



Optional The Great Debate



Goal: Students will use a debate format to understand the reasons for the controversy over chemicals and reach their own conclusions about whether they are necessary for current human existence.

Objectives: Students will...

- Develop persuasive arguments.
- Practice public speaking skills.
- Read and analyze technical information.
- Develop a rationale for their beliefs about chemicals.

Materials (for a class of 32):

- 32 copies of The Great Debate Articles 1, 2, and 3
- 32 copies of The Great Debate Terms Student Sheet
- 32 copies of The Great Debate Sequence Student Sheet
- 16 copies of The Great Debate Affirmative Debater Grid
- 16 copies of The Great Debate Negative Debater Grid
- 1 copy of The Great Debate Terms Teacher Sheet

Time Required: Two 45–60 minute class periods

Standards Met: C3, C5, G5, LA3, LA4, LA5, LA6, LA7, LA11, LA12

Green Chemistry Principles Addressed: 1–12

Procedure:

- Explain to students that there are two schools of thought regarding chemicals: one is that they are negatively impacting humans and the Earth, and thus should be removed entirely; the second is that chemicals are naturally occurring and are an important part of human existence.
- Pass out The Great Debate Terms Student Sheet.
- Review each term and apply the terms to this topic. Have students fill in the blanks under applicable terms. Use The Great Debate Terms Teacher Sheet.
- Pass out articles and assign students topics—human or natural.
- Allow students time to read each article; they should read both the pro and con to help them better construct their arguments.
- Pass out The Great Debate Sequence Student Sheet, The Great Debate Affirmative Debater Grid, and The Great Debate Negative Debater Grid.
- Review the sequence and how it relates to the grids.



The Great Debate

Terms Teacher Sheet

Debate: Process whereby two or more individuals take opposing viewpoints on a proposition in an attempt to persuade others to accept or reject a solution to a problem.

Topic: Chemical Impact

Resolution: A statement that presents the idea or issue that is under examination. It should be clearly worded, deal with one subject, be timely, be free of emotional or prejudicial phrases, and be phrased from an affirmative position.

Resolution Statement: Humans need to change their habits because we are influencing human and environmental health.

Affirmative: This side tells the importance of adopting the proposition and why the change is needed.

Negative: The negative side presents arguments as to why no changes should take place. They also argue against the affirmative points and present the disadvantages of the affirmative's plan.

Argument: Argument is the systematic process of relating evidence for the purpose of establishing the case. Argument is your way of presenting evidence that helps to support your side.

Main Points: Statements or points that are offered as being the basic truths upon which a case is built.

Refute: Attack the case of the opposition. The debaters seek out the weaknesses of the opponents' arguments and present a counter argument.

Rebuttal: This is the last opportunity to argue against the opposition and to highlight your main points.



The Great Debate

Terms Student Sheet

Name: _____ Date: _____

Debate: Process whereby two or more individuals take opposing viewpoints on a proposition in an attempt to persuade others to accept or reject a solution to a problem.

Topic:

Resolution: A statement that presents the idea or issue that is under examination. It should be clearly worded, deal with one subject, be timely, be free of emotional or prejudicial phrases, and be phrased from an affirmative position.

Resolution Statement:

Affirmative: This side tells the importance of adopting the proposition and why the change is needed.

Negative: The negative side presents arguments as to why no changes should take place. They also argue against the affirmative points and present the disadvantages of the affirmative's plan.

Argument: Argument is the systematic process of relating evidence for the purpose of establishing the case. Argument is your way of presenting evidence that helps to support your side.

Main Points: Statements or points that are offered as being the basic truths upon which a case is built.

Refute: Attack the case of the opposition. The debaters seek out the weaknesses of the opponents' arguments and present a counter argument.

Rebuttal: This is the last opportunity to argue against the opposition and to highlight your main points.



The Great Debate Sequence Student Sheet

1. First Affirmative Speaker (2–3 minutes)
2. First Negative Speaker (2–3 minutes)
3. Second Affirmative Speaker (2–3 minutes)
4. Second Negative Speaker (2–3 minutes)
5. Affirmative Rebuttal (1 minute)
6. Negative Rebuttal and/or Summary (1–2 minutes)
7. Affirmative Summary (1 minute)



The Great Debate

Detailed Description of Debate Sequence

First Affirmative Speaker

- Begins with an interesting, attention-getting introduction.
- Gives a brief explanation/history of the problem.
- States the resolution.
- Presents the definition of terms in a clear and meaningful manner. (Make sure that everyone understands the vocabulary being used. Example: global warming, chlorofluorocarbons, etc.)
- Announce the major affirmative contentions, specifically stating what the affirmative team intends to accomplish. The First Affirmative speaker should tell the listeners which contention will be presented by the First Affirmative and the Second Affirmative speakers.
- Present the first major contention. Contentions need to address the need, practicality, and advantages. It must be supported by evidence and reasoning.
- Presents a plan that would bring the change into effect.
- Summarize. Review the major points.

First Negative Speaker

- Analyze what the affirmative speaker has said. Point out where the Affirmative and Negative agree and where they disagree.
- Refute the Affirmative points. Present evidence, opinion, and reasoning to destroy the opponent's argument.
- Present arguments as to why no changes should take place.
- Summarize. Review the major points.

Second Affirmative Speaker

- Analyze the debate. Show clearly the relationship between the Affirmative proposal and the Negative stand, magnifying the importance of the Affirmative points.
- Rebuild your case. Restate points and offer further evidence and reasoning.
- Attack the Negative points.
- Summarize. Review the major points.

Second Negative Speaker

- Analyze the debate by comparing the two cases again.
- Rebuild your case. Restate your points and offer further evidence and reasoning.
- Attack the Affirmative points.
- Present the remaining Negative points.
- Summarize. Review the major points.

Affirmative Rebuttal

- Affirmative side addresses comments of the negative second speaker.

Negative Rebuttal and/or Summary.

- Negative side gives a summary. This is the last time the negative side may address the audience.

Affirmative Side Concludes with its Summary

- Affirmative side gives a summary. This is the last time the affirmative side may address the audience.



The Great Debate Article 1

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Arctic Life Threatened by Toxic Chemicals, Groups Say

By Sharon Guynup
National Geographic Today
October 8, 2002

There's something seriously wrong in the Great White North. Polar bears are birthing fewer cubs. Seals that swim in northern seas carry high levels of mercury and cadmium in the body fat that insulates them from the cold—and animals from reindeer to whales to sea birds also carry industrial chemicals in their bodies. Some Inuit newborns are born with high blood pressure that persists into elementary school.

The reason, according to a new study, is that the Arctic has become a repository for some of the world's most toxic chemicals, and at higher concentrations than previously thought.

Although the brilliant white snow and clear blue Arctic seas appear pristine, small concentrations of industrial chemicals are carried here on air, river, and ocean currents from as far away as Asia and gradually build up.

This is why "the Arctic is a very important area to take the pulse of the globe," said Lars Otto Reiersen, leader of the Norway-based Arctic Monitoring and Assessment Program (AMAP), who co-produced the new report *Arctic Pollution 2002* in collaboration with the World Wildlife Federation (WWF).

Nervous System Damage, Weakened Immunity

"[These chemicals] come from us," said Samantha Smith, director of the WWF Arctic Program. "They come from people in industrialized countries, from the factories that make our products and the way that we grow our food."

The Inuit Circumpolar Conference, an organization representing Inuit people in Alaska, Canada, Greenland, and Russia, expressed concern over the report. The group's chair, Sheila Watt-Cloutier, called for expanded research on threats from toxic industrial chemicals, and asked for international cooperation to protect Arctic indigenous people.

The study showed that levels of some heavy metals like mercury, lead, and cadmium; and persistent organic pollutants (POPs)—toxins like Polychlorinated Biphenyls (PCBs); the insecticide DDT, and dioxins—exceeded previous estimates or hadn't dissipated over time. POPs are chemicals that break down slowly in the environment. They damage the nervous system and interfere with development. They also weaken

immunity: fur seals and polar bears with high PCB levels had increased rates of infection.

