

Show Transcript
Deconstructing Dinner
Kootenay Co-op Radio CJLY
Nelson, B.C. Canada

November 2, 2006

Title: “Chemical Foods II”

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Jon Steinman: And welcome once again to Deconstructing Dinner – a syndicated weekly program produced in Nelson, British Columbia at Kootenay Co-op Radio – an independent, community supported radio station. It wasn't long ago on Deconstructing Dinner that we aired the first of an ongoing series here on the program titled “Chemical Food.” There was such an abundance of unearthed information during the research for that program, that we very quickly are hosting yet again, another broadcast on Chemical Food – this now being part II. But abundant information aside, this topic of chemicals and how they make their way into our food seems to be one that is most unknown to the general public. When we walk through the produce section or aisles at the grocery store, how much information is provided to us on the various chemicals used to grow, process or store that food. As we concern ourselves with nutritional information on labels, how important really, is a nutritional label on a can of Coca-Cola or a bag of Tex-Mex Doritos.

What if there was a label that indicated the chemical residues that can be found in those products? Chances are there would be a quick shift to products grown and produced *without* the use of chemicals. So today's broadcast will hopefully provide a 1-hour intensive learning experience that otherwise cannot be found on a California peach or a bottle of ketchup.

On part one of this series we looked closer into the traces of chemicals that can be discovered in the bodies of Canadians, most importantly young children. But lets take a step back today and observe where these chemicals originate and who makes them. Most importantly, we will take a look at pesticides, perhaps the most widely-used chemicals designed for the growing and production of food. We will take a look at both regulations in the United States and here in Canada, we will take a look at some recent studies and reports highlighting both the pesticide residues found in the food we consume, and the dangers pesticides pose to our health. We will take a look at one of the most recent chemicals introduced on a large scale south of the border where much of our food originates, and we will look into the fluoridation of drinking water supplies, a topic, which does surprisingly enough, connect to the use of pesticides. To shed light on these topics we will hear from Charles Benbrook, who, based in Oregon, is the Chief Scientist at The Organic Center, and we will hear from Richard Wiles, the Senior Vice President at the Washington D.C.-based Environmental Working Group.

And rounding off today's program we will take a closer look at one of the largest pesticide manufacturers on the planet, The Dow Chemical Company, perhaps the most targeted agricultural chemical company in the world.

increase music and fade out

JS: For those listeners unable to catch the full one hour broadcast of this program, I will remind you that this broadcast along with all broadcasts of Deconstructing Dinner will be archived onto the program's website where further resources on each topic are also provided. We have also recently launched a page on our website where you can now offer your financial support to this not-for-profit program. Support from listeners will assist us in continuing to provide you with an objective and unfiltered education on the origins of your food and how you can become more involved in determining how and where your food is grown and produced.

And our website is cjly.net/deconstructingdinner or just simply conduct an Internet search by typing in the title of this program.

One of my guests on today's program is Richard Wiles of the Environmental Working Group, an organization that has been named one of Washington's top-ten watchdog organizations. One recent consumer tool that they just recently released is a downloadable shoppers guide to pesticides in produce where 43 fruits and vegetables are ranked based on the pesticide residues often found on these items. Topping the list of the most pesticide laden fruits and vegetables are peaches, while at the bottom of the list, are onions, which tend to show little to no residues of pesticides. Avocados are also another item often found with little to no residues.

But here we are speaking of pesticide residues, when many of us have never been told what pesticides are and how they are used. To better find out I spoke over the phone with Dr. Charles Benbrook. Dr. Benbrook is the Chief Scientist at the Organic Centre – a not-for-profit organization that aims to generate credible, peer reviewed scientific information and communicate the verifiable benefits of organic farming and products to the general public. Charles is located in Troy, Oregon, just and while this may not appear to provide that Canadian content we all hope for on our local media, lets not forget, that the vast majority of fruits, vegetables and processed foods, originate in the United States. As our food system is one that has steadily relied more and more on foods from anywhere but our local communities, understanding pesticides from an American perspective is arguably more important than understanding pesticides from a Canadian perspective.

And here's Charles Benbrook describing the categories of pesticides that are used to produce our food.

Charles Benbrook: A pesticide is either a chemical or a natural product that has the potential to control pests in one way or another. By pests we mean insects, weeds, plant diseases and viruses, and rodents, for example. There are different types of pesticides. Herbicides are used to control weeds, insecticides to control insects, and fungicides to control plant diseases. In North America, by volume, herbicides account for approximately 2/3 of the total pounds of the pesticides applied because essentially all conventional cropland producing crops like corn, soybeans, cotton, potatoes are treated with herbicides. There are a lot of small grains grown in Canada of course, and herbicide use is certainly common on small grains in Canada, but not every acre is treated.

JS: Here in Canada exists a trade association representing most of the major pesticide manufacturers. They were most recently the group fighting very hard to prevent a ban on the use of cosmetic pesticides on lawns in the city of Toronto. And this group is CropLife Canada. The executive director of CropLife Canada is Peter MacLeod, who has been quoted as saying this, “People think that their food, unless they buy organic, is laced with pesticides. The truth is that they’re not.” I asked Charles Benbrook to comment on this statement.

