Stu's Notes #3

Stu's Notes provide selected passages from books that are of interest to Stu. They are primarily direct quotes, though some longer passages are summarized. They do not generally provide a thorough synopsis of the book. Rather, they capture individual facts or opinions of interest, which may or may not be reflective of the overall text.

Title: **From Naked Ape to Superspecies: A Personal Perspective on Humanity and the Global Eco-Crisis**

Author: David Suzuki & Holly Dressel

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Summary: *A comprehensive look at life on earth and why it's in trouble, including: microscopic life, our global footprint, the media, free speech, genetic engineering, corporate ownership (patenting) of genes, economic externalities, Genuine Progress Indicator, regulation of corporations, globalization and the organizations that control it, tax havens and the Tobin Tax, our impacts on Third World countries, activism, conservation, hiring out your life to make money, and changing our consumer culture.*

Highlights:

1: BUGS 'R' US

Remember something called "Biosphere II"? In 1991, eight people were sealed into a giant bubble. It contained a variety of ecosystems, along with nearly 4,000 plant and animal species to provide the same "ecosystem services" as earth: purify and produce water, recycle wastes, provide oxygen, absorb carbon dioxide, use photosynthesis to capture sunlight, and produce plants and food. It was meant to be completely self-contained for two years.

Alas, things went wrong much sooner than that. "Oxygen levels plummeted, primarily because the mix of soil organisms was not correct and did not produce the proper proportion of gases. … [N]itrogen levels skyrocketed, creating a risk of brain damage. Most of the insects … selected to pollinate the plants died off, dooming most of the … intended sources of food and air and water purification. … Eventually, the defeated pioneers, malnourished and sick, gave up and came out. Had they stayed much longer, they might have died."

The project had been meant to demonstrate that we know enough about ecosystems to create our own. Instead, it showed "how little we understand the natural systems that sustain us." [p.9-11]

We haven't even identified most of life on earth. The number of species on earth is estimated at 10 million, of which we have identified about 15%. That doesn't mean that we understand 15%; just that we've named them. That leaves 85% that we know absolutely nothing about. This excludes bacteria and microorganisms, about which we know essentially nothing. [p.13]

"Edward O. Wilson, a professor of ecology at Harvard … uses an ironic example … 'If all humanity disappeared, the rest of life, except for domestic animals and plants … would benefit enormously.'" [p.13]

"On the other hand, says Wilson, if all members of one of the groups of smaller creature, such as ants, were to vanish, the results would be close to catastrophic. Ants turn and aerate a very large part of the Earth's soils. They're major predators of other insects, and they're the chief scavengers of small animals, removing and breaking up more than 90 percent of any small, dead creatures as part of the soil-nutrient cycle. They even pollinate many plants. 'If they were to disappear, there would be major extinctions of other species and probably partial collapse of some ecosystems.'" [p.14]

"Insects … make up the most numerous, diverse, and successful group of animals on Earth, and only a minute percentage is harmful to or competitive with us. When [we developed chemical pesticides], we ended up killing thousands of species just to get at the less than one percent that we find troublesome." [p.16]

"Similarly, most bacteria are not agents of disease. The vast majority are … benign to humans. We're only just learning that if we didn't have them in a natural balance, there wouldn't be many of the other things we like – including ourselves." [p.16]

"For the first 2 billion years of the more than 3.5 billion years that life has existed, bacteria and other microorganisms were the only living things on Earth. Through that long period, they invented all of the fundamental processes of life, from replication to

responses to gravity, light and temperature, from fermentation to photosynthesis and mobility. And even today, the total biomass – the weight of living things – of all microorganisms is greater than the biomass of all other creatures put together, including trees and whales and people. It is still a bacterial world." [p.17]

Each of us is an aggregate of some 60 trillion cells. Within each cell, there may be hundreds of organelles, the [evolutionary descendants of] bacteria. … Each one of us is actually a community of organisms." [p.17]

In this same way, all life forms within the biosphere can be thought of as making up a kind of planetary super-organism, which some people call "Gaia" after the Greek goddess of Earth. The whole system regulates itself. Over the millennia, temperature, oxygen and CO2 levels, and the salinity of the oceans are maintained at levels that are conducive to life [p.18]

Our reductionist scientific method tends to look at things by taking them apart. Thus, for example, we look at salmon and try to understand them, outside of the context of their environment. As a result, billions of dollars have been spent on salmon-breeding programs that don't work (e.g., we once trucked baby salmon to the ocean, thus saving them the perilous downstream journey, but not realizing that they needed to spend a year in a freshwater environment). [p.19]

Now, we are starting to look at the whole ecosystem. We've learned that dead salmon (from salmon that have returned home, spawned, and died):

- are a nesting place for flies, which are then a source of food for fish, mammals, and birds throughout the forest
- are consumed by their own children (25% to 40% of carbon and nitrogen in juvenile salmon comes from the remains of the previous generation)
- are consumed by large predators
- are the largest pulse of nitrogen fertilizer that the forest gets all year (from carcasses carried and discarded by predators, and from predator defecation) [p.19-21]

"… a single bear will carry about 700 partially consumed salmon carcasses into the forest … as far as 200 metres from the river." You can correlate the width of tree rings with the size of each year's salmon run. [p.21]

"'Twenty-five or thirty years ago,' [field biologist Orrie] Loucks says, "much of the research in ecology was focused on the productivity of ecosystems. We looked at photosynthesis, for example.'" Most of the planet's energy comes from the sun, so it seemed logical that sunlight and its capture would be limiting factors for the rest of life as well. But now we've learned something surprising: "… energy does influence productivity, but the ultimate regulator of ecosystems is decay. Processes that release nutrients back into the ecosystem for future production are what enable those ecosystems to function." These processes are vastly more complex than photosynthesis: they involve "… thousands of species of living organisms, from insects to worms, fungi and bacteria. These species are very sensitive to factors like toxic

chemicals, small changes in soil moisture and temperature, and any change in the mix of species that co-operate to break down the organic matter. If anything happens to disrupt the process of decay, then nutrient supplies are curtailed or unavailable to the next season's crop of plants." [p.22]

In one study in Denmark, scientists "… scooped up a cubic metre of earth in a beech forest and took it into their lab. With the naked eye alone, they found more than 50,000 earthworms and their relatives, 50,000 different kinds of insects and mites, and 12 million roundworms and their relatives. When they took just a gram of that same soil and put it under the microscope, they found 30,000 protozoa, 50,000 algae, 400,000 fungi, and billions of individual bacteria of unknown numbers of species. They identified about 4,000 species of bacteria, almost all completely new to science. When the scientists then took another gram of soil from an estuary not far from the beech forest, they found another 4,000 species of bacteria, almost all different from those in the beech forest and also all new to science!" [p.23-24]

Industrial farming (single crop, lots of chemicals) produced great results at first, but yields have been declining lately. We've been mining the organic matter out of the soil, leaving a lack of nutrients. [p.25]

"'Whenever we have sufficient data, we recognize somewhere between 10 and 40 percent of all the world's species are on the verge of extinction.' – Stuart Pimm, Conservation Biologist" [p.26]

"So much water is taken out of the Colorado, the river whose force dug the Grand Canyon, that by the time it reaches the ocean there's none left." [p.31]

"For at least a thousand years, Western culture, *our* culture, has believed that when we run out of things in one place, we can just go to another place … But we've hit the wall in terms of real riches, the ones you can eat, the ones that sustain lives. … [In contrast,] many aboriginal cultures have remained the same for thousands of years because they were composed of the people who didn't leave when the resources got scarce. … They kept their numbers in check, and they kept their exploitation of the resources in check as well. … [They evolved] religious beliefs that helped them conserve their own particular piece of the planet, which was to them the whole world." [p.32]

