carcinogen when they're old rats they go on to develop cancer. Whereas, if you expose adult rats to that same carcinogen and yet those rats have not been exposed prenatally to dioxin, they don't go on to develop cancer. So somehow dioxin exposure in the womb serves as a magnifying glass for the harmful effects of later exposures to other chemicals. And if you expose adults to dioxin, they also don't have a harmful effect. So it's something about the timing of exposure before birth that's really critical.

Adolescence is another period of vulnerability. We don't know very much about adolescent boys, and there is a lot more to be learned, but we do know something about breast development in adolescent girls. And in my capacity as a cancer activist, I serve on President Clinton's National Action Plan on Breast Cancer, and we've been looking at how the breast bud develops during puberty in girls from the age of about ten to thirteen. And we feel that we have enough information in looking at the data to advocate for a change in the way girls receive X-rays. When adolescent girls go in for dental X-rays or sprained ankles, there's enough scatter of the X-ray to the chest wall that we feel we need to shield those developing breasts with some kind of lead apron, anytime a girl receives any kind of X-rays, whether or not it's to her chest wall or any other place, because the developing breast is undergoing rapid

The new science is showing us that we can't just look at chemicals that cause mutations, we need to look at this whole other set of chemicals that seem to be interfering with hormones.

mitotic division and the DNA is more vulnerable to the effects of carcinogens during that time than they would be to a 40-year-old woman or 60-year-old woman or even a five-year-old girl whose breasts have not started to develop.

So the fact that we enter and leave these windows of vulnerability turns out to be really important because the question becomes then, where and how do we regulate toxic chemicals? Do we do it to protect the adolescent girl, do we regulate them tightly enough so that six week old embryos are also sufficiently protected? Well, if we believe in equal protection under the law then the answer would have to be yes. Because we all start off as six week old embryos, we all go through puberty at some point and we all need to have sufficient protection from cancer-causing chemicals during that time. But if we were to make the world safe for twelve year old girls and six week old embryos, it would require a big change in the way we regulate cancer-causing chemicals.

Until I sat down and did the research for 'Living Downstream', I didn't know that there was a parallel epidemic among cancer in animals that in very many ways tracks what we are seeing in humans.

The last line of evidence I will mention comes from animals. This was actually an amazing revelation for me because I'm trained as a wildlife biologist and until I sat down and did the research for *Living Downstream*, I didn't know that there was a parallel epidemic among cancer in animals that in very many ways tracks what we are seeing in humans. We know this because in the US we have a registry for tumors in animals and when I was studying this it was held in the Smithsonian Institute; it's now held at George Washington University, and this documents fish with liver tumours, whales with bladder cancer, salamanders with cancer, snakes, frogs, etc. And invariably, when you see high levels of cancer in populations of animals, it's associated with some kind of known environmental contamination.

When you look at the same species of animals in pristine places you don't see these kind of cancers. So for example in Canada, there are epidemic levels of cancer among the beluga whales in the St. Lawrence River, but in Canada's more pristine estuaries you don't see any cancer at all among the belugas. Animals are in some ways better to study when raising questions about cancer in the environment than humans because wild animals don't drink, smoke or hold stressful jobs. They don't have bad diets. So you can't blame lifestyle factors on the ascendant rise of cancer among fish.

Again, my argument to you today is that even though we don't have absolute proof in the way that the scientific community feels comfortable talking about proof, we in the scientific community set the burden of proof very very high. Statistically, we won't say we found anything of significance unless we're 95 per cent sure that we have something and that's because science does not like to say we've discovered something unless we're extraordinarily sure. So the wheels of scientific proof-making grind slowly, slowly onward. And I believe in that process...it's important. And yet, if we're in the middle of an epidemic of cancer, and not all cancers have reached epidemic proportions, but certainly those of us who are mothers looking at the data on childhood cancers, would say it is very frightening that more children get cancer every year than the year before. We have more two-year-olds with brain tumors than we've ever had.

When you look at those data, maybe you don't want a 95 per cent certainty that a certain chemical causes a childhood brain tumor before you say, "You know what, all that I want to know is there's a possibility that this chemical is going to cause cancer in kids before we expose everybody to it." So there are a couple of different

kinds of conservatism. There's the conservatism of the scientific community and then there's the conservatism of parents who want to protect their children. After all, mothers don't need to know with 95 per cent certainty that their kid is going to be hit by a car when they tell the child, "Don't play in the street." They just need to know that there's a reasonable danger to that child and we need to take precautionary action to keep people out of harm's way. Those are two different kinds of conservatism. And there's a healthy debate to be had between science, on the one hand, and the kind of things our grandmothers said, like "Better safe than sorry" on the other hand.

How does this apply to non-Hodgkin's lymphoma? Well, I think that there's pretty good evidence showing us that non-Hodgkin's has a link to certain kinds of weed killers. And we can't say this with 95 per cent certainty, and there is no one study that shows us this. But here's how it works when you look at the weight of the evidence across disciplinary lines in biology.

We've already looked at the cancer registry data and established that we've seen this very swift ascending line of non-Hodgkin's and we know that it's not related to heredity, it doesn't appear to be related to any lifestyle factors that we know about and it's not just affecting the elderly. An increase is seen in all age-groups. We know that with certainty. We also know that if you look at the map of non-Hodgkin's across North America, it tends to cluster where we use a lot of herbicides.

After all, mothers don't need to know with 95 per cent certainty that their kid is going to be hit by a car when they tell the child, "Don't play in the street."

Now, we can also look at the occupational literature and ask, are there any professions in which non-Hodgkin's lymphoma is rising even more swiftly than it's rising in the general population? When you do this several things jump out at you. This is part of what I talk about in Chapter Four of *Living Downstream*. One group that has excess rates of non-Hodgkin's is farmers. Another group is Vietnam veterans who were exposed to Agent Orange, which is a weed killer, when they fought the war in Indochina. Another group is pesticide applicators, people who spray lawns, fumigate grain storage bins, things like that. The last group is golf course supervisors. What all those groups have in common are exposures to pesticides. And again, that's not absolute proof but we're starting to see a consistent story emerging here.

Now let's look at the animal data. Are there any animals that we know that get non-Hodgkin's? Well, as it turns out, dogs get canine non-Hodgkin's and it's a very similar disease to that of humans. And the incidence of canine non-Hodgkin's is also rising when you look at veterinary records. Moreover, when you look closer at those records, it turns out that dogs whose owners use weed killers in the backyard are twice as likely to have canine non-Hodgkin's than dogs whose owners who don't use lawn chemicals.

Finally we can look at the genetic data and ask, are there any genetic mutations that are associated with non-Hodgkin's? And it turns out there is one. It's called a DNA inversion, which is a very rare event. It's caused when the chromosome actually breaks in half, flips upside down and re-attaches itself. And this particular one associated with NHL is on chromosome thirteen or seventeen, I'm not sure which, it's one of the middle chromosomes but it's very specific and it's very easy to identify. My colleague Vincent Gary at the University of Minnesota has done some of this work. And he was able to document that non-Hodgkin's patients tend to have high frequencies of this mutation. So he asked, are there any other groups out there that have this mutation? And it turns out that pesticide applicators also have high levels

If we're willing to die or kill for our children, wouldn't we do anything to keep toxins out of their food supply, particularly since we know that infants and embryos and children do exist in this world of exquisite sensitivity to carcinogens?

of this strange mutation in the cells of their blood. So again, even though none of these studies by themselves are the absolute proof that we in the scientific community would feel comfortable with, the weight of the evidence from all of them together is starting to tell a consistent story.

And here's where I think activism has a role to play. The reason that we have smoking laws that now protect us from second-hand smoke, in airplanes and work places and hospitals and churches, isn't because we've finally developed absolute proof for a link between smoking and lung cancer. In fact, we only developed that link in 1996 when we finally identified the carcinogen that mutated the exact gene, it's called P53, that tricked the cell in the lung into becoming a tumor cell. That was a 1996 discovery. But we got fresh air in the work place and we got smoke out of airplanes long before that. Why? Well, it's because the Surgeon General in the US, and I can't speak for the Canadian story, but in 1964, the US Surgeon General announced smoking caused lung cancer. And he did so only on the basis of a few statistical associations and a couple of animal studies. He had the courage to act on good but partial evidence. And the reason we have smoke-free airplanes and smoke-free hospitals and churches and schools is because activists took that information and demanded clean air. It's the same way we got drunk drivers off the road. It didn't happen because we had yet another scientific study showing us how alcohol impairs the vagus nerve. It was because, at some point, Mothers Against Drunk Drivers lobbied and fought and got good laws.

At some point we have enough scientific evidence to take action, and I do think we're at that point now with cancer and the environment. And there's certainly a role for activism to play.

I'm going to conclude by saying that the reason that I'm not there with you in person is because I am a new mother and it's a much more overwhelming job than I ever imagined, and an ecstatic one. It's also, I want to say, a very powerful thing for a person like me who's had cancer to become a parent. We who've had cancer become very accustomed to not looking too far into the future and having a child is a very long commitment. My daughter's name is Faith – and I'm learning what all parents must learn as I go through every week with her. It's a new kind of love; it's a love that is more than an emotion or a feeling; it's a deep physical craving, almost like hunger or thirst. It's a realization that I would lay down my life for this little person without a second thought. When you're a parent you discover these feelings that you'd never had, that you'd pick up arms for your child. You would empty your bank account. It's a kind of love without boundaries and, you know, if this love were directed toward another adult, it would be completely inappropriate. It would be a fatal attraction. And a couple of my friends have suggested that, maybe, when directed at babies we should call this love 'natal attraction'. So I say this to remind all of us what's at stake here. If we're willing to die or kill for our children, wouldn't we do anything to keep toxins out of their food supply, particularly since we know that infants and embryos and children do exist in this world of exquisite sensitivity to carcinogens? And since dioxin is such an issue in Hamilton, let me just talk about that for a second.

Dioxin is found the breast milk of all nursing mothers in Canada and the US right now. And of all human food, human breast milk is the most contaminated with dioxin than any food you could possibly choose to talk about. And that's because

it's one rung up on the food chain higher than the foods that we adults eat. Dioxin concentrates as it moves up the food chain so it's distilled one more step in my body before it goes into my breast. So my breast milk is ten to a hundred times more contaminated with dioxin than is cow's milk, cheese, meat, eggs, fish, etc. which would be the next highest contaminated group of foods, those made from animal flesh. This is why a breast-fed infant receives its 'safe' lifetime level of dioxin within the first six months of drinking breast milk. And now that Faith is six months old, I can look at her and say, now I've filled you up completely with dioxin to a point that you're not supposed to be exposed to any more dioxin for the rest of your life. And I think about that every now and then when I'm breast feeding.

Dioxin is manufactured in a way that's not deliberate. Nobody makes dioxin. It's a by-product of burning plastic and that's how Hamilton, Ontario is being contaminated, that's how New England has been contaminated. It's primarily through incineration. There are some other ways of making dioxin but that's the main one. But even though it's an air pollutant, our route of exposure is not by breathing the air, it is through eating food. So the food that I have eaten is concentrated into my breasts and goes into the milk. Nothing I can do now in my lifestyle as a mother, as much as I want to protect my child, which is my most deep desire now, nothing I can do with my lifestyle can change that. Because it's not the dioxin I eat every day in my food – I could try to eat lower on the food chain and I do, to lower the amount of dioxin coming into my body – but this is dioxin that is laid down over my lifetime. Because when breast milk is manufactured, it's manufactured from fat globules all over my body, you know, in the liver, the fat apron around the intestines, etc. etc. The globules are carried into the breast and dioxin, pesticide residues or PCBs are in there, carried into the breast. So chemicals I was exposed to when I was a child, when I was a fetus, are now being mobilized and brought into the breast and into the mouth of my daughter. There's nothing I can do about that.

When we burn trash in New England and we burn plastic in it, especially PVC – polyvinyl chloride – which is the most heavily chlorinated of our plastics, then dioxin comes out of the stack, drifts in the wind, attaches to dust particles; those sift down and coat plants, plants are fed to animals and that is how dioxin enters the food chain. The fat globules that move into my breast are under the direction of pituitary hormones called prolactin; those are made into human milk. There's another pituitary hormone called oxytosin which carries that milk from the back of my chest wall into the sinuses, the milk-holding reservoirs right behind my nipple, and during the process called letdown, which is a kind of an amazing process in which milk is released from the breast and goes out into the mouth of the breast-feeding infant. That's how the process works. So, in other words, here's the connection – my milk contains dioxin from old vinyl siding, from discarded window blinds, from junked toys, from used IV bags, from plastic parts of buildings that have burned down accidentally. These have all found their way into my breasts and there's nothing I can do about this.

But let me tell you something else I have learned about breastfeeding. It's an ecstatic experience. The same hormone, called oxytosin, that allows milk to flow from the back of the chest wall into the nipple, also controls female orgasm. So the so-called letdown reflex is not an unpleasant experience. It's probably nature's way of making sure you remember to feed your baby. When the letdown reflex fills my breast with milk, it makes it feel like it's fizzing, like my breasts were a shaken up bottle of coke.

My breast milk is ten to a hundred times more contaminated with dioxin than is cow's milk, cheese, meat, eggs, fish, etc. which would be the next highest contaminated group of foods, those made from animal flesh.

And it's through the ecstatic dance of an infant suckling and this hormonal dance inside the mother that the breast-fed infant receives not just calories, but also antibodies. The immune system is developed through the process of breast-feeding, which is why breast-fed infants have fewer bouts of infectious diseases than bottle-fed infants. In fact, all of the milk produced in the first few days after a baby is born is almost all immunological in function. This milk is called colostrum. It doesn't just have antibodies, it has living cells drawn from my lymph system, that are swarming around in this milk. It also has laxatives to help the baby secrete all of the waste products. It has special sugars that actually guide the neurons in the brain for special and important brain development. What I'm saying here is that breast feeding is a sacrament. It is not a lifestyle choice – and by poisoning breast milk, we have committed not a problem with lifestyle, but a problem with a human right.

And if there's ever a need to invoke the Precautionary Principle, it is here inside the chest walls of nursing mothers where capillaries carry fat globules into the milk-producing lobes of the breast. Breastfeeding is a sacred act and I think it's a holy thing. And to talk about breastfeeding versus bottle feeding – to weigh the known risks of infectious diseases against the possible risks of childhood or adult cancers – I think is an obscene argument. And those of us who are advocates for not only breast cancer and women's health, but also for children, and those of us who are parents of any kind, need to become advocates for uncontaminated breast milk.

A woman's body is the first environment. Whatever contaminants are in a woman's body find their way into the next generation. And I think there is no better argument for the Precautionary Principle than that.

That is where activism and science meet.

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Everyday Carcinogens:
Stopping Cancer Before It Starts

Saturday Morning Panel
Carcinogens at Home, at Work – Everywhere!
March 27, 1999

MODERATOR:
Otto Sanchez-Sweatman,
School of Nursing, McMaster University

SPEAKERS:
1. Carcinogens At Home: ***Dr. Samuel Epstein***,
Co-author, ***Safe Shopper's Bible***

2. Carcinogens At Work: ***Jim Brophy***,
Executive Director, Occupational Health Clinics for
Ontario Workers, Windsor, Ontario

3. Carcinogens Everywhere!: ***Eva Johnson***,
Coordinator, Environmental Health Program
Mohawk Nation, Kahnawake

SPEAKER #1:

Dr. Samuel Epstein

Topic: Carcinogens At Home

I have been concerned for many years about getting information – which remains buried in government and industry files or relatively inaccessible in the scientific literature – about avoidable, involuntary carcinogenic exposures to the public. In other words, to assume a burden about which regulatory agencies have failed to address or even inform the public and, more importantly, issues which the cancer establishment has failed to provide decision-making bodies. And the object of this was to recognize that as the regulatory process, in fact, is a virtual failure – and it is – whether in Canada or elsewhere, then what should be our only option? Clearly, it is the responsibility of independent public health experts to make this information available to the public.

Then what should the public do? The public can act in one of three ways. It can ignore the information. It can be terrified about the information and do nothing. Or it can act on it.

Then what should the public do? The public can act in one of three ways. It can ignore the information. It can be terrified about the information and do nothing. Or the public can act on it. And the way the public can act on it is personally, or politically, or both in terms of protest. Most effectively, consumers can respond by using the marketplace as a regulatory tool. In other words, to shop for safe products and to boycott unsafe products. First of all, this appeals to the public on the grounds that it offers them an opportunity for reducing their own risks of cancer. It also reflects the fundamental key philosophy of the capitalist system of the primacy of the market and marketplace pressures. And thirdly, what it really does, it offers the public an opportunity to tilt the marketplace in favor of a safe products and responsible industry, as opposed to unsafe products and reckless industry.

So with this kind of thinking, about eight or nine years ago, I had some discussions with David Steinman, an investigative journalist, and we decided to undertake a rather ambitious project of reviewing virtually every name brand consumer product on the market. By consumer product, I mean food, cosmetics and toiletries and household products. Now, the challenge that we were faced with was first of all, identifying the mainstream brands and the alternative non-mainstream brands, and doing a detailed analysis of them. The results of this investigation made it clear that the overwhelming majority of mainstream consumer products contained undisclosed toxic and carcinogenic ingredients, precursors and contaminants. We also provided information on safe alternative, non-mainstream products.

In other words, this isn't a Chicken Little kind of project, "Look, the sky is falling and there is nothing we can do about it." It is a project that basically empowered citizens to shop safely once they have the relevant information. With this approach, we embarked on this rather mammoth undertaking.

First of all, let's talk about food. The question is, how do you get the data? Well, there are two types of data. First, data which are readily and easily available, and I will be showing you an overhead on that. For instance, we have substantial literature on nitrosamines in hot-dogs, and the same goes for hormonal (and rBST) milk and sex hormones in meat. But when it comes to other carcinogens in food – pesticides and other industrial chemicals, where do you go for that information? The answer is you dig around.

The USDA (the United States Department of Agriculture) and FDA (the Food and Drug Administration) have compiled dietary surveys on virtually every major food product on the market, with analytic data on pesticides and other contaminants. So this information is available. We systemized the data and we analyzed them. The approach we took was first to identify in any particular product, like an apple, what carcinogens were in them; the average apple, by the way, contains six or seven or eight carcinogens. Then we determined the potency of each of these carcinogens from the published data. Then we made adjustments for the intake of people of different ages, bearing in mind that intakes for childhood, young adults, and elderly people are very different. We then added up the potency of each individual carcinogen and related it to dietary intake from which we deduced a carcinogenic index. In no way, however, were we able to consider the question of synergistic interactions.

In this way we were able to produce a series of charts which listed any food as to whether it's safe, whether it's clearly dangerous, or whether there are serious questions about it. We thus assembled a range of charts which an intelligent adolescent could take and wander through a supermarket, and easily decide "I'm not going to buy this, I'm going to buy that instead." Indeed, the majority of the mainstream foods were found to be unsafe. As critically, we also provided information on safer alternative organic products which are now readily available.

Following pre-market promotion, a few months prior to publication of *The Safe Shopper's Bible* in September 1995, several companies threatened legal action or demanded to see the whole manuscript and warned us not to mention any of their products. We sent them all letters thanking them for their interest and saying, "Your product contains the following A, B, C, D, E, F and G carcinogens," and we provided information and a reference for the carcinogenic data. Then for each carcinogen, we said 'Accept' or 'Deny' the validity of this information. This was followed by a series of other relevant questions on each carcinogen. We ended with a final question, "Truth is an absolute defense in the American legal system - Accept or Deny?" This effectively silenced industry threats and attempts to intimidate.