CB: Pesticides are found most frequently on fresh fruits and vegetables, approximately 3/4 of the fresh fruits and vegetables that people in North America eat have one or more pesticides on them when consumed. For some foods like apples, for example, there’s close to an average of three pesticides per sample that’s tested by the US Department of Agriculture through its pesticide data program. In the case of fruits and vegetables, there are certainly *some* conventional foods that does not contain residues; for example, bananas after they’re peeled, and oranges after they are peeled tend not to contain residues. Onions tend often not to contain residues. But many other fruits and vegetables, particularly those with a soft skin like peaches are quite prone to having residues and do in fact contain residues. Residues are much less common in animal products and milk, although there are a few. And there are some residues in grain products, although not nearly as many as in fruits and vegetables.

JS: CropLife Canada maintains an informative website that among its industry information, is an on-line game for children. The game is called Farmer Frank’s Challenge, where kids can choose how many fertilizers, insecticides and herbicides they can apply to the farm with a limited budget. At the top of the screen listed beside the finances available to Farmer Frank is a figure indicating environmental responsibility, and lo and behold, no matter how many chemicals children choose to pump into the farm, that environmental responsibility figure remains at 100%.

soundbite

JS: CropLife Canada maintains yet another statement that reads as follows, “A diet rich in vegetables and fruit is believed to be one of the best defences against cancer, heart disease and diabetes.” Now while this statement may certainly ring true, many pesticides have been found to be carcinogenic and pulled off of the market, and how effective is a defense against cancer when some of what we apply to those defenses, has been proven to cause cancer? As Dr. Benbrook explains, there is little risk to healthy adults when consuming foods grown with pesticides, while on the other hand, he points to more susceptible populations that have recently become the focus of pesticide research.

CB: Pesticides are commonly found on fresh fruits and vegetables, found at levels that pose minimal risks for healthy adults. The big concern, from a toxicological point of view with the level of pesticides that are currently appearing in fruits and vegetables in Canada, the US, and other developed countries is exposures for pregnant women, infants and children, and exposures for people that are battling some other health problem, that are on chemotherapy or might have AIDS, or for one reason or another are immunocompromised. Those are the individuals in society that are at heightened risk of suffering ill consequences from following exposures to pesticides at the levels that are common in foods. I think that one of the important things that occurred in the late 1990s in the US (I’m not sure it’s occurred to the same degree in Canada) is

that the whole focus of pesticide regulation and really the foundation of pesticide risk assessment in terms of the general population has shifted to pregnant women, infants, and children because we know that these people within our population are somewhere between 100 and 1000 times more vulnerable to pesticide exposures than healthy adults.

JS: And you're tuned in to Deconstructing Dinner as we listen to clips from my conversation with Dr. Charles Benbrook of the Organic Center based in Troy, Oregon. As much of our food here in Canada originates from south of the border, Dr. Benbrook provides insight on how pesticides are regulated and managed in the United States. Dr. Benbrook was the recent co-author of a report titled, "Successes and Lost opportunities to reduce children's exposure to pesticides since the mid 1990s." The report looked at four key methods used to reduce pesticide dietary exposure in children, and the report assesses the effectiveness of each method.

CB: The Organic Centre, the organization that I work with, recently published a report assessing progress and lost opportunities in reducing pesticide dietary exposures in the last decade. What we do in that report is look at four areas of activity designed to try to reduce pesticide exposures and risks. One is the research and development by the pesticide industry to discover and commercialize safer and reduced risk pesticides. Another is the effort to promote the adoption of integrated pest management, which is an approach to managing pests that is more biologically based and relies more on prevention than treatment with chemicals. We looked at eco-label programs, which are efforts in the marketplace to distinguish between foods based on the kind of pest management system that they use. And we looked at regulation, in particular the impact of a major piece of legislation passed in 1996 in the US called the Food Quality Protection Act, which directed the EPA to adopt a health-based standard for the setting and evaluation of pesticide tolerance levels.

In brief, we concluded this major new piece of legislation, despite ten years of implementation, had had a modest impact of reducing risks, perhaps on the order of about 30% from dietary exposures to pesticides. There was a much larger reduction in risks from pesticides in US produced fruits and vegetables, but a rather substantial increase in risks from pesticides in imported fruits and vegetables.

We also concluded that the chemical industry has contributed to a lower risk in general by discovering literally three-dozen or so new active ingredients, and bringing them onto the market in the last decade that are clearly far safer than the products that they are replacing. We concluded that the efforts to promote adoption of integrated pest management had been of marginal significance in reducing dietary exposures and risks, really for two reasons. One, these integrated pest management programs don't really focus on trying to reduce either pesticide use or dietary risk, and secondly they tend to be adopted on a very small percentage of cultivated cropland base in the US. We estimated that there are only a few 100 projects around the United States that receive significant government funding, and these 100 or 200 projects just can't begin to deal with all of the challenges that are out there, given that we produce 150 crops in vastly different regions across the country. And last, we present data that's in the scientific literature on the impact of organic farming on dietary exposure to pesticides, and conclude that the surest way for people to vastly reduce exposure to pesticides through food is to seek out organic fruits and vegetables in particular.

We feel that, for the time being, while there are many outstanding scientific questions about the nature of pesticide risk in food that consumers that want to cross this particular issue off their list of things to worry about, the surest way to do that is to seek out organic food.