The Earth is alive, in the sense that it is self-regulating. One example is that life forms require a particular spectrum of temperatures for their molecules to operate, and the Earth maintains itself in that range, even though the sun's intensity has increased 25% since life began. [p.34-35]

2: BIGFOOT

"The fate of every ecosystem on the planet is now determined by human activity. … We don't seem to worry about this as much as we should, I think largely because we have an unwarranted faith in the ability of science and technology to pull us out of the mess that our technological prowess has created." [p.37]

Having become city dwellers, we no longer recognize our dependence on the rest of life for our well-being and our very survival. "We are biological beings, as dependent on the

biosphere as any other life form, and we forget our animal nature at our peril. … There are real, measurable limits on the world around us." [p.38]

One form of measurement is the "ecological footprint". This is the amount of land needed to support one human: provide our physical needs and absorb our waste. Canadians are among the richest people in the world, and have a correspondingly large footprint: 7 hectares. Based on our current population, there is enough land in Canada to provide for all of us. But our ecosystems are still in peril, because we export more than we consume ourselves. [p.39-41]

If the planet was divided up equally, each person would get 1.5 hectares of ecologically productive land. If we wanted to bring everyone on the planet up to Canada's standard of living, we would need four or five more Earths, today. In developing countries, a citizen consumes less than a tenth of the typical Canadian. If we reduced our consumption, even a little, people in developing countries would have a much better chance of increasing theirs. "The claim made by economists and corporate leaders that more consumption around the world will benefit the poor is simply untrue. In fact, the opposite is true. All the expansion approach does is use up the future faster, primarily for the benefit of the already excessively rich." [p.42]

"Mathias Wackernagel says, '… But now the world is overly full, and our research has shown that … the ecological footprint of humanity is 35 percent larger than the ecological capacity of the world.' … we are now using up natural capital. … That's what we see. Topsoils vanishing. Deforestation. Water tables going down. Biodiversity loss." [p.44]

"Imagine a test tube full of food for bacteria. Now imagine that we introduce a single bacterium that will proceed to divide every minute. … At 60 minutes in this example, the test tube is full of bacteria and all the food is gone. Then when was the test tube half full? The answer, of course, is at 59 minutes. … If, at 55 minutes, some bacterial genius spoke up and said, 'I think we have a population problem,' the less astute majority would probably retort, 'What are you talking about? 97% of the test tube is empty, and we've been around for 55 minutes!'" But by the 59th minute, most bacteria would have realized the problem. Suppose that, in the final minute, their scientists managed to create three more test tubes of food. "Everyone would be saved, right? Well, no. At 60 minutes, the first test tube would be full. At 61 minutes, the second would be full, and at 62 minutes all four would be full. By quadrupling the amount of food and space, they gain only two extra minutes. Most biologists believe we are long past the fifty-ninth minute with respect to our use of the planet's life-support systems." [p.45-46]

We are getting better at lowering the birth rate, particularly in developing countries. The UN-sponsored 1993 Conference on Population agreed to: raise female literacy rates (which have a very strong correlation with birth rate); provide employment opportunities for women; reduce the infant mortality rate (so that women don't feel the need to have "extra" babies in order to end up with the number they really want); and provide universal access to means of fertility control. [p.47-49]

Oceans

It is estimated that the area of the ocean floor destroyed annually by "dragger" nets that scrape everything off the ocean bottom is 150 times the land cleared each year by logging. And … "[O]nly a few targeted species – scallops for example – are kept. The others are thrown away. 'It's like going through the streets of Toronto and knocking down the buildings and trees and picking out a few pedestrians that you might like to munch on,' says [marine biologist Sylvia] Earle. … 'In one bite, you could take the equivalent of twelve Boeing 747 aircraft, for example." [p.50-51]

Forests

Environmentalist Alan Durning "… has devised a visual image to help illustrate both the speed and the severity of human pressures on Earth, as well as their astonishing escalation in the last few decades. He asks us to imagine a time-lapse film of Earth taken from space. 'Play back the last 10,000 years [at 1,000 years per minute]. For more than seven minutes, [nothing happens]. After seven and a half minutes, there's a tiny clearing of forest around Athens. This is the flowering of classical Greece. Little else changes. At nine minutes – one thousand years ago – the forest gets thinner in parts of Europe, Central America, China and India. Twelve seconds from the end, two centuries ago, the thinning spreads a little farther in Europe and China. Six seconds from the end, eastern North America is deforested. This is the Industrial Revolution. Little else has changed.

"In the final three seconds, after 1950, the change accelerates exponentially. Vast tracts of forest vanish from Japan, the Philippines, the mainland of Southeast Asia, most of Central America, the Horn of Africa, western North America and eastern South America, the Indian subcontinent, and sub-Saharan Africa. Fires rage in the Amazon basin, where they never have before. Central Europe's forests die, poisoned by the air and the rain. Southeast Asia looks like a dog with mange. Malaysian Borneo is shaved. In the final fractions of a second, the clearings spread to Siberia and the Canadian North. Forest disappears so quickly from so many places that it looks like a plague of locusts has landed on the earth." [p.52-53]

It is estimated that 80% of our original forests are gone. [p.53]

Atmosphere

Contrary to what the mainstream media may report, global warming is a fact established virtually beyond doubt. What is unclear is the extent this is a natural phenomenon vs. being caused by humans. It is clearly at least partly due to human activity; the debate is over how much. [p.56-57]

By polluting the atmosphere, we have affected everything: there is no place on the planet that has not been impacted by us. Projections are that average temperatures will rise between one and four degrees in the next 100 years. Four degrees is virtually the difference between an ice age and a warm epoch like we're in now. It takes nature 10,000 years to change that much. There will be dramatic dislocation of species and agriculture. There's also the possibility that we will trigger something irreversible. "The Gulf Stream could change direction or stop, so that while the world was warming, Europe would freeze. The destruction of the West Antarctic ice sheet could raise sea

levels by many metres, flooding coastlines and inundating island nations. It might take a few generations for that scenario to play out, but once it starts we won't be able to stop it." We're currently changing climate at a rate between 10 and 60 times the natural pace. [p.59-60]

Contaminated Soil

Remember Love Canal? A nice little suburb with an unusually high incidence of serious health problems. It turned out the place had been built on an industrial site and landfill containing 20,000 tons of chemicals. Among the 240 different chemicals was lindane, so toxic that its use has been banned in the US and Canada for decades, but it "… was lying on the surface of the ground, a ubiquitous yellow dust no one had really noticed before." The citizens organized and eventually won. The site was cleaned up, and they were all given enough money to move away. The descendant of that organization "… has been successful in stopping every single proposal for a commercial hazardous-waste landfill in the United States since 1980!" [p.62-63]

The Canadian version of Love Canal is Sydney, Nova Scotia. The site, known as the Tar Ponds, has 23 times the amount of toxins buried at Love Canal. But the government (which created the mess) says it isn't a problem. We know how to process most of the crap we create, but we haven't forced the producers to pay that cost at the front-end. If we did, a lot less of it would get made. [p.64-66]

3: SEZ WHO?

Public awareness of environmental issues increased through the 70s and 80s, culminating in the 1992 Earth Summit in Rio de Janeiro, at which politicians and business leaders promised to take a new path: "… the environment would be weighed in every political, social, and economic decision. Yet only two weeks later, … the Group of Seven industrialized nations met in Munich and not a word was mentioned about the environment. The main topic was the global economy. The environment, it was said, had fallen off the list of public concerns … Something even more portentous happened a few months after the Earth Summit. A remarkable document called 'World Scientists' Warning to Humanity' was released. It was signed by more than 1,600 senior scientists from all over the world, including more than half of all living Nobel Prize winners. Here's part of what it said:

"'Human beings and the natural world are on a collision course. … Many of our current practices put at serious risk the future for human society … and may so alter the living world that it will be unable to sustain life in the manner that we know. Fundamental changes are urgent. … No more than one or a few years remain before the chance to avert the threats we now confront will be lost and the prospects for humanity immeasurably diminished.'