Over the last few years, we've seen encouraging developments. Several manufacturers have started phasing out old processes and marketing procedures in terms of eliminating toxic and carcinogenic chemicals, and shifting into the whole area of safer products. If you look at the growth of the organic and safe product industry, you'll find that it's really taken off like a bomb.

Now let's look at the first slide on 'The Dirty Dozen' products, which I released at a press conference in Washington DC, in September of 1995, in which Ralph Nader joined me. In my usual style of hitting reckless industry over the head with a two by four, I selected 'The Dirty Dozen' as a catch-phase for the press conference. This received substantial publicity and media attention.

Now let's look at The Dirty Dozen foods. First of all, frankfurters, whose manufacture include Oscar Mayer. You can see a listing of various carcinogenic pesticides in them. You can also see information on neurotoxic effects and reproductive effects, etc. Over and above these industrial chemicals, you see antibiotics, and most importantly, nitrites. Nitrites are added to hot-dogs to make them look pink and fresh, not as preservatives, and they interact with natural amines in meat to form

Nitrites are added to hot-dogs to make them look pink and fresh, not as preservatives, and they interact with natural amines in meat to form carcinogenic nitrosamines.

carcinogenic nitrosamines. There is a vast body of data going back to the 1960s on the chemistry of nitrosamines, their carcinogenicity in experimental animals and more recently, epidemiological data which shows that a child eating up to about a dozen hot-dogs every month has about a four-fold increase in brain cancer, and a seven-fold increase in risk of leukemia.

We additionally listed as safe nitrite-free mainstream hot-dogs, or nitrite-free organic hot-dogs, from cattle fed with grain free of carcinogenic chemicals. But the best choice of all are tofu franks.

When it comes to milk, we are dealing with a similar situation. Whole milk is a dangerous product, as it contains high concentrations of carcinogenic industrial chemicals, pesticides – which concentrate in fat – and antibiotics. We in the United States still market Monsanto's bovine growth hormone (BST) milk. As you probably know, when you inject BST in cows to increase their milk production, this results in high concentrations of IGF-1 (insulin-like growth factor-1) in the milk, which has been strongly related to major excess risks of breast, colon and prostate cancers. Canada, as you know, following considerable pressure, has recently declared a moratorium on BST milk.

Mainstream cosmetics and toiletries are a witch's brew of undisclosed carcinogenic ingredients and contaminants and precursors.

Now, going back to hot-dogs, I forgot to mention the question of sex hormones fed to cattle to increase meat yields. The whole question of sex hormones in meat is very important, especially as there are relatively high concentrations of natural and synthetic sex hormones in conventionally raised meat. Amazingly, there is virtually no monitoring of hormone residues done in the United States, while the monitoring in Canada is statistically insignificant because of the very small number of cattle sampled; there are serious questions about the integrity of the Canadian data and whether it accurately reflects the extent of the violations. There's also a serious question about the policy of the Health Protection Branch in Canada with regard to the illegal use of hormones and recommendations of Acceptable Daily Intakes (ADI) in the absence of the establishment of what we call Maximum Residue Levels (MRLs) which demand health risk assessment, which Health Canada has still failed to undertake.

Now, let's move on to cosmetics and toiletries. Mainstream cosmetics and toiletries are a witch's brew of undisclosed carcinogenic ingredients, contaminants and precursors. In the United States, there are no regulations for labeling cosmetics and toiletries, but the industry has 'voluntarily' agreed to identify them on the back of containers. However, the list of names which you see are absolutely meaningless to 99.9 per cent of toxicologists and chemists. You have to have highly specialized expertise to be able to evaluate cosmetic labels because of the following problems:

- First, you can have an ingredient itself which is itself carcinogenic, but unless there's a 'red flag' type warning on that particular ingredient, what would this mean to shoppers?
- Second, you can have ingredients which are perfectly harmless but which can break down to liberate carcinogens.
- Or third, you can have ingredients which themselves are perfectly harmless but which interact with other chemicals to produce carcinogens.
- Finally, you can have ingredients which are perfectly harmless but which are often contaminated by carcinogens.

So it's a complex process in which you can very easily fool the public. That is assuming industry is attempting to fool the public. And it is possible that they're not really attempting to do that. It's "Lord forgive them, they know not what they do." They've been mixing up this particular cocktail or brew for God knows how long and they just don't think or know about it, or worry about it. But in general, the reaction you get from mainstream industry is, "I don't really believe it. Our products are well known to be safe; otherwise the regulatory authorities would ban them."

Let's first of all look at what we call the hidden carcinogens. A common example are organochlorine pesticides contaminating lanolin. Up to about 60 per cent of lanolin products on the market contain high concentrations of organochlorine pesticides. Other contaminants include the highly potent carcinogen dioxane, which is a common contaminant in various ingredients such as polyethylene glycol (PCG) and polysorbate; crystalline silica is a common contaminant in amorphous silicates. Other examples include: nitrosamine precursors, DEA which interacts with nitrites; and chemicals which release formaldehyde when they break down, like bronopol. Additionally, there are several overt carcinogens including DEA, TEA, talc, and saccharines, as is crystalline silica.

The final class of consumer products is household products such as household cleansers and pesticides. Crystalline silica is an unlabeled ingredient in Ajax and Zod cleansers. Lysol disinfectant spray, which you spray around your home to make a nice fresh smell, can be contaminated with the carcinogen orthophenyl phenol.

We have clearly shown that common consumer products – food, household products, cosmetics and toiletries – are totally unregulated. This is an outrage. We have also provided critical information on many safe alternative products. For instance, Seventh Generation, a company in upstate New York, produces a superb line of household products, which unfortunately we did not list in our 1995 book. When it comes to food, obviously, you should buy organic foods from reliable sources.

For cosmetics and toiletries, the point of view is again there is a big and growing array of safe products. Again, unfortunately, we didn't mention some of these in the 1995 book. Aubrey Hampton produces good, safe alternative products, and an international multilevel marketing company, Neways, produces a very wide range of cosmetics and toiletries. I have reviewed their products, and confirm their safety and absence of any carcinogenic ingredients or contaminants.

Information of this kind is vital to protect you and me as consumers, and to say to the regulators, "You've failed, the marketplace is going to take over; let's punish the reckless industries by boycotting their products." Boycotting them in two ways – not buying from them is one thing, but also going with this information to the local supermarket. For instance, let me suggest one thing. Let's say I tell you that, in America, about 20 to 25 million American women every year dust their genital areas with talc after showering or bathing. However, we have evidence from three good studies that talc is an avoidable cause of ovarian cancer, a cancer with an almost 50 per cent case fatality rate. What you think would be your response? Do you think that one should go to the supermarket or to the pharmacist and post banners demanding a ban on talc? That's not a bad initiative. I'm not suggesting this as the best prototype strategy, but any of you could select a few such items of this kind and develop some form of community action around any one of these products just to get your point across.

Common consumer products which you buy daily - food, household products, cosmetics and toiletries - are really totally unregulated.

We are dealing now with a situation in which we can reward responsible industries but also punish the reckless. Regulatory failure has left us with no option if we are to avoid involuntary exposure to avoidable carcinogens from conception to death.

(For more information: *The Safe Shopper's Bible: A Consumer's Guide to Nontoxic Household Products, Cosmetics and Food*, by David Steinman and Dr. Samuel Epstein, Macmillan, New York, 1995. Revised edition expected in late 2000. See also *The Politics of Cancer Revisited*, 1998, East Ridge Press, which can be obtained from major book distributors such as amazon.com or Dr. Epstein's website: www.preventcancer.com. In it, there is a summary of data from *The Safe Shopper's Bible*, and detailed information on the cancer risks of rBST milk and of sex hormones in meat).

SPEAKER 2:

Jim Brophy

Topic: Carcinogens At Work

Within the labour movement today there is growing sense of resistance to the "new global order" including resistance to the laissez-faire policy of environmental degradation and workplace poisoning.

I wish to begin by thanking the conference committee for inviting me to speak at what I consider to be one of the most significant meetings organized to date on the issue of cancer. The conference is taking place at an historical moment when many of the chickens that Rachel Carson warned about almost 40 years ago are coming home to roost. Our cancer rates have been allowed to soar and are impacting on greater and greater sections of the population.

Within the labour movement today there is growing sense of resistance to the 'new global order' including resistance to the laissez-faire policy of environmental degradation and workplace poisoning.

I hope that my presentation can provide you with a glimpse into the conditions that are influencing the perspective of health and safety activists who are increasingly becoming more militant and politicized in their struggle against cancer.

We are experiencing a cancer epidemic at the end of the 1990s that is affecting almost every Canadian family. Statistics Canada projects this year over 130,000 Canadians will contract cancer and close to half will die from it. In the 1930s one in 10 people contracted cancer. By the 1970s it was one in five. Today, more than one in three Canadians face the frightening prospect of cancer. If one includes non-melanoma skin cancers, one in two Canadians are at risk of contracting cancer during their lifetime in 1999!

It is important to remember that this is a largely preventable disease.

Scientific evidence demonstrates that blue-collar workers are bearing a disproportionate share of the cancer burden. Workers in certain carcinogen-laden industries are contracting cancer at rates well beyond those experienced by the general population. At least 60 different occupations have been identified as posing an increased cancer risk. Studies show that the auto industry is producing laryngeal, stomach and colorectal cancers along with its cars. The steel industry is producing lung cancer along with its metal products. Miners experience respiratory cancers many times higher than expected. Electrical workers are suffering increased rates of brain cancer and leukemia. Dry cleaners have elevated rates of digestive tract cancers. Firefighters contract brain and blood-related cancers at many times the expected levels. Women in the plastics and rubber industry are at greater risk for uterine cancer and possibly breast cancer. The list goes on and on.

How do we know whether or not something causes cancer? We have identified many known carcinogens from the death certificates of workers. They have served as society's guinea pigs, as the early warning, which has been systematically ignored.

The International Agency for Research on Cancer (IARC) has identified 24 substances that cause lung cancer in humans. Twenty-three were determined by the excess mortality of workers who were exposed to these substances.

Blue collar workers, both male and female, are at increased risk and are bearing a greater cancer burden compared to the rest of society, but they are not alone. Women – from all walks of life – are experiencing their own cancer epidemic. Breast cancer has doubled within a generation, now affecting one in eight women. It was reported in *The Toronto Star* that new scientific estimates predict that it may double once again.

Children are another group whose rates have been steadily increasing, particularly with regard to leukemia and brain cancer. No one can employ the rationale that "poor lifestyles" are responsible for these diseases among our young, which appears as the fashionable explanation for the rest of us.

Working men and women have had a long historical experience with cancer causing agents at work. Drs. Rammazini and Potts documented cancers among miners and chimney sweeps several hundred years ago.

In more recent times, the miners of northern Ontario launched a major public campaign against carcinogens in the workplace. They were suffering from cancers, particularly of the lung, at many times the rate that was expected. Their struggles to end these exposures led to a Royal Commission in the mid-1970s, which created the foundation for Ontario's health and safety laws.

A few years later, the revelations about asbestos-related disease at the Johns Manville plant in Scarborough and the Bendix plant in Windsor triggered another Royal Commission. The Commission's findings resulted in a new set of regulations for workers and the public protection.

I would like to spend the next few minutes talking to you about an infamous 'serial killer of workers' – asbestos. It reminds me of the book, *All I Really Need to Know I Learned in Kindergarten*. Well, all you really need to know about the root causes, the cover-ups, and the human impact of occupational cancer you can learn from the example of asbestos.

- It also tells you everything you need know about the reality of our economic system, what it values and what it fails to protect;
- It teaches about the collusion between government and industry;
- It addresses the issue of so-called "junk science" and how the powers-that-be control information and public health policy;
- It reveals the hidden injuries of class, where working people must face the grim choice between their livelihood and their health;
- And it drives home the old axiom of working class history – that every thing you get in this society you must fight for.

Asbestos is the best known and most widely studied workplace carcinogen because of its widespread use and its lethal quality to induce cancer and respiratory disease

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at relatively low levels of exposure. Although the dangers of asbestos were discussed in the medical literature from as early as the 1930s, it was Dr. Irving Selikoff and his colleagues in the 1960s who methodically documented the excess disease caused by asbestos and brought it to the public's attention. Their findings revealed very high rates of cancer, including cancers of the lung, larynx, and gastrointestinal tract.

Asbestos was also shown to cause a fibrotic lung disease, called asbestosis, as well as mesothelioma, a deadly cancer usually found on the lining of the lung.

Asbestos history, description of the disease:

- 1918 insurance industry
- 1930's textile industry, majority of women, over half suffer from respiratory disease
- Jeffery mine, 708 miners, 4 without asbestos markings
- This continued right into the 1960s when American government hearings revealed a massive industry conspiracy with governmental collusion that triggered the deaths of over 200,000 American workers.

The Holmes story reveals the reality of work and how workers are victimized because the most elementary democratic rights are absent once you cross the threshold into the workplace.

I think we all carry our history on our backs but it is like air, we often are unaware of it unless it is made visible by something such as pollution. Once it becomes contaminated and through the process of contamination demands our attention, we become more conscious of its impact and how it is shaping us.

The morning I first starting preparing this presentation, *The Globe and Mail* carried, on its front page, the story about the Holmes workers in Sarnia who were exposed to some of the highest levels of asbestos ever recorded – with the full knowledge of industry and government. I reflected on what this meant.

The Holmes story reveals the reality of work and how workers are victimized because the most elementary democratic rights are absent once you cross the threshold into the workplace. In 1958 the owners of the Holmes facilities in Sarnia and the Ministry of Health, which was responsible for health and safety at that time, exchanged letters, which acknowledged the potential health hazard of asbestos exposure. When the Ministry conducted air samples later that year they found levels that were 28 times above their own standard! This would translate into exposures that were as high as 6,720 times our current legal limit for asbestos! The government issued no Directions or Orders. They would not return to this plant for another nine years.

When the government inspectors finally returned in 1967, they estimated that the total production at the Holmes Caposite plant to be 10,000 pounds per day of asbestos insulation. The government inspectors took 34 air samples, of which only five were below the legal limit then in place. The average sample was 2.7 times the standard of the day! Over a thousand times our current standards.

The Ministry issued nine Directions to the Company with regard to ventilation and asbestos handling. These Directions were not followed up or enforced. It was not until 1972 that the Ministry was to return to sample once more for asbestos.

And yet, in spite of the government's awareness about the potential adverse health effects, the government inspectors failed to enforce the asbestos regulations. They witnessed and recorded illegal and astronomical asbestos measurements, that were thousands of times higher than our current exposure limits, and hundreds of times

higher than was permissible at the time. In one instance in 1973, the government recorded asbestos levels that would be over 8,500 times our current legal limit!

In 1987, a Ministry of Labour epidemiologist, Dr. Murray Finkelstein, prepared a study titled "Mortality Among Employees of a Sarnia Ontario Factory Which Manufactured Insulation Materials From Amosite Asbestos." His findings were staggering. He found a six-fold increase in lung cancer mortality among the Holmes workers exposed to asbestos for two years or more. He also documented an eleven-fold increase in respiratory disease mortality and a four-fold excess of all malignancies. Dr. Finkelstein also cited five cases of mesothelioma among former Holmes workers. Three of the five workers died at less than 50 years of age and all were less than 60 years old!

Today our clinic in Sarnia has over 350 former Holmes workers registered to see our doctors. We have already interviewed the wife of a former Holmes worker who is herself suffering from asbestosis because of the asbestos her husband brought home on his clothes. We have interviewed a worker who delivered milk to the Holmes plant, who now has asbestosis. Next week we are meeting with a woman whose 14-year-old son died of mesothelioma. Her husband worked at Holmes.

What are the lessons from Holmes?

- cover-up
- lack of adequate laws
- no enforcement of existing laws
- no safety net
- few allies (medical & scientific collaboration).
- workers' health will always be sacrificed in our economic system for the greater end of making a profit.

The horror of Holmes and scores of other asbestos contaminated workplaces is being continued today with the active support of the Canadian government. As you may have read in the front pages of *The Toronto Star* last weekend, Canada is using its money and power in order to continue to sell asbestos, particularly to the developing countries where it is now estimated that over 1 million workers will die from asbestos related diseases.

The British Journal on Cancer recently published a study that estimated that over 250,000 people in Europe will die from mesothelioma in the next 35 years. The figure represents almost a million preventable cancer deaths in Europe. The European Union is banning chrysotile asbestos. The Canadian government, in an effort to stop this action, has launched a complaint to the World Trade Organization to try to prevent such a public health advance. If Sweden, Germany and Italy can't control asbestos exposure and disease with all of their regulations, how can workers in Egypt, India and Brazil defend themselves?

Workers experience the realities of capitalism from the 'dark side', often unseen and unheard by the rest of society, thus Peter Infante's brilliantly posed question, *Cancer and Blue-Collar Workers: Who Cares?*

What I believe:

The women's movement, the environmental movement and the labour movement

The British Journal on Cancer recently published a study that estimated that over 250,000 people in Europe will die from mesothelioma in the next 35 years. The figure represents almost a million preventable cancer deaths in Europe.

If we are going to win the war on cancer we must make some very fundamental changes in our society. This means altering the existing power relations, democratizing our economy, and restructuring the decision-making apparatus to make room for the concerns of the people at risk.

have many shared interests and concerns. We all recognize the divergences that still divide us – but by deepening our shared concern of cancer prevention we have the opportunity to build a powerful broad-based public health movement. Such a popular movement could challenge the power of the current elites to determine whether we have a serious cancer prevention policy in this country or not. And this is part of our challenge this weekend – to start such a process.

The fight for cancer prevention is not a medical or even a scientific question – it is a thoroughly human question about life and its meaning, about who tells whom what to do and under what conditions.

- If we are going to win the war on cancer we must make some very fundamental changes in our society. This means altering the existing power relations, democratizing our economy, and restructuring the decision-making apparatus to make room for the concerns of the people at risk.
- We must rise above the culture that exhorts us to think only of ourselves, that pits us one against another and that does not value the old labour principle that an injury to one is an injury to all.
- We have to tell people the truth about cancer – to expose the myths being perpetuated by industry, government and the scientists who serve them, that we are all personally responsible for our own cancers or are simply victims of bad luck.
- We need a widespread organized resistance using the kind of one-on-one organizing. Let's put our energies into building a strong grassroots movement – not more high-level consultation.
- My reference point is always the civil rights movement that challenged the American apartheid system through the militancy and energy of essentially poor African Americans in coalition with middle class students and church folks. We need another Ms. Rosa Parks to sit down so that we can all stand up.
- And we need each other, so that we can build a society that thrives on the energy and drive of its ordinary citizens – one that truly prioritizes human life and human health.

I would like to finish a note of hope and solidarity. Each year at our Health and Safety Banquet in Windsor, named after Clifton Grant, a CUPE school board carpenter who died at 37 from mesothelioma, we have a Candle Lighting Ceremony as a sign of hope. Here is a shortened list of what we have said:

- Today, together, we light a candle in memory of Bud Jimmerfield and the many workers, who like him, contracted cancer, not from personal life-style choices, but from the metal-working fluids that circulate throughout machine and tool-and-die shops and auto plants everywhere.
- We light a candle for Maureen Steeves and for the many women who have contracted breast cancer on the job, not sheer coincidence or as part of some unexplainable cluster, but from deadly agents at play in their workplaces.
- We light a candle for asbestos-exposed workers who have contracted respiratory disease and cancer, not from smoking, not from genetics, but from the deadly fibres that they were forced to inhale on the job.