JS: And that was Dr. Charles Benbrook of the Organic Center. To better understand how pesticides are regulated south of the border in the United States where the vast majority of our food here in Canada originates, it's important to look at the Food Quality Protection Act that was created in 1996 and that was just again reassessed in 2006. And to understand how this Food Quality Protection Act came into place, it's important to know of the standards that it replaced. Those standards were known as the Delaney Clause. The key difference between the two is that the former Delaney Clause was a zero-cancer risk standard, whereas the new standard permits a small, but negligible risk. Now while such a difference may sound scary to some, the Food Quality Protection Act was very easily adopted by government, industry and even many environmental groups.

President Clinton for one, responded to the new standards by boasting that, "We are making our food safer from pesticides."

And while changing regulations from zero-risk to negligible risk may not sound so safe, here's Dr. Benbrook describing the change.

CB: The Delaney Clause was adopted as an amendment to the Food, Drug, and Cosmetic Act, which at the time was the major piece of federal legislation in the United States that governed what you could put into or onto food. Basically, the Delaney Clause was very simple. It says: 'thou shalt not knowingly add to food any chemical that's known to cause cancer.' The Delaney Clause came to be applied to pesticide residues in the 1970s under kind of a special circumstance. In the US and in Canada, we have levels called tolerances that are set, that sanction the presence of pesticide residues in food up to a particular level. These tolerances typically are set on the raw agricultural commodity, for example, the wheat when it's harvested from the field. Or the apple, or the tomato. And tolerances are enforced by testing food at the farm gate or soon after it leaves the farm.

But in some circumstances, take a tomato for example, the raw tomato that may have a one part per million tolerance for pesticide is processed into tomato paste, and in the course of that processing the level of the pesticide that was on the raw tomato actually concentrates (or goes up) in the processed food. This commonly happens when liquid is taken away, as in the case of making tomato paste from tomatoes. It's often the case when fresh fruits and vegetables are dried. It's often the case when oils are extracted from a crop like canola or soybeans. In the event that pesticide residues concentrate in a processed food, the EPA determined that in some cases the actual levels in the processed food would be above the level in the raw agricultural commodity, and hence would violate the tolerance level.

To get around that problem, the EPA started to establish a so-called food additive tolerances, which were set at higher levels and applied to pesticide residues in processed foods. But a legal determination was made in the 1970s that the Delaney Clause would apply to the establishment

of these so-called food additive tolerances. Hence, in the case of these tolerances, the Delaney Clause applied, whereas in setting tolerances on raw agricultural products, the Delaney Clause did not apply.

We had a situation emerge in the United States where the EPA, the government agency responsible for setting tolerances and managing risks in food, had in effect two different standards that were applicable to the same pesticide food combination. And sometimes those two standards directed them to do the opposite thing. They obviously couldn't do that, and this inconsistency in federal law was studied and documented in a report done by the National Academy of Sciences that came out in 1987, actually during the period of time when I served as the Executive Director of the part of the National Academy of Sciences that put out that report. The so-called Delaney Paradox Report, which came out in 1987, recommended that a single health-based standard be adopted. That's in fact what happened in 1996 when Congress passed the Food Quality Protection Act, unanimously by the way, that ended over 15 years of debate over how to resolve this cluster of problems with the Delaney Clause.

JS: And you're tuned in to Deconstructing Dinner – a weekly radio program and podcast produced at Kootenay Co-op Radio in Nelson, British Columbia. A reminder that should you miss any of today's broadcast or would like to find out more information on this topic, check out our website at cjly.net/deconstructingdinner. Today's broadcast marks the second of an ongoing series here on Deconstructing Dinner titled Chemical Food, where we are currently looking closer at pesticides used to grow and store our food, and where just shortly, we will hear from Richard Wiles of the Environmental Working Group on the topic of fluoridated drinking water, a topic that surprisingly has a connection to pesticides.

But as pesticide regulations in Canada and the United States do differ to some degree, there is of course an agreed upon body of scientific knowledge that is used to assess the safety and risk posed by using pesticides on our food. The most dangerous class of insecticides are still in widespread use. And those are known as organophosphates. Now this family of chemistry has been the dominant focus of the United States' Environmental Protection Agency (EPA) and the implementation of this "Food Quality Protection Act," passed in 1996. But a recent study published in October 2006, provides some new science that indicates how developmental problems in the brains of children can be triggered by exposures far lower than what the EPA has just recently deemed "safe."