The major media outlets did not report this event. "… the *New York Times* and the *Washington Post* pronounced the warning 'not newsworthy'". [p.68]

"… Oprah Winfrey … was taken to court by some angry cattlemen, accusing her of defaming their product, U.S. beef." The lawsuit was based on one of her shows, in which a guest stated some verifiable facts: "that herbivorous food animals like cows and

sheep have been turned into carnivores and cannibals by being fed the ground-up and cooked-down flesh and blood of their own and other animal species." The specific concern was about mad cow disease, which it was then known could be transmitted in exactly this way. "The [Texas] Cattlemen's Association sued both Oprah Winfrey and [her guest] Howard Lyman, claiming $20 million under a new state law prohibiting anyone from making disparaging remarks about food." That law is still on the books, ready to intimidate anyone else who dares to say anything negative about the food production industry. Media coverage of the trial completely ignored the safety and free-speech issues, treating the case instead as a celebrity event. [p.70-71]

"'Lets face it, television news is increasingly becoming entertainment. There's a complete blurring between what's significant as a global event and what's basically salacious gossip.' – Elizabeth May, Executive Director, Sierra Club of Canada" [p.72]

Lawrence Grossman, past president of both NBC News and PBS, says … 'So while there is a great opportunity for an informed public to act in [its] own interest, there are questions as to whether we're really getting an informed public.'" [p.72]

"But Grossman says, 'The marketplace fails in certain areas – not in entertainment, in sports, in commercial data distribution, but in areas like providing fair-minded, intelligent, full civic information and education.'" [p.73]

Commercial broadcasters' "… responsibility is 'to their owners and stockholders, to maximize profit. And that's a perfectly legitimate and reasonable objective. But it has *nothing* to do with the public interest. Nor should it be confused with the public interest.'" [p.73]

What can we do? Universities, museums, and libraries have the information we need. It would be relatively inexpensive for them to provide it in a format for electronic media. Commercial enterprises use the valuable airwaves for free, so charge them a fee and use it to fund a public system that serves people. It is in a manner similar to this that our current system of public libraries was created 100 years ago. [p.75]

"'When you watch a subject like climate change in the news, it's never treated as climate change. It's floods in China, or fires burning out of control in Florida, or people dying of a massive heat wave in the Midwest. But generally speaking, those short, fast stories aren't presented as what they are: one long, slow, compelling story of how human behaviour is changing the climate of the world we live in.' – Elizabeth May" [p.76]

News is presented to us as a series of events, without cause, effect, or context. And it all happens in compressed time. Events that drag on over hours or days are presented in seconds, picking out the visually interesting moments from a much longer, duller event. We live in an age where we receive more information than ever before, but we can't keep up when it comes to turning that information into knowledge and wisdom. And the competing demands for our attention, to throw information at us, are getting louder all the time. [p.78-81]

Grassroots organizations can't afford to buy media time, so they have to perform stunts to get the media's attention. The stunt has to be wild enough that the media will notice, but not so wild that it detracts from the group's credibility. Paul Watson, founding member of Greenpeace and the Sea Shepherd Society, recruited Bo Derek as

spokesperson to campaign against the aerial shooting of wolves in BC in 1984. A reporter suggested to him that Bo knew nothing about wolves. He replied, "'Yes. You make the rules. And we play the game. You must have just graduated from journalism school or something, because if I had the best wolf biologist in the world and called this press conference, there'd be an empty room. But because Bo Derek is our spokesperson, it'll be the headline of your newspaper tomorrow and there's nothing you can do about it.'" [p.83-84]

It's also hard to get a message out because of "greenwashing", in which nice environmental words are used to cover ecologically damaging activities. "Elizabeth May says that] '… when politicians are pressured by the voting public, a very clever government, industry and corporate approach is to day, 'We heard you. Uncle! We're so sorry! *Mea culpa!* Now we're all going to be environmentalists together. There's no difference between Sierra Club and Monsanto; we're all just so concerned about the environment. We are parents too, after all.'" Thus governments sign environmental treaties and say, "There, we've dealt with the problem." Then, when the cameras go away, they ignore the treaty and continue with business-as-usual. And we don't get follow-up stories. [p.85]

And then there's deliberate disinformation. "'No one talks about the fact that there's an international, $35-billion-a-year propaganda-for-hire industry. And what I learned in writing the book is that even our most exaggerated parody of this industry couldn't anticipate how cynical and pervasive it really is.' – John Stauber [co-author, *Toxic Sludge is Good for You*.] [p.87]

Perhaps the best example of this is the giant firm of Burson-Marsteller. A small sample of their clients includes Union Carbide during the Bhopal gas disaster, Exxon during the *Exxon Valdez* disaster, the Argentinean dictatorship in the 1970s, Ceausescu in Romania, and the US oil and chemical industry working to roll back the Clean Air Act. Some companies even keep dossiers on individual social activists that they are working to discredit, and teach their clients how to divide-and-conquer grassroots activists. [p.87-89]

The media portray some environmental groups as "extremists" or "terrorists". "'One of the things that I'm most proud of in the conservation movement is the fact that no conservationist, of any non-government organization that I ever heard of, has been responsible for killing or injuring another human being,' says Watson. 'It's an unblemished record of non-violence. But the media call us violent and terrorists and extremists. And when environmentalists get killed, which is often, [people say,] 'Well, they shouldn't have been in the way.'" [p.90-91]

Watson is the man who invented tree-spiking, in which a long spike is nailed into a tree. This makes the trees uneconomic to cut, as it is too costly to remove the spikes. It also makes it too dangerous for loggers to cut down, because their chainsaw could get caught on the spike and injure the logger. "Watson claims the tactic is safe because there's no point in spiking unless you warn the loggers … But the most convincing reason for claiming it's safe is that, to date, no one's been hurt by it." [p.90-92]

In a recent California campaign, people chained themselves into the offices of a local senator and the company that was cutting old-growth forest. Though there have been 80 recorded deaths due to pepper spray, police used Q-Tips to swab it directly into the

protestors' eyes. Still locked together, the protestors couldn't even resist. The police still maintain that this was necessary, to "defend themselves" from the dangerous demonstrators. The story received no more than local press coverage. [p.93-94]

A few years ago, Suzuki's TV show, "The Nature of Things" took a look at Canada's forestry practices. Before the show was even completed, the industry took out newspaper ads condemning it and calling for public support. The Canadian Imperial Bank of Commerce announced that it would not advertise on "The Nature of Things." [p.94-95]

A member of the Parent-Teacher Association in a Texas town got her local PTA to consider a resolution opposing the release of dioxin, a dangerous carcinogen, into the environment. The industry showed up at a PTA meeting to oppose the resolution, but it passed. It was then passed on to the state-level PTA conference. At the convention, the industry bought space to set up an exhibit, and argued that the resolution would wreck the Texas economy. But the resolution still passed. "The expensive, frenzied effort of the chemical industry to control a non-binding PTA resolution gives some idea of the extent to which people will go to control information in our society. That's why information is still so important, even if so much of it is banal, silly, or superficial." [p.95-96]

4: UNNATURAL SELECTIONS

"'It is very important to understand that we are crossing species boundaries at will. There is no time in history, that I'm aware of, where flounders mated with tomatoes, where humans mated with mice, where salmon mated with chickens. This is a completely new arena.' – Andy Kimbrell, The International Center for Technology Assessment" [p.98]

We have been practicing selective breeding for up to 12,000 years. "The definition of a species is that individuals belonging to it can breed only with other members of the species." [p.98-99]