Mercury Rising

Mercury has risen to dangerous levels. Among some indigenous people, levels are high enough to affect childhood development, causing nerve and brain damage. It may also be affecting the reproduction of peregrine falcons.

"The increase in levels of organic mercury in some parts of the Arctic is primarily due to increased burning of coal for energy production in Southeast Asia, showing once again the tight links between the Arctic—as recipient of pollutants—and the rest of the world," said Reiersen.

Lake sediments in Greenland show mercury concentrations are three times higher than in pre-industrial times. Globally, 5,000 tons of mercury are present in the air at any time.

In addition to known pollutants, newly-detected toxins were added to the list. Among those were flame retardants that affect brain development and weaken immunity, and perfluorooctane sulfonate (PFOS), a stain repellent. PFOS, which was recently found in the livers of northern Alaskan bears, is of particular concern because of its "extreme persistence." "It does not seem to break down under any circumstance," the authors said.

Many of these chemicals persist longer here than in other regions because of the frigid climate and the lack of soil and vegetation to absorb pollution. Even small amounts of toxins go a long way since northern animals accumulate them over a lifetime in the fat they store to survive the extreme cold.

Chemicals in Breast Milk

Inuit people are particularly at risk because the staples of their diet include animals that sit high on the food chain, like seal, whale, and fish, that have absorbed large quantities of contaminants. Chemicals have also been found in breast milk.

There was some good news. Since the introduction of non-leaded gasoline in North America in the 1970s, lead levels have dropped steadily in Greenland ice core samples. But tests on animals, from moose in the Yukon Territory to Swedish reindeer, show little change in the amount of lead stored in body tissues.

Steps are being taken to address the problem. In 2001, the United Nations Environment Programme identified the most dangerous pollutants and initiated global negotiations, a move that created the Stockholm Convention on Persistent Organic Pollutants, an international treaty to ban these chemicals. As of July, Canada, Iceland, Norway and Sweden had ratified the agreement.

WWF says that toxic chemicals are slowly poisoning some of Earth's most unique

residents, and is urging the United States and Russia to act. "Without a global ban, we can't protect indigenous communities and wildlife in the Arctic," said Smith. "The U.S. and Russia need to stop ignoring the scientific evidence and ratify the Stockholm Convention."



The Great Debate

Article 2

NAME YOUR POISON

*A Debate on the Use of Synthetic
Chemicals in the Environment*

.Conference: 1a.) Bob Wulkowicz (An uncensored forum on trees)

From: Steve Daniels (fourcubed@aol.com)

Topic: Tree chemical-phobes (1/12)

Date: Saturday, March 14, 1998 03:52 PM

Last summer, the local power company, Niagara Mohawk, commissioned a large tree care company (Asplundt) to apply soil-treated tree growth regulators (TGRs) to street trees growing under power lines here in Syracuse, NY. The project was well underway until, unexplainably, it was suddenly terminated. I called the Niagara Mohawk spokesperson and he told me that the mayor himself had ordered its termination. Why? Because the treatments attracted the attention of a local environmental activist who protested to the mayor. There was no discussion or debate on the issue, no public input, only the remonstrations of a single misguided, ill-informed member of one of the local extremist environmental organizations (I suspect the Sierra Club). Just how these Silent Spring-thumping alarmists are able to wield this kind of power is beyond me--they certainly aren't able to influence public policy decisions by reasoned logic or with compelling evidence. Instead they take advantage of the public's conditioned chemical-phobia by using scare tactics.

The question is: Is using TGRs economically, environmentally, and aesthetically more feasible than any of the alternatives? Economically, the answer is uncategorically--yes. Keeping tree growth away from power lines using TGRs is much less expensive than tree trimming. The environmental assessment is fuzzier, but I believe TGRs are less disturbing to the environment than tree trimming. The active ingredient in the TGR used by Asplundt was paclobutrazol. I believe the trade name is Clipper 50WP. It is listed as a toxicity category III chemical (*slightly* toxic). This chemical is injected into ground that is already laden with other, in many respects, more toxic chemicals such as road salt and dog urine. And there is little danger of it leaching into the public water supply, since we have no wells (drinking water is piped in from nearby reservoirs.) The alternative is to employ tree trimming crews in large gas-guzzling trucks, using noise-polluting, air-polluting two-stroke chain saws.

Consider aesthetics. We've all seen the brutal hack jobs street trees have endured at the hands of supposed "tree trimmers." Whereas with TGR treated trees, instead of large sections of the tree's crown being hacked off, the tree's branches merely undergo shorter internodal growth.

Of course, the real solution to unwanted interference of tree growth into utility lines is to

PLANT THE RIGHT TREE IN THE RIGHT SPOT. But until city forestry departments and their contractors are enlightened by this simple old maxim, the most cost effective, environmentally safe, and aesthetically pleasing remedy to this problem must be employed using reasoned inquiry, not by invoking the draconian Delaney clause whenever a perceived environmental threat is involved.

--Steve

Conference: 1a.) Bob Wulkowicz (An uncensored forum on trees)

From: Bob Wulkowicz (bobw@enteract.com)

Topic: Tree chemical-phobes (2/12)

Date: Sunday, March 15, 1998 07:59 PM

(Ah, I feel like an old arthritic spider, warming myself in the overhead sun when a big fly drops out of nowhere, right into the web just in front of me and I hardly have to exert myself to get lunch.)

On Saturday, March 14, 1998, 03:52 PM, Steve Daniels wrote:

<<Last summer, the local power company, Niagara Mohawk, commissioned a large tree care company (Asplundt) to apply soil-treated tree growth regulators (TGRs) to street trees growing under power lines here in Syracuse, NY. The project was well underway until, unexplainably, it was suddenly terminated. I called the Niagara Mohawk spokesperson and he told me that the mayor himself had ordered its termination. Why? Because the treatments attracted the attention of a local environmental activist who protested to the mayor. >>

I have played that role myself a number of times on different issues; trees; public safety; stewardship; ethics, engineering, and other mutterings. I'm not speaking here in a boastful way, but more in my sense that I should also talk about that process of personal intervention and teach, if I can, how to do it well. My involvements were mostly unplanned, driven by the cause of the moment, and horribly painful many times. I will say in looking back, that I am satisfied with being a "a local environmental activist" and I must disagree with your idea that the generic problem is "him" or his kind.

<<There was no discussion or debate on the issue, no public input, only the remonstrations of a single misguided, ill-informed member of one of the local extremist environmental organizations (I suspect the Sierra Club).>>

I suspect in turn that there was "no discussion or debate on the issue, no public input" either on the plan between Niagara Mohawk and Asplundt for their TGR solution. The mind set of utilities I've known is that they can do whatever they want, after all, they're monopolies with minor interferences from regulatory agencies, so they must know better. In the first encounter, or discovered along the way, real righteous indignation identified most of the bureaucratic players and they were sincerely contemptuous of people who interfered in their plans.

There may have been, and probably was, some sort of minor public announcement but I bet

it was a smarmy well-funded campaign about "we know about electricity and we know what's good for you....." However, I don't count this as public debate, discussion or input--and apparent proof of those absences was "the project was well underway" until this guy turned it on its ear.

<<Just how these Silent Spring-thumping alarmists are able to wield this kind of power is beyond me--they certainly aren't able to influence public policy decisions by reasoned logic or with compelling evidence. Instead they take advantage of the public's conditioned chemical-phobia by using scare tactics.>>

I made the assumption you were talking about a man, and most of these interlopers were, but let me present a woman to whom we owe a great debt because of the stubbornness of her unpopular stand which was unsupported "by reasoned logic or ... compelling evidence."