CB: An important study was published in October 2006 in the journal *Environmental Health Perspectives*, which is a very prestigious government backed scientific journal here in the U.S that publishes cutting edge research on all sorts of risks. This team of scientists that included scientists working with support from the environmental protection agency looked at the mechanisms through which exposures to a class of insecticides called the organophosphates or OP's can disrupt the developing brain. Using some very advanced research techniques, they determined that there were in fact some new mechanisms through which this particular family of chemistry and some of the chemicals within that family of chemistry could impair neurological development. Moreover, the important part of this study is that they determined that the way these pesticides impair the developing brain has nothing to do with the well studied capacity of these chemicals to disrupt cholinesterase. This class of insecticides, the organophosphates, are

widely known as cholinesterase inhibitors, which is an enzyme in the brain that governs the firing of neurons. So a cholinesterase inhibitor really disrupts the basic functioning of your brain through impacting this critical enzyme that helps determine when neurons turn off and turn on and speak to each other. The organophosphate insecticides are regulated around the world on the basis of their potential to disrupt cholinesterase, the functioning of this brain enzyme. What Slotkin and his colleagues did in this study is that they documented that these organophosphate insecticides have the potential to disrupt the developing brain through mechanisms that have nothing to do with cholinesterase inhibition, and moreover, at dose levels four to five times lower than the doses that actually cause this inhibition of cholinesterase. So the bottom line conclusion that this study points to is that the underlying foundation for the regulation of one of the most toxic and dangerous class of insecticides, the OP's, is in fact the incorrect biological endpoint. That the regulators need to go back and assess the developmental neurotoxicity of these compounds and update their risk assessment taking into account these other mechanisms.

JS: And that was Dr. Charles Benbrook of the Organic Center – a not-for-profit organization that aims to generate credible, peer reviewed scientific information and communicate the verifiable benefits of organic farming and products to the general public. And while this new scientific evidence will lead to a reassessment of pesticide regulations, Dr. Benbrook indicates this could take upwards to ten years, and in the meantime, The Organic Centre suggests eating organic foods whenever possible, and there is also the recent resource mentioned earlier that was put out by the Environmental Working Group, a resource that indicates which fruits and vegetables contain the highest levels of pesticide residues. And that particular resource can be found at ewg.org and the website for The Organic Center can be found at organic-center.org

soundbite

JS: My next guest on today's broadcast of Deconstructing Dinner is Richard Wiles of the Environmental Working Group. But before we hear clips from my conversation with Richard, I will highlight some interesting findings recently released by the Vancouver-based David Suzuki Foundation.

In a report released in October 2006 titled "The Food We Eat", The David Suzuki Foundation assessed the pesticide regulations here in Canada, and compared them to those that exist in Europe, the United States, and Australia.

The report provides conclusive evidence that Canadian regulations governing the use of pesticides and the potential impact of pesticides on food and health are among the weakest in the industrialized world.

As the report highlights, the registration of a pesticide should indicate that the product in question would not have significant adverse effects on human health or the environment. As is often highlighted here on Deconstructing Dinner, a long history of mistakes proves that this theory is false. The report illustrates how many pesticides that were once approved and widely used, from DDT to lindane, are no longer legal in Canada because negative health or environmental effects were discovered many years later.

The comparative analysis between standards reveals that as of July 2006, there are 60 active ingredients used in 1,130 pesticide products, which continue to be registered for use in Canada despite having been banned in other western industrialized nations.

In fact, two of the five most heavily used pesticides in Ontario, atrazine and 1,3-dichloropropene, are banned in other industrialized nations. Atrazine, used predominantly on corn in Ontario, was banned years ago in Sweden, Germany, Norway, and Denmark and is now prohibited throughout the European Union.

In using one example indicated in the report, the pesticide permethrin is used here in Canada on leaf lettuce and spinach. And the permissible levels of permethrin residues here in Canada, are 400 times higher than the European limit.

But perhaps the most troubling information that the Food We Eat report unearthed, is how The Canadian Food Inspection Agency claims that it detects pesticide residues on 10% of fresh fruit and vegetables. And while this number may seem low, government agencies in the U.S. and the U.K. find pesticide residues on 76% and 40% respectively, of fresh fruits and vegetables. The Food We Eat Report concludes this, that “There is clearly a serious inconsistency in these figures, as it appears Canadian consumers are being given false assurances about the level of pesticide contamination of their food.”

You can check out the full “Food We Eat” report by linking to it from the Deconstructing Dinner website, or by visiting davidsuzuki.org

soundbite

JS: My next guest on today’s second part of the Chemical Food Series here on Deconstructing Dinner is Richard Wiles of the Washington D.C.-based Environmental Working Group – an organization that has been at the forefront of the debate on PCBs in farmed salmon, benzene in soft drinks and fluoride in drinking water among others. Richard Wiles is the organizations Vice-President – an organization mind you that has been called one of the ten most effective watchdog groups in Washington.

With so many issues to have spoken of with Richard, I chose to speak with him on the topic of fluoridated drinking water. 40% of Canadians receive drinking water that has been medicated with the chemical, fluoride. In the United States, 67% of the population lives in communities with fluoridated water systems. And how do pesticides connect to drinking water? Well for one, the widely debated pesticide Atrazine can be often found in Canadian drinking water supplies. But yet another pesticide has recently been introduced on a larger scale, and this pesticide is Sulfuryl Fluoride. As Richard Wiles indicates, the tolerance levels set for Sulfuryl Fluoride further worsen the total fluoride exposure that the North American population now receives.

But first here is Richard Wiles indicating where the fluoride in drinking water originates.

Richard Wiles: Fluoride is an element that is added to drinking water supplies in the belief that it will help prevent tooth decay, help prevent cavities. Most of the fluoride that is added to drinking

water is not the same fluoride that's found in toothpaste, which is a pharmaceutical grade fluoride, but in fact comes from air pollution smokestack scrubber waste from the fertilizer industry. What used to be disposed of as hazardous waste—the fluoride in that scrubber waste—is now pulled out of that waste and shipped around the country here in the United States at least, and becomes the fluoride that's added to tap water.