While different species can be similar, (e.g., a red-headed vs. a downy woodpecker), there is still a remarkable degree of difference between them. "… viruses or other infective agents that have evolved specifically to infect, say, a sheep or chimpanzee, do not readily infect other species. Over time, viruses and their hosts evolve a relationship; the host can tolerate the virus without being quickly overwhelmed, while the virus tempers its effects so that the host isn't killed off too quickly. The species barrier, which has kept different species from mixing their genes, has also restricted the range of hosts for disease and parasites." [p.99-100]

"Today, even though the packaging doesn't inform us of this, as much as 70% of our modern, processed foods contains parts of modified organisms, new genetic inventions. And some of these organisms are having 'unexpected effects'; corn that was genetically engineered to carry its own selective insecticide, for example, is now threatening to inadvertently wipe out the monarch butterfly population of North America." [p.101]

In spite of being called genetic "engineering", the practice is extremely imprecise. "Christine von Weizsaecker, a molecular biologist who is also the president of a German

environmental group called Ecoropa … uses a metaphor to describe the crudeness of gene splicing: '… let's say you have a favourite poem – and the genes of plants and animals and humans work together in the same consistent and forged way as a good poem. Now, if you say, 'I have a favourite poem, but one of the words that I really like is lacking from that poem.' So you cut out the new word you want from somewhere else, and say, 'I want to insert it into that poem.' What genetic engineering allows you to do is to make fifty copies of the word, let's say 'love' or 'wind' or 'flower.' And you throw them on the page of your favourite poem. Now, what are the chances that you really have a better poem? It may even be that that piece of word obliterates one of the words that is essential to the poem. Or that they come into completely different context.' This means that for every genetic-engineering success … there are thousands and thousands of failures." [p.104]

A gene that has a beneficial effect in one species can have a completely different effect in another. You can't say "this gene regulates growth hormone". The function of the gene depends on the other genes around it. [p.105]

Inter-species gene transfer doesn't happen often in nature, and that's a good thing. Some of our worst diseases, the flu pandemic of 1918 (which killed 22 million people), AIDS, and mad cow disease were initiated by inter-species gene transfer. Genetic engineering is making this activity common-place. [p.108]

In the early 1970s … "all geneticists voluntarily suspended" their experiments in genetic engineering, perceiving that the risk was too great. But then the potential for commercialization was recognized, and the experiments were renewed. [p.109]

Scientists have discovered the first genetically modified superweeds. There was a test-site of genetically engineered oilseed rape. Pollen from this trial crop spread to wild turnip plants. Some of the new hybrids, which inherited the herbicide-resistant genes, were able to breed. [p.112]

"Jeremy Rifkin, an economist by training … says, 'We are embarking on what is surely going to be the most radical experiment on the Earth's system in all of history. What we're talking about over the next ten years is the release of thousands and thousands of novel organisms, transgenic plants and animals proliferating all over the world. This really is a second genesis, artificially designed in the laboratory and placed out into the ecosystems.'" [p.113]

And it can be argued that the creation of "enhanced" crops is largely unnecessary. There are simpler ways to deal with weeds, but none of these can be patented to make big money. Besides, one person's weed is another person's food. "Vandana Shiva is a physicist from India. … She points out that … 'In India, at least 80 to 90 percent of the nutrition comes from what the agricultural industry terms 'weeds'.'" The industrial attempt to eradicate these "weeds" has increased the level of malnutrition. [p.115]

The benefits from the post-war Green Revolution of industrial farming are an illusion. You actually have lower biomass production in the monoculture fields of the Green Revolution than on a typical polyculture farm of indigenous agriculture. And the newer field of genetic engineering isn't helping to feed the world's hungry people. The research is all in high-profit crops for the developed world. [p.117]

Lots of energy is used up in burning petrochemicals for transportation, creating fertilizer, and running heavy machinery. This contrasts with the energy-efficient methods of companion cropping, composting, and mulching. "So when the total amount of energy used to grow and move a crop is weighed against the amount of energy actually in the food, modern agriculture is lavishly inefficient compared with traditional small-scale farming." [p.119]

A German biotech company engineered a bacterium to get rid of rotting crop wastes on farms. As an added bonus, the process produced ethanol which is a less polluting fuel than gasoline. Win-win! Testing in the USA was done at Oregon State University. Labs routinely test organisms in sterile soil so the variables are under rigid control. But the student assigned to do the testing thought that this didn't make much sense. He decided to also test the bacterium in "living" soil, which contained naturally occurring soil organisms. He was astonished when every plant that was put into this "living" soil died. It turned out that the bacterium killed tiny organisms in the soil called mycorrhysal fungi. These fungi help make nutrients available to the plant roots. Without them, no plants of any kind can survive. Since the bacterium can be carried around by wind, birds, tractors, feet, etc., this bacterium could have ended all plant life on this continent. "The implications of this single case are nothing short of terrifying. And there are literally thousands of independent biotech labs around the world, industriously developing new living creatures for commercial exploitation without adequate testing." [p.120-121]

One reason the testing is inadequate is because governments generally leave it up to the developers; that is, the people with the most to gain by not finding or reporting problems. Today the companies that assure us that biotechnology is safe are often the same ones that told us that DDT, PCBs, Agent Orange, and other toxins were safe. [p.122-123]

5: YOUR MONEY OR YOUR LIFE FORMS

"When a private or public biotechnology company isolates a gene and then inserts it into another organism, it can then claim ownership of the resulting "new" gene and start making money. That means all of life – every bird and dog and bee, every bit of tissue inside our bodies – is up for sale. Genetically modified mice, sheep, fish, insects, plants and bacteria have already been patented, and companies are claiming royalties on them whenever they're used. Even people are fair game – the government of Iceland recently sold the DNA sequences of all 70,000 Icelanders to a private company." [p.127]

"Business corporations can now control these genes through the medium of patenting." Their right to do this is based almost entirely on a 1980 decision of the US Supreme Court, allowing (by a 5-to-4 vote) General Electric to patent a microorganism that had been created in the laboratory as a patented invention. The appeals court commented that this particular microorganism looked more like a chemical than like a honeybee or plant or flower. In other words, the patent probably wouldn't have been granted if the microorganism had seemed more life-like. Yet this is the decision that supports the patenting of all life. "It's comparable to saying, in the last century, if you discovered an element in the periodic table, then it's your invention." None of these companies every created new life; they just tampered with nature. [p.128-129]

The benefit of patenting is that, by claiming ownership, you can attract investors to help you develop and commercialize your invention. The patent gives you protection from competitors, allowing time for the investors to make a profit. Thus, research is encouraged. The downside of this is that investment is focused on things that are needed by rich people, rather than the population as a whole. Poor people can't afford to pay enough for a product, so there's no point in doing research that will benefit them. And while the corporations get the financial benefits from patenting, much of the basic research that they rely on was actually paid for by the public, through university funding. [p.129-131]

"'During colonization, we were told that our indigenous knowledge is unscientific and superstitious. Today the same Western powers that rejected our systems are patenting and privatizing our knowledge. Indigenous knowledge related to the use of neem, basmati, karela, bringal, mustard, amla, jad amla and many others have been patented. This biopiracy is a theft of our knowledge, our biodiversity and our very survival.' – Press release of the Research Foundation for Science, Technology and Ecology, New Delhi." [p.131-132]

"… a patent is pending to give the 'inventors' of Dolly cloning rights on all mammals, which includes us. Attempts have been made by the United States government and private companies to patent cell-lines of indigenous peoples." [p.132]

"There is now a strain of *Staphylococcus*, the most common infectious agent in hospitals, that is resistant to every antibiotic. Despite the danger this strain poses to public health, government and university scientists have been unable to prise information about the bacterium out of the private companies that are trying to decode its genome. The companies claim they've spent millions, and with a patentable product on the horizon they are not about to give up their information because of public needs. The delay is making these data public 'has slowed research by four or five years,' according to Dr. Olaf Schneewind, a leading *Staphylococcus* specialist at UCLA." [p.133]