"Dr Frances Kelsey, the Medical Officer of the Food and Drug Administration, to reject the drug firm's application to market Kevadon (thalidomide) in the United States, because among other reasons, she wasn't satisfied that the drug would be safe to take during pregnancy. Her handwritten note on the original memorandum reads: 'This was based on peripheral neuritis symptoms in adults.'"

She was under tremendous pressure to approve thalidomide quickly, not just from the original manufacturer, but also from the larger drug community that didn't want the larger precedent of her intuitive delay. As this battle was going on, which included calls from the industry for her removal, the reports from Europe about birth defects began showing up. Some 10,000 children were born with abnormalities that were directly related to thalidomide. What would the total number have been if Kevadon had been approved for the larger market of the United States?

I was a new father--twice--at that time, the drug would have been popular thanks to the advertising and distribution power of Chemie Grünenthal, the inventor of the drug, and my wife could have been routinely prescribed the drug for morning sickness. One dose, it appears, at the time of morning sickness, is enough to cause the birth defects. I for one in retrospect, am absolutely thankful for the pig-headedness and the "conditioned chemical-phobia" of Dr. Kelsey.

You may ask, what does this have to do with trees? Well, everything and nothing. But since you write well on your issues, and I assume you can be tolerant of additional information, so here's a list of links that discuss the shallowness and inadequacies of some of the safety studies done by the pharmaceutical industry today.

The first is on the thalidomide history of the 50's and 60's:
<http://www.pnc.com.au/~cafmr/online/research/thalid2.html>

The second, on the return of thalidomide in the curing of AIDS:
<http://www.slip.net/~mcdavis/database/thalid3.htm>

The third one the apparent fraud in medical testing:
<http://www.pnc.com.au/~cafmr/online/research/slow.html>

Again, what does this have to do with trees? Well, you, I, the general population--and trees have common enemies. The first is the toxin of single-minded thinking. This holds that there

is a single, simple solution that covers every problem--and we just have to find it. In your following paragraphs that solution is TGR's.

<<The question is: Is using TGRs economically, environmentally, and aesthetically more feasible than any of the alternatives? Economically, the answer is uncategorically--yes. Keeping tree growth away from powerlines using TGRs is much less expensive than tree trimming.>>

You're probably right, stunting tree growth is probably cheaper than trimming. That's a very persuasive point.

<<The environmental assessment is fuzzier, but I believe TGRs are less disturbing to the environment than tree trimming. The active ingredient in the TGR used by Asplundt was paclobutrazol. I believe the trade name is Clipper 50WP. It is listed as a toxicity category III chemical (*slightly* toxic). This chemical is injected into ground that is already laden with other, in many respects, more toxic chemicals such as road salt and dog urine.>>

I hadn't realized that dog urine was so toxic, I mean considering the size of a dog's bladder compared with the size of the tree. I did meet a soil scientist who seemed in eternal despair that his graduate student ran off with his prof's technique of pouring battery acid into the soil around a tree to correct soil conditions. I would think that a dog armed with that mixture would have his bladder disappear long before he could raise his leg. Now, that's real toxicity.

<<And there is little danger of it leaching into the public water supply, since we have no wells; drinking water is piped in from nearby reservoirs.>>

As must have been understood, I don't agree with those suppositions and hypotheticals; they're creatures of rhetoric, manipulated and simplified as we may choose and turned out by the ton by spin doctors, apologists and various savants.

<<The alternative is tree trimming crews in large gas-guzzling trucks, using noise-polluting, air-polluting two-stroke chainsaws.>>

Another alternative, in the vast spread of alternatives, is to intervene and change attitudes and practices.

<<Consider aesthetics. We've all seen the brutal hack jobs street trees have endured at the hands of supposed "tree trimmers." Whereas with TGR treated trees, instead of large sections of the tree's crown being hacked off, the tree's branches merely undergo shorter internodal growth.>>

At what cost or consequence? Do we know now--or will we know later?

<<Of course, the real solution to unwanted interference of tree growth into utility lines is to PLANT THE RIGHT TREE IN THE RIGHT SPOT.>>

The preference of the utilities is PLANT NO TREES IN OUR SPOTS as evidenced by the dead zone along power line rights of way. And naturally, no one could have trees in the crowded cities that could threaten utility lines and no one should ever slur utilities by asking that they be accountable to the same issues that are important to their ratepayers. Oh, excuse me, I'm

sorry. I forgot we are here for them.

<<But until city forestry departments and their contractors are enlightened by this simple old maxim, the most cost effective, environmentally safe, and aesthetically pleasing remedy to this problem must be employed using reasoned inquiry, not by invoking the draconian Delaney clause whenever a perceived environmental threat is involved.

--Steve>>

Oddly, I agree with you--just differently. I prefer the Draconian Dr. Kelsey and anyone like her to the slippery chemical salesmen with this year's "here's the answer" best seller.

There's a big slag pile of chemical answers to everything out in back. If you and dig through it, you'll find it equally filled with rotting studies, evaluations and promises, sometimes shoveled over in embarrassment, but mostly left in plain sight because we don't care, our attention span's too short, and we love the big lie.

I'm for giving TGR's a fair shot....but not based on 4 colour brochures and the assurances of the people with vested interests. I enjoyed your post and bet you'd make a good activist. We need spirited debate.

Bob Wulkowicz

Conference: 1a.) Bob Wulkowicz (An uncensored forum on trees)

From: Steve Daniels (fourcubed@aol.com)

Topic: Tree chemical-phobes (3/12)

Date: Tuesday, March 17, 1998 10:39 PM

After a noonday repast, the spider slackens in blissful torpor, unaware that the looming shrew is poised for a strike.

I, too, am a local environmental activist, having contributed token sums of money to various environmental organizations (including the Sierra Club), as well as having actively volunteered my time for The Nature Conservancy. But I differ markedly from the garden-variety eco-activist, in that I refuse to blindly embrace--wholesale--the environmentalist canon. The problem with typical environmentalists is that they allow politics to get in the way of *good* science in the advancement of their agenda. In the case of the Sierra Club activist, however, it was *no* science; he didn't produce a shred of evidence to support his condemnation of the action.

You're probably right about Niagara Mohawk and Asplund's not engaging the public in their plan. In fact, when I approached two Asplundt workers injecting soil in my neighborhood, they were very apprehensive at first. When I told him I used to send fifty foot spray columns of malathion in the air, they loosened up a bit. They told me they were instructed to leave the university neighborhood for last, for they were bound to encounter close scrutiny there. I don't know how your public utility there in Chicago manages to avoid regulation, our local utility is so saddled with regulations that it has been forced to undergo massive restructuring,

costing hundreds of jobs.

I appreciate your acknowledgment of my writing--coming from someone who writes with such creativity and polish. The thalidomide tragedy occurred in 1962--this is 1998. In the wake of that tragedy, the Kefauver-Harris Drug Amendments were enacted shortly thereafter, requiring drugs to be proven effective before marketing. Let's consider an analogous incident a little closer to home that aired on a Sixty Minutes broadcast February 26, 1989. It was the infamous Alar scare--one of the slickest, most cynical fear campaigns in recent American memory. It devastated hundreds of apple growers, of whom many never recovered. I don't think these growers were very thankful for the public's "conditioned chemical-phobia" in this case. Alar had been around for a while and had been grandfathered in after more stringent EPA regulations were enacted. Alar never returned to the market after the farcical scare. Is Alar really a potent carcinogen, as reported? Yes, it is to laboratory mice fed 35,000 times the amount children were normally exposed to. In reality, it poses no threat to humans. It is only one tenth as carcinogenic as peanut butter, one hundredth as carcinogenic as beer. The bulk of carcinogens humans encounter are not the synthetic ones, but natural ones. The renowned molecular biologist and biochemist Dr. Bruce Ames estimates that 99.99 percent of all pesticides (by weight) are natural, thus we are ingesting about ten thousand times more natural than synthetic pesticides. Plants have had millions of years to evolve an arsenal of nasty natural pesticides to safeguard them from their enemies. Reminiscent of Dr. Frances Kelsey's rejection of thalidomide, the EPA's Dr. John Moore said on 60 Minutes that if Alar were a new pesticide, he would not have allowed it to be used. Dr. Moore's morning cup of coffee is teeming with a armory of natural carcinogens far more toxic than the synthetic residue of Alar likely to be in his morning glass of apple juice. I am always tolerant of additional information, but the third link you provided is an array of irrational polemics advanced by a fringe anti-vivisectionist, anti-technology, anti-vaccination (arrgh!) group. Though I agree you cannot always extrapolate from mice to humans, a few instances where it is shown that human-mouse extrapolation fails is not a satisfactory criterion on which to place a ban on animal testing.