JS: While the fluoridation of municipal drinking water has been a hotly debated issue since the 1950s, the debate has reached quite the exposure since a Harvard professor was accused of falsifying a report that assessed the risks of bone cancer in boys who consume fluoridated water, and it was Richard Wiles and the Environmental Working Group who brought awareness of this issue to the public.

RW: The issue of fluoride and bone cancer in boys has really heated up over the past year largely because it became clear that Dr. Douglass, who was at Harvard University, had been falsifying his reports to the U.S National Institute of Health concerning the results of federally funded research here in the U.S. The research in question was actually conducted by one of Dr. Douglass's PhD candidates who went on to get her doctorate under him. She looked at the relationship between fluoride and bone cancer in adolescent boys. When you looked at boys that drank fluoridated water and those that did not, she actually used (by used I mean she used the data and information on the boys that were in a study in a cohort that Dr. Douglass had put together in the early 90's), and she went back and looked at that data and did a very extensive job of documenting fluoride exposure in the water that those boys consumed by year, every year of their life, documenting the fluoride levels by getting in touch with water utilities, testing wells and that kind of thing, and she found when she looked at this data the strongest relationship ever between fluoride consumption in drinking water and bone cancer in boys. Actually she found between a five and seven fold increase in the risk of this typically fatal bone cancer in boys who drank fluoridated water versus those that didn't.

Dr. Douglass, when asked by the feds in his routine reporting here as to whether or not his research had found any link between bone cancer and fluoride, reported that the research that he was supervising and conducting with federal funds found no association, which was clearly not true, but at the time the research that did show that was sort of buried shall we say in the Harvard medical library and no one was the wiser until we dug out the actual data.

JS: Before hearing how the Environmental Working Group went about unearthing this data on Dr. Douglass's study, it's first important to point out who Dr. Douglass is, and who else he also works for.

RW: Dr. Douglass is with the Harvard Medical School, the Department of Dentistry. He is a Dean of one of the programs there. He's been there for quite some time, 25 or 30 years. He also has had a very cozy relationship with Colgate Toothpaste Company. He's the editor of what I think they call the Colgate Oral Care Report, which is essentially a Colgate funded newsletter that goes out to about 250,000 dentists worldwide. So essentially, Dr. Douglass is on the payroll of Colgate as he is simultaneously on the pay roll of Harvard using taxpayer money here to investigate this very serious health question. I think it would be probably apparent to most people

in the public, and we certainly think this creates, at a minimum, the appearance of a pretty serious conflict of interest on the part of Dr. Douglass.

JS: As it was the Environmental Working Group that brought this troubling story to the public eye, Richard Wiles describes how this organization went about compiling this information before it was presented to regulatory agencies and Harvard University.

RW: This document came to our attention, to some of our colleagues actually of the Colgate network who were attending a hearing at the National Academy of Sciences that was reviewing the toxicity of the hazards of fluoride, and they collected all the testimony, including Dr. Douglass's statement, and they found that he had referred to a study that we had never seen before in supporting his claim that there was no relationship between fluoride and bone cancer in boys. That study that he referred to was in fact this doctoral dissertation that found a very strong association that was contrary to what he was telling the National Academy, and what he had reported to NIH. The document in question was actually a copy of his final report on the research that he had conducted, the final report he had given to the National Institute of Health. From that point, we actually sent people to the Harvard Library to get this dissertation, which had never been seen before by anyone and never referenced anywhere. Well it turned out we weren't allowed to make copies of it due to library policy without the permission of the author, and the author didn't want to give us permission, and so to make a long story short we were able to make copies of 10% of the document. We sent in individuals and each one was allowed to do that, and ultimately we were able to get about half the document—the key parts that described how she did the work and the findings. They were exactly contrary to what Dr. Douglass had said, and so that began the odyssey here of Dr. Douglass's ethics investigation.

JS: Harvard University conducted their ethics investigation into these charges laid by Environmental Working Group, and they chose to protect their image and have Dr. Chester Douglass cleared of any charges. But Richard Wiles did not stop there, and has since wrote a letter to the University indicating that the manner in which their investigation was conducted, has broken federal rules. You can read that letter and stay updated to the story on EWGs website – ewg.org

As the addition of fluoride to municipal drinking water is not mandated on a provincial state or federal level, many communities, and especially here in British-Columbia, have said no to fluoridation. In fact, almost the entire population of British Columbia does not receive fluoridated water. The community of Golden just recently stopped fluoridating in November 2005, Kamloops in 2001, Squamish in 2000 and Kelowna in 1996. But cities like Toronto have been fluoridating their drinking water since 1963, and when our food system has become so connected around the continent, I asked Richard Wiles if British Columbians for one, are immune to ingesting fluoridated water?