"In 1995, the World Trade Organization (WTO) passed sweeping new rules … that have changed lives around the world. Under these rules, countries cannot use national laws to prevent anyone from patenting living organisms within their territories." Most of the world's biodiversity – the raw material of genetic resources – is in the southern hemisphere, but most of the companies are in the North. That's why many in the Third World refer to the patenting of life as "biopiracy". [p.134-135]

They're even patenting life that hasn't been altered at all. Rabbits and insects used in testing have been taken from various parts of the world and brought to the US. According to lawyer and activist Andy Kimbrell, "'The only interventive steps have been that they've been taken from one country, where they were indigenous, to another country, where they are not. That's supposed to be the inventive step …'" that justifies patenting. [p.136]

Patents clearly offer substantial benefits to corporations. So, what are the corresponding responsibilities? What if the genetically engineered life has negative effects? Who is liable for these effects? With any other kind of property, there is also responsibility. If you build a building that falls down, you are liable for the damages. But not with patents. There is no liability. There are only profits. Any damages must be paid for by the victims, or their governments. [p.137-138]

The European Union doesn't want to import cows from Canada and US, that have been treated with a hormone to make them grow bigger. The EU believes that the hormone is carcinogenic. The case was taken to the World Trade Organization, and the EU lost. When they still refused to accept the cattle, the EU was fined $128 million per year. If they ever decide that they can't afford to keep paying this, they may decide to let the cattle in. But then, if there really is a health problem, the manufactures won't be responsible. The EU will be held responsible for admitting the cattle in the first place! "The biotech industry is totally off the hook." [p.138]

Then there's the distinction between patents and testing. For patent purposes, companies claim that a genetically engineered crop is unique, and they have ownership of it. For testing purposes, they claim that a genetically engineered crop is the same as the equivalent natural crop, and that special testing is therefore not required. Vandana Shiva says, "'A genetically engineered potato with chicken genes in it will still be treated as a conventional potato, and therefore you will not look at the implications of the chicken gene in it. In fact, you're not allowed to look.'" [p.138-139]

"In Canada, a Health Canada official claims that Monsanto offered the department $1 to $2 million with the condition that the company be given approval to market its controversial milk production hormone, rBGH, without being required to submit further studies." [p.139]

"Monsanto still indignantly insists that all its products are safe, even after Canada's ban and Europe's moratoriums. But it is instructive to remember that Monsanto Corporation was involved in the production and sales of DDT, Agent Orange and PCBs, which it also defended vigorously before they were banned." [p.139]

"Throughout human history, farmers have always selected and saved their seed for the next season, and shared and traded them with others." The result has been crops that are well adapted to specific local conditions. This practice may soon have to stop. In February 1998, Monsanto was granted a patent on the "Terminator" gene, so that seeds will produce only one generation of plants. The plants will be sterile, unable to produce viable seeds of their own. The only source for new seeds will be industry. [p.140-141]

The same concept is also being applied to animals. "A genetically engineered virus being researched in Australia could make all infected rabbits sterile." Humans wouldn't have to actually catch the rabbits; the virus would just be released into the atmosphere. There are certain risks. According to environmentalist Bob Phelps, "First, they would need to be very sure that the virus being used would not transfer to other species. And second, if a live virus for the sterilization of rabbits, for example, were released in Australia, then it's very reasonable to expect that it would go worldwide, as other rabbit viruses have." In India, a similar technique is being investigated as a way of temporarily or permanently sterilizing Indian women. [p.141-142]

"'European governments are drawing up contingency plans for a nuclear fallout-style emergency involving genetically modified organisms (GMOs). A five-point Emergency Response Plan has been formulated by the European Commission, designed to cope if genetically modified plants result in widespread illness or the death of wildlife. The draft directive, set to be adopted by ministers across Europe, includes plans to 'decontaminate' affected areas and destroy plants and animals exposed to GMOs. The plan is designed to prevent a human health disaster and stop genetically modified plants

breeding wildly with native species.' – Marie Woolf, *The Independent*, April 4, 1999 [p.142]

Who would be responsible if one of these sterilization techniques got out of hand and threatened to wipe out an entire species? There are to points at issue: patent rights are not accompanied by social responsibilities, and the patenting involves industrial secrecy. An example was the 1984 Union Carbide chemical leak in India. The people trying to help the victims couldn't get information on the chemical because it was a patented secret, and the people of India ended up paying most of the cost. [p.142-143]

In our society, protection is provided by insurance. And the cost of insurance is a measure of how risky an activity is. "[Theoretical biologist Brian Goodwin reports that] 'insurance companies will not sell insurance to biotech companies, because they know that the results of using genetically engineered organisms cannot be predicted.'" [p.144]

In North America, we don't have the right to know what we're putting in our bodies. I spite of public support, the biotech industry has successfully lobbied the governments to prevent mandatory labelling of GMOs in food. The same approach was tried in Europe, where GMOs were introduced without telling anyone. Then, word got out and the public got involved. GMO crops are no longer grown in Europe, and various manufacturers and large retailers have been pressured into banning GMOs. They're also getting mandatory labelling. [p.148-149]

We don't introduce a new drug without testing, but GMOs are potentially more harmful since we ingest a lot more food than drugs. [p.150]

So far, we've talked about the unpredictable behaviour of organisms that are designed to be benign. What about organisms that are designed to do harm? Biological weapons were discredited in the 1970s, in part because what ever you use on the enemy can also kill your own people. But now, with biotechnology, we can make weapons that are targeted at certain plants, animals, or ethnic groups. Many countries are now researching this. [p.151]

"And as Shiva says, the current economic system, which drives the patenting of life, never recognizes the concept of having enough. … 'The need to keep growing is forcing capital to find new ways of accumulating [wealth]." [p.154]

6: FOLLOW THE MONEY

Economics is flawed in that it pays no attention to the goods and services that are provided by nature – the air, water, soil, and sunlight that produce everything that we need for survival and al the riches we are able to accumulate. But estimates for the actual value of the ecosystem services provided to us for free range from $16 trillion to $54 trillion US annually. "That compares with a total annual GDP for all nations on Earth of $18 trillion. And yet none of these services appears in the supply-and-demand handbook of mainstream economics!" [p.156]

Another thing missed by economics is the so-called "love economy". This "… includes all the productive work that humans do that does not involve an exchange of money – things like raising families, doing community work, taking care of the elderly, being active

in a club or charity. It may be impossible to put a price tag on these activities, but they are the very glue that holds societies together." [p.156]

We use the GDP to measure how well our society is doing, but it is a very poor measure. The GDP goes up every time there is a car accident or an oil spill. It also ignores the love economy, even though the love economy has many things that we personally value. "There's even a famous economist's joke, which says, 'When a man marries his housekeeper, the GDP goes down.'" [p.157]

One attempt at a new standard is the Genuine Progress Indicator (GPI). The GPI is similar to the GDP, but it includes the love economy. It also subtracts activities that negatively affect the quality of our lives through social disruptions or environmental degradation. [p.159]

"Not only is endless growth seen as possible, it's believed to be necessary. But growth in the economy and growth in nature are not the same thing. Money grows fast – so fast, in fact, that nothing in nature can keep up with it." Trees in BC grow at about 3% per year. You could cut 3% of them each year and never run out. But it makes more economic sense to cut them all in one year and put the money into investments earning at least 10% per year. Economic thinking demands that we trash the forest. [p.162]