- We light a candle for children throughout the world, who are forced into child labour, not to earn a little pocket money for childish amusements, but to survive the greedy demands of our global economy.
- We light a candle for the earth and its inhabitants – for our home – which has been poisoned and scarred, not as the cost of human progress, but as the price levied by the insatiable industrial powers-that-be.
- And finally, we light the candle of hope, as a symbol of the human spirit, the spirit of our collective resistance. May this candle continue to light the way to a just society in which working men and women are treated with the dignity and respect – the care and compassion – that is every human being's birthright.

SPEAKER 3:

Eva Johnson

Topic: Carcinogens Everywhere!

Greetings everyone:

I would like to begin by giving thanks to our Creator for all of the wonderful gifts that have been bestowed upon us.

I would like to offer, at the same time, our apologies to our Creator for the destructive practices mankind has rained upon this once perfect creation. We apologize for many trivial transgressions in our lives, often forgetting to acknowledge what is paramount to our survival: clean air, clean water and uncontaminated soil for our foods to grow and sustain us.

I would also like to convey my personal appreciation to all of you here for taking time from your already overloaded schedules to attend this crucial conference, public hearing and workshop. I can safely say that your workload is heavy because it seems that folks such as us are doing an awful lot of work. There is an imbalance between the people who are actually working strenuously to improve and protect out fragile environment, and those whose 'portfolio' it is to try to do some protection of our environment without stepping on the toes of industries who, in many cases, call the shots.

I'd like to read an excerpt of a paper I presented on pollution and the St. Lawrence River; this portion was put together by an elder and very learned historian of our community, Mr. Stuart Phillips. I had asked Mr. Phillips to give me a little background or feelings from someone who lived here when the waters were still of 'pristine quality'.

He begins: "When Jacques Cartier first came to this Indian land, it was not called America yet. In 1534, he missed contact with the St. Lawrence River, went home and then came back in 1535. He came up this St. Lawrence River which for a time was called the Iroquois River. The Iroquois used the river like a highway from the Great Lakes to the Gulf of St. Lawrence. Even Lake Ontario was called Iroquois Lake.

"Our lakes and rivers were very clear and you could see the bottom of the lake or river well over 20 feet deep. Today when you go over a bridge, most streams and rivers are very muddy and polluted. It's a wonder that fish can still survive in this kind of water, and we may not be far behind.

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"In the forties when we swam in the St. Lawrence River in Kahnawake, we still could see the bottom of the river around here and watch the fish and turtles swimming, at any depth. But today, you can't even swim in the river, nor can you even see into a couple of feet of water because of its mud and pollution.

"The St. Lawrence River is the main pipeline from the Great Lakes, carrying chemicals and waste from the Great Lakes and all the streams and rivers that come into the St. Lawrence, all the way to the Gulf of St. Lawrence, and the cycle continues. In the Gulf of St. Lawrence, the pollution is killing birds, seals, the Beluga whale and many other species..."

Stuart Phillips also told me, "Remember, even in 1940, the river was beginning to be polluted with chemicals and other poisonous waste from upstream."

So, we've been affected and impacted for over 50 years by a cocktail of agricultural, commercial, industrial and residential waste, waste that had been legally dumped into our drinking water sources. We refer to it as a form of legalized poisoning, and it's no wonder that our health is suffering – emotionally, physically, and spiritually.

The St. Lawrence River was once the supermarket for our people; we lived on an abundance and variety of species of fish; this sustained us and kept our families healthy.

The St. Lawrence River was once the supermarket for our people; we lived on an abundance and variety of species of fish; this sustained us and kept our families healthy. It's hard to imagine the abundance and quality of our fish pre-St. Lawrence Seaway, or 1955. We used to go fishing with our mother and father in our row boat. You could see the fish actually biting on your bait as you sat in a little boat in the bay area. What a life, relaxing with your family with the bonus being you'd get to bring some fish home for supper. We'd fish for bass, sun fish, perch, cat fish, pike, walleye and whitefish; whitefish was our best because it was so easy to clean; the scales would just come off with your fingernails. This was creation at its finest.

However, that tranquil picture was too soon to end and things evolved and 'progress' set in. We believe that when we were distanced from the river because of the imposition of the St. Lawrence Seaway, which brought with it contaminated water, the social fabric of our community began to deteriorate and, in some cases, disintegrated. Our society and families have never quite recovered from this tragedy, but we were told that our lives would get better and we would be more modern...

Before the St. Lawrence Seaway Authority chose to divide the once majestic St. Lawrence River almost in half with the imposition of a huge retaining wall, life along the St. Lawrence was like a dream. People hundreds of miles away from here who were involved with multinational corporations needed to facilitate the easier passage of their ocean liners and made decisions that will impact our lives forever. They needed to carry more produce to market at one time to make their huge profits even bigger; to us, this was the beginning of the degradation of this ecosystem.

Not much thought, if any, was given to the inhabitants who enjoyed the river with its fast flowing, pristine waters from which we caught fish, hunted waterfowl and drew our drinking water. We were no longer able to easily access the natural river to mush for minnows to go fishing; all that was left was a huge, deep seaway with dangerously deep banks.

There was no longer a nice shoreline with a river which slowly deepened. This also took its toll on our society. We suddenly had to deal with not only contaminated waters; these waters also began to take the lives of our people who weren't used to having a 40 foot channel on their doorsteps. This to us was 'double jeopardy'.

Once the Seaway was pushed through and our waters were degraded, the whitefish became almost non-existent on the south shore. We believe this is due to the lack of respect for the spawning rituals of the fish as excavation for the Seaway took place in the spring, summer, fall and winter with little regard given to the water creatures. To this day, the whitefish has never made a strong comeback and this species is rarely seen or eaten by our families. Along with the whitefish, many species, including the great fresh-water sturgeon, became a rarity at the supper table.

Water pollution from the St. Lawrence also severely impacted the medicines that our people used to cleanse our blood and bodies to keep us free from disease. Many of these medicines can no longer be found in the same abundance as they once were; their qualities have diminished, thus their healing qualities, and some have completely disappeared.

Many species of fish and wildlife have all but disappeared and the animals that remain appear to be very unhealthy so the people have become skeptical about eating their meat. People who once depended on the beaver and muskrat to feed their families no longer can do this because the meat is thought to be contaminated by various heavy metals as well as other toxins.

A society which had its dependence on successful agriculture, commerce, fishing and hunting on a healthy ecosystem goes into a state of shock when all of nature becomes impacted by environmental degradation. When you have to go to the supermarket for everything you require for healthy sustenance, your pocketbook suffers, your health suffers and your community suffers.

When you have to rely on a baloney sandwich, served on 'enriched' white bread, or chopped up, injected, force-fed beef or veal for your supper instead of healthy fish from the river, your blood quality is affected and your health is compromised. This is what happened to most of us, and I'm sure some of you have been affected in much of the same ways.

Environmental degradation has no boundaries, no borders, no ethnicity, no choices on who is impacted; the general public, even those with high political profiles are impacted; sooner or later we all suffer the same fate.

Growing up, I knew two women who had succumbed to cancer; they didn't smoke or drink and led good lives, and still they were taken away from their families at a very young age. We'll never know what happened to cause them to succumb to this dreaded disease. We're told that some of us have a predisposition or defective gene, so some of us are destined to be burdened with cancer, but what about the people with no predisposition? Is all this contamination in our environment causing our genes to mutate? It sure looks like it.

The health of the people of Kahnawake, as well as the health of Canadian people, has been devastated in recent years by a barrage of diseases which were virtually unknown to our community in the past. In a small community like Kahnawake, because of the prevalence of many diseases, we've found it necessary to regroup into entities such as cancer, diabetes, and scleroderma awareness support groups to help us cope.

We have a population of approximately 7,000 people in our community, yet we have a scleroderma support group because of the prevalence of this disease in our

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community. The national average used to be one in 100,000 will suffer from scleroderma; it is now one in 7,000, so in Kahnawake, we ask ourselves, if the national average is one in 7,000, why do we have 23 diagnosed cases? Are we 23 times over the national average? We have to ask ourselves, why do we have so many that a support group had to be established to assist people to deal with the impacts of this usually fatal disease? So far, to our knowledge, we have lost one woman to complications related to this disease.

Cancer occurrences, we're told, are in line with North American statistics. To us... we feel that there are far too many cases from this dreaded disease and too many fatalities. This past year alone, we've lost more than our share of people to cancer and this has been extremely devastating to our community at large, not to mention the impact on their families.

We don't know if the general public is satisfied with the number of cancers in your communities, but we're finding it extremely difficult to deal with our people dying from these diseases.

Now that we've come this far and many of our people are so ill, what are we going to do about it? Remember, "Those who sit idly by when action must be taken makes cowards of us all."

Your governments make decisions that aren't always in the best interest of the people. When they allow themselves to be pressured or lobbied by big business to accept inadequate environmental protection and blatant toxic pollution, they must be made accountable.

Your governments make decisions that aren't always in the best interest of the people. They must be made accountable when they agree to lower air quality and water quality standards with the knowledge that this will affect the health of their people. When they allow themselves to be pressured or lobbied by big business to accept inadequate environmental protection and blatant toxic pollution, they must be made accountable.

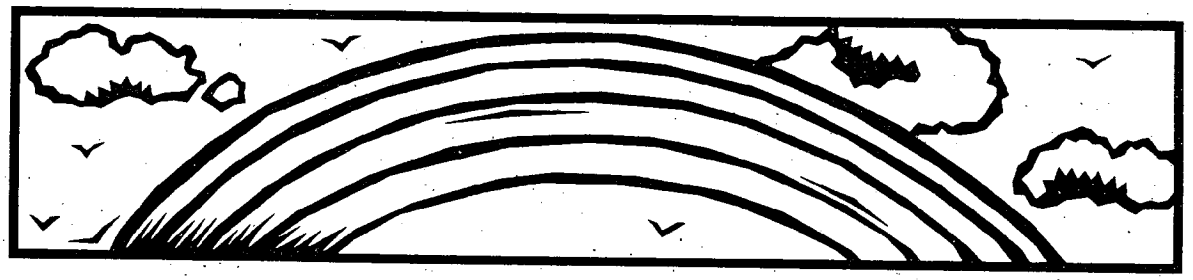
We're not the people who pull the strings which run your governments, yet we're impacted by everything which they do and every decision they make.

However, people such as us, if we unite together, can change the tide. We must make governments see that if they allow industry to make us sick today, they will pay for our care tomorrow. If they make industry accountable for their devastating practices, perhaps the medical bill of the future won't be as high as they anticipate. It's a matter of 'pay me now or pay me later'. 'Take care of me now or take care of me later.'

Now that the Canadian Minister of the Environment is a woman*, see if anything changes. See if she is more caring and her predecessors. Only time will tell.

Thank you for your indulgence and patience and caring. I close now and pray we will not forget all of those who have suffered and passed on after being abandoned by uncaring bureaucrats whose bottom line is the dollar.

* At the time of the conference, Christine Stewart was federal Environment Minister. David Anderson is now in charge of the portfolio.



Everyday Carcinogens:
Stopping Cancer Before It Starts

Saturday Afternoon Program
March 27, 1999

Solutions and Action For Prevention

Keynote Presentation:

Dr. Paul Connett, Professor of Chemistry, St. Lawrence University; Co-author, *Waste Not*

Positive Steps One Panel:
Business and Labour

Positive Steps Two Panel:
Governments and Grassroots

Conference Summary:
Valerie Hepburn, Consultant, Toronto Public Health

Building a Coalition for Primary Prevention:
Angela Rickman, Acting Director, Sierra Club of Canada

KEYNOTE SPEAKER:

Dr. Paul Connett

Topic: Saying No to Dioxin and Yes to Health Care Without Harm

Well, they selected this time for me because they didn't want you to vomit on an empty stomach. But seriously, we are going to look at some success stories.

The first success story I have to share with you is the stopping of the building of new incinerators in the United States and Canada. When they started in the late '70s this was thought to be a multi-billion dollar industry. Since 1985, we've been able to stop over 300 trash incinerators being built in the United States, many more in Canada. They haven't built one in the United States for several years now and they're not likely to build another one there.

And one of the most meaningful experiences, a moving experience, was to see scientists cry when they heard the victims describe what they'd been through. We need more scientists to cry.

One of the most exciting moments in our campaign was when we heard that Ontario had passed this complete ban on new incineration. The people of Ontario need solutions, not illusions. And great acknowledgement to Ruth Grier – she's terrific, fantastic. And even though the wretched new government of yours has lifted that ban, that ban had so much momentum you still have not been able to build incinerators in Ontario even with the ban off, even though they're trying very hard right now to build one in Peterborough.

The second success story I think is getting dioxin on the public agenda. And I was very moved hearing the fellow from the trade union this morning...it rang some bells. Because one of the turning points in getting dioxin on the public agenda was the organizing of a citizen's conference on dioxin on the doorstep of the 11th International Symposium on dioxin in North Carolina. We got the local citizen activists to organize this conference, same time as this big international conference, and we got the better scientists to come along from that conference and talk directly to the citizens.

But it was more than that. We had the Vietnam vets who'd been screwed for years by the US government on the Agent Orange issue, we had them there. And we had other victims there. And one of the most meaningful experiences, a moving experience, was to see scientists cry when they heard the victims describe what they'd been through. We need more scientists to cry.

Then the other success story, or a third one, is the way that citizens and particularly victims like yourselves, many of you, educate yourselves on toxics issues, and then share that information with others, at meetings like this, in newsletters, with email and so on. And that snowballing of information is what eventually educates the media, academia and the government. As the bumper sticker says, "When the people lead, eventually the leaders will follow."

And a very good example of such a network which I'll go into more a little bit later is this thing called Health Care Without Harm in the United States. Health Care Without Harm, although it's all over the world now, is bringing together the environmental activist community with the medical community in cleaning up hospitals, because hospitals are a major source of dioxins and mercury going into our environment. More about that later.

Now I have two laws on pollution. The first is the bad law. The bad law of pollution is: The level of pollution increases directly, community by community, state by

state, with the level of corruption. The more corrupt your state, the more polluted your state will be. That's the bad law.

The good law says: The level of pollution decreases systematically as the level of public participation increases. The more we are involved, the less polluted and the less threatened we are by these authorities. To put it another way: Polite people get poisoned, angry people get organized. And that's what this is all about, this conference. It is to take that anger and make it work for you. Instead of making you depressed, it makes you agitated. There's nothing wrong with anger. There's a hell of a lot wrong with cynicism. But there's nothing wrong with anger. It's very healthy.

Basically, we're fighting five things:

- Greed. Oh boy, there's a lot of greed here. We've heard all about that from Sam (Epstein)...
- Corruption. Yes, we've probably always fought that.
- Incompetence. And the trouble with incompetence and corruption is that from a distance you can't tell which it is. They both look the same. Are they stupid or are they crooks? You can't tell.
- But I think our biggest problem is indifference. That's our target. That's where we come in. It's indifference we have to fight. What was the title of that book? *Who Cares*. Right. The victims care. And we the victims identify with the victims. We have to make others care, one way or the other.
- And then what we're up against, arrogance. Oh yes! Arrogance I define as ignorance backed up with overconfidence.

Now, if we lose this battle, sometime at the end of the twenty-first century our descendants are going to come across this monolithic thing, like something from Space Odyssey 2001, this building without windows and doors; it'll probably be made out of vitrified fly ash. And when we get to it, we find this official legend written on the bottom: "They became more and more sophisticated at answering the wrong questions."

Now why do they ask the wrong questions?

And the answer is that they use the wrong end of their bodies, these high paid consultants, bureaucrats and others. They are what I call back-end thinkers. Now I want to illustrate this difficult concept of back-end thinking with a bathtub, okay? The back-end thinker comes home, the bathtub's overflowing, so you grab a cup and try to empty it. That's not fast enough, so you get a bucket. That's not fast enough so you get a foot-pump. That's not fast enough then you get an electric pump, and so on. All in an effort to empty that bathtub before it damages the floor. At this point, the man's wife, it usually is a man, the man's wife comes home. She switches off the tap. She is a front-end thinker. And that's what this conference is all about. It's about prevention.

And Einstein said it before Greenpeace. He said: "A clever person solves a problem." (You know, with all those chemotherapy treatments, and this, that and the other. That's all that stuff. Right.) "A wise person avoids it." A clever person solves a problem; a wise person avoids it. And we have a big problem there with the educational system because we still haven't learned how to produce wise people. We are very good are producing clever people to make more machines, more gadgets, more technology; but not very wise people.

The good law says: The level of pollution decreases systematically as the level of public participation increases. The more we are involved, the less polluted and the less threatened we are by these authorities.

EVERYDAY CARCINOGENS: Stopping Cancer *Before* It Starts

One of the most potentially dangerous inventions is a group of experts all share the same value system. Because there's nobody to challenge that value. That is why you must always have a citizen, particularly a native American, to ask the kind of questions they can't possibly think of. The value system that they have looks something like that. I don't know if you recognize the planet in the middle of that hamburger but that's what they do. These people belong to the Macdonaldization of society which wants to consume the planet as fast as possible and us in the process. We are living as if we had another planet to go to. In fact, our former president of the United States thought we could get to Mars, and the former vice-president was already on it. We are allowing multinational corporations to define what progress is, such as the St. Lawrence Seaway. That was their notion of progress, multinational corporations. It wasn't the Mohawks' definition of progress...

The bottom line is - and this comes from the waste business - we can not run a throw-away society on a finite planet. Landfills bury the evidence. Incinerators burn the evidence. We have to face the problem.

The bottom line is – and this comes from the waste business – we cannot run a throwaway society on a finite planet. Landfills bury the evidence. Incinerators burn the evidence. We have to face the problem. And, of course, as everybody's discussing, the problem is to reach a sustainable society.

As Ross Hume Hall was talking about yesterday, we responded as a planet very well to one threat of chlorine, namely the CFCs destroying the ozone layer and the threat from up above. But we've had to struggle very hard. I noticed that John Valentine is in the audience who was very early on warning about organochlorines. But we have to struggle to indicate that this equally devastating threat from within from organochlorines, PCBs, dioxins and furans building up in the environment, in our foods, in our human tissues and in our breast milk. And although the emphasis has been on breast milk, even before we get to the breast-milk stage, the baby has been bathed with these things in the womb. The message is simple.

- We want dioxin out of our babies.
- We want dioxin out of our food.
- We want dioxin out of mother's milk.
- We want PVC out of our shops because that's the major culprit in terms of generating dioxin – not only municipal waste incinerators, medical waste incinerators, and backyard burn barrels.
- We need chlorine out of the chemical industry. And, by the way, that sounds pretty radical. But to me it's not more radical than telling a woman to limit her breast feeding. This is small potatoes compared to that fundamental change.
- We want fluoride out of our drinking water.
- Mercury out of our mouths. You know, I heard the other day, where does the word 'quack' come from? Quack. Well, I understand that it comes from the German 'quicksilver' which in Germany is 'quacksilver'. And it comes from the 1830s where you had two groups of dentists. One group of dentists said gold and silver for fillings.

And the other group of dentists said no, we've got this wonderful thing called dental amalgam which contains mercury. And the one set of dentists who didn't want that, called the others quacks, because of this quacksilver. Now you might check that because I haven't checked it yet but it's a good story so we might as well share it. But out of that debate in the 1830s, the group of dentists who believed in dental amalgams formed the American Dental Association. So this organization has been

a lobby group for mercury amalgams for 160 years. And as stupid as that is, you shouldn't be surprised that they're also the lobby for fluoride in our drinking water.