Richard Wiles: No they're not. In fact, this is one of the big concerns of the National Academy of the Sciences that just released a major review of the safety of fluoride concluding that U.S standard was not safe and needed to be lowered immediately. It's what they call the halo effect. That is basically that even if you are not drinking fluoridated water directly coming out of your tap, you're going to be exposed to a lot of fluoride through, for example, beverages that are made

in any city that has fluoridated water. Any bottle of water, can of juice, or can of soda that is produced in a fluoridated community is going to have fluoride in it, and that's simply because even though those companies typically will filter their water using fairly advanced carbon systems, they don't take out the fluoride because that requires a much more sophisticated set of practices that are just cost prohibitive. Some actually even add fluoride. You're definitely getting fluoride in the diet; you get it through lots of different foods as well, even some baby foods. For example, processed chicken that's in chicken-based baby food tends to have high levels of fluoride because the de-boning process that they use, you tend to get very small pieces of bone that's part of that chicken based food, and of course the fluoride in the water that goes to the chickens is concentrated in their bones as it is in people, so there are a lot of sources of fluoride in the food supply and the drink supply, even for people who are not drinking deliberately fluoridated tap water.

JS: And you're tuned in to Deconstructing Dinner – a weekly program produced at Kootenay Co-op Radio in Nelson, British Columbia. You can find out more info about the program on our website at cjly.net/deconstructingdinner.

As was mentioned earlier, water fluoridation is in fact connected to today's previous topic of pesticides. And the reason is that a fluoride-based pesticide has been put into increased use in the United States after tolerance levels have now been increased. This is said to be a result of the 1997 Montreal protocol where Methyl Bromide was agreed to be phased out in industrialized countries by 2005. Methyl bromide was a toxic pesticide injected into soil before planting strawberries, grapes, almonds and other crops. But it was also used to kill pests on stored commodities found in agricultural shipments and in buildings. While many countries have stopped using the chemical, the United States continues to use vast quantities of it, and an excellent article on this particular subject will be listed on the Deconstructing Dinner website.

While a replacement for methyl bromide is certainly called for, an aggressive lobbying effort by the pesticide industry was successful in raising the tolerance levels of the fumigant known as Sulfuryl Fluoride. And Richard Wiles explains what Sulfuryl Fluoride is and how this form of fluoride should be added to the total exposure of all fluoride including that found in water supplies.

RW: Sulfuryl fluoride is a fluoride-based fumigant that's used mostly to treat foods in storage; it's a post-harvest fumigant, so when food is stored it's treated with this to control bugs in storage. It basically is transformed into the same fluoride anion, or fluoride ion, excuse me, fluoride that's the same fluoride in tap water. So, for purposes of health risk assessments and safety concerns that people would have, it should just be added to the fluoride exposure in water, which is how EPA regulated it here to the extent that they did regulate it.

JS: In September 2005, Environmental Working Group challenged the safety of new food tolerances issued by the Environmental Protection Agency, and Richard explains these concerns.

RW: The basic concern that we have with this fluoride-based pesticide is that it's just simply going to add exposures, in some cases significant exposures on top of a situation that's already unsafe for children. There's a lot of complicated math here, but the basic health point is pretty

clear. That small children, because they're smaller and basically are exposed to fluoride at a greater amount relative to their size, get a higher dose of fluoride in every glass of water that they drink, and they are, according to the National Academy of Sciences and many other peer reviewed papers that have been published over the past ten years or so, that it's clear that the per body weight dose that a child gets is in the unsafe level. There is no margin of safety between the dose that a child gets and the toxic effects that are seen in populations of people worldwide, and even animal studies show that that was really the concern of the National Academy of Sciences.

JS: To help better understand how such a potentially dangerous level of fluoride exposure could be allowed within the general public, Richard Wiles describes how such regulation changes came about.

RW: I think in this case it's just a simple case of a pesticide company coming in and pressuring the EPA to make a number of really bad decision that are not supported by the science in order justify registration of this new fluoride-based pesticide. This, I have to say, is one of the clearest cases of EPA violation of the law in its requirement to protect children from pesticides. There's just so many procedural and scientific irregularities in the process here, we don't have enough time even if we talked about this all week. It's just a really glaring case. You can only surmise, of course we don't have any actual evidence about the amounts of pressure put on the EPA by Dow in this process, but we can only surmise that there must have been some because there's no scientific rationale for this, and there doesn't appear to be any pest control crisis out there that is demanding that we add more fluoride to the food supply.

JS: In wrapping up my interview with Richard Wiles, he describes where the issue sits right now, and how the EPA has responded to the concerns put forth by Environmental Working Group.

RW: We've met with them, and we're in a process of a little bit of dialogue, and moving forward with our legal case. It is not a formal legal case yet; there are certain administrative steps that have to be taken, and we're just moving through that process. Our goal is to have these tolerances suspended and off the books. We also would like to see an open and transparent assessment of the risks of fluoride, as was requested by the National Academy of the Sciences. That is the most important thing that we need here. We need a little sunlight on the process. We need an open, transparent review of the science, and the risks of fluoride. If that is done in an open way, I think you'll see the end of fluoridation in tap water. Now, it wouldn't be the end of fluoride in toothpaste—I want to make that clear—but it certainly would be the end of fluoride in tap water as we know it today if we fairly and objectively looked at the risks.