Your straw man (straw dog?) tactic is of course an attempt to deflect the heart of my argument in favor of TGRs--that they are relatively non-toxic chemicals. But just for shits and giggles, let's compare dog piss and Clipper, gustatorily. My neighbor's German shepard in my front yard relieves himself of maybe four ounces of pee on my Norway maple (no great loss). Take a twelve ounce tumbler filled with eight ounces of water and add four ounces of dog piss. The application rate of Clipper is roughly 1/100 oz. per tree. Now take another twelve ounce glass with eight ounces of water and put two or three drops of the slightly toxic Clipper in it. Now choose your poison.

I don't know what's going on over there in the Windy, but here in Syracuse when gaps appear under power lines, our city forester quickly fills them with trees such as amur maple, panicked goldenraintree, flowering crabapple, fringe tree, eastern redbud, purpleleaf plum, and so on. Syracuse is not even a Tree City USA, with less than \$.60 per capita devoted to the urban forestry coffers. I can certainly understand your concern when utility companies behave in such a fascist manner. But I disagree with your characterization of power line rights-of-way as "dead zones." These areas have impressed me as being very biologically rich. There is plenty of plant diversity with lots of edge to support a variety of wildlife. I understand that some utilities are even experimenting with native prairie grass restoration projects in ROWs. What a great idea! Especially in your neck of the woods. By the way, I'm not in any way connected to any utilities. In fact I resent the obscenely large amounts of money their workers make for the amount of work they do.

You may prefer the Draconian Dr. Kelseys and Rachel Carsons of this world to the slippery chemical salesmen, but I'll wager that the families of the 1.5 million to 2.7 million annual malarial victims don't. The use of DDT-Silent Spring's chief antagonist-is one of the most important public health measures of the 20th century. DDT has perhaps prevented tens of millions of cases of serious disease and death from malaria, well worth the price of some thinning bird egg shells.

Steve Daniels

Conference: 1a.) Bob Wulkowicz (An uncensored forum on trees)

From: Julian Dunster (jdunster@mindlink.bc.ca)

Topic: Tree chemical-phobes (4/12)

Date: Wednesday, March 18, 1998 08:07 AM

Steve:

I am glad that you have posted your response in a reasonable and considered manner. The whole pesticide debate is fraught with over simplifications on both sides, and like so many aspects of life, it is tempting to hope that the "use with moderation" approach will be safe. But, I disagree that DDT was well worth the price of a few thinning eggshells. The whole point is that what we do to the planet we do to ourselves. The thinning eggshells are an indicator of bioaccumulation through the food chain. It happened with DDT, it happens with many other chemicals, and not just pesticides. As a forester I am always confronted with the split between hand weeding or herbicides. The amount of herbicide used in Canadian forestry is small compared to agriculture or domestic use. Yet, we have a continual outcry about forestry use and almost no outcry about agriculture. It is said that Roundup has been so heavily used in Saskathecewan that trace amounts can now be detected in Canola oil, and the ground has reached a saturation point where soil adsorption is no longer possible, so presumably the xs leaches somewhere else. Farmers have been forced by large agribusiness interests to accept grains that depend on certain fertilisers and pesticides to yield any crop. Use them, or go out of business. Thankfully, the "organic" farming movement gains strength all the time and we may yet see the day when pesticide free produce is as readily available at the same cost as the "other" stuff.

In the tree care arena, I have similar misgivings. I appreciate that keeping the tree green is important, but I also see the temptation to believe that fertiliser, and pesticide are our only options. They may offer a quick and pleasing fix that permits profit to be made all along the way, but, what do these chemicals do for the environment as a whole? An infinite number of small, and seemingly innocuous applications leads to potentially large cumulative impacts, the magnitude and timing of which are typically difficult to anticipate. Witness, the affect of acid rain on trees and lakes, DDT on eggs, phosphorous in detergants, or NOX in the atmosphere.

We simply cannot ignore these impacts and hope that the planet will survive. Of course, one can also take the longer, more geological approach, and hope that the next ice age will grind up our present attempts, deal with the planetary blight known as civilisation, and push evolutionary forces off in another more benign direction.

It seems to me that we need to learn from our past mistakes and develop a tree care

industry that does not rely on the quick fix, but helps to provide planetary benefits based on benign intervention.

Think globally, act locally, and look after "mother earth"!

Julian Dunster Bowen Island, British Columbia Canada

Conference: 1a.) Bob Wulkowicz (An uncensored forum on trees)

From: Steve Daniels (fourcubed@aol.com)

Topic: Tree chemical-phobes (6/12)

Date: Thursday, March 19, 1998 07:38 PM

Julian, Thanks for your response to my post. I've learned a lot from your thoughtful and informative posts on some of the other arboriculture-related lists. In my post on TGRs, I stated that the solution was to plant the right tree in the right spot, but given the alternatives, I thought TGRs polluted less than chain saw and truck emissions. To me, it's a matter of risk management--the lesser of evils. I'm not advocating going around spraying pesticides with impunity. On several occasions I've grumbled about many unsound arboricultural practices, such as the reckless spraying of pyrethrums by our company at certain times of the day. It's regrettable that many tree care firms rely on unnecessary sprays and fertilizations to make payroll. I'm a strong believer in the "plant health care" concept and go even further by promoting the design of nativistic landscapes (though not single-mindedly). A well-designed landscape should need zero inputs of pesticides and fertilizers.

But I'm troubled by a couple of things you said in your post. I don't think one can always extrapolate from the global scale to the local scale, and vice versa. I believe strongly that one of the gravest threats to our planet is a loss of biodiversity through loss of habitat. There is no doubt that pesticides pose a risk to the environment, but I think the alternatives represent a far greater threat to species erosion than pesticides. You cite bioaccumulation as being a threat to the environment, and the growing "organic" farm movement as a means to help stem the bioaccumulation problem. The problem is, surprisingly, that "organic" farming will only make things worse. If projections of a world population of 9 billion by the year 2050 hold true, low yield "organic" farming--with only half the yield as modern agriculture--is going to have to displace millions of square miles of poorer, forested land--land that harbors the greatest variety of wildlife, such as swamps and rain forests. The tough conditions of these poor lands push wildlife into narrow niches, producing a diversity of species. Moreover, the world lacks the organic nitrogen to sustain the current crop output, let alone tripling it for the future. Targeting all of our sewage sludge for farm use would make up for only 2 percent of the current chemical nitrogen being used. It may seem counterintuitive, but modern, high-yield agriculture, with its array of high-input pesticides, has done much to preserve the planet's biodiversity. If it weren't for our planet's burgeoning human population, I wouldn't mind the push for "organic" farming. But with its current rates of yield, there's no room for it. Further, some of the "natural" pesticides used in organic farming are just as toxic as the synthetic ones. The solution, I think, lies in advances in biotechnology. It shames me to see how few of our tax dollars are devoted to agricultural research in our land grant Universities. I've read Jeremy Rifkin's anti-biotechnology books. He's a back-to-the-stone-age nut case,

in my opinion.

When you say trace amounts of Roundup are found in canola oil that doesn't mean a thing to me. Evermore sensitive chemical testing equipment is used to measure chemicals in parts per *trillion*. A few molecules of glyphosphate is certainly nothing to be alarmed about. The fat itself in canola oil presents a far greater health risk. It reminds me of the mathematician who figured out that we have a better than a 99% chance that on each breath we take we inhale a molecule that Julius Caesar exhaled in his dying breath. This is why the Delaney Clause is dead.