The environment has limits. In the early 1990s, fishermen in North Carolina noticed that fish were dying in the millions, covered in bleeding wounds. The piles of carcasses had to be bulldozed off the beaches. Even the fishermen started getting open sores on their bodies, and some had memory loss and nervous-system problems. The problem stems from pig-farming. The area is home to very intensive hog farming, which produces tens of thousands of pigs in every barn. The pig manure is dumped onto the ground and into rivers, but there's too much nitrogen for the environment to absorb. It gets into the major rivers, where it triggers greater activity by a tiny microorganism called *Pfiesteria*. These little bugs were always there, but harmless. Now, they eat live fish. The strong drive to produce cheaper pork has had horrifying impacts on the fish and citizens of the area. Dr. Joanne Burholder, professor of aquatic sciences, asks "… who would have known that a little animal-like creature could be strongly stimulated by human and swine wastes? Who even knew that it was there, until eight years ago? Who would ever have considered that diseased fish could translate into serious learning disabilities and memory loss for people? These kinds of effects will come back to haunt us if we don't develop longer-range vision about what we're doing.'" [p.163-166]

Governments are often not very good checks on business, because corporations have gained control over the political process. Anyone can register a corporation, which is then immortal and has the rights of a human being. It is very hard to get at the people behind the corporation, so a shield is created between people who take risks and the obligations that arise out of those risks. It wasn't always like this. In the nineteenth century, many laws limited corporate power and created obligations, which were enforceable because the government could review and terminate a corporation. Corporations were often not allowed to own stock in other corporations, thus avoiding an excess concentration of power. But, in the late 1800s, corporations pressed for, and received, greater powers (despite violent protests). A severe example of this was Union Carbide's response to the Bhopal disaster in India. With the lives and vision of thousands of people threatened, Union Carbide was not obligated to reveal the composition of the chemical leak, because of their patent protection. [p.167-168]

"[Corporate law professor Harry Glaesbeck says,] '… the pressure on [corporations] to make profits is enormous. So in order to make profits, especially within a competitive situation, they have to mould the environment. They try to mould the environment to their needs, rather than the other way around. Now, they do that in a variety of ways. They participate in politics so that they get laws which are very lax. Then it's even easier to mould the environment. If they don't succeed in that, they'll break the laws or they'll try to have them not enforced.'" Corporations easily bully us by threatening to deprive us of their wealth. If we try too hard to control them, they threaten to leave and take their jobs with them. [p.168-169]

If performing to serve the public good in any way infringes on a company's profits, and it probably will, then shareholders can complain. That CEO won't last. [p.170]

Discussion of the work of David Korten, author of "When Corporations Rule the World". [p.171-176]

"'The doctrine [is] that if the horse is fed amply with oats, some will pass through to the road for the sparrows.' – John Kenneth Galbraith, economist" [p.175]

Alan Durning is the head of Northwest Environmental Watch in Seattle. He describes how millions of tax dollars are used to build roads for loggers, from the roads soil washes into the rivers and ruins salmon habitat, downstream are subsidies for cattle ranchers on public land which are also eroding soil into the river, next are the subsidized hydro-electric and irrigation dams, then the aluminum smelters that use the subsidized electricity while polluting the river and air, then subsidized suburban developments, then government money to dredge the bottom end of the river for large ships, and then finally public money to build fish hatcheries to counteract the damage done by all the other activities. All over the world, we are paying perverse subsidies to industries that cause social and environmental breakdowns. Probably the biggest example is the subsidy of the car, through the provision of free roads. Among other things, this has resulted in a shift of freight from more efficient trains to less efficient trucks. [p.177-180]

"[Historian John Ralston] Saul says one of our biggest problems is equating our current economic system, capitalism, with our current political system, democracy. He says, '… the concepts of responsibility, the public good and democracy didn't come out of the Industrial Revolution and the formation of the middle class. They, in fact, come out of a very long process that you can take back to Athens.'" [p.181-182]

Economist Herman Daly says, "We built the modern economy around the idea of growth, I believe at least partly, in order to avoid facing up to the problem of sharing. If you don't continue to grow and you still have poverty, then you have to redistribute. You have to share in order to cure poverty. How do you cure poverty without sharing? Well, the only way we've been able to come up with is by growing.' … The problem with continuous growth is that, as the science of physics tells us, we live in a closed system with respect to matter." We can't have unlimited growth. [p.183-184]

7: GLOBALIZATION BLUES

Of the 100 biggest economies in the world, 51 are private companies. Mitsubishi and Mitsui are bigger than Denmark, Thailand, or Indonesia. Royal Dutch Shell is bigger

than Norway. Exxon is bigger than Finland. Wal-Mart is bigger than Poland. Since national markets are finite, the only way for these companies to keep growing is to go beyond national borders. The corporate empires were built as aggressively as the British empire, but went largely unnoticed because their power is economic rather than military. The 200 largest companies in the world employ less than 0.33% of the population, but control more than 25% of the world's wealth. [p.187-189]

Globalization is often portrayed as "inevitable", but it is a designed system, set up specifically to give corporations the power to make rules for the planet. The underlying belief in the system is that corporations can do a better job of this than government can. As the world came out of recession and World War Two, corporate and government leaders came together at Bretton Woods to create the new global ground-rules. The devastation of the preceding two decades was on their minds. They weren't trying to take power away from democratically elected governments, or often weren't trying to gain personal wealth. They were "do-gooders" who believed that the best plan for everyone was accelerated economic development everywhere in the world. They broke the rules that countries used to control economic activity, and put real power in the hands of large corporations via their newly-created institutions: the General Agreement on Tariffs and Trade (GATT), World Bank, and International Monetary Fund (IMF). At the time, most people didn't even notice. [p.189-190]

The World Bank and IMF initially focused on getting Europe and Japan back on their feet. With that done, they turned to the Third World. Proponents of globalization believe that it will provide increased wealth for all, a reduction in war as we are bound together by commerce, and a future in which we can unite to pursue global goals (say, global sanctions against dumping toxins into the ocean). So, how well is it working out so far? [p.191-192]

Critics say that globalization has benefited big companies and investors, but not ordinary people. Child poverty has increased, schools and hospitals have closed as funding for social programs has been cut. Poor countries are getting poorer, relative to rich countries. The poverty gap is widening within the rich countries, too. And the removal of controls on development (no environmental controls, no labour standards, no social programs) has brought us to the brink of an environmental breakdown faster than anything before has. [p.192-193]

Maude Barlow of the Council of Canadians states that, "Multilateral Environmental Agreements, or MEAs, are overwhelmed by trade agreements like NAFTA, because trade agreements have enforcement measures that the environmental agreements do not. … [Trade agreements] all try to lock in environmental standards where they are now, and they actively try to roll them back in some of the countries where they have attained 'too high' a standard to suit the activities of the transnational corporations. … We're basically entering a period that some of us are calling 'corporate rule,' where transnational corporations have replaced nation-states in setting the dominant standards around everything from social programs to health-and-safety standards to the environment." [p.194-195]

The major corporations are no longer rooted in their communities, where they had a stake in what was happening locally. They're going after the global market, and aren't concerned about the local economy or unemployment. And governments try to accommodate them because otherwise the major corporations will take the jobs

somewhere else. A contributing factor is the short election cycle, which tends to focus governments on short-term fixes rather than long-term solutions. In addition, the process of getting elected is becoming more expensive, which often requires financial support from corporations. [p.196-197]

"As [John] Cavanaugh [co-director, Institute for Policy Studies] says, 'We live in a world of very unequal nations. Rich nations, poor nations. Countries like Canada with very strong union structures versus countries with no independent unions, like China. Countries that have strong social welfare states and programs, again like Canada, versus much of the world, where that doesn't exist. This creates a beautiful atmosphere for large companies based in Canada or the United States or Western Europe to move production into poorer countries … like Mexico or Indonesia or China, where they can exploit workers. They can ignore environmental standards. They can press production costs way, way down, yet still get very high levels of quality, very high levels of productivity.'