JS: And that was Richard Wiles of the Washington, D.C.-based Environmental Working Group, I strongly recommend taking a look at the group's website at ewg.org

In wrapping up the final ten minutes or so of today's Chemical Food broadcast on Deconstructing Dinner, we will put the spotlight on one of the most powerful pesticide manufacturers on the planet. And that company is the Dow Chemical Company with headquarters in Midland, Michigan. The company fits in to the last issue just covered, as Dow, under the trade name Profume, is the company that lobbied for the tolerance level changes of Sulfuryl Fluoride.

But here is one of the most interesting things that was uncovered during the research for this broadcast. And it connects back to Dr. Chester Douglass, the Harvard Professor accused of falsifying his research on fluoride and who is on the payroll of Colgate-Palmolive. I chose to take a further look into the management at Colgate and I uncovered this, that the Senior Vice-President, General Counsel and Secretary Andrew D. Hendry, was, prior to joining the company, a corporate attorney at Reynold Metals – now owned by ALCOA, the second largest producer of aluminum. ALCOA was one of the principal companies that introduced fluoride, an industrial waste from aluminum production, as an ingredient for toothpaste. Current fluoride for drinking water on the other hand is derived from waste produced in the fertilizer industry. One company producing fertilizers is Dow. And who sits on the board of Colgate Palmolive – but current Director and former Executive Vice President of the Dow Chemical Company – J. Pedro Reinhard.

soundbite

JS: Dow also appeared in a report released by the California-based Pesticide Action Network of North America (PANNA). The report titled, “Pesticides in our Bodies and Corporate Accountability”, introduced the idea of a Pesticide Trespass Index, that is a method of calculating the responsibility that should be placed on the corporations producing pesticides. An example of this index, or PTI, is provided in the report for the chemical chlorpyrifos, a pesticide that is banned in countries like Finland, and Sweden, yet is found in 33 registered pesticide products here in Canada. Dow AgroSciences, a wholly owned subsidiary of Dow, is the primary manufacturer of chlorpyrifos. The PANNA report uses conservative market share estimates that Dow’s PTI for chlorpyrifos can be calculated to be 0.8. This figure suggests that at least 80% of the population’s chlorpyrifos body burden is the responsibility of Dow Chemical Corporation.

But Dow is perhaps most criticized for its purchase of Union Carbide, the company that owned a pesticide factory in Bhopal, India, a factory that accidentally leaked the deadly gas methyl isocyanate in 1984, killing thousands of residents immediately. Death tolls have been estimated around 20,000 in the days shortly after. The dangerous effects from the disaster continue today and DOW has become the target of responsibility, as the company purchased Union Carbide and their assets in 2001 for 10.4 billion dollars. Dow has refused to accept responsibility for the disaster, as they have stated that Union Carbide settlement payments have been fulfilled.

In honor of the twenty year anniversary of the disaster, Sanford Lewis, an independent film producer, created a film to commemorate the victims, and with his permission, Deconstructing Dinner will play for you some audio clips extracted from the film.

And here is, “Twenty Years Without Justice: The Bhopal Chemical Disaster.”

extended audio clip from film

Rashida Bee, Bhopal survivor (translated): It was a very happy life before the incident. I didn’t even know there was a Union Carbide factory. Or that someone that makes this kind of gas

existed. At night when we were sleeping deeply, my nephew got up and started coughing very badly. He said, “auntie, someone has burnt a chili pepper, or left a bonfire burning.”

Champa Devi Shukla, Bhopal survivor (translated): We had a neighbour called Talco, his son came running, and he had a room near the Union Carbide factory. He said, “you’ll have to leave this place within two minutes, or else nobody will survive”.

Narrator: The ten meter curtain of gas struck without warning. It ate away at its victim’s lungs and throats, causing hemorrhaging, muscular convulsions, and blindness.

Rashida Bee: That night when the incident happened there was chaos everywhere. People were urinating and defecating in their clothes. They were begging to die. They didn’t want to live. When I opened my eyes, I just saw bodies all over. Those were the dead bodies of small children, woman and men of all ages in horrible condition. It was so terrifying.

Rajan Sharma, US Based Lawyer: What we’ve learned through discovery and investigations is that many of the safety measures at the plant did not work. We actually found that the 1973 capital budget proposal that says that the technology that was being transferred to Bhopal to manufacture this extremely dangerous chemical was “unproven”.... states very clearly that, what the document calls technology risks, “could have been avoided had proven technology been used throughout.” So there’s no question now, I think after 20 years we can close the chapter on that debate because Union Carbide clearly did use inadequate, unproven technology and transferred it to Bhopal where it played a key role in causing the catastrophe of December 2nd-3rd, 1984.

Narrator: After the disaster, Union Carbide worked hard to find something to blame other than its own negligence. None of the plants safety systems were functioning on the night of the disaster. Some were being repaired, others had been shut down to save money.

Rashida Bee: Later we learned that many safety measures at the plant did not work. That the flare tower was disconnected, that the vent gas scrubber was out of caustic soda and undersized, that the water curtain was undersized, that the pressure valve was not working, that the runoff already contained MIC, and that the necessary refrigeration for the MIC unit had been turned off to save money.