The notion that because a substance is "natural" it is somehow safer than one that is artificial or synthetic is spurious. The perception that pesticides are dangerous because they are "chemicals" is embedded in our society's collective consciousness. But look around you--the plant kingdom harbors vast storehouses of dangerous "natural" chemicals that chemists could never hope to synthesize in their labs. And these phytochemicals are poisoning us at a far greater rate than the bioaccumulated synthetic ones are.

Steve Daniels

Conference: 1a.) Bob Wulkowicz (An uncensored forum on trees)

From: Julian Dunster (jdunster@mindlink.bc.ca)

Topic: Tree chemical-phobes (7/12)

Date: Thursday, March 19, 1998 09:35 PM

Steve: Thanks again for a well thought out response. I sense we are both moving into the grey area of debate here with "facts" available to support either side of this debate. Yes, I agree global human populations are a major cause for concern, and I know it is very difficult, if not impossible to actually practice the "think globally act locally" paradigm. The organic farming scene is rife for extensive debate, but not in this location. I have read many articles where yields on organic farms surpass those from the intensive agribusiness farms. But agribusiness has a far larger funding source and controls most of the market forces. I agree that low yield farms would require more land to be farmed, no different from forest yields. I am not convinced that modern agriculture has protected global biodiversity. Having worked in many places in the world, and seen first hand how large and powerful market forces can manipulate economies to their advantage, I would argue that we have likely lost more biodiversity through ignorance of outcomes than has been saved.

As for the canola debate, I agree that it is possible that better sampling techniques cause the roundup to be detected. However, that is not really the issue. What is so important is that a chemical that is widely advertised as safe because it is adsorbed onto the soil, has in fact been used so much that the soil adsorption capacity is now exceeded. As a result trace amounts (no matter how small) are now being detected in the product. It may be true that "a few molecules of glyphosate is certainly nothing to be alarmed about." The problem arises when previously unknown cumulative affects start to become apparent, typically in ways that were not originally contemplated. That being said, I also recognise that for many of us the likely results will be infinitesimally insignificant relative to other risks around us. The whole issue of natural vs chemical pesticides is another topic worthy of extensive debate and one which in a former incarnation I spent many years working on while assisting lawyers in court

cases.

The literature in environmental impact assessment is full of all sorts of excellent debate about baselines, and what constitutes an acceptable threshold for safety purposes. In many cases, the threshold is based more on the make up of the committee (and the political stakeholders they represent) than on the hard science. And, even the so called hard science is widely discredited by a track record of falsified laboratory analyses. A good example, is the whole debate about glyphosate. The lab analysis of the herbicide generally shows it to be quite benign. But, the carriers used to spread glyphosate and many other pesticides are not required to be tested, and in most cases remain as a trade secret. It is widely known in toxicology circles that many of the carriers used can be very toxic. In the absence of thorough and creditable evaluation, you and I will never know just how safe or unsafe the overall product is.

Ah well, there is no simple answer. I have used roundup in the past and will probably do so again at some point. All things in moderation. I see the larger problem being too many people, not enough education, and an increasingly uninformed public and political body who accept pseudoscientific "facts" as gospel. Mother earth is a very forgiving organism and maybe we will all survive, or maybe (and I think more likely) some form of pandemic plague will drastically reduce the population numbers in a manner beyond most people's wildest fears. Perhaps some form of super ebola, or (as has been seriously suggested as an increasingly likely possibility) the advent of diseases like AIDS and HIV becoming vectored by insects like mosquitoes. ABAV (airborne aids virus) would probably trigger a massive aerial spraying campaign, and we would then all die from chemical poisoning.

But, be of good cheer. The next ice age is just around the corner. A few more chunks off Antarctica and Greenland, a cooling of the ocean currents, a dwindling of the gulf stream, and we will be able to sit back and watch global change within far less than one lifetime.

Cheers

Julian Dunster Bowen Island, British Columbia Canada

Conference: 1a.) Bob Wulkowicz (An uncensored forum on trees)

From: sue rosemarin (thefarm@e-z.net)

Topic: Tree chemical-phobes (8/12)

Date: Friday, March 20, 1998 11:58 AM

Hello all!

I've been trying not to respond, since this is a subject I feel very strongly about - perhaps it is because I work in a 5 acre retail nursery in Portland, Or & I have heard and witnessed more misuse of chemicals (and yes, organics) by the general public than I could ever relay ("I just sprayed my peaches w/Raid 'cause they had ants, can I still eat them?"..."What are these bugs?" the gentleman asked "They are ladybud larvae sir, they will help control your aphids" I said "Oh, I just killed them all" he replied, and so on)

Do you know how disgusted I am that someone could have a yellowing leaf on their Rhododendron, assume its a problem, whip out the Orthene and then after dosing it heavily (more is better one assumes) decide to bring in a sample to which we reply "Rhododendrons are known to lose their inner foliage". Now I understand that this is a matter of education, and believe me I try my best, but as professionals, we should be setting an example of proper care of the disease, not the symptoms. Before one puts down organic farming as being less productive, do you know that once an organic system is put into effect, with the biodiversity normally present on the location allowed to reestablish itself, the organic system will tend to be overall a healthier system than the one that depends on chemical fertilizers, herbicides, fungicides and pesticides to keep it producing. "Depends" is the operative word here. We are talking LESS disease LESS insect problems, and some weeds (such as clover) may even be left in order to provide habitat for predaceous insects as well as helping to enrich the soil. What does this all mean - LESS SPRAYING!

I think thats all for now - I personally do not use anything (except compost) in my yard. My housemate & I are sure to leave wild patches here and there, and let me tell you, my plants are pretty darn healthy!

Thanks for reading!

Sue "I'm a chemical-phobe and it's more than O.K" Rosemarin

Conference: 1a.) Bob Wulkowicz (An uncensored forum on trees)

From: Bob Wulkowicz (bobw@enteract.com)

Topic: Tree chemical-phobes (10/12)

Date: Friday, March 27, 1998 05:31 PM

On Sunday, March 15, 1998, 07:59 PM, Bob Wulkowicz wrote:

Ah, I feel like an old arthritic spider, warming myself in the overhead sun when a big fly drops out of nowhere, right into the web just in front of me and I hardly have to exert myself to get lunch.

On Saturday, March 14, 1998, 03:52 PM, Steve Daniels wrote:

After a noonday repast, the spider slackens in blissful torpor, unaware that the looming shrew is poised for a strike.

Ooow! "You've hit me right in the nose," yelped the shrew, jumping back and holding his snout. "Why did you do that?"

"What do you mean, why?" grumbled the spider, "You were looming, just like you said, poised for a strike. It's quite clear, looming is always a cause for pre-emptive action. That's

why I bopped you."

"Oh, oww, ooohh, it still smarts. What did you hit me with?"

"A soup ladle." the spider purred, settling back with an anarchnidic smile.

"A soup ladle? Where the hell would a spider get a soup ladle--and wait, how could a spider even swing a ladle?," the shrew shot back, gently touching his new bump at number of different spots in a kind of absent-minded fascination.

"Stopped the looming, didn't it? No more. No less, just the right amount, eh?"

"But that was just a metaphor, you don't go around using kitchen utensils on metaphors!

"Certainly you can," chided the grizzled spider, "Sometimes it's the best thing you can do; squash a metaphor right flat with a commonplace, pedestrian lump of something handy. Keeps 'em in line."

The shrew thought for a moment. "Wait a minute. What happens to literacy? Where do allusions go? How do we talk about our dreams?" "You can't just go around crushing those things with everyday, mundane, boring contrivances!

"Hmmmph," the spider sniffed as he stretched each leg, then setting them at the proper angle after deciding that a shrew looking cross-eyed at its tender sniffer no longer constituted a loom.