- We want pesticides out of our homes, lawns and food.

- We want genetic engineering out of agriculture. I've just come back from England. This is top of the news in England. It is the number one news item. Sainsburys is not going to use genetically engineered food, Marks and Spencers, major chain stores; government is requiring identification of genetically modified foods right the way down to the hamburger stand on the street corner. They have to tell you whether it's got genetically modified things. Contrast that with the United States where it's zero, practically zero happening on that, that's visible to the general public at least.

- We need corporate money out of government. Oh my God! How do you do that?

- We want cowardice out of academia. I'm not really sure that cowardice is the right word. Silence? Indifference? But the fact that our brightest minds are tied up in universities, totally self-serving, worshipping this academic model where you spend hours and hours and hours on minutiae. How many hairs are there on Spider's Leg Number 7 in Spider #6983 in the Amazon? And if you ask them about leg number six, it's not their specialty...Now we do need specialists. But I don't feel we need specialists at the expense of their not taking responsibility for what our corporations and the pollution and everything else is doing to our community. You can't have this cop out!

- We want the TV out of our living rooms at least one night a week.

- We want incinerators out of our communities. We're in the home of a ridiculous incinerator here in Hamilton. It's putting out several hundred times as much dioxin as a modern incinerator would. Essentially you've got two ways to go at this point. One is to invest the money to get that up to modern standards. Or you shut it down. My advice would be, don't waste the money trying to improve it. Instead, put your money into doing what you should have done in the first place. Source separation, reuse, repair, recycling, reduction, composting and selective landfilling. That's what you should've done. That's what you should do now. What the plan is, is to run it for eight or nine years, expand the amount of waste that they burn, to bring it in from other jurisdictions including the United States. This is an utter scandal! It should be closed as soon as possible. And how do you get that? You just say to the politicians, "Are you for this incinerator? Yes? No hard feelings. I'm going to do everything in my power to make sure that you are never re-elected in this community." And whilst we are talking about that, get the burn barrels out of every backyard because, unfortunately, as long as there's PVC and other chlorinated products in the waste stream, we're producing enormous amounts of dioxin from these burn barrels. That should be shut down. Again, if you see anybody burning anything in their backyard, try to stop 'em!

Okay, just a few words about dioxin. First of all about the chemistry. I only put this in, it's not necessary...I only put it in because people are so satisfied in a few minutes time they'll understand some chemistry and for the first time in their lives, they didn't hate it. And it's a sense of empowerment. The only thing you need to know really to understand dioxin is essentially a thing called benzene, which is six carbons in a hexagon. If you join two of those together you get a substance called biphenyl. You could have called it bicycle but somebody already used that. Then if you

To put it another way: Polite people get poisoned, angry people get organized...

A clever person solves a problem; a wise person avoids it.

substitute chlorine for those hydrogens around that ring which we can do easily then we get a family of compounds called poly, meaning several, chloro, meaning we put chlorine into that ring, biphenyls, PCBs for short. 209 of those PBCs because there's 209 ways of putting the chlorine around those rings. When you burn PCBs the products are even more toxic than you started. You get this second family of compounds called polychlorinated dibenzo furans. All that's happened here is you put an oxygen across that gap and again you put the chlorines around. Here's 135 furans or PCDFs.

If you put two oxygens between those rings you get another family of compounds called dioxins. And there's 75 of those. All 210 dioxins and furans are produced when you burn trash or anything which contains chlorine. So here's the revision. Benzene, biphenyl, PBCs, furans, dioxin. You can do it with your hands. There's 210 of these. Seventeen are very toxic. Super toxic. And those are the ones that have chlorine at the positions which we number two, three, seven, eight – all the family members which have chlorine at the two, three, seven, eight positions. The worst of all is the one that has just four chlorines, 2,3,7,8 TCDD. That's the dioxin of Agent Orange. Etc., etc., etc.

However, the problem here is when you poison the whole population it's not the subtle shift you see in the average person, it's what you do to the tails. I mean this kind of thing could double the number of people that have an impaired immune system, for example.

Now, how does it work? Dioxin, being fat soluble, crosses the membrane, attaches itself to a protein called the Ah receptor. And there's two remarkable things about this receptor. First of all, after over twenty years of research we still don't know what that substance is supposed to be doing. What is that protein supposed to be binding to? All we know is that dioxin avidly attaches itself to that and then subsequently, things happen. But we don't know what the natural substance is that should be binding to it.

The second thing which is even more remarkable, this protein appears in evolution at the same time as bones appear in fish. Every species above boneless fish has this protein in it. Which means that the fact that it survived all the millions of years and twists and turns of evolution says that this has vital importance. We don't know what its function is but it's a vitally important function. Dioxin co-opts it, attaches to it, then it attaches to another protein which is actually the anti-protein. And the anti-protein is also involved in the estrogen receptor. So this is what happens, and the highest doses go to our babies.

The most important paper that's been written on dioxin to date in my view is also the shortest. Eight Dutch scientists sent this letter to *The Lancet*, which appeared May 23, 1992. Basically, what they did was to look at thyroid metabolism of 38 babies. They divided them up into two groups based upon whether or not mothers have high or low dioxin levels in their breast milk, giving an indicator of exposure in the womb. And at one week of age, there was a significant difference between the thyroid hormone levels in the baby between the high level and the low level. Now these differences are within the range of the normal population. However, the problem here is when you poison the whole population it's not the subtle shift you see in the average person, it's what you do to the tails. I mean this kind of thing could double the number of people that have an impaired immune system, for example. Double it. And halve the ones who are super-resistant.

If you look at levels of dioxin in mother's breast milk, you see low levels in the southern hemisphere, very, very high levels in Europe, and we're somewhere in the middle. Canada and the United States in the middle here at 16, 18 parts per trillion.

But I think these high levels in Europe go back to 1989; some of them have come down. I think that's because they run their traffic, their industry and their incinerators very close to where they grow their food. More about that in a minute.

Incineration. Oh my goodness. What a dumb thing to do. To take every single material that you consume in society, convert it into tiny little pieces and then blow them out of a spout and let them settle out in our lungs, in our food and so on. And of course we do bring on the back-end thinking of air pollution control devices.

The year 1987 is when they first discovered dioxin coming out of incinerators. A few years later, they found that dioxins were actually formed in the air pollution control devices. The engineers told us they could solve the dioxin problem simply by burning it at higher temperatures. We now know that dioxin is actually created in the air pollution control devices if it goes hot.

Now, here's an extraordinary figure. They found that Columbus, Ohio was putting out 984 grams of dioxin a year. That's more than the whole of Germany – all their traffic, all their industry, all their incinerators. Meanwhile the EPA was telling experts in Vienna that all their incinerators combined were putting out 60 to 200 grams. So one incinerator is putting out five times more than their highest estimate. It's also the equivalent of about half a Seveso accident. So that's equivalent to about, running for ten years, five Seveso accidents.

What did the Ohio EPA do about this? They did a risk assessment and came back and said the Ohio EPA study finds no substantial threat caused by dioxin emissions. But they only looked at inhalation!? Ohhh, he looked at inhalation. More about that in a minute.

Then the Department of Health (and this is the Department of Health, not the department of Monty Python) came out with a fact sheet. You know how citizens become upset with 1000 grams of dioxin coming down on their heads? "Don't don't get so emotional about this, darling". So, come out with a fact sheet. Get the facts out. So the first thing they did was get the structures of dioxins and furans wrong. Okay, we all make mistakes. Then they would try and tell their ignorant public how small a part per trillion is. One part per trillion is like taking a one second vacation after working 31,700 years. Wouldn't you want a one second vacation after working 31,700 years? It gets worse. So then what they did was they converted the maximum emission rate into parts per trillion, 1341.9 parts per trillion. Let's see what they say. One part per trillion is equivalent to, hey you, a one second vacation after working 31,700 years. The maximum emission is equal to 1342 seconds or 42.4 minutes vacation taken. That's if a person works all year! If a person worked a forty hour week, it would take 173,567 years to earn 23 to 24 minutes vacation!! Department of Health! Trying to trivialize the fact that this community is getting 984 grams of dioxin a year on their heads.

I could go on. I could go on to how they retested that plant. "We lost our north-end trash that week. Remember the tests are very important and it's our future. We must have a good source of trash for the test." Umm...Then they got a consultant, who's since achieved great fame because he's proved that there's no relationship between dioxin coming out of an incinerator and chlorine going in. But he did this calculation in which he estimated that 'all the municipal trash incinerators in the United States are putting out just 2.6 per cent' of this total of 33,000 grams. But if you work out 2.6 per cent of 33,000 grams, it's 850 grams per year, which is less

Incineration. Oh my goodness. What a dumb thing to do. To take every single material that you consume in society, convert it into tiny little pieces and then blow them out of a spout and let them settle out in our lungs, in our food and so on.

than the incinerator that he was investigating, which was 984 grams a year. That's a peculiar kind of mathematics.

Going back to food chains. One quart of milk, this is our first paper, one quart of milk is equivalent to breathing the air next to the cow for eight months. More recent figures. A cow in one day puts as much dioxin into its body as you would put into yours in fourteen years of breathing. So it's what you eat. And the EPA came out and admitted that in September of '94. This is were we get our dioxin from: beef, dairy, milk, chicken, pork, fish, eggs. Very little from breathing.

And so what you really want to know in Hamilton is how much of the dioxin from that stack gets into your food chain? I don't think anyone's done that calculation.

In country after country, in the 1990s, it was shown that the major source of dioxin was from municipal waste incineration. In Germany, 47 per cent, UK, 30 per cent, Netherlands, 79 per cent, Switzerland, 75 per cent, United States, 33 per cent. But the thing which sent shock waves in the United States was medical waste incineration at 5000 grams as opposed to 3000 grams for municipal waste incineration. And that sent shock waves through the community, particularly activists. And what it produced ultimately was the campaign Health Care Without Harm. Here is the website: www.noharm.org. Please contact them. This is the most incredible group. As I say, nurses, doctors, public officials, citizens, activists, Greenpeace, you name it. And they are making great strides. Not only in communicating how obsolescent incineration is, but promoting a much better technology for destroying the infectious waste, which doesn't create the dioxin or heavy metal problem. They're also getting right to the front end and persuading us to get PVC out of the hospitals. You may have seen the publicity around the IV bags.

But the thing which sent shock waves in the United States was medical waste incineration at 5000 grams as opposed to 3000 grams for municipal waste incineration.

Back to the big picture. Steps towards a sustainable society.

- We need to shift from back-end solutions to front-end solutions whether we're talking about medicine, crime or waste.
- We need to replace short-term economic plans with long-term ecological plans.
- We need to shift the focus from standard of living to quality of life.
- We need to shift from being clever to being wise.
- We need to shift from arrogant technologies to elegant solutions modeled after nature's methods. Arrogant technologies – genetic engineering, nuclear power, use of chlorine in the chemical industry, incineration, etc.
- We need to rediscover and revitalize small communities, small businesses, small farms, everything small.
- Create a Superfund for workers displaced from dirty industries.
- Protect habitats of endangered species, and indigenous people, who know more about sustainability than any other of God's creatures.
- Network environmental and social justice groups worldwide, and
- Make sure that at least 50 per cent of our legislators are women.

All truth goes through three phases. First it is ridiculed. Second, it is violently attacked. And third, it is accepted as being self-evident.

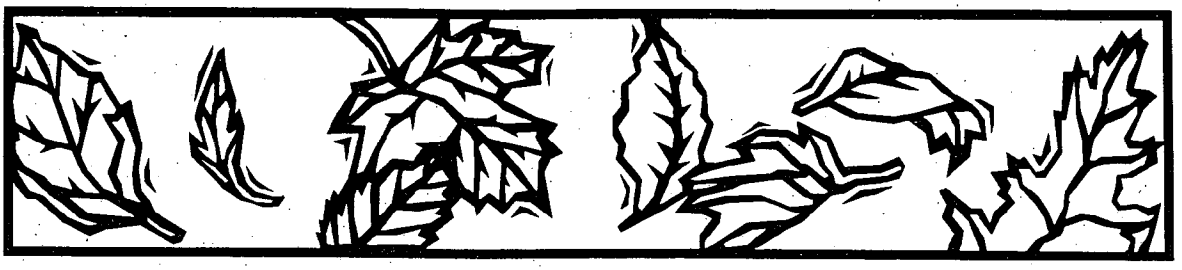
And finally, three messages:

- To citizens: Don't let the experts take your common sense away. They will if they can.
- To political leaders: Put your faith back in people. Stop trying to solve all your problems with high-paid consultants and magic machines.
- And to activists, the most important message of all is to have fun. And don't go into this battle unless you're going to enjoy it. Find a way of enjoying this. Celebrate often. Celebrate everything that you possibly can. Party whenever you can.

And remember in this networking thing that we have here, we have the most precious aspect of life on this planet that we know. And that is human beings talking to one another, liking one another, enjoying one another. And what Sandra Steingraber said this morning was absolutely on target when she talked about what the parent goes through when they first have their baby. It just took me right back to when I was waiting for my first baby to be born. Absolutely I'm sure and if you ask most people in this room why they are giving up this weekend, the answer will come back probably 'for my children and for my grandchildren.' This is the celebration of those feelings. And it's more powerful than all the greed and all the corruption and all the other things that the other side have. We are more powerful.

We are the little mushroom that blasts through concrete.

And to activists, the most important message of all is to have fun. And don't go into this battle unless you're going to enjoy it. Find a way of enjoying this. Celebrate often.



Everyday Carcinogens:
Stopping Cancer Before It Starts

Positive Steps One Panel:
Business and Labour

MODERATOR:

Joel Carr,
Communications, Energy & Paperworkers Union

SPEAKERS:

1. ***Beverley Thorpe,***
Founder, Clean Production Action

2. ***Cathy Walker,***
National Health & Safety Director,
Canadian Auto Workers

3. ***Rahumathullah Marikkar,***
Technical and Environmental Manager,
Interface Canada

SPEAKER 1:

Beverley Thorpe

Topic: European Initiatives on phasing out carcinogens

We need to change the way we regulate, produce and use materials and products in society

1. Background Facts:

In 1984 the Precautionary Principle to environmental regulation was first politically proposed by the German government at the Second North Sea Conference. This calls for action before definite proof is gathered that something is hazardous.

Risk Assessment is the attempt to understand the hazard of a chemical, estimate what dose both people and animals are exposed to, determine what that dose will do to the human or animal, and then estimate what 'safe' level should be set.

Of the 3,000 chemicals used in high volume (one million pounds per year or more), 98 per cent lack at least some fundamental health screening data and 43 per cent have no basic toxicity data.

To test just the most common 1,000 toxic chemicals in combinations of three would require at least 166 million different experiments.

In the European Union a programme launched in 1993 to assess the safety of over 20,000 chemicals sold in quantities of ten tonnes or more per year has yet to yield a single official mandatory legislation.

Up to 1,000 new chemicals enter the market each year.

In 1984 the Precautionary Principle to environmental regulation was first politically proposed by the German government at the Second North Sea Conference. This calls for action before definite proof is gathered that something is hazardous. It reverses the burden of proof and puts the onus on the producer to justify its safety.

European countries are signatory to two important conventions that address the need to phase out toxic, land-based chemicals into the marine environment:

- The OSPAR Convention (1992) - 13 nations on the North East Atlantic agreed to eliminate discharges of persistent, bioaccumulative toxic substances, particularly organohalogens by 2020.
- The Barcelona Convention for the Mediterranean (1996) achieved similar wording as did the Helsinki Convention for the Baltic (1998).

In 1995 Ministers who signed the Esberg Declaration for Protection of the North Sea agreed:
...that the objective is to ensure a sustainable, sound and healthy North Sea ecosystem. **The guiding principle for achieving this objective is the Precautionary Principle.** This implies the prevention of the pollution of the North Sea by continually reducing discharges, emissions and losses of hazardous substances, thereby moving toward the target of their cessation within one generation (25 years) and the ultimate aim of the concentration in the environment near background values for naturally occurring substances and close to zero concentrations for man-made, synthetic substances.

Definition of hazardous substances:

In the content of the declaration, **hazardous substances** are defined as substances or groups of substances that are toxic, persistent and liable to bioaccumulate. This definition of toxic should be taken to include chronic effects such as carcinogenicity, mutagenicity, teratogenicity and adverse effects on the function of the endocrine system.

A **Product Policy** to environmental protection was clearly stated:

The North Sea States agreed at the conference: 'to pursue the development and use of clean technology for production processes', and, 'to give priority to the development of **environmentally sound products, taking into account the whole life cycle of substances or products**'.

2. What are countries doing to achieve this?

Some countries in Europe are using the Precautionary Approach to environmental regulations and chemical policies.

Examples:

UK 1997/Implementing the Precautionary Principle.

When male fish downstream of textile-washing plants in the UK began producing egg yolk – usually produced by female fish - the UK regulators realized an estrogenic chemical was probably causing them to do so. They asked textile manufacturers to substitute their nonyl phenolic detergents. They took action in the face of partial scientific proof. The problem is reversing itself.

Moving from risk assessment to hazard assessment.

This means judging a chemical or material on its intrinsic properties to be toxic, persistent and/or bioaccumulative.

Two Case Studies:

New Chemical Policy from Denmark (January, 1999)
The Danish Government has just issued its new chemicals policy. It includes the following:

- Producer Responsibility. Producers and importers have the responsibility to assure a product or substance does not constitute a risk in normal use. They must assess chemicals and demonstrate the level of hazard in their materials and products.
- Substances that cause well-known, irreversible human health effects or that bioaccumulate or are persistent should be banned from use. A Ban list of such substances will be made. Other possible instruments include product taxes, voluntary agreements on phase-outs, and ecolabels – the choice of instruments will depend on the substance's dangers, use and dispersion in the environment.

  Example: On April 1, 1999 Denmark will ban the marketing of soft PVC plastic toys containing phthalates (softeners). Companies have one year to sell their stock; inflatable products must be eliminated by January 1, 2003.
- All existing substances (approximately 10,000) that have not been assessed within a fixed date, e.g., the year 2005, should be considered new substances and go through notification procedures before they can be used. Public right-to-know will be increased on chemical use and

On April 1, 1999 Denmark will ban the marketing of soft PVC plastic toys containing phthalates (softeners). Companies have one year to sell their stock; inflatable products must be eliminated by January 1, 2003.

A tax on pesticide use will be doubled to encourage the transition to organic food production. The substitution principle will be applied for all 'plant protection' materials...

product labelling. The Danish EPA has established a chemical-query telephone service which has become very popular. By calling this number, consumers can get information on the regulation of chemical substances. This information has also been placed on the Danish EPA web page.