Rajan Sharma: What outrages me most 20 years after the disaster, Union Carbide is able to continue to evade criminal charges for having caused this catastrophe. Warren Anderson had actually, when he had visited India in the weeks following the disaster, he was briefly detained and released on bail. He signed a bail bond saying that he would return to face those charges. In 1992, the Bhopal district court issued a summons and notice to appear to trial for both Warren Anderson and Union Carbide. Union Carbide at the time publically told the press that they would not respond to the summons, and that it was their position that they were not subject to the criminal jurisdiction of India’s courts. When neither Warren Anderson nor Union Carbide presented themselves for trial, the Bhopal district court said that it would declare them absconders, which basically means fugitives from justice.

Narrator: Today, the people of Bhopal are still suffering as a result of Union Carbides toxic legacy. Rates of cancer and tuberculosis have risen dramatically, and each month 10-15 people still die as a result of their exposure to the gas. Despite a long legal struggle, victims of the disaster have received almost no compensation for their suffering.

On behalf of the victims, the Indian government sued Union Carbide for \$3.3 billion U.S, but in 1989 it settled for just a fraction of that, \$470,000,000. That works out to be between \$370-\$533 U.S per person, barely enough to cover medical expense for five years, for injuries they are likely to suffer all their lives. Many victims are still to receive any compensation.

Rajan Sharma: The economic impact of the catastrophe has been tremendous. There are upwards of 100,000 individuals that their livelihoods came from physical labour of various kinds. Because of the symptoms associated with the toxic gas exposure, many people cannot even lift things, or they have difficulty breathing, so there are a large number of individuals who are incapable of working.

Narrator: At the time of the disaster, Union Carbide's failure to provide full information regarding the nature of poisoning meant that doctors did not know the best course of treatment for gas victims. Even to this day, Union Carbide and its new owner Dow have refused to release information to survivors and Indian medical agencies about the gas composition or its effect on human health. Greenpeace tested samples from the water supply near the factory site.

Ruth Stringer, Greenpeace science unit: We sampled the water in Bhopal in 1989, and we found dangerously high samples of hazardous chemicals. Some of them were suspected human carcinogens, others could damage the liver and kidneys or affect the nervous system, and others could impair the development of human fetuses.

Rajan Sharma: I filed a lawsuit in New York for environmental contamination of soil and groundwater by Union Carbide. We had to file the lawsuit in New York because Union Carbide refuses to submit to the courts of India where its toxins have polluted the drinking water supply of 20,000 people.

Rashida Bee: We understood that the new owner was Dow Chemical. After 17 years of struggle, we were really angry to see a new owner. We decided to protest. We picked up our brooms as a symbolic gesture of our anger and went to Dow chemical to demand a clean city with clean water, and that they solve the problems caused by the plant.

Champa Devi Shukla: The condition of the gas victims has gone from bad to worse. Therefore, we would force them to take responsibility for that, and take suitable action.

We are asking Dow to clean up the contaminated site. To submit Union Carbide to the criminal case. To aid in the economic rehabilitation of Bhopal, and in survivors long-term medical care.

Voice of Champa Devi Shukla inside the Dow Shareholder Meeting: Why, as the new owner of Union Carbide, do you not face the ongoing criminal trial in India?

William S. Stavropoulos, Dow Chemical Company CEO: Again, I'm sorry for your personal situation, but the only criminal charges that we're aware of is the one against the former CEO of Union Carbide, who retired many many years ago. We don't know of any other criminal charges.

Rajan Sharma: That's an obvious lie. Union Carbide was served with a notice to appear for trial in 1992, so they are more than aware that there are criminal charges pending against them in Bhopal and have been since 1987.

Voice of woman outside the Indian embassy in Washington, DC: The CEO of Dow told us to take our grievances to the Indian Government, so we are here to ask the Indian Government to proceed in the criminal case, and ensure that Dow is indicted and that Union Carbide is brought to justice.

JS: And that was, "Twenty Years Without Justice: The Bhopal Chemical Disaster." And you can view the visual version of that film by visiting Sanford Lewis's website, strategicvideo.net, and links to information on how you can support the current struggles in Bhopal will be provided on the Deconstructing Dinner website – cjly.net/deconstructingdinner.

As the destruction caused by this disaster was the result of a concentrated leaking of gas, it's important to not forget, that the chemical pesticides that killed the thousands of people in Bhopal, are also applied to food all over the world, albeit, in far more dilute quantities.

But as Rashida Bee, one of the most well known representatives of the people of Bhopal stated in April 2004, "Dow and other corporations are causing slow and silent Bhopals all over the world. Mothers everywhere in the world carry chemical poisons in their breasts. The Bhopal tragedy is a symbol of corporations against humanity."

In 2005, Dow recorded \$52 billion in sales, and over \$5 billion in profit.

ending theme

JS: That was this week's edition of Deconstructing Dinner, produced and recorded at Nelson, British Columbia's Kootenay Co-op Radio. I've been your host Jon Steinman.

I thank my technical assistant Dianne Matenko. The theme music for Deconstructing Dinner is courtesy of Nelson-area resident Adham Shaikh.

This radio program is provided free of charge to campus/community radio stations across the country, and financial support for this program is received through donations and sponsorship from businesses, organizations and listeners. Should you wish to contribute to the ongoing success of this program, I invite you to offer your support for Deconstructing Dinner through our website at cjly.net/deconstructingdinner or by dialing 250-352-9600.