"Hmph, dreams, you say?" "Never did like them, interferes with sleeping."

<<I, too, am a local environmental activist, having contributed token sums of money to various environmental organizations (including the Sierra Club), as well as having actively volunteered my time for The Nature Conservancy. But I differ markedly from the garden-variety eco-activist, in that I refuse to blindly embrace--wholesale--the environmentalist canon.

I now call them eco-fascists.

The problem with typical environmentalists is that they allow politics to get in the way of *good* science in the advancement of their agenda. In the case of the Sierra Club activist, however, it was *no* science; he didn't produce a shred of evidence to support his condemnation of the action.

Who was the last politician you saw that produced any real evidence, shredded or otherwise, why they should be elected?

You're probably right about Niagara Mohawk and Asplund's not engaging the public in their plan. In fact, when I approached two Asplundt workers injecting soil in my neighborhood, they were very apprehensive at first. When I told him I used to send fifty foot spray columns of malathion in the air, they loosened up a bit. They told me they were instructed to leave the University neighborhood for last, for they were bound to encounter some scrutiny there. I don't know how your public utility there in Chicago manages to avoid regulation, our local

utility is so saddled with regulations that it has been forced to undergo massive restructuring, costing hundreds of jobs.

Our public utilities here don't need to avoid regulation; they already own it. They've found it's very cost-effective.

I appreciate your acknowledgment of my writing--coming from someone who writes with such creativity and polish.>>

Wait a minute! Just where do you get off saying my writing is polish? We have enough trouble in this world without picking on poor poles. Shame on you. Hmmpmppphhh!

<<The thalidomide tragedy occurred in 1962--this is 1998. In the wake of that tragedy, the Kefauver-Harris Drug Amendments were enacted shortly thereafter, requiring drugs to be proven effective before marketing. Let's consider an analogous incident a little closer to home that took place on a Sixty Minutes broadcast February 26, 1989. It was the infamous Alar scare--one of the slickest, most cynical fear campaigns in recent American memory. It devastated hundreds of apple growers, of whom many never recovered. I don't think these growers were very thankful for the public's "conditioned chemical-phobia" in this case. Alar had been around for a while and had been grandfathered in after more stringent EPA regulations were enacted. Alar never returned to the market after the farcical scare. Is Alar really a potent carcinogen, as reported? Yes, it is to laboratory mice fed 35,000 times the amount children were normally exposed to. In reality, it poses no threat to humans. It is only one tenth as carcinogenic as peanut butter; one hundredth as carcinogenic as beer.>>

O.K. Let's move up even closer in time. How about 1997 with fen-phen? Now there was a magic bullet if there ever was one; sold to spare us fat folks the flabby empty pouches of liposuction, the dreaded denial of high-caloric devices, and the ever-distasteful option of exercise. Just pop a pill or two; Ah, what more could someone ask for?

Then it was discovered, as I understand it, by a lowly med-technician looking at heart pictures that there were some common problems in people who were taking fen-phen. He showed them to his boss, they collected more pictures, then sent a note off to the Feds.

I have included a few links, but after discovering you are an inveterate link-follower, they are selected here with care. The first is from CNN:
<http://www.cnn.com/HEALTH/9707/08/fen.phen.pm/index.html>

The second is a rebuttal pointing out the meager number of subjects, the lack of scientific discipline, yack, yack, yack and constitutes, for the authors, a thorough discreditation of the whole silly unfounded scare: <http://www.junkscience.com/news/fenphen.html>

The third link is from a pharmaceutical page that proposes some 1.25 million users as having definable problems: http://pharminfo.com/pubs/pnn/pnn22_1.html

The last two come from the big guy himself, the FDA:
<http://www.fda.gov/cder/news/feninfo.htm> and finally a press release from the same place informing the public of the issues: <http://www.fda.gov/bbs/topics/NEWS/NEW00598.html>
(The FDA giveth and the FDA taketh away.)

<<I am always tolerant of additional information, but the third (earlier post) link you

provided is an array of irrational polemics advanced by a fringe anti-vivisectionist, anti-technology, anti-vaccination (arrgh!) group.>>

I only included the "(arrgh!) group" in the first post to continue the train of thought there. I suspect you'll sing a different tune about the anti-vivisectionists when the Social Security inspectors show up to check your biomass values for inclusion in the soylent green program.

<<The bulk of carcinogens humans encounter are not the synthetic ones, but natural ones. The renowned molecular biologist and biochemist Dr. Bruce Ames estimates that 99.99 percent of all pesticides (by weight) are natural, thus we are ingesting about ten thousand times more natural than synthetic pesticides. Plants have had millions of years to evolve an arsenal on nasty natural pesticides to safeguard them from their enemies.>>

The issue isn't just carcinogens, and you do raise a very important point in the matter of synthetics. We, the evolved things of this earth--and yes, that includes Arborist@concentric.net --have grown up in the middle of the "natural" evolving chemical manipulations done by living creatures. Joe Schmalz, on the other hand, either making analine dyes in the beginng of organic chemistry or Olestra (now the streamlined and renamed Olean) today, pops a previously unknown molecule into our space-time continuum to advance his company's goal of bottom-line dollar sniffing.

Often times, some little life-process had that same compound already in use, either as a direct original or something very similiar. This presents a problem to Joe Schmalz because something already existing can't be patented, but if you add an hydrocarbon bump here or a benzene ring there, you suddenly can get a twenty-year lock on rights. However, when the synthetic or its mimic arrives on the scene, some obvious, but more often subtle, distortion or unbalance occurs for that tiny life-process and creature. Egg shell thinning for birds or calcium ion transport blocking for cells--what's the difference?--we're down there mucking about in the bowels of life.

An awful lot of compounds had never existed, but that does not mean they are inert or non-intrusive to established biological systems. Finding out what those side effects may be is a difficult and time-consuming series of procedures that are continuously changing in response to new technology and new ideas. The rationalization to help us with this insecurity is usually to say "we already know", "we don't need to know" or "we dont want to know...(because it's complex and scarey.)

<<Reminiscent of Dr. Frances Kelsey's rejection of thalidomide, the EPA's Dr. John Moore said on 60 Minutes that if Alar were a new pesticide, he would not have allowed it to be used. Dr. Moore's morning cup of coffee is teeming with a armory of natural carcinogens far more toxic than the synthetic residue of Alar likely to be in his glass of apple juice.

Your straw man (straw dog?) tactic is of course an attempt to disregard the heart of my argument in favor of TGRs--that they are relatively non-toxic chemicals. But just for shits and giggles, let's compare dog piss and Clipper, gustatorily. My neighbor's German shepard in my front yard relieves himself of maybe four ounces of pee on my Norway maple (no great loss). Take a twelve ounce tumbler filled with eight ounces of water and add four ounces of dog piss. The application rate of Clipper is roughly 1/100 oz. per tree. Now take another twelve ounce glass with eight ounces of water and put two or three drops of the slightly toxic Clipper in it. Now choose your poison.>>

I'm now very intrigued by what you Syracusians do for evening diversions. Let me see if I can get this straight for "the heart of your argument"?

First, is your proposed collector of dog urea the winner of an honor--or the loser of a bet? And as to the collection technique, is the dog cornered by someone with the glasses--or is the creature milked like a cow?

If I understand this, we put some chlorinated city water in a glass and mix it two to one with doggie dew and set it aside. Next, we take the same amount of water in another glass and add 3 drops of Clipper. We then contemplate those two glasses for a while and decide which one to drink. Now, is there something I'm missing in this scene--like some really big guy with a gun? Or is this what you all do for entertainment--and science? I can sure understand why you'd rather write--or go bowling.