- Public access to product registers will be amended to allow greater information access.
- Increased public accountability: To increase public and retailers' access to information on potential hazards in materials, the Danish EPA has started to prepare an easy-to-understand booklet on information laws regulating chemicals. Entitled 'Facts of Chemistry' it will be distributed and made available on the webpage. It will list what companies are required to do, such as provide detailed information on hazard assessment for the monitoring authorities (which many companies currently do not know). Companies which do not comply will have restrictions placed on their advertising.
- Companies that market products prior to providing mandatory hazard information to the government, may be required to place notices in newspapers or magazines giving consumers the choice to return the product or a refund. Furthermore, companies that fail to observe the applicable rules may have their names published in newspapers.
- Special focus on children and chemicals. A report will soon be released detailing how each ministry will protect children and pregnant women from hazardous chemicals.
- Pesticides prohibition in non-agricultural, private areas is being drafted. An agreement to phase out the use of pesticides in municipalities and counties was signed at the end of 1998. The use of estrogenic substances in pesticides shall be abolished before 2000. A tax on pesticide use will be doubled to encourage the transition to organic food production. The substitution principle will be applied for all 'plant protection' materials, e.g. a product can be denied approval if other products or methods, which are less harmful to the health or environment, are available for the same purpose.
- Potential substitutes for chemicals which are harmful to health or dangerous for the environment shall be promoted.
- The Precautionary Principle shall be used more widely at EU level.

Sweden: Towards a Sustainable Chemicals Policy (1997)

To comply with the decision by North Sea states to stop releases of hazardous substances within 25 years, the government has suggested that new products on the market should be free from substances that are persistent and bioaccumulative. Persistent and bioaccumulative will be the definition of 'hazardous'.

Example: Brominated Flame Retardants found in plastics and electronics have been under scrutiny since 1989. New evidence of their dangers to workers in recycling plants and the doubling of levels in breast milk initiated calls in 1995 for a phase-out of the two most studied compounds. Due to inadequate voluntary measures by industry, the government has now stipulated a ban.

- By the year 2002, all companies shall attach appropriate product information to their products allowing for informed consumer choice.
- By the year 2007, all products on the market are to be free from
- substances that are persistent and liable to bioaccumulate; lead, mercury and cadmium; substances that give rise to serious or irreversible effects on health or the environment
- by the year 2012, production processes should have developed to the extent that they are free from the deliberate use of persistent and bioaccumulating substances, or lead, cadmium or mercury; the releases are free from substances that cause serious or chronic health effects.

The Cornerstones of the New Chemicals Policy:

- The Precautionary Principle
- Producer Responsibility. Industry has the main responsibility to show their products are safe
- Regulations and enforcement
- Product Policy: From chemicals to the products themselves.
- Groupings of similar chemicals should be targetted, and not a chemical-by-chemical approach to control.
- Consumers and purchasers are important in chemicals work
- Economic measures should be used more
- Government support and guidance will be increased for small and medium sized companies
- Regarding plastics – the use, as additives in plastic materials, of persistent bioaccumulating substances, lead, mercury or cadmium, or substances that may cause serious or irreversible effects on health or the environment will be phased out at the latest by 2007. A plastic material must be substituted by other materials if it contains any of the substances mentioned above.

In particular and taking into consideration the Precautionary Principle and the present limited knowledge of its long-term health and environmental effects, PVC plastic materials do not belong in the future ecocycle society.

Present PVC plastic materials will be substituted by materials that are environmentally adapted in the long term as soon as possible, and no later than 2007. New PVC materials (e.g., having non-lead stabilisers) will be phased out in consultation with all stakeholders.

3. Extended Producer Responsibility within the European Union: Extended Producer Responsibility for waste from electronic and electrical equipment

The European Union is finalizing a draft mandatory directive on take-back of all used electronic products – from TVs to VCRs, to computers to refrigerators. The EU has stipulated:

Regarding plastics - the use, as additives in plastic materials, of persistent bioaccumulating substances, lead, mercury or cadmium, or substances that may cause serious or irreversible effects on health or the environment will be phased out at the latest by 2007.

The Great Lakes Water Quality Agreement and current chemical policy in both Canada and the US has no focus on products, product life-cycle or chemical restrictions and phase-outs based on chemical clusters. Our governments continue to support chemical by chemical risk assessment. There is no push for product labelling and consumer right to know. Both governments support voluntary policies.

- a reuse and recycling quota of 70 per cent to 90 per cent (this does not include incineration under this definition).
- the phase out of mercury, cadmium, lead, hexavalent chromium and brominated flame retardants in all electronic products sold after 2004. (some restrictions apply)
- producers and importers will be financially responsible for all product take-back – not local authorities.

Are Europe and North America on mutually compatible paths?

The US government is currently lobbying against the EU proposed directive on electronic product take-back. They oppose regulatory phase-outs, producer responsibility and the stated recycling targets.

The Great Lakes Water Quality Agreement and current chemical policy in both Canada and the US have no focus on products, product life-cycle or chemical restrictions and phase-outs based on chemical clusters. Our governments continue to support chemical-by-chemical risk assessment. There is no push for product labelling and consumer right to know. Both governments support voluntary policies.

What can we do in Canada?

Demand similar action by the Canadian federal and provincial governments as proposed by Denmark and Sweden. In particular, ask that all chemical listings for products be actively publicly disseminated via free phone access, disks and websites. Both the US and Canadian governments do this for company emission information – what we need now is product information. If we cannot get mandatory bans then we as consumers should have the right to know what is in the products we wish to buy.

Demand consumer access to all product information from producers. In particular use the 1-800 consumer information phone number to ask how you can view a full chemical ingredient listing for your product and ask them if they have a policy to phase out persistent and bioaccumulative ingredients in their products.

Barriers we will encounter:

"This information is commercially confidential."

"There is no regulation making producers divulge this information."

"All products have been certified safe by the licensed authorities."

At which point, compile the information from producers and in conjunction with other groups – target shareholders, investment companies, and the media. A useful network to achieve this information and lobby would be all cancer awareness and support groups.

For more information on the above:
Danish chemicals policy:
Danish Environmental Protection Agency

Deputy Director General Niels Juul Jensen
Tel: +45 32 66 01 54
Lisbet Seedorff, Head of Division
Tel: +45 32 66 02 80
Webpage at http://www.mem.dk

Swedish chemicals policy:
Ministry of the Environment Information
S-103 33 Stockholm
Sweden
Fax: +46 8 24 16 29
Email: registrator@environment.ministry.se

EU initiative on producer responsibility for electronic product take-back:
Contact the NGO in Brussels who is working on this:
Elena Lymberidi, European Environment Bureau
Tel: +32 2 289 1302
Fax: +32 2 289 1099
Email: ecoproducts@eeb.org

To join the North American campaign to demand producer responsibility:
Contact Ted Smith, Campaign for Responsible Technology
Tel: +1 408 287 6707
Fax: +1 408 287 6771
Email: tsmith@igc.org
Website: www.svtc.org (more information on our lobby to support the draft directive can be seen here; sign onto our letter)

Or

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SPEAKER 2:

Cathy Walker

Topic:

Thank you Joel (Carr), that was a nice introduction. I want to begin by saying, you know, because I'm a Canadian auto worker, we have a car analogy. Let me just say that when you think of Ford and General Motors, you can draw the analogy with the CEP (Communications, Energy and Paperworkers) and the CAW. We're sort of in the same business but, on the other hand, there's a little bit of competition here. So what I want to begin by saying is that the CAW Prevent Cancer Campaign that I will spend a few minutes talking about this afternoon, I don't think would've been so successful in taking off if it wasn't for the outstanding presentation that Joel Carr made to the October 1997 Ontario Federation of Labour convention where he stood up with the Bell Canada workers, the breast cancer survivors, and talked about the importance of fighting the carcinogen issue. I can also say too that 'The Dirty Dozen' carcinogen list has been developed jointly. I was reminded here today, of course, we managed to filch that from Dr. Epstein; that was Joel's idea and it was a good one.

I think that conferences like this are extremely important for building unity between the labour movement, the women's movement, the environment movement, the public health movement, people in medicine, academia, community activists.

Many of you I have gotten to know since coming to Ontario in '92, and I think that conferences like this are extremely important for building unity between the labour movement, the women's movement, the environment movement, the public health movement, people in medicine, academia, community activists. But there's at least one person in this room, Dorothy Goldin Rosenberg, whom I've had the pleasure of working with for a lot longer. I think that it's instructive to remind ourselves of that very successful battle because it was against one of the most potent carcinogens that exists on the planet. And that was the fight against uranium mining in British Columbia in the late '70s. And Dorothy was part of the CCNR, the Canadian Coalition for Nuclear Responsibility.

There were many other environmental groups, community groups, medical groups, and the labour movement, many people throughout the province, who said the best way to fight against this horrible carcinogen, which kills workers at the jobsite as a result of exposure to radon gas and silica dust, which kills fish downstream, we know that from the Elliot Lake uranium mine in this province, and of course, killed so many people as a result of low level exposures from nuclear reactors and from transporting and processing this fuel, and the ultimate horrible use, in atomic bombs...the best way to fight was to fight together. And if it wasn't for that unity and everyone working together, we wouldn't have been able to stop uranium mining in BC. But it was a successful fight. We got a moratorium imposed in 1980 and there's been no uranium mining there ever since.

If we can stop many of these carcinogens from being produced and used in our workplaces, we can at the same time protect the community because they're not going out into the air, into the water systems, into the landfills.

So I think it's instructive because here in Ontario, the industrial heartland of the country, is really where we need to take on this fight against carcinogens. And we need to do it in the same way, to remember that there is strength in unity. If we can stop many of these carcinogens from being produced and used in our workplaces, we can at the same time protect the community because they're not going out into the air, into the water systems, into the landfills. If we can stop it right there, we protect workers' health, community health, plants, animals and ultimately the entire planet.

When I came to Ontario in the summer of '92, one of the first things that arrived on my desk was a summary of an article that appeared in one of the trade publications, *Automotive News*. It was actually about a leaked study that had been done in the United States. It was one of the most powerful, and by powerful I mean in an epidemiological sense, occupational health studies ever done. They studied 46,000 General Motors workers in the United States, and these people were exposed to something called metal-working fluids. Metal-working fluids are substances that are used to cool and lubricate metal fabrication, and they are used all over the place, anywhere metal is being cut or shaped or bored or drilled. They use it because otherwise, the whole process would heat up and you wouldn't be able to make sound metal parts.

Well, the UAW and General Motors in the States had funded this study, but General Motors, not being one of the more progressive corporations on the planet, was not especially keen to have people find out about it. But it did get leaked, it did get published. And, of course. one of the reasons they were not interested in people finding out about this is because of the enormous excess rate in cancers, respiratory diseases and other ill health, in fact, that were caused by metal-working fluids. And you look at this stuff and, I mean, all it it is something to make things slippery and cool. And you go into some places, a small machine shop, and you

use a lathe or a boring machine or something. It's no big deal, you know; it doesn't look very harmful. You go into some of these large workplaces, where some of you work, and you have rivers of this stuff running underneath. You look down the grate and there it is, a whole river of this milky fluid. And these substances, some of these are conventional oils, petroleum-based, some are synthetic, some are semi-synthetics. What this big study discovered was that there are excess rates of cancer of the larynx, cancer of the esophagus, cancer of the stomach, colon, rectum, skin – there's hardly a cancer that wasn't elevated as a result of exposure to these fluids.

Well, Sam Gindin, who gave me a copy of this study, was the assistant to our president, Buzz Hargrove. And he said, "Holy cow, we better get this news out to the people," so we sent this out to our locals, and immediately people start moaning and saying, "What are we going to do about it?" Now that's a very good question because at that stage I didn't have a clue. But I figured what we needed to use are the principles of toxics use reduction and the principles of pollution prevention. How can we figure out a way to eliminate these substances from our workplaces? And I started to find out that unions in Sweden had put the pressure on when they'd found out how harmful this was. As usual, they were almost two decades ahead of us in this issue. And they said, "Look, why don't we try vegetable oils? Why don't we see if they'll work as an alternative?" So, fortunately, a lot of work had been done, and we started to raise this as a proposal. Well, of course, we immediately met with the lubricant manufacturers who were not keen to see this whole other substance be replaced. But we started to raise it as an issue and of course then we discovered that not only would it probably protect workers' health, but at the same time it wouldn't create a hazardous waste. It wouldn't be a cost to the employer, it wouldn't have to be treated as a hazardous waste. But in particular, we wouldn't have all these horrible pollutants out in our landfills or our sewer systems. So we made a bit of progress, but not a lot.

At the same time, we began to lobby for reduced exposure limits in Ontario. We put forward the idea in BC. We had a process which was a regulation advisory committee where we were trying to deal not just with metal-working fluids, but all carcinogens and all harmful substances, to try and figure out a way that we could ensure that people would first of all look at substitution. This is also a requirement now in federal regulations, the COSH (Canadian Occupational Safety and Health) regs, so that people would look first at substitution of non-carcinogens, and secondly, try to get exposures as low as possible.

And we made some progress. Ultimately in BC and I think we distributed our newsletters that summarize the new BC regulations, I think they're probably the best in Canada right now. Unfortunately most of you are under the Ontario provincial regulation. We are far, far, far behind the BC regs; we have no equivalent here. But that doesn't mean we're not trying. We met with the Minister of Labour last week to say we want to see some progress on these issues.

We also try to bargain toxics-use reduction and a lowering of exposures in our collective agreements. Initially, in 1993, we got some language on toxics-use reduction, but nothing on particular exposure. In 1996, we made more progress, we got the actual level down from five milligrams per cubic meter, which is a lot of oil mixed in the air, right down to one, which is a lot less. But it wasn't until much later, it wasn't until we were in a position where we found out that one of our longtime activists, Bud Jimmerfield...had contracted cancer. And as a result,

And I started to find out that unions in Sweden had put the pressure on when they found out how harmful this was, and as usual, they were almost two decades ahead of us in this issue. And they said, 'Look, why don't we try vegetable oils? Why don't we see if they'll work as an alternative?'

once people know, once people know somebody well who's been exposed to a substance, that's when people are very keen to take action.

And when people saw Bud, with his wife, with his eight kids, long-time activist in the union, long-time health and safety person, long-time union leader, at the front of our CAW council meeting with some 800 delegates, that was when people decided that it's not good enough to just have these hit or miss issues. We need an overall comprehensive campaign against cancer, and that's when the CAW Prevent Cancer Campaign took off. Since then, we've had conferences across the country, they've been on health and safety, workers compensation, the environment. We've put out publications, we've got people at every workplace across the country trying to identify carcinogens, trying to find safer substitutes, and trying to share what they've been able to learn, because we'll not just protect the health and safety of our members but at the same time, if we're successful, and it's going to be a long, hard, tough fight, we will at the same time protect the health of our children, people in the community, and the environment overall.

"Society has the capacity and ability to create a radically different economy that restores the ecosystem and the environment."

SPEAKER 3:

Rahumathulla Marikkar

Introduction:

I am not sure how many of you have heard of Interface Flooring Systems, but we are the world's largest flooring company with headquarters in Atlanta, and a Canadian plant in Belleville, Ontario. A lot of industries and some government organizations consider us as a leader in environment. But if I tell you frankly, we still pollute the environment. We have a mission called 'The Journey to Sustainability' and its objective is to put more back than we take from the earth, and to do no harm to the earth. If the sustainability mountain is up here, we are just beginning our climb, and are still down near the bottom.

One thing I cannot understand is why there is a confrontation between industry, the community and environmental groups. I think, when I go through my presentation, you will understand that environment means a lot of money for industry, and all these groups can work in sync with each other. This morning I had an article e-mailed to me that said "Why sustainable development is key for economic development." The article also said there is a lot of potential for money in the environment, aside from all the other beneficial things. This is a fact that we at Interface have discovered.

Now, where did our Journey to Sustainability begin? Our Chairman and CEO Ray Anderson read this book, *The Ecology of Commerce*, by Paul Hawken. If you watched Future Watch on CBC last weekend, Paul Hawken was featured in the program. Hawken wrote in his book, "Society has the capacity and ability create a radically different economy that restores the ecosystem and the environment while bringing forth innovation, prosperity, meaningful work and true security." After reading *The Ecology of Commerce*, Ray Anderson said this book was a spear in his chest. He immediately made changes in the organization and took action.

Later he wrote his own book, *Midcourse Correction*, stating what his goal was after reading Paul Hawken's book. "What is our plan? How far we are going to go in achieving our goal?" And Interface's goal is to have zero emissions, zero impact on the environment, and to convert all linear processes into cyclical processes. In today's society, we take, we make and we waste, but we want to make it a cyclical process and eliminate waste altogether, to convert wind and solar power to energy.

We want to use renewable materials. We do, for example, have alternatives for plastics today. There are agricultural materials that can make plastics that are easily biodegradable. We don't have to pollute the environment with plastics. Corn, soybean and others can make dependable, high-performance plastics. And we also want to sell a service, not a product. What we want to do is instead of selling a product – which is commercial flooring – we want to lease the product. Or make it, lease it, install it, maintain it, and take it back again for recycling. All these are critical elements in making sure that the product comes back, is recycled and restored into a new product that can be used again.

In this process, we at Interface have re-imagined and redesigned everything that we do, in order to make this happen.

In this process, we at Interface have reimagined and redesigned everything that we do to in order to make recycling happen.

What are the tools? We have something called Ecometrics, a metric that measures everything: paper clips, paper, raw materials, energy, you name it. Everything is measured and accounted for against a unit product. How much do we consume of each of these things for every unit of product manufactured? And we want to have that graph going down, so there is less and less consumption per unit of product.

The next tool is QUEST, which stands for Quality Utilizing Employee Suggestions and Teamwork. How do you make it happen? You need employee participation. How do you do that? We also have something called The Power of One – we train people. What we tell them is if you put out something out through the stack, it's going to end up in your lungs. If you send something down through the sewers with water, it's going to show up in your tap at home. When we make them realize this, our mission becomes very much easier. And you're going to see results.

How do we make decisions? For this, we have something called The Ecosense Program. It has seven elements. The Natural Step, which Ecosense embraced, was born in Sweden. Karl Henrik Robèrt, an oncologist concerned about the environment, is the founder of The Natural Step. To develop and implement The Natural Step, government, industry and environmental groups, scientists, economists, churches and communities all worked hand in hand around the table. The point is, we all have to be part of the solution. We can work in different pockets of it. And it is true there are a lot of industries who become nervous when you mention the environment. But it is a way not only of saving the environment, but of saving money too.

This is Interface's Sustainability Report, our strategy to achieve sustainability. It has seven elements:

- Waste – waste means something that we sent out and we have paid money for. If we don't buy the waste or make the waste, there is money coming back to us.
- Emissions – that is also some mass loss. If you can reduce your energy, for

example, the burning of gas, if you reduce it, it's going to mean money saved. You reduce your emissions.

- Energy – same thing
- Recycling – I don't have to explain this one.
- Trucking – "Resource efficient transportation" – managing transportation to have minimum impact.
- Education - That is very clear. I mentioned about our employees. We work with the community. We also want all industries who have the best practices come to our table, called Econet. There is nothing that is hidden there. All the best practices are collected and disseminated to all who want to do this. We know a lot of small industries don't have the resources to do things. Why we do this? We are not just doing this because it is a good thing {it is!}. Our motto at Interface is "To do well by doing good." We want Interface to be the first name in industrial ecology. That is what our chairman wants, and what we all want. It's like a religion... Our employees tell us that when they go back home, their spouses say, "I'm glad that you work for a company like Interface." What a great feeling.

Government hires one set of scientists and the industry hires another set of scientists and the citizens' group hires yet another. There's confrontation. But it doesn't have to be that way. With The Natural Step, what we have is everybody working together around one table.

There is challenge with innovation. But for every problem we solve, we see a brand new set of opportunities unfolding.

I was talking earlier about confrontation. We have the government in the middle. The NGOs {non-government organizations} and the community on one side, and industry on the other side. They don't talk to each other; there's confrontation. Industry and accountants work together. Government hires one set of scientists and the industry hires another set of scientists and the citizens' group hires yet another. There's confrontation. But it doesn't have to be that way. With The Natural Step, what we have is everybody working together around one table.