"Cavanaugh continues, 'When northern workers try to get better wages or hours or working conditions, the corporations have enormous bargaining power to say, 'Look, we, the Ford Motor Company, or we, General Electric, can make these products at a tenth the cost somewhere else and still get the same levels of productivity and quality. Why should we be paying you this much? Why should we be paying you these lavish health care benefits' That dynamic is one that in the United States, for example, has led to a stagnation or decline in real wages for 60 to 70 percent of the workforce over the last generation. In other words, there's been an enormous shift in power from workers to corporations with this advent of a global economy.'" [p.198]

There are several organizations that manage the global economy. One is the International Monetary Fund (IMF). "It was set up with a pooled fund from several nations to stabilize the rate of exchange so they wouldn't be subject to the disastrous inflation and currency devaluations experienced during the depression and contributed to the start of the Second World War." But in the 1970s, the IMF started to police economic reforms in Third World countries. In exchange for help with their credit, countries were told how to restructure their economies. Of course, most of those countries got into credit trouble in the first place because the IMF and private banks urged them to run up a lot of credit. The restructuring typically involved massive cutbacks in health, education, environmental protection, social services, and food subsidies. In many cases, this led to political unrest. According to Michel Chossudovsky, an economist at the University of Ottawa, "… if we look at apparently political or ethnic tragedies around the world, we often find that they have been triggered by an economic crisis, and that the IMF was frequently there first." IMF policies were imposed on Yugoslavia, Indonesia, Thailand, Korea, many African countries, and Russia. After many enterprises were declared bankrupt, Western companies came in and bought them cheap. [p.199-201]

"'Trade liberalization was imposed on Mexico [by NAFTA], and specifically, Mexico had to import corn surpluses from the United States. That destabilized grain producers throughout Mexico, especially in the southern region of Chiapas, where small farmers were literally destroyed. [The IMF and the World Bank] say these are political problems; but in fact, if you follow through these reforms, you see how an insurgency in southern Mexico was triggered [by] an economic process which impoverished people.' – Michel Chossudovsky" [p.202]

How do these agreements get into a country? Chossudovsky says it's by co-option of the powerful through money and ideology, plus plain old arm-twisting: join us or you'll be cut off from global markets. [p.202]

More trade doesn't mean more food. In June 1998, the World Bank forced India to sell 2 million tons of surplus wheat. In December, they then needed to import 2 million tons at a higher price. Trade had gone up by 4 million tons, but the amount of food was the same, and the price was higher. [p.202]

"Somalia followed World Bank reforms for an entire decade. [By the end of it] public sector wages had fallen to three dollars a month. The country collapsed and civil war ensued." The World Bank decided it was time to raise public sector wages, to be accomplished by firing 25% of the civil service. [p.203-204]

In June 1997, Canada banned the gasoline additive, MMT, which is a neurotoxin and is also bad for engines. The manufacturer sued the Canadian government for $350 million for restraint of trade and for daring to discuss the subject in Parliament, thereby damaging their reputation. Rather than fight, Canada settled out of court. [p.205]

You are not allowed to discriminate against a product based on how it was obtained. Tuna is tuna is tuna. If it was caught by a method that also kills dolphins, too bad. In fact, in every environmental issue brought to the WTO tribunals, the environment has lost. Who are the people that make these decisions? They don't have any health or environmental background. All they know is the doctrine of trade liberalization. What we need is a global environmental organization, that has as much enforcement power as the WTO. [p.206-208]

Corporations are under enormous pressure to maximize profits. We've come to expect returns of 20% or more, whereas historical returns are more like 6%. "The inflated investment profits we've come to expect are based on taking public resources – labour, state subsidies, or a clean environment, for example – and turning them into private profits." CEOs have to deliver, or they're fired. The ways to deliver are by reducing staff, using sweatshop labour, dumping your toxic waste, pressing for tax breaks, etc. [p.212]

We used to have a system of democratic socialism, which had a balance of corporate, state, and union power. The new system has so much corporate power that it lacks reasonable checks and balances. [p.213]

It's been estimated that 25% of world income is held in tax-free "havens" like the Cayman Islands. With these tax revenues no longer available, and with more money going to corporate subsidies, governments have had to cut other expenses such as social programs. One approach to this problem is the Tobin Tax, named after James Tobin, the Nobel Prize-winning economist who proposed it. This entails a tiny tax, less than 1%, on every international financial transaction. Aside from reducing the ability to avoid taxes, this would slightly dampen the massive movements of international currency that are used to make investments for only a few minutes, or even seconds. [p.215-216]

As citizens, we don't take the time to participate in the decisions that affect us. When we stay quiet, governments assume they have our support. When we speak out, things can

change. This is how the Multilateral Agreement on Investment, which would have given corporations even more power, was stopped. Governments have been getting lots of pressure from corporations, but not from citizens. And we can't stop global warming, or do anything else substantial for the environment, until we take on globalization. [p.218-222]

8: THE OTHER WORLD

"'Shell has waged an ecological war in Ogoni since 1958. An ecological war is … omnicidal in its effect. Human life, flora, fauna, the air and finally the land itself die. … Generally it is supported by all the traditional instruments ancillary to warfare – propaganda, money and deceit. Victory is assessed by profits, and in this sense Shell's victory in Ogoni has been total.' Ken Saro-Wiwa, Nobel prize-winning author, executed by the Nigerian government in 1995" for protesting against Shell [p.225]

"'Shell [has] paid field allowances to the operatives of a squad called Kill and Go, the mobile police squad of River States, which comes into villages and does what its name says. They bought ammunition and other munitions for the military actions in the River State. All of this is on record. They've acknowledged all of it.' Danny Kennedy, Project Underground.

"Shell's behaviour, although particularly well known, does not stand alone and, in general, merely points out a basic truth about global business: when an unregulated company can accumulate wealth without internalizing any of the costs, it will do so." [p.228]

We have a belief system that "… all people who do not have telephones, shopping malls, cars or VCRs are 'poor'. We've come to believe not only that everyone *should* be like us, but also that they *want* to be like us." And we're helping them get there. Many years ago, we brought religion and medicine to these countries. We also brought disease, which devastated their cultures and economies. "Yet in general, the colonizers really thought they were helping. They thought that European life, worship, dress, thinking and farming were all supremely desirable, and that any other way of life was barbaric, primitive, heathen, dirty and sinful. Now we're back – with a largely North American vision of economic progress and global development that looks at any other kind of society as underprivileged, inefficient, outmoded, dirty and poor. … The first wave of colonialism forced everyone to become Christians, farmers or producers of wealth. Now we want everyone to watch TV, drink Coke, wear Nikes and consume the goods we offer. But a lot of the people we're trying to convince remember what happened the first time." Television leads the way. 70% of the world population now has television, and most programming is from the US or other developed countries. [p.230-232]

"Jocelyn Dow is a businesswoman from Guyana … [who] says, 'The mysticism and the romancing of the idea of commodification should not fool a single Caribbean person; you have to remember that except for the indigenous people, we're all here because we were the actual commodity. We were the energy, the slaves and indentured labour. … Caribbean society was designed for a world that wanted sugar. … It was designed to produce sugar. There was a whole philosophical system, a whole religious system, to support the reason why this commodity and this system of production were not only

justifiable, but [also] desirable. And I always say that what you have to remember about this whole cult of the market is that for 400 years *we* were the market. We were the items. So we should not in any way be caught up in any world-view that talks about how wonderful the market is." [p.233]

Around the world, more and more resistance is coming from indigenous communities. One of the best examples is Chiapas, in Mexico. This is portrayed in the media as an internal or ethnic conflict when, in fact, it reflects a global economic and trade crisis. "'Much of the issue in Chiapas is land,' says Cavanaugh. 'With NAFTA came new Mexican laws [that] permitted what were formerly state lands, communal lands, to be sold; and the selling of land in indigenous Mexico is really the end of life and the end of culture.'" The land was sold to agribusiness, protection for local growers was eliminated, and the market was flooded with cheap US corn. "One assumes the proponents of these economic measures expect the displaced peasants to migrate to the cities and find computer jobs, or else just disappear. What was not expected was that they would arm themselves and go on the Internet to publicize the situation." [p.234-235]