<<I don't know what's going on over there in the Windy, but here in Syracuse when gaps appear under power lines, our city forester quickly fills them with trees such as amur maple, panicked goldenrain tree, flowering crabapple, fringe tree, eastern redbud, purpleleaf plum, and so on. Syracuse is not even a Tree City USA, with less than \$.60 per capita devoted to the urban forestry coffers. I can certainly understand your concern when utility companies behave in such a fascist manner. But I disagree with your characterization of powerline rights of way as "dead zones." These areas have impressed me as being very biologically rich. There is plenty of plant diversity with lots of edge to support a variety of wildlife. I understand that some utilities are even experimenting with native prairiegrass restoration projects in ROWs. What a great idea!--especially in your neck of the woods.>>

Like I said before, it appears our Commonwealth Edison is the most incompetent of electrical utilities in the nation. Just today, they changed the managers again at the Quad Cities nuclear plant--for the fourth time in six months. One report points out that over a 4 1/2 year period, 104 different people held the 30 nuclear top jobs at the utility. We taxpayers and ratepayers paid to construct their atomic facilities; we will now pay to take them suckers down at maybe a few dozen times what it cost to build them. Cool, huh? For that same money, we could put all our lines underground and plant Sequoias bigoneus in the rights of way.

<<You may prefer the Draconian Dr. Kelseys and Rachel Carsons of this world to the slippery chemical salesmen, but I'll wager that the families of the 1.5 million to 2.7 million annual malarial victims don't. The use of DDT--Silent Spring's chief antagonist--is one of the most important public health measures of the 20th century. DDT has perhaps prevented tens of millions of cases of serious disease and death from malaria, well worth the price of some thinning bird egg shells.

Steve Daniels<<

Au contraire, Steve. I don't prefer anything to anybody for the most part. I just keep trying to shuffle along, avoiding hypocracies and deceptions as best I can.

I watch the latest magic bullet "big lie" rumble past and hear the next one in the distance too many times these days. It doesn't matter if the salesmen are sincere, or their science is a trifle less than comprehensive, there'll always be another load of aluminum siding.

As I remember the stories, the African mosquitos quickly adapted to DDT and would fly out of

the huts when they were sprayed. After buzzing around outside for a while, chatting about mosquitoish things, they would return and land inside on the still wet walls. (A egg to adult cycle of about one week allows them to be that cheeky.)

After a very short while in the battle to fight malaria, the surest way to kill an African mosquito with DDT was to hit the beast on the head with the sprayer handle. Many of those saved from malaria in 1948 died in 1954; and those saved in '54 died later as successive pesticides became ineffective. Rachel Carson and eagle eggs had nothing to do with that.

Today, we have some 730,000 malaria deaths in Africa a year. (
http://biology.uoregon.edu/Biology_www/Online_classes/Bi103s97/lecture7/sld010.htm)
And there are strains of staph infections in hospitals that resist every known antibiotic.

Each product has been sold as the magic bullet. "Buy mine because you can't get any better." So we buy it and life adapts. "Oops, buy this, you can't get any better." So we buy it and, guess what, life adapts. Don't you get a little tired of that song?

If I had a museum of has-been products, techniques, cliches and myths for trees, I'd have to rent the United Center for space. As to the ones wallowing their way down the pike, yet to be designated as "Oh, that. It never worked.", I'm not sure I could keep up with storage space rent.

My point has always been, like our choices in politicians, we prefer our answers to be short, brainless, and painless. "I think, therefore I hurt," seems to be our motto, so we stay away from complexity. If Mother Nature had followed that evolutionary tack, life on this earth would not have progressed past Twinkies. Keep that in mind.

Bob Wulkowicz

P.S. Your dilution example still has me fascinated. Can you put in Prozac? What's the mixer for Roundup? Could it be a new antibiotic?

And oh yes, keeping your thought about how tiny concentrations should be considered insignificant--the mosquito detects us as carbon dioxide exhalers at a level of about 50 parts per million of air.

Finding food is often considered essential to every living thing, so I guess little things really do mean a lot.

Conference: 1a.) Bob Wulkowicz (An uncensored forum on trees)

From: Steve Daniels (fourcubed@aol.com)

Topic: Tree chemical-phobes (11/12)

Date: Thursday, April 02, 1998 05:33 PM

As usual, your rebuttals are filled with wit and trenchant humor. But while your arguments' exteriors are fanciful and flowery, their foundations are soft and punky. Your choosing to attack the pharmaceutical industry to support your thesis that man-made chemicals are

inherently bad, bolsters my conviction that the misguided environmentalists and the alternative medicine enthusiasts, under the umbrella of New Ageism, are both inbreachably locked into the exact same political and ideological humbuggery. Fen-Phen is the latest firebrand wielded by New Age medicine wackos who feel the need to bash scientific medicine in order to advance their pseudoscientific quack remedies. Fen-Phen, the combination of the FDA-approved drugs fenfluramine and phentermine, is **not** an FDA-approved drug, as stated clearly in one of the links you furnished. Even assuming that Fen-Phen was FDA-approved, and further assuming that the drug proves to be dangerous (the results of studies are still preliminary), it is statistically highly probable that of the thousands of new drugs that finally meet FDA approval, a few will indeed eventually prove to be unsafe. There will always be an element of risk, no matter how small, inherent in taking any drug despite rigorous testing. But while the pharmaceutical industry is obliged to spend millions of dollars on rigorously controlled clinical trials to prove the safety and efficacy of a drug, the health fraud industry is constantly confecting a beguiling array of completely untested nostrums with impunity. While the dangers of taking Fen-Phen are plastered all over the news, we hear little about the adverse effects of so-called "natural" remedies like colloidal silver, laetrile, quack cancer remedies, and various "alternative" manipulative therapies like chiropractic, to name just a few. The pharmaceutical industry relies on study designs that are meant to withstand rigorous scientific scrutiny in testing their man-made synthetic drugs, whereas the alternative medicine purveyors rely only on anecdotes, testimonials, unsubstantiated claims, and poorly designed experiments to make their often absurd claims about their "natural" products. I have to confess I'm no expert on medicine; an arborist criticizing medicine, it seems, is a bit like a certain Canadian geneticist criticizing forestry. What does this have to do with arboriculture? Not much, but I didn't raise the pharmaceutical drug issue in the first place.

Your argument that synthetic compounds may cause subtle imbalances in life-processes, and that we are "mucking about in the bowels of life" is weak and punky. Mother nature does vastly more mucking about in the bowels of life. We are under constant bombardment from a steady torrent of cosmic rays causing random genetic mutations that give rise to a plethora of new compounds within organisms' bodies at a far greater rate than synthetics do. That is to say nothing of all the "hits" our bodies take from "natural" plant chemicals. Does mother nature bother to test these natural chemicals to make sure they are safe for us before she inundates us with them? No. But the synthetic ones, not being randomly imposed on us, are at least tested within an acceptable risk level.

My dog urine-drinking scenario, fanciful as it was, has unfortunately taken this discussion to new fringes of rational debate. But lo and behold dog urine has come into its own, garnering full diseasehood status, and eliciting a stout body of literature within the university extension service literature, warning property owners of the "caustic" effects of dog urine on turf, trees, and shrubs due to the buildup of toxic salts. But I guess since dog urine is a "natural" chemical, it isn't fit to be classified as a toxic chemical like the synthetics.

Your DDT argument. I'm glad you prefaced it with "as I remember the stories" because that's just what they are: stories. The argument is not just punky, it's hollow. Mosquitoes do not "quickly adapt" to DDT, and "magic bullet, big lie" DDT in the 1960s curtailed the incidence of malaria from one million to 100,000 in India, and 500,000 to 13 in Sri Lanka. Researchers at the EPA have failed to find any health risk posed to humans by the organochlorine DDT, and there is no scientific consensus as to the extent to which DDT poses a risk to other organisms. Yet since the chemical phobic-induced ban of DDT in these countries, the incidence of malaria in India is now back up to more than a million, and more than 500,000 in Sri Lanka. The science is out there in the literature for everyone to see, including the muddle-headed environmentalists. It's a shameful tragedy that decisions which affect the lives of

millions in third world countries are based on politics inspired by Rachel Carson-induced chemical-phobia, rather than objective science. If you're wondering where I got the above data, it's right off a page of one of the links you provided me. Finally, your example of a mosquito detecting us as carbon dioxide exhalers at a level of about 50 parts per million of air to illustrate how tiny concentrations are considered significant shows that you have a skewed sense of proportion. 50 parts per million concentration to an organism as tiny as a mosquito is very significant. Compare that with the parts per *trillion* I cited on a human hundreds of thousands times larger than A mosquito and you'll find the difference to be several orders of magnitude smaller.