Our results. The proof is in the savings:

1. We had 474 tons of landfill in 1993. As the years went by, it went down to 36 last year. For the 438 tons saved, we had paid money to bring in and paid money to send it out. It is a savings both ways.

2. We also used 120,000 gallons of water every month. This water was mainly used in the print line. We found ways to put the design in the initial stages of sewing (tufting) the carpet, instead of printing the design with toxic dyes and chemicals. So we were able to eliminate the 120,000 gallons of water usage and also eliminate the 120,000 gallons of contaminated water going down sewers. And today Interface does not use or send down the sewers even a drop of this water. Today we use the water only in the washroom and for the lawn in summertime. This step brought a lot of savings, saved a lot of energy from the print process, offered better water quality and a variety of other benefits and savings.

3. The standard energy consumption for our industry is three per cent of the cost of product. We used to have three per cent as our consumption in 1995, but today we are at one per cent. There are several such examples and the list goes on.

Now when you look at these examples, it is no secret that environment means dollars for industry. When you look at these numbers, we cannot understand why industries cannot buy in. So what we are trying to do is to share our best practices with other

industries, for them to adopt the same practices. There may be various other industries who are practicing some of these. We want to collect all these best practices and disseminate them to other industries.

One last thing I want to mention here is when I went for the IJC {International Joint Commission} forum, we recommended working towards every industrial product having a life-cycle assessment, and then every industrial product carrying a label that has all the emissions marked on it. If you had that, the public has full knowledge of the environmental impact of that product, so you can pick and choose your product. This is the thought I am leaving behind for everybody. Thank you.

Question: I understand that you've made some strides both in the amount of energy you use in producing your product but also shifting from non-renewable to renewable sources. I wonder if you could share a bit of that story and your latest success....

A: Okay. Our final objective, as our chairman Ray Anderson said, is to close the loop and recycle the product using renewable energy. Starting in January 1998, we have been using 25 per cent of our energy from certified green sources. We specify only three sources as green: solar, wind, or run-of-the-river hydro. Landfill gas is not green as it has emissions attached to it; landfill gas contributes to global warming. Certifying this as green can encourage development of landfills and make it profitable, but it is not sustainable.

Our plant recently made an agreement in principle with Belleville Utilities to bring windmill generation to Belleville and this was widely publicized. We have had very good success with it. Both levels of government are supporting this effort because it is possible for most other utilities to follow this same example. Green energy can have a premium for pricing and it can make the utilities more profitable. This can create a domino effect happening around other utilities. Our target date for using 100 per cent green energy is as of June 2002, but by the end of 2001, we are hoping to have 100 per cent green energy.

Every product that is made by an industry should carry a label that had all the emissions marked on the product... If you had that, the public has full knowledge of what's going in there, what goes out and you can pick and choose your product.

Everyday Carcinogens:
Stopping Cancer Before It Starts

Positive Steps Two Panel:
Governments and Grassroots

MODERATOR:

Sarah Miller, Canadian Environmental Law Association

SPEAKERS

1. ***Cathy Crumbley***,
Program Director, Lowell Center for Sustainable Production, University of Massachusetts Lowell

2. ***Brian Johnson***,
Environmental Programs Coordinator, City of Santa Monica

3. ***Paul Muldoon***,
Executive Director, Canadian Environmental Law Association

Speaker 1:

Cathy Crumbley

I would like to talk to you today about the ways that my colleagues and I at the University of Massachusetts Lowell are working to broaden the concept of prevention and to promote the concept of sustainability as a means to ensure a safe, healthy future and a viable economy.

The University of Massachusetts at Lowell has developed as a unique institution in the United States. The City of Lowell was created as the first planned community in the country and the university started as a textile engineering college to support the local mills. In the last few years, it has developed a clear mission of promoting regional sustainable development and this mission is reflected in its emphasis on working with businesses and community organizations. There are interdisciplinary departments of Work Environment and of Regional Economic and Social Development, as well as interdisciplinary centers – the Center for Family, Work, and Community, the Center for Women and Work, and the Lowell Center for Sustainable Production.

Pollution prevention, as we see it, is concerned with what happens within the production process, is based on planning rather than compliance, and improved efficiencies.

I work in the Lowell Center for Sustainable Production. The Center is closely allied with the Toxics Use Reduction Institute, TURI, also housed at the University. Let me give you a little bit of background about TURI. TURI was started in 1989 by the state legislature as part of an innovative piece of legislation, the Toxics Use Reduction Act, TURA. How this act got passed is an interesting story. The Woburn toxic chemical case – now immortalized in the famous movie *A Civil Action* with John Travolta – was hot in the late 1980s. People were concerned and alarmed about how toxic chemicals could injure people in their own homes.

In the wake of this, the Massachusetts Public Interest Research Group, MassPIRG, worked to pass a tough referendum – and a referendum becomes law – for cleaning up toxic waste sites. Industry was concerned, and became even more so when the next year, MassPIRG threatened to pass even more stringent laws that would require drastic emission reductions by industry. Industry then became willing to sit down and talk about potential legislation. What emerged from this was that the major groups sat down at the table to hammer out legislation that everyone could agree to. And they accomplished this. The resulting TURA legislation was eventually unanimously passed by the state legislature.

What does TURA do? TURA focuses on pollution prevention. Conventional approaches deal with controlling, rather than preventing pollution. Control strategies only are concerned with what happens at the end of the pipe, are regulatory and compliance oriented, and focus on waste. Pollution prevention, as we see it, is concerned with what happens within the production process, is based on planning rather than compliance, and improved efficiencies. The TURA requires planning and reporting by the applicable industries, but interestingly, requires no process or emissions changes.

What the program means for a regulated facility is that it must set goals and priorities for TUR, establish a team to track and manage the process, characterize its production processes in the sense of describing the use and release of toxic materials at each step, evaluate the options for reducing the use and release of materials. The plan for each facility must then be certified by a Toxics Use Reduction Planner who has

been licensed by the state, and the plan must be available for inspection by the state. Since the Act was established, there has been a 41 per cent reduction in the generation of toxic waste.

TURI conducts a number of programs to assist in this effort. These include programs for government workers to help them make the change from a control paradigm to preventive thinking; education and training for Toxics Use Reduction Planners who can then become licensed by the state; demonstration projects in cleaner technologies that promote the adoption of more innovative technologies in industry; technical research, including the services of a Surface Cleaning Lab that helps industries find the most effective, least toxic cleaners for their needs; a Technology Transfer Center that holds one of the largest collections on pollution prevention in the country; and community education and outreach, including grants to promote collaboration on TUR.

Now let me tell you about the Lowell Center for Sustainable Production. The Center was founded over three years ago by far-sighted thinkers – Barry Commoner and Ken Geiser among them – who share a common vision of what the problem is and what is needed for change. We share three basic assumptions:

- First, production is central to society.
- Second, the current end-of-pipe command and control system of environmental regulation is not effectively solving our problems.
- Third, the way forward lies in changing the fundamental design criteria for production.

Thus, production is both the root of environmental pollution and occupational health risk, and is the key to their elimination. The vision that guides us is one of production that is safe, healthy, environmentally sound, economically viable, and socially accountable. Our assumption is that the transition to a more sustainable system of production depends on the involvement and change of industry, government, and the public. So, we do research and conduct projects in all three areas. I will highlight some of our projects to give you an idea.

In the area of working with industry, we have a Sustainable Hospitals Project that seeks to reduce and eliminate the use of toxic materials in hospitals, especially mercury and PVC plastic. We have a three-year project to research how this can be accomplished through the use of interdisciplinary, labor-management teams. We also provide technical assistance to both citizen organizations and industry groups and have established a clearinghouse and web site on alternative products and practices. We are also working with two firms to develop indicators of sustainable production that companies can use to gauge their own progress in becoming more sustainable.

In the area of working with environmental, labor, and community organizations, we have been working with a group of organizations to develop a clean production network. In our view, campaigning for clean products and clean production can be a powerful tool for reaching many of the goals most of us share – broadening pollution prevention campaigns, promoting corporate accountability, addressing consumption, promoting strategic alliances with labor and environmental justice organizations, and building international advocacy. The network is primarily US-based, but we also welcome the participation of Canadians who may wish to collaborate with us. We provide training, research, and strategic guidance for this

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network. We also have a national project that works with communities to develop sustainable community indicators.

In the area of working with government, we have a program that works directly with state environmental regulatory agencies to promote pollution prevention in all areas of the regulatory process. The problem is that many government agencies still approach environmental regulation with command and control strategies, forcing the use of enormous amounts of costly and inefficient pollution control technologies. One of the biggest obstacles to pollution prevention and clean production is the difficulty of organizational change. It is no different in government, where many officials find themselves isolated in their jobs and inadequate thought is given to how the agency's mission might be better accomplished.

Finally, we are also starting a project on implementing the precautionary principle, using Massachusetts as a case study. As many of you know, the precautionary principle is embedded in several national and international environmental agreements and policies. The Precautionary Principle says: "When an activity raises the threat of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not established scientifically." This means that we need to take action in the face of uncertainty; place the burden of proof of harm on the proponents of the activity, instead of the potential victims; explore alternatives to possibly harmful actions before taking action; and use democratic processes to carry out and enforce the Precautionary Principle. In Massachusetts, we are working with a breast cancer coalition and clean water activists to educate and create a base of support for the concept and to activate constituencies to work for changes at the local and state levels. Our role in particular is to work with the scientific community to discuss the implications of the precautionary principle for issues of scientific evidence and proof.

Finally, we are also starting a project on implementing the precautionary principle, using Massachusetts as a case study.

In conclusion, we are working in a number of areas that we hope will shed some light on concrete steps we can take towards a system of production that is healthier for us all. For us, hope lies in exercising prevention and precaution, promoting integration across disciplines, fostering communication and understanding among people, and ensuring that all those who are affected by production – this means workers, communities, and consumers as well as industry – have a voice in production decisions.

SPEAKER 2:

Brian Johnson

Good afternoon. I am truly impressed with your stamina this afternoon going so late into the day. But don't let down yet. The pace of my presentation, unfortunately, is probably going to blow your hair back.

It is indeed an honour to share this podium with so many motivating and esteemed cancer prevention experts. Full disclosure: I'm not a cancer prevention guy. Scratch that. When I landed in Toronto International Airport, I wasn't a cancer prevention guy. I may be a little different when I go back. I don't even have public health in my title or in the name of the division that I run. I'm an environmental guy. What's worse, I work for a city government. And strike three, I'm from a very large country just south of you. (Strike four, he's wearing a tie!)

Yet we do have areas, acres of common ground here. We have a common agenda, we have common concerns and common fears. This is a message I wanted to show you that is indicative of the type of message that we think is important to get out to our community. And I hope that you feel that's an strong and compelling message as we do. It certainly did initiate very vigorous dialogue with our industry colleagues. They likened it to publicly yelling 'Fire' in a public auditorium. And keep that in mind, because we can contrast that with some comments I'll make when I close about industry and their efforts.

People don't think about getting cancer when they go to a city park or use a bathroom in city hall or any city facility. Yet they can be unknowingly and unnecessarily exposed to carcinogens in those environments. Municipalities, just like businesses, have untold chemicals marketed every day to them to help them get through the business of government. Many of these chemicals contain carcinogens as well as a whole host of other compounds that aren't good for our health and the environment. Government agencies then, people like myself, are confronted with decisions. We need to decide, well, if we're going to clean a building, and buildings get dirty, how are we going to do it? Are we going to buy chemicals to do it? And if we do what are those chemicals going to be?

The second point is self-evident but I'm going to say it anyway because it tends to be forgotten by some, particularly those of us who may be in the audience that work for government. Government in its very function and purpose has a unique role and responsibility in the community. It is fundamentally different from business. Businesses exist for profit. Governments, in spite of the taxes we pay and what you may think about that, do not exist for profit. Government exists to facilitate the pragmatic functioning of a community. And part of that functioning is to facilitate public health – or at a minimum, not to compromise it. That therefore lends itself to a certain type of decision process that should be different than for businesses. And we need to remember that. We are not just an employer and a workplace in city government. We are a place – a focal point where people come together. They go to recreate in a park, they meet in our meeting spaces, they do business with the city.

This kind of role in a community imposes a responsibility on cities to ensure that we are not unintentionally or at times unethically exposing the community to substances that can harm them. Santa Monica is one of the communities that has recognized its responsibility and has responded with several programs and policies which minimize or eliminate the use of cancer-causing chemicals in specific areas of operation. I wish I could say all areas, but we still buy gasoline. And gasoline has benzene in it. Although we have 35 or 40 per cent of our fleet replaced with CNG or electric vehicles we still buy gasoline. I'm sure all of you do too.

The areas we did focus on thus far are, and I'll speak about them today, are custodial maintenance products, taking care of public facilities, and pesticides. These are indeed formal initiatives which exist under the umbrella of our sustainable city program and that's what we'll talk about today. I'm going to briefly outline these things at breakneck speed and if any of you have questions I would ask you to please talk to me later about the details. I also have supporting documentation. I have the written plans. I have copies of all sorts of documents if you're interested. I've hauled them all the way to Canada and I don't want to take them back.

Governments, in spite of the taxes we pay and what you may think about that, do not exist for profit. Government exists to facilitate the pragmatic functioning of a community. And part of that functioning is to facilitate public health – or at a minimum, not to compromise it.

Back in 1993, we conducted an evaluation of the city's custodial building maintenance needs and the type of chemicals that we were using to fulfill those needs. And the purpose of the evaluation was to better understand the types of worker and public chemical exposures that were resulting from our custodial activities. We looked into the formulations to the extent that we closely examined the many commercial custodial products we used and learned that many of these products contained substances that presented unnecessary and unacceptable risks, including carcinogenicity.

As a result we began developing health and environmental effects criteria to be used as standards to whether a product may be used in city operations. These criteria included, as I mentioned, carcinogenicity, biogradability, product toxicity, BOC content and other issues. Some of these criteria serve as a fundamental screening level. It's a pass/fail. You either do or you don't pass them. Some other criteria are more in-depth evaluations of attributes of the chemical and they're scored and ranked to determine what the most preferable product is. As you can imagine, carcinogenicity is a pass/fail criteria. If you have carcinogens in your product, we will not buy it. It's a simple statement. These are formal bidding standards if you want to sell your product to the city. The program has been in place for six years and it's been successful I think for six years.

The arena of pest management is, as we've learned throughout these few days, one of the most fertile areas to pursue the elimination of chemicals with carcinogens and other toxins as well.

We recently re-evaluated the program and the criteria and we competitively rebid the contract for these products. Throughout, many vendors told us that you guys are too small potatoes. You're asking for way too much work from us as an industry. Nobody's going to bid on this. It's not worth it.

That has not been the case. We have always had over a dozen bidders. Some of them very good, some of them very bad, but number and quality have never been a problem. Our program has served as a model for the states of Minnesota and Massachusetts. They've adopted similar programs although, at this point in time, they do not mandatorily exclude carcinogens but they rate them so poorly in their scheme that they are effectively removed. If you are a bean counter...we're saving about five per cent in our fiscal year products' cost. We're not spending more money. We're spending less money. And that is attractive whether the beans are Canadian or American.

Pest management, the next program. The arena of pest management is, as we've learned throughout these few days, one of the most fertile areas to pursue the elimination of chemicals with carcinogens and other toxins as well. Our fundamental concern or problem statement is that conventional pest control techniques for structures and landscaping rely extensively if not exclusively on the use of sprayed chemical pesticides. This creates the potential for and the actual exposure of workers, communities and visitors to pesticides, some of which could and do contain carcinogens. This is simply unacceptable. You ask, Mr. Johnson, how can you say that's unacceptable, you're not a cancer expert? By no stretch of the resume could I ever claim to be a cancer expert but, my God people, how easy is that decision easy to make? That is an embarrassingly simple decision make. I really only need the mental capacity or the spiritual capacity, if necessary, to make this simple decision. Do I use a chemical which causes cancer or do I use one that is similarly performing, similar cost, that does just what you need and doesn't contain a carcinogen? There are issues, issues of tradeoff, of course, particularly the attributes of the replacements that you may choose.

I can tell you at length about one of the most serious environmental tragedies that's ever happened in our city, involving the replacement of benzene in gasoline with an oxygenate, and a loss of our city's water supply. So you must be careful, but it remains, in spite of that, a very fundamental decision that should not be difficult to make.

Our Integrated Pest Management (IPM) program emphasizes the long-term mechanical and administrative preventative measures to control pests. We've heard that throughout the weekend. We do not, though, automatically eliminate the opportunity or consider the use of chemical pesticides or treatments, although in the three years that we've had the program it has been so successful we have not sprayed a chemical pesticide. Throughout this project, of course though, as you can tell, we do not allow the use of any pesticide with any type of carcinogen, known or probable. I say it that way because there are issues of inerts, there are issues of contaminants in the active ingredients that can often can be very serious. And then there's simple disclosure.

But the key pest management strategies that we use include pest identification – it's an ant! Baits, training and the promotion in our workforce of behavioral practices that reduce the food, the water, the access and the environmental condition that support pests' life. If you open the door and there's a week-old burrito, yeah, you've got to throw it away. That's the kind of thing we're talking about. Very basic.

Adherence to these standards throughout our workforce is assured through management commitment, workplace education and organization which is quite in-depth. I can tell you about it if you're interested later. We place reliance on a single pest control contractor for all city pest control operations. And this pest control contractor's passion is IPM. And that is mandatory. And we also, through my division, control procurement in any pesticide use – it is written in the contractor's contract. And if any of you who work in cities need a copy of the contract, because it is very specific to IPM performance, I can get that to you. It's written in the contract that a pesticide cannot be used unless my division signs off on the use of it. We have excellent adherence to the program with structural pest management – ants, rats, cockroaches – common pests.

We've had a little less success in the landscape IPM area. But it's important to know the reason that we have less success there is not due to the technical ability of IPM techniques to control pests. It has more to do with transitional administrative processes and subcontractors and things like that which tend to go away over time, once this program becomes more mature.

Overall, we have achieved higher performance and more effective pest management. We have saved 30 per cent over the cost of traditional chemical pest management compared with the IPM cost today.

Even more importantly, from my perspective, is that we have engaged a workforce in our community and the visitor community (which numbers millions a year) in the integrity of their environment.

Let me briefly summarize. These programs are a success. But even in a city as forward looking as the one I have the honour of working for, Santa Monica, success has its cost. And we need to be aware of those. These programs are resource intensive. They still require oversite, encouragement, a lot of hand-holding. But get used to it.

Overall we have achieved higher performance and more effective pest management. We have saved 30 per cent over the cost of traditional chemical pest management compared with the IPM cost today.

Introduced by the pesticide manufacturers, this is what they will have you call pesticides now – "Consumer protection and health benefit products."

That is the nature of change, both for individual behaviour and for collective institutional traditions. I have stories I can tell you about what it's like training people to change. It can be fascinating. But my staff and myself are agents of change. We recognize that and we are dealing with it. We can become frustrated with the uneven pace and the uneven commitment to change at different times and places.