"In the fall of 1998, 1,001 Zapatistas … started to retrace the famous entrance into Mexico City of Emiliano Zapata, a hero of the Mexican Revolution. They set off to walk barefoot hundreds of kilometres to the capital in order to publicize the plight of the Indians of Chiapas. By the time they reached Mexico City, they had been joined by thousands of other indigenous people, as well as by ordinary Mexicans of every social class. … Hundreds of thousands of residents of Mexico City had turned out to greet them, waiting more than seven hours in an incredible crowd estimated at half a million. They were all there, as John Cavanaugh says, 'to announce, very vocally, their opposition to NAFTA and to the entire free-trade model.'" [p.235]

"The people who feel the effects most directly are showing the rest of us how to have a say in this new, globalized, monocultured world." [p.236]

We can learn from the developing countries. "A recent study reported in *Scientific American* [showed that] … A chemical-industrial farm requires 300 units of energy – fertilizers, fuels and so on – to produce only 100 units of food. An organic polyculture farm requires only 5 units of energy to produce the same 100 units of food. … [The studies favouring industrial farming] do not include the costs of fertilizers and pesticides or the non-specific biomass, such as edible weeds, fodder, medicinal plants and green manure, all of which are eliminated in an herbicided monoculture." There's data coming out of India (documented from the tax records) showing that agricultural real yields were seven or eight times higher, before colonialism destroyed the practices. [p.238-241]

9: COMPLEX PLEASURES

"It's clear that we're pushing the limits of this planet's ability to support us, its ability to regenerate clean air, water, productive soils and energy faster than we can use them up. It's also clear that we have very little time left to come up with new ways of living and new ways of using and sharing what we have. Denying that there is a serious problem, or giving in to a sense of impotence or hopelessness, is to render a catastrophe inevitable." [p.252]

The Sierra Club's "Elizabeth May comes by her activism honestly – she was raised that way. 'It comes straight from something my grandmother used to say: 'Thought without constructive action is demoralizing.' So there is absolutely no point in learning about these issues and thinking about these issues unless you're prepared to take constructive action. … My first press conference, I was sitting on Mother's lap. I was two. She was protesting against atmospheric nuclear weapons testing, which actually was stopped with a test-ban treaty.'" [p.254]

… [W]e look back on the debate over atmospheric testing and fallout as something that was solved politically because our leaders gradually understood the danger. We forget what really happened. There was a massive, global movement of ordinary people, most of them women, who said no to atmospheric testing. They marched, staged sit-ins, raised money, formed blockades, marched in parades and held press conferences. 'In those days, my mom was just a housewife volunteer,' May remembers. 'But because people like her got busy, they changed the whole damn world. And we can do it in our generation.'" [p.254]

"'These are human-created problems,' May reminds us. 'The solutions can be created by humans too. But nothing moves without a very, very motivated, engaged, committed and dedicated public movement. … We're not powerless. We're damn lazy. We have tremendous power in our society. We can, in fact, move the whole world in a different direction. We just have to care enough about it to make it a priority in our own lives.'" [p.255]

In West Vancouver, 20 children and their parents formed a nature club. One day, in a local stream they discovered an unusual frog that had a tail. They called the university to find someone who could tell them more about the frog. The astonished biologist told them that these frogs were very rare, and were not known to live anywhere near Vancouver. Then the kids learned that the stream was due to be developed as part of a housing project. They decided to make a submission to West Vancouver city council because, as they said, "there are no laws to help the frogs." They wrote speeches and made a presentation, which was largely ignored by Council. But luckily, a television reporter heard about it and interviewed the kids. When the kids went back to Council a second time, there were cameras there to record it. "'By the fourth time, when we got there, there were, like, nine, ten TV stations all just filming us. And there were radio broadcasters.'" Under public scrutiny, Council got the developers to leave a wide buffer zone along the stream, to protect the frogs. "Staff members in the ministry of provincial parks [said], 'These kids have done more to protect our creeks than anybody in the last thirty years.'" [p.256-257]

"Since the 1950s, we've almost tripled the amount of material goods in the average North American's possession. … However, fifty years of surveys asking people to rate their happiness show absolutely no correlation between the attainment of material goods and personal satisfaction." [p.259]

"… [Seattle activist] Vicki Robin, says, 'The single most important thing anybody can do now for the environment and for the economy is to save. For the environment, money not spent is resources not consumed at some level. And money saved is putting yourself on a firmer financial footing in a very, very scary and shaky world.' It's interesting how quickly the very suggestion of buying less and saving more, those two

notions of sane, stable, responsible people only a generation ago, have come to sound completely radical." [p.260]

"'We're the richest country on earth, yet half of us say we can't afford the things we really need – and that includes many people with incomes over $100,000. Something is wrong with this picture.' – Editorial, *The Utne Reader*, December 1998"

In Vicki Robin and Joe Dominguez's book, *Your Money or Your Life*, "The basic premise is that to make money, you hire out your life at so much an hour. If you spend that money in ways that don't make you happy, you're literally wasting your life. 'You have to spend a certain number of hours of your life [earning the money] for every item that you buy in a store, every consumer product you buy, every lunch or dinner out,' explains Robin. 'You're paying for these things in the hours of your life. So is it making your life five hours happier to have that fifth pair of slacks? If it is, that's an okay thing to have. But if it isn't, then you'd better think twice about it. … [But] once you have something that you really like and enjoy, *really* like and enjoy it!'" [p.261-263]

"Family, friends, community – these are the sources of the greatest love and joy we experience as humans. … None of these pleasures requires us to consume things from the Earth, yet each is deeply fulfilling." [p.263-264]

"'Many, many years ago, culture was ours. … Bit by bit we lost control of our own culture, and suddenly corporations are doing all the talking. They're … telling all the stories. And bit by bit, the whole of our media culture has become one large advertisement for a lifestyle of consumption. … And now the big job ahead is to start telling our own stories again, to get dominion back over our culture.' – Kalle Lasn, Editor of *Adbusters*"

The Media Foundation tried to get various broadcasters, including the CBC, to run ads against cars, television, and globalization. They were not allowed to air them, even though they had the money to pay. "'Freedom of speech simply means that you're allowed to stand up in a park on a box and say what you want to people who are passing by," [Kalle] Lasn explains. 'But freedom of speech doesn't give you access. The really important battle of our Information Age is the battle for access.'" [p.267-268]

How far should we go to protect the Earth? In England there are non-violent groups called Tree People and Diggers. The Tree People live up in trees that are slated to be cut down for land development. The Diggers dig tunnels and chain themselves to concrete blocks. Among other things, they blocked an airport runway extension for several years, at a cost of six million pounds to the developer. [p.268-272]

"The psychiatrist and author Robert Jay Lifton once told me a story about Hiroshima after the atomic bomb was dropped on it. A rumour spread among the survivors that nothing would ever grow again in the city, that the soil had been sterilized forever. Despite the horrific death toll and the terrible suffering, the survivors were anguished even more by the thought that nature itself might have been destroyed by the great weapon. Only when plants began to grow again did the wave of horror and despair subside.

"Lifton's poignant story reminds us that we emerged from nature, remain embedded in it, and need it to nourish us physically, socially and spiritually. We may not think about that

very often, but as the Hiroshima story reveals, the very thought that we might be capable of destroying the source of all life is too much to bear. The path we are now on leads to the destruction of nature. It is suicidal and too horrific to contemplate. We have to listen to all the voices around us, telling us to harmonize those needs, so that we can restore the balance we so desperately need." [p.279]