Silent Spring was an important book in alerting the public to the potential risks of the unbridled use of pesticides in the environment. But the undue alarmist chemical-phobic mentality it has spawned diverts precious resources from addressing the real problems that face the environment, such as overpopulation, political conflicts, and loss of habitat.



The Great Debate

Article 3

Our View



Man-made chemicals are used in nearly every aspect of our daily lives: housing, clothes, entertainment, transport, food and medicine in particular. The industry making these has evolved over the last century or more to produce a wide range of chemicals efficiently and with a safety record better than that of many other industries. Of course, some of the products it makes are toxic at high enough concentrations, but just because something might be hazardous does not mean that it poses a risk, as it depends on how the chemical is managed. In actual fact the most toxic substances known to Man occur naturally. Despite the benefits we receive and the low and controlled risks presented, there is a view in some parts of society that many synthetic chemicals are probably bad for people and the environment. They would invoke the use of the precautionary principle to curb the industry, not just preventing future benefits being realised, but perhaps also forcing the withdrawal of materials that have been used safely for decades. Of course safety is an important consideration and we need to act upon problems when they are identified and be prepared to restrict the use of chemicals about which we have serious concerns. But we should do this work in an objective and scientific manner, doing a proper risk/benefit analysis on a case-by-case basis.

State of the Debate

Introduction

Thousands of man-made chemicals are used every day; they are integral to modern life. Chemicals have innumerable beneficial uses, but in some situations can also pose risks to human health and the environment; this is equally true of naturally occurring chemicals. The debate surrounding chemicals and their use revolves around differing approaches to tackling the risks associated with chemicals, and in particular the application of the precautionary principle.

The Debate

Man-made chemicals have been widely used for decades. They have helped improve our lifestyles, our quality of life, and our life expectancy. However, concerns have been raised about their safety, for example, pesticide residues in foods are seen as a threat despite a complete lack of hard evidence of any harm caused by their use under normal conditions. High profile examples, such as the use of lead in paints and petrol, have fuelled fear amid environmentalists and the general public, and instilled nerve among experts. It is evident from such incidents that sound science has not been placed at the heart of the debate.

Most chemicals have been widely used for years, with relatively few adverse effects observed from everyday use. However, some pressure groups have argued that a significant number of chemicals have not been properly tested and that this should be an immediate priority for regulators. Some environmentalists have also conducted their own scientific research on specific chemicals, publishing the results of these studies as proof of the dangers of chemicals and of the need to invoke the precautionary principle and ban certain chemicals. Although such studies are designed to prove a point, for example by using very high concentrations of particular chemicals, they still unfortunately lead to scare stories in the media. The truth is, of course, that nearly all substances cause harm at high concentrations, including those essential for life such as salt and water. Just because something is poisonous at a certain level does not mean it will be harmful at lower doses.

As industry also conducts its own scientific studies, the science behind chemicals and risk from chemicals has been subject to increasing scrutiny and debate. Many scientists argue that, given the scale of the task of extensively testing all chemicals, investigation and regulation should focus on the relatively small number of chemicals that give greatest cause for concern. The chemical industry points out that many chemicals are known to be non-hazardous, and others are only used within the chemicals industry itself, so that humans and the environment are not exposed to them.

Environmentalists in particular highlight the chemicals that they argue give greatest cause for concern about adverse effects. The chemicals they express most concern about are mainly PBTs – persistent, bio-accumulative, and toxic. (PBT's are chemicals that move from the non-living environment - air, water, soil - into living things, and in so doing their concentrations increase). However toxicity and persistence are often the very qualities that make chemicals effective and highly beneficial.

Society lacks comprehensive knowledge about the impact of chemicals on human health and the environment, argue some environmental campaigners. They say that most risk assessments are conducted on the basis of exposure to a single chemical for a limited period of time, which does not reflect the reality that humans are exposed to many different chemicals, in various combinations, throughout our lifetimes. Environmentalists also contend that the effects of chemicals can be subtle, and are hard to detect and trace, which they say means that problems may only be discovered once large quantities of chemicals have been used. They have therefore advocated strict application of the precautionary principle, based on an assumption that all chemicals are "guilty until proven innocent", as the best means of protecting human health and the environment. This is despite the enormous increases in human life expectancy and health achieved via the direct use of some man-made chemicals and in the presence of many more in the environment.

However, many scientists argue that the application of the precautionary principle would prevent major advances being made by chemists, including the development and use of chemicals that improve our health and the environment. Scientists point out that, irrespective of whether substances are naturally occurring or manmade, they all have potential risks as well as benefits associated with them. Consequently, any risks to human health and/or the environment must be assessed in the context of a substance's intended uses and realistic exposure levels. Bleach is an effective disinfectant, which is a widely used and accepted cleaning product in households worldwide. However, bleach is dangerous to human health when used improperly (e.g. consumed). Society has acknowledged that with clear handling guidelines the beneficial disinfectant properties outweigh these risks.

Scientists also point to the many chemicals with major benefits, including health benefits, which could fall foul of a blanket application of the precautionary principle. Aspirin is a powerful example where its advantages as an everyday painkiller or as a preventative medication for patients at risk from heart attacks or strokes outweigh the risk that Aspirin may increase the incidence of gastrointestinal bleeding. A yet more striking example is warfarin: a widely-used rat poison which – at an appropriate dosage – has saved the lives of many heart disease sufferers by dissolving blood clots. Even if a chemical has hazardous properties it can be possible to use it in ways that prevent it posing an unacceptable risk to human health and the environment, as long as there is sufficient scientific understanding.

The chemical industry, whilst supportive of the principles of environmental protection, argues that measures to regulate chemicals should be practical, and take account of concerns about competitiveness and innovation, so that new, beneficial chemicals can continue to be developed. There is a real danger that, in our apparent search for a risk-free world, we do future generations a major disservice.

Policy

Many of the most serious environmental problems associated with chemicals are being tackled through international treaties. These include

- The Stockholm Persistent Organic Pollutants Convention, which will phase out and eliminate twelve of the chemicals which are most persistent in the environment, including DDT and PCBs;
- The Rotterdam Prior Informed Consent Convention, which centres on making basic health and environmental data about chemicals widely available, so that countries can decide whether to permit or refuse incoming chemicals shipments;
- The Basel Convention and Ban Amendment, which controls the trans-boundary movement of hazardous wastes, promoting their environmentally sound management and disposal;
- The 1996 Protocol to the London Convention, which regulates, restricts and in some cases prevents the ocean dumping of wastes generated on land.

UK policies to regulate chemicals are varied - there are stringent approval regimes for certain groups of chemical products, including pesticides, veterinary medicines and food additives, and a patchwork of regulations for other chemicals. The EU is currently developing a controversial new regulatory system. This will replace two existing sets of regulations: the Existing Substances Regulation and the notification element of the Dangerous Substances Directive. REACH (Registration, Evaluation, and Authorisation of Chemicals), as the centrepiece of the system, will bring together the regulation of both new and existing chemicals, with the aim of improving the protection of human health and the environment. Under this system, all chemicals will have to be registered, an expensive process incorporating comprehensive evaluation. The most dangerous chemicals will be phased out in favour of safer alternatives. Draft legislation is expected towards the end of 2003, with 2006 the earliest possible date for implementation of a new system. We can only hope that the system finally put in place is based on sound science, and a sensible risk/benefit analysis.