But in this recognition of agents of change, let me briefly quote from what I learned from a famous toxicity reduction pundit from the seventeenth century. He said, "Whether things will get better if they change, I do not know. But that things must change to get better, that I do know." And we find tremendous inspiration and motivation in our successes. And one of the primary reasons that these projects are so resource intensive is my own and my staff's abiding commitment to credibility. We do not undertake these projects capriciously or arbitrarily. On the contrary, we spend countless hours researching, digging, evaluating and re-evaluating these programs. This of course cannot happen without the commitment of the city's executive management and elected officials. And I recognize that this level of commitment is not the norm. But we have developed models, and my goal is to share them with people. I don't do them just for Santa Monica; I see it as a bench-scale test to take to other communities and have them also do it. That is where my dream is realized. These developed models will help reduce the workload that often scare managers of other cities away. And this commitment has served us well, especially in these pioneering days of change and advocacy.

Lest I leave you a little too warm inside, let me share this with you. Our efforts are under persistent attack by pesticides manufacturers, hence what we went through here and there with trade associations. Let me leave you with just the latest challenge. And I beseech you, listen carefully to this. There is a new legislative campaign being waged in the United States – it has been introduced in at least five states. And in at least one state, Colorado, has passed this as a bill rider – a budget bill so it was hidden, which is not unusual for these types of things.

At any rate, what does this bill do? Introduced by the pesticide manufacturers, it prohibits state officials and government officials from calling a pesticide a pesticide. Well, what do you call it then? This is what they will have you call pesticides now: "Consumer protection and health benefit products." This is legislation in five states, adopted in at least one state right now. Ten seconds of repetition:"Consumer protection and health benefit products." Pesticides are like cigarettes. They cause disease and cancer. We don't call cigarettes 'consumer protection and health benefit products'.

Clearly, our work is still cut out for us. As Dr. Connett said earlier, "Boy, are we going to have fun with that one!"

SPEAKER 3:

Paul Muldoon

Thank you very much. After hearing all of the presentations today, I am emotionally confused, because I really do not know if I am hopelessly pessimistic over the devastating effects of cancer-causing pollutants, or endlessly energized by those dedicated to taking on the issue.

At any rate, I would like to quickly address two questions with respect to this topic: Where are we now in terms of our environmental record, and where do we have to go to improve this situation?

In terms of where we are, some quick facts reveal the story. According to the National Pollutant Release Inventory, over 200,000 tonnes of pollutants are released each year into the environment in Canada. Over 13,000 tonnes of that are suspected or actual carcinogens. This number is not derived from some wild-eyed environmental group, but from industry-supplied data compiled by Environment Canada. Moreover, it should be noted that a study done in the US reviewing a similar US database suggested that such data only catch a relatively small portion of actual emissions, perhaps only five per cent of emissions and off-site transfers.

Industry often asks environmental organizations to recognize their emission reductions. At times, such reductions are recognized. However, one has to be very careful reading this data. Clearly, there has been a downward trend in 'emissions' of pollutants into the environment from the late 1970s to the present. However, in very recent years, there has been a slight upward trend or leveling off of reduction. In the present release inventory, it shows that while emissions have gone down 15 per cent, transfers of pollutants off-site have gone up 24 per cent. If my math is correct, that means our pollution record is actually increasing, not decreasing. Ironically, industry has put on a campaign stating that the focus should be on emissions, not the total quantities of pollution generated.

In terms of the Great Lakes, some 309 million kilograms of toxic materials enter the ecosystem from Canada and the US. Now when this story was released, I was quoted and the quote was, "That's a hell of a lot of pollutants." Later, a relative phoned complained, "Nine years of university, a decade and a half of environmental activity, and that's the only thing you have to say?" But when you look at it, what else can you say?! That's a hell of a lot of pollutants! So I apologize about not being more sophisticated in my analysis, but I am afraid that's all I can say.

Now, where does Ontario stand? According to a recent report by the Commission for Environmental Cooperation, Ontario is the third worst polluter in North America with over 48 million kilograms of releases. {Editor's note: Latest figures released in July '99 show that Ontario is the second worst polluter in North America. See pages 103 and 104 for the CEC summary}. When this report was released, governments criticized the results, alleging the data was out of date, that it is difficult to compare these jurisdictions, that the industrial make-up is different and the populations are different. However, when you look more closely at the numbers, they do make sense. We tried to cut the numbers 10 different ways. And I'll give you just one example: California placed nineteenth with three times the population and twice the industrial reporters as this province. So how come Ontario then is number three?

Moreover, this is the second time this report came out. And you can see by the changes in this data, some jursidictions are taking this seriously and and some are not. Ontario remains number three, and I suspect it will continue to be. It's no wonder we're in the predicament we're in when we heard all the data from last night and today about the rising cancer crisis in this province. With these numbers, what else would you expect? What other logical conclusion could you come to? And whether we are going up or down five per cent, there's still a hell of a lot of pollutants going out there.

We tried to cut the numbers in ten different ways. And I'll just give you one example. California is nineteenth with three times the population and twice the industrial reporters. So how come Ontario then is number three?

What is the government record then? We call this record the 3Ds. Downsizing is first. We're talking a 40 per cent cut since 1995 for the Ministry of Environment. It's worse for Ministry of Natural Resources. If you go across the board provincially, we are talking about a devastation of the very agencies that are supposed to oversee the protection of the environment. If you look at the federal government, it's the same. There it's just under 40 per cent and some 5400 jobs. We are talking about a future where our environmental problems will not become obvious, because nobody's looking. And that gives some indication of where we're headed.

Now the second D, of course, is Deregulation. And deregulation means that the provincial government has reviewed every single environmental law but one, and has attempted to weaken or to change all these laws often resulting in that they are not as protective as they once were.

But deregulation is not only the weakening of existing laws – it's also the move towards a voluntary approach. Most facilities now are in the process of negotiating voluntary agreements with the government. These voluntary agreements are problematic, because, first of all, they're negotiated behind closed doors. Second, our survey clearly indicates that the goals and targets they set are not as stringent as what other jurisdictions set. And of course it leaves them completely unaccountable for their actions.

Clearly, in Ontario we are falling behind the world in terms of what we're doing to protect our environment and human health. There's no question.

It also reflects something much bigger – the fact that this government believes in the invisible hand of the market to deliver the public good. And I think we have to believe that it is the visible hand of policy that will deliver the kind of goals that will protect both human health and the environment.

And lastly, the third D is devolution. What devolution really means is privatization, by and large, of essential services.

That's where we are, and I think it's a very sad picture.

But I also want to give some examples of where we want to go. I have not given up on the belief that we should work towards changing the laws of this province and this country. We've heard all kind of fantastic examples today of how laws have been the catalyst to change, whether at the municipal level, at the state level, Europe and abroad. Clearly, this is not a case in Canada, where we want to push the envelope for new pollution prevention laws and some other initiatives. Clearly, in Ontario, we are falling behind the world in terms of what we're doing to protect our environment and human health. There's no question about this. We can very safely go to our politicians and say, "I don't want you to be at the head of the curve, I just want you to be at the curve where other jurisdictions are."

We heard this afternoon about the Massachusetts Toxic Use Reduction Law. Over 20 states currently have pollution prevention laws on the books. Clearly, what's at issue now is not only trying to prevent pollution, but trying to re-think a materials-use policy. Really what we need is to re-think and work towards a new industrial policy. Because pollution prevention is just not about counting pollutants at the end of the pipe – it's about changing processes, changing production and methodologies, looking at materials and asking how can we produce things in society for public good that are not harmful.

Just one example of the good and bad of law reform is the bill that has just passed the committee at second reading in the House of Common. It's called the Canadian

Environmental Protection Act. And I want to just give some examples of things that we got and things we didn't get in it. A lobby was put on by some 30 or 40 groups – the core of them were law groups from across Canada under the umbrella of the Canadian Environmental Network. And it's been a four year battle. The only thing I can say is, despite the fact that there's some marginal gains in the bill, it's basically written by and has the footprint of industry on it. And when I go through some of these provisions, you'll see. The key one is Section 65. It's good news basically, because it says that for persistent biocumulative toxics, the goal shall be 'virtual elimination' – and perhaps we should celebrate that.

Except if you read what the definition is. The definition of virtual elimination is 'nondetectable', which means that industry can use and generate pollutants like dioxin as long as it doesn't release a detectable amount. That is not pollution prevention, it's anti-clean production – but as important, if not more, it's anti-worker. Because it means you can keep dioxin in the plant, just don't let it out. And how we're going to measure, how we're going to enforce that is beyond me. And that is probably one of the most crucial things that's in the CEPA bill. We have advocated very strongly that the definition of virtual elimination should mean phase-out.

And it should mean phase-out. In the past, we have worked toward the goal of phasing out substances, but we have also worked with labour and other constituencies to ensure that these policies are sensitive to the needs of workers and communities. As such, we have advocated a 'just transition' to clean production processes and cleaner communities.

One of the things I think we should do is to think through what kinds of laws could we use provincially. In the last five years – I'll be very honest – except for voluntary programs, there has been essentially nothing put on the table. And that's what the problem is. We have to think through it. We have many ideas about dealing with pollution prevention and I think that's one of our main tasks.

The second key component is working with our communities. And one of the powerful notions of how to empower communities is not only 'the right to know' – because we have part of that – it is 'the right to know more.' It's the right to know more about what's in our food, about our health, about how products are made. At CELA, we're now trying to deal with that. One of the things that we'd like to do is to look at the data in the National Pollutant Release Inventory and do some preliminary analysis to see for an individual facility, what is the coverage, what is the effect of these emissions, who are the vulnerable communities pollution is affecting? Is it the poor? Is it those who can't organize or simply have not got the resources to organize.

We'd also like to superimpose health data on industry-specific or facility-specific data, and see if there's a correlation between cancer rates and pollution. That's our agenda. But it is so hard to explain to politicians that 'the right to know more' is simply not a right to convenience, it's a right to democracy.

The other study we're undertaking, in conjunction with the Ontario College of Family Physicians' Environment Committee, is looking at vulnerable communities, and the first one we've chosen is children. Our initial conclusions look at Canada's regulatory standards, which are designed to protect, in most cases, 70 kilogram males. And when you look at the difference of the physiology and metabolism of children and the exposure, we think there's a disconnect between what the requirements of law are and, of course, what the standards say to protect.

But it is so hard to explain this to politicians, that the right to know more is simply not a right to convenience, it's a right to democracy.

I'm also interested in what other vulnerable communities are in terms of the poor? What are the vulnerable communities in terms of First Nations? What are the vulnerable communities in terms of women? And you come to the conclusion, of course, that we're all vulnerable. This study will, I hope, open the doors to some further discussion.

Lastly, I just want to say that we have to work with each other. If you look around, we're not only colleagues and friends. We must be the way to move this agenda forward, because nobody else is going to do it. So I urge you to think about the responsibility we have, both individually and collectively.

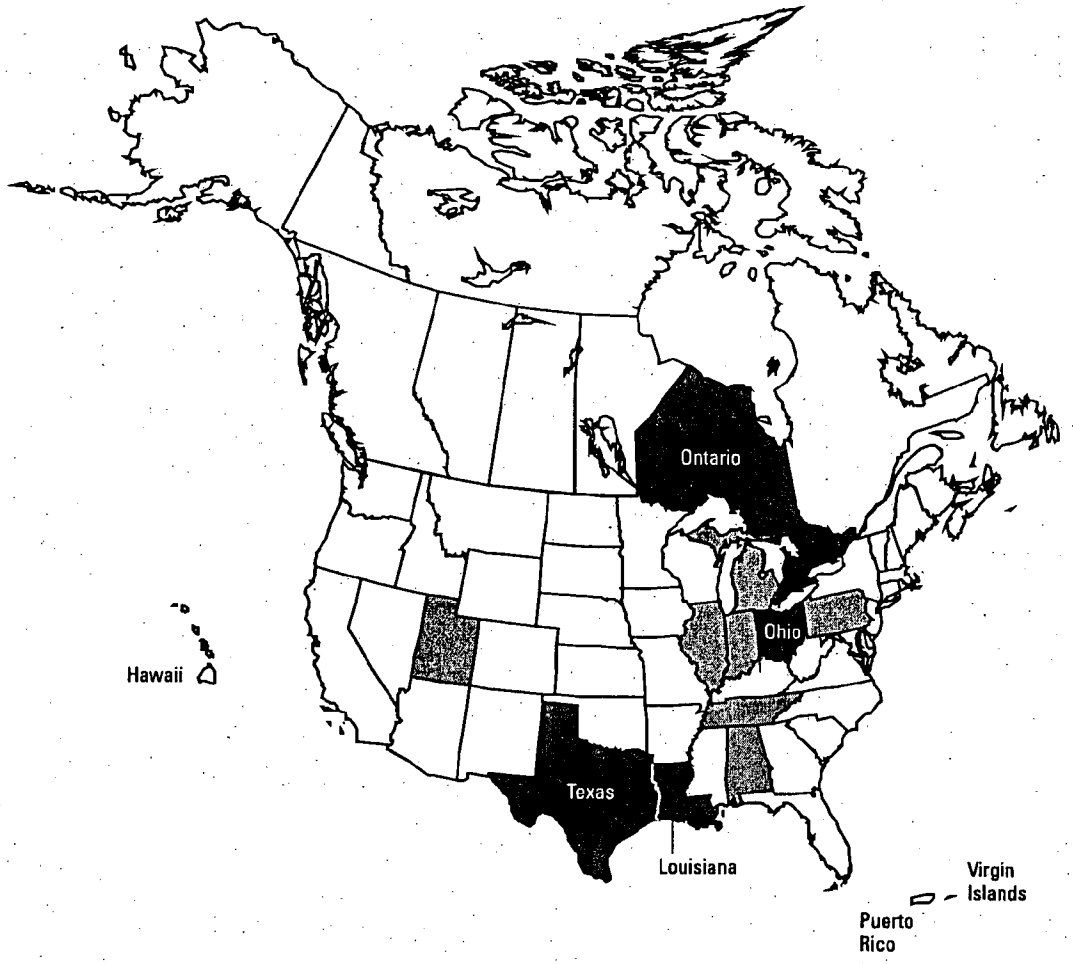
I want to leave this message with you. I have here a 1946 magazine article, and it says, "DDT is so good for me. The great expectations held for DDT have been realized. During 1946, exhaustive scientific tests have shown that when properly used, DDT kills a host of destructive insects and is a benefactor for all humanity."

Wouldn't it be nice if 10 years from now, or five years from now, we could say, "PVC is so good for me?" And laugh at that. It seems to me we must work towards that. This isn't just about our health. This isn't just about the protection of wildlife and species. This is really about the protection of our most dear, democratic rights to good government. And that's what I urge all of us to work together to achieve.

This isn't just about our health. This isn't just about the protection of the wildlife and species. This is really the protection of our most dear, democratic rights to good government.

Map 4–2
M 1996

Largest Sources of North American Releases and Transfers: States and Provinces



Each shade = one-quarter of total releases and transfers

- 4 states/provinces
- 7 states/provinces
- 12 states/provinces
- 40 states/provinces

Range in kilograms

- 65.0 to 123.0 million kg
- 39.0 to 65.0 million kg
- 20.0 to 39.0 million kg
- 0 to 20.0 million kg

Table 4–3

M 1996

North American Releases and Transfers, by Province and State

Province/State	1996 Population	Land Area (sq km)	Facilities Number	Facilities Rank	Total Releases (kg)	Total Transfers (kg)	Total Releases and Transfers kg	Total Releases and Transfers kg	Total Releases and Transfers Per Capita kg	Total Releases and Transfers Per Capita Rank	Total Releases and Transfers Per Sq Km kg	Total Releases and Transfers Per Sq Km Rank
Texas	19,091,207	691,031	1,074	5	92,003,220	30,289,104	122,292,324	1	5.9	15	615.0	4
Ontario	10,753,573	916,734	733	10	38,711,456	30,051,806	68,763,262	2	3.9	31	314.2	16
Louisiana	4,340,818	123,675	269	28	64,174,124	3,747,033	67,921,157	3	0.6	59	49.3	40
Ohio	11,162,797	107,045	1,462	1	40,039,996	25,898,379	65,938,375	4	5.1	24	523.7	6
Pennsylvania	12,040,084	117,348	1,083	4	27,501,052	33,950,780	61,451,832	5	6.4	13	176.0	25
Michigan	9,730,925	151,585	795	8	22,389,445	27,695,419	50,084,864	6	7.8	7	484.9	8
Tennessee	5,307,381	109,153	574	13	35,719,754	10,782,442	46,502,196	7	5.1	23	180.8	22
Illinois	11,845,316	145,934	1,165	2	33,027,544	12,824,866	45,852,410	8	5.1	22	330.4	14
Indiana	5,828,090	93,719	936	6	26,508,110	18,940,582	45,448,692	9	5.0	25	269.7	18
Alabama	4,287,178	133,916	443	17	36,057,848	8,640,484	44,698,332	10	6.4	14	75.0	33
Utah	2,017,573	219,889	128	38	36,400,466	2,726,657	39,127,123	11	3.3	34	160.9	27
North Carolina	7,309,055	136,413	769	9	30,841,068	5,953,322	36,794,390	12	1.1	53	156.3	28
Florida	14,418,917	151,940	447	16	26,649,236	7,974,381	34,623,617	13	8.8	5	426.0	11
Missouri	5,363,669	180,515	499	15	21,577,853	6,605,867	28,183,720	14	2.1	42	842.1	2
Virginia	6,666,167	105,587	395	21	19,742,050	7,384,084	27,126,134	15	5.3	21	156.1	29
Wisconsin	5,146,199	145,436	801	7	11,826,236	14,466,495	26,292,731	16	2.4	40	227.9	20
South Carolina	3,716,645	80,583	439	18	19,028,607	7,077,918	26,106,525	17	10.4	4	333.8	13
Arizona	4,434,340	295,260	172	33	20,648,276	4,141,182	24,789,458	18	7.0	10	323.0	15
Georgia	7,334,274	152,577	623	11	20,151,598	4,391,484	24,543,082	19	2.2	41	46.0	41
Quebec	7,138,795	1,357,812	336	24	14,732,567	8,207,642	22,940,209	20	1.3	51	379.3	12
Mississippi	2,710,750	123,515	274	27	20,414,695	1,541,436	21,956,131	21	4.1	30	256.9	19
Montana	876,684	380,850	21	55	21,426,762	24,788	21,451,550	22	4.4	28	164.8	26
California	31,857,646	411,049	1,137	3	10,432,858	9,831,046	20,263,904	23	4.6	26	89.7	31
New York	18,134,226	127,190	614	12	12,296,245	7,581,903	19,878,148	24	3.2	35	16.9	49
Oregon	3,196,313	251,419	222	32	11,873,289	6,527,813	18,401,102	25	5.3	20	96.3	30
Kentucky	3,882,071	104,659	380	22	12,713,763	4,533,978	17,247,741	26	1.9	44	465.3	9
New Jersey	8,001,850	20,168	514	14	5,441,829	11,541,705	16,983,534	27	8.1	6	177.8	24
Alberta	2,696,826	638,233	96	42	14,621,572	553,277	15,174,849	28	15.6	3	549.2	5
Arkansas	2,506,293	137,754	334	25	9,983,507	3,277,183	13,260,690	29	2.4	39	44.2	43
Iowa	2,848,033	145,752	353	23	8,421,028	4,658,833	13,079,861	30	4.1	29	50.1	39
West Virginia	1,820,407	62,758	121	40	9,898,444	3,094,407	12,992,851	31	1.0	43	61.1	36
Washington	5,519,525	176,478	249	31	9,108,344	1,670,102	10,778,446	32	5.8	16	73.2	34
Kansas	2,579,149	213,098	253	30	6,575,123	4,109,899	10,685,022	33	5.6	18	83.0	32
Minnesota	4,648,596	218,601	434	19	6,312,325	3,751,120	10,063,445	34	1.5	49	274.9	17
New Mexico	1,711,256	314,926	31	51	8,917,115	209,399	9,126,514	35	0.7	58	9.6	54
Massachusetts	6,085,395	21,456	428	20	2,434,807	5,703,905	8,138,712	36	1.7	47	711.4	3
Oklahoma	3,295,315	181,186	261	29	5,913,300	2,093,362	8,006,662	37	2.6	38	20.0	48
Maryland	5,060,296	27,091	162	34	4,168,265	3,279,374	7,447,639	38	19.4	2	177.9	23
Puerto Rico	3,782,862	9,104	140	36	3,027,614	3,448,516	6,476,130	39	1.4	50	430.5	10
British Columbia	3,724,500	892,677	70	44	5,710,382	561,021	6,271,403	40	7.1	9	207.0	21
Connecticut	3,267,293	12,997	285	26	2,638,903	3,407,867	6,046,770	41	1.1	52	53.6	38
Idaho	1,187,597	216,431	49	47	5,259,373	133,666	5,393,039	42	5.6	17	23.8	47
New Brunswick	738,133	71,569	21	56	3,277,331	1,575,434	4,852,765	43	3.1	36	44.4	42
Nebraska	1,648,696	200,350	137	37	2,320,000	1,884,339	4,204,339	44	1.7	48	7.0	55
Maine	1,238,566	86,156	73	43	3,129,685	691,665	3,821,350	45	3.7	33	502.1	7
Wyoming	480,011	253,326	25	53	3,314,989	15,193	3,330,182	46	3.7	32	13.6	50
Manitoba	1,113,898	547,704	39	49	3,062,727	245,373	3,308,100	47	4.5	27	24.9	46
South Dakota	737,561	199,731	60	46	2,094,078	627,189	2,721,267	48	0.9	54	5.3	57
Delaware	723,475	5,294	62	45	1,051,473	1,606,538	2,658,011	49	2.0	37	6.0	56
Colorado	3,816,179	269,596	151	35	1,445,862	1,148,379	2,594,241	50	0.5	60	12.5	52
Nova Scotia	909,282	52,841	25	54	1,278,806	322,158	1,600,964	51	5.3	19	28.0	45
Nevada	1,600,810	286,353	42	48	1,464,414	46,679	1,511,093	52	0.8	56	2.8	59
Rhode Island	988,283	3,139	125	39	971,547	379,877	1,351,424	53	6.9	11	13.1	51
New Hampshire	1,160,213	24,033	98	41	874,422	412,532	1,286,954	54	1.8	45	30.3	44
Alaska	604,966	1,530,702	8	59	1,039,885	60	1,039,945	55	24.5	1	56.3	37
Saskatchewan	990,237	570,113	15	57	783,366	15,955	799,321	56	6.6	12	67.8	35
Virgin Islands	101,809	342	2	61	581,766	171,183	732,949	57	0.8	55	1.4	60
North Dakota	642,633	183,121	29	52	452,299	58,958	511,257	58	0.1	61	10.3	53
Newfoundland	551,792	371,635	7	60	400,700	8	400,708	59	1.7	46	0.7	63
Vermont	586,461	24,900	32	50	187,807	122,568	310,375	60	0.7	57	1.1	61
Hawaii	1,182,948	16,760	9	58	169,656	3,535	173,191	61	7.2	8	2,143.9	1
Prince Edward Island	134,557	5,660	2	62	17,553	0	17,553	62	0.1	62	3.1	58
District of Columbia	539,279	163	1	63	0	115	115	63	0.0	63	0.7	62
Total	297,815,675	14,807,032	20,534	100.0	863,218,412	362,612,278	1,225,830,690	100.0	4.1		82.8	

➤ Canada and US data only. Mexico data not collected for 1996

CONFERENCE SUMMARY

Valerie Hepburn

Some two days, eh? Among other things, it's been an emotional rollercoaster. And I know I felt everything from anger and grief and sadness to hope and joy and laughter. And I'm all over the map and I'm exhausted and I'm sure that you are too. So I'm going to keep this brief, but bear with me because we don't want to lose you. It's very important to bring you together. And what happens next is critical.

It's my job right now to summarize what has happened over the last two days and give some shape to it. And to set some directions for where we go from here. So I'll try and do that as quickly as possible.

Please know that you're not going to be abandoned after this conference. The Steering Committee will have the tapes and the record of the proceedings as well as evaluations so please do drop them in that box. And by the way Marjorie Mitchell has said, she's really, you know, a hard taskmaster. She said, "Clean up after yourselves too, would you!" So please do that because we're not going to do that part. So we'll use all the proceedings and the tapes and your evaluations to set a course or maintain one for moving on primary prevention across Ontario. And we, like you, are not going to go away.

Acceptable risk is an oxymoron. There is no acceptable risk. All risks have to be identified and they have to be addressed.

But in the final analysis, the stories we've heard over the last few days are from local communities – from Hamilton, from Pickering, from Akwasasne, from Windsor, from Sarnia and from work communities such as those at Bell Canada and Dofasco. And since it is the residents of Ontario, we in the local communities – and Paul has made this point – who bear the burden of cancer, it is the residents of Ontario in their local communities – whether they're geographic communities or communities of interest – who carry the challenge of fighting back. That's your job. And my job. We're the end point of the assaults to our health and we're the beginning of the counter-assault.

So how do we start and, if we've already started – as I know many of us have – how do we move forward?

The conference has been very, very instructive in that regard and let me quickly review what it has provided for us to move forward.

First of all it has given us a set of clearly expressed principles. And let me review them:

- Principle One. First, do no harm. Also expressed as prudent avoidance. Also expressed as taking action in the face of uncertainty. That's a wonderful public health goal.
- Principle Two. Much of cancer is preventable. If we are firm in this belief, we can maintain our momentum and our motivation.
- Principle Three. You have the right to know, and the right to know more. And you have the right to participate in public policy. Remember, public participation in public policy is the cornerstone of democracy and we are still, in this province, a democracy – and let's assert that. The leadership of our public cancer institutions reflects the public policy of the day. Policy acts as a framework for and the foundation on which those cancer institution leaders base their actions. And if we want good leadership and we are expecting good leadership, we have to have good policy.

And that's our job. Getting to that healthy policy is our job.

- Principle Four. Acceptable risk is an oxymoron. There is no acceptable risk. All risks have to be identified and they have to be addressed.
- Principle Five. We have enough evidence to act now. As Ross Hume Hall said, "Read the studies." Three beautiful words.
- And finally, Principle Six. Increase and equalize the resources directed at cancer. Once again, Ross Hume Hall made a good, concrete suggestion – for every dollar directed towards a cure, let's match it with another dollar for prevention. That's a tangible goal we can work for and we can work for in concert.

The conference has also given us some critical tools for moving forward. We've got our principles, we got our values and we've got our beliefs. We're able to move forward. We know the context in which we're going to move forward. What tools have we got? Well first, the conference has given us each other. It's brought together many people from many different sectors to make common cause for cancer prevention. We are citizens, we are unionists, we are cancer survivors, we're health professionals and we're elected representatives. I prefer elected representatives to politicians. I hope you don't mind. There can be no doubt that together we are stronger. So consult your conference participant list. Call up the people in your community who are identified. If you don't know them already and I'll bet you do, call them tomorrow. And move on your local agenda for cancer prevention. I'm sure, of course, that so many of you are doing that already.

Insist on public disclosure of information, transparency in public processes and accountability of action by the decision makers who affect your lives.

It's very important to build on what is in place. There are communities of concern and there are communities of effort but within an area it's important that those communities get together and work in concert. And I think, for example, of the Toronto Cancer Prevention Coalition, which is a multi-sectoral network of individual and community groups with a stake in cancer prevention. And they are trying to work together to develop a multiplier effect across the entire population of metropolitan Toronto. That's 2.5 million people. So that's a challenge but it's there and it's a framework to work within. There are working models out there.

So our second tool is knowledge. Not only the knowledge of the experts we've listened to the last few days but of cancer survivors like Lorna Wilson and citizens like David Robinson who are well researched and highly knowledgeable. The aggregate knowledge coming out of this conference can help us priorize or reinforce action items as we work to create and maintain a prevention constituency.

Our third tool is will. Consistency and persistence. Keep asking those questions of experts and decision makers and boy, you certainly have no problem doing that!

Insist on public disclosure of information, transparency in public processes and accountability of action by the decision makers who affect your lives. Don't forget that you elect some of them and there's a provincial election that's waiting in the wings.

And remember too to diversify your approach as you develop champions and this is where working in concert is such an important piece. The same question asked by a citizen, a trade unionist, a scientist, a politician, a health worker and maybe an industry professional, we can hope, is more likely to get attention and more likely to get an answer.

Better yet, and this is tool four, participate in the public institutions and processes that affect your life. There is plenty of room for your involvement. Cancer Care Ontario has networks and committees at the regional level throughout the province which have as they should, public representation. That's people like you. Take ownership and take them on at source. Armed with the principle and knowledge that you've gained at this conference and with the list of CCORs, that's Cancer Care Ontario Regional councils, that we will distribute after the conference. Or participate in foundations. I participate in one. It's the Canadian Breast Cancer Foundation, Ontario Chapter. And I'm vice-chair of the Ontario Chapter. Yes, we do have corporate sponsors, but no, they don't determine how we use the resources we receive from them. They don't. That determination is made by the residents of Ontario communities who sit on our boards and committees. And we're doing lots of good work. So once again, get involved. If you want to change the establishment, re-establish it your way.

I won't go into priorities for action because those are local decisions for meeting local needs, but some of the challenges mentioned over the past two days I think are really important.

There are a whole host of other problems aside from cancer that are caused by toxics. And to draw everybody into the equation I think makes us all stronger.

- First of all, we've got to advocate to the federal and provincial governments for environmental standards and enforcement of those standards that protect human health. And you've heard a lot about that.

- We need to roll back the rollback of environmental regulation and protection in our province. And a personal favorite of mine and of many people in this room is the reinstatement of the Occupational Disease Panel. What you measure is what you get. And we do not want to go back to the days when only death and dismemberment were recognized.

- Finally, I do want to acknowledge that Health Canada, Ontario Division funded this conference. Remember, Health Canada gave us $50,000 dollars. That means something. They're there and they are a possible ally and I really think that we have to keep that alliance going. There has to be room for everybody in cancer prevention. It is too big a problem for us to tackle alone. If we're divided, we're going to lose and we're going to lose big time.

As the public hearings pointed out yesterday, citizen and scientist, unionist and professional, and may I add, government funder, must sit down this weekend and not sit in opposition. There also has to be room for all issues of cancer prevention and one issue should not be addressed at the expense of another. Finally, there has to be room for all cancer issues as well. While we struggle for prevention, we can't forget that there are cancer survivors and patients. They need and they have the right to have prompt detection, quality treatment and support. This is not an either/or situation.

So, as Dr. Epstein said yesterday, the situation is grave and the citizen has a grave responsibility. But we also can do it and we can do it with high hearts and we can have a good time, as Paul Connett exhorted us to do.

So farewell. Good luck. And have that really good time.

BUILDING A COALITON FOR PRIMARY PREVENTION

Angela Rickman

Well, it's really tough following these presenters; following one of them would have been tough, but following all of them really isn't fair. One of the problems is that coming at the end of this. Everyone said what I wanted to say so it looks like I haven't got any original thoughts, which isn't really true. A conference like this is really, really important because it's a good starting point for forming a coalition or forming a network.

CPR! (Coalition For Pesticide Reduction) didn't start this way. It started with five people who are interested in pesticide issues getting together and sitting down and looking at what was missing in Canada. And what they felt was missing was an across-the-country coalition or some kind of network that would give people the tools to work on pesticide issues. There's the Pesticide Action Network of North America which is very good, but unfortunately most of the information that we could get from the Pesticide Action Network was American. So we were looking at somehow linking people up and providing them with tools to take responsibility and to work in their own communities to reduce or eliminate use of pesticides, primarily cosmetic uses of pesticides, and that's where we started.

We've got activists in 46 different communities working to have pesticides either banned or reduced, either on private properties; or municipal properties or both.

Right now we're running a bylaw campaign across Canada. We've got activists in 46 different communities working to have pesticides either banned or reduced, either on private properties; or municipal properties or both. And we've had some successes. Recently, Chelsea, Quebec passed a bylaw that banned all pesticide use on private property and would impose fines on people who actually use pesticides. And that just is an amazing thing. It's really great.

When you look around at the people who are here it's amazing because we've brought together all kinds of different people and I'm not going to go through it all again because we're all abundantly aware of that. But I think when you look around one of the things that you should be looking for is the people who *aren't* here and people who should be here and should be involved. And I guess when you go away from this conference one of the things that you might want to do is contact all those people that you think might have an interest in this issue. And they don't necessarily have to be people who are interested in working on cancer because a lot of these toxic chemicals have other effects that aren't necessarily carcinogenic. There are learning disabilities, there are behavioral problems, there are reproductive problems. There are a whole host of other problems aside from cancer that are caused by toxics. And to draw everybody into the equation I think makes us all stronger.

There are also a lot of people who aren't active on these issues and many of them are comfortable in their belief that the government is kind and good and looking out for their best interests. These same people might also believe that the nuclear industry is just a good way of producing clean energy without burning coal and causing climate change. And they might also believe that the life science industry is producing genetically engineered food and pesticides to protect crops so that

they can feed the world. They might believe that pharmaceutical companies are producing cures for diseases because they're interested in protecting our health and making us happy.

Yeah, well, maybe that would be the case in a perfect world, but sadly, this is not a perfect world. So, in that case, maybe ignorance is bliss. But we're all going away from here and none of us is ignorant anymore. None of us can claim to be ignorant after what you've heard. You've all got a responsibility to use the knowledge that you've found here. Some of you may already have had some degree of knowledge. Some of you may have had none. But now you have some. So you have a responsibility to go away and use it and get other people activated and energized and spread the word.

One of the good ways you can do this is legislation; Paul (Muldoon) was talking about legislation. The current Pest Control Products Act, which is the act that governs pesticides in Canada, the federal act, hasn't been amended since 1969, 30 years ago. I think we've probably learned a few things about chemicals in the 30 years that have passed since the act was introduced. Right now, the federal government in their Red Book has promised to introduce amendments to the Pest Control Products Act. They still haven't done it. But they're looking at doing it. There's actually legislation that has been written but it's been sitting around at the PMRA since at least last June. I'm sitting on a panel called the Pest Management Advisory Council at the Minister of Health recently struck to talk about pesticide issues and the way that the pest management regulatory agency regulates pesticides in Canada. We've been briefed on it, but the Pest Management Regulatory Agency – which I wouldn't consider the shining example of protecting our health and our safety – has actually asked us to please pressure the Minister to introduce the legislation. Because until the legislation that introduced, there won't be any amendments, there won't be any changes.

There are a whole host of changes which I'll go through in a second. But essentially, industry has the ear of government. And industry is at the table and they're telling the Minister of Health that there's no reason for introducing legislation that's just going to be out of date in a couple of years. You know, the way that biotech and everything is leaping ahead. If we introduce industry or introduce legislation now, it's just going to be out of date in three years and we'll have to come back, so why waste the time. And the Minister of Health is listening because that's all he hears. Like Sandra Steingraber said, there's so much pressure from industry but there's no pressure from the public because people aren't using their democratic right to be heard, to make their opinions known.

What everyone here should do and, maybe one of the first things that this coalition could do, is write to the Minister of Health and tell him that we want him to introduce a revised Pest Control Products Act right now, one that recognizes the special considerations of children, one that looks at endocrine disrupting properties, one that looks at chemicals that have carcinogenic properties, one that gives every Canadian the right to know what's in the formulations that they're spraying, one that protects the weakest in our society. If we can protect that six-week-old fetus that Sandra was talking about earlier, then every single one of us will be adequately protected. So as a coalition we can even ask for all those changes. But as individuals we still have to do it as well, because just being part of a coalition doesn't mean

It was amazing. I laughed, I cried. A cast of hundreds. It was an amazing experience and I think everyone should go away from this feeling that they have a whole bunch of new best friends and that we're going to work together and make a difference.

that the coalition is going to do the work for you. You still have to do the work yourself. The more voices there are, the more likely you'll have change, the squeaky wheels gets, eh, the vegetable oil (instead of grease)!

The big message here is 'United they fall' essentially. So if we're together and we work together to make our voices heard, then that's the way to effect change.

So let's try a unity building exercise. Everyone repeat after me:

I will not be silent.

I will not be indifferent.

I will not be a victim.

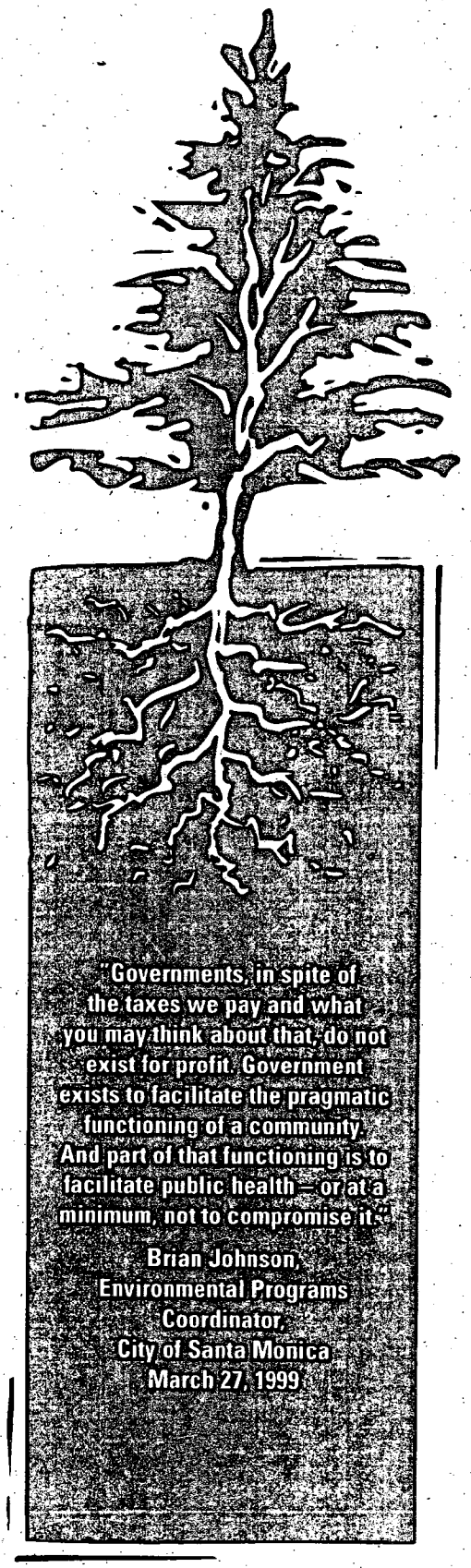
I will act.

I will change the world.

And to close: in the words of Margaret Mead, "Never doubt that a small group of committed citizens can change the world. In fact, it's the only thing that ever has."

And to close: in the words of Margaret Mead, "Never doubt that a small group of committed citizens can change the world. In fact, it's the only thing that ever has."

I'd like to thank everybody, thank the steering committee for setting up this conference. It was amazing. I laughed, I cried. A cast of hundreds. It was an amazing experience and I think everyone should go away from this feeling that they have a whole bunch of new best friends and that we're going to work together and make a difference.



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