

Good Day Sunshine!
[and good bye fossil fuels]

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It is a very nippy Tuesday in November at the Museum of Science and Technology, and, for the first time, I am there completely surrounded by adults. 170 people have gathered here for the annual meeting of the Royal Society of Canada, an organization that addresses science, social issues, medicine, and humanity. This year's meeting has the theme "Energy, Environment, and Society: Making Choices".

The gathering is called to order, and among the introductory speeches is an extremely original opening: "Many of you have come from all across Canada, and to get here, you released 100 tons of carbon dioxide into the atmosphere. So, seeing as we are discussing energy and the environment, we have arranged for each of you to be able to pay for the planting of one tree, thus combating the problem."

There are two sessions, with a panel of speakers and open discussions after each one. The first half of the day is devoted to an overview of energy issues and energy options; the presentations are both shocking and fascinating.

Our evolutionary struggle, the struggle to stay alive, is basically a struggle for energy. We are at the top of the food chain today because of our astounding ability to consume enormous amounts of it, whether from animals, plants, rock, water, air, or ourselves. When our source of energy thrives, we thrive along with it. Our population increased thirteen-fold with the introduction of agriculture over several thousand years; our population increased four-fold with the introduction of fossil fuels... in just one hundred years. That is why a source of unlimited energy would not necessarily be a good thing: if there is no constraint on what is available to us, then we begin to develop at a phenomenal rate. But then why are people in developing countries having so many children? It is because this demographic pattern only applies to the populations that have gone through the previous changes. Many third-world countries are still at the agricultural stage, and do not have access to fossil fuels; therefore they have not passed through the same steps as we have.

Unfortunately for us, we are not going to be enjoying the luxury of these fossil fuels for much longer. By the year 2020, our production of oil and natural gas will have peaked; from that time on, our supplies will start dwindling steadily. At the time this happens, we high school students will be in our early thirties; by the time fossil fuels have disappeared, our *children* will be in their early thirties. But many countries of the world still cling to their oil and gas, and this is inhibiting the search for a viable option.

So what alternatives are out there? Solar, wind, and other such energies were mentioned, but dismissed as "whimsical". The sun does not always shine, just as the wind does not always blow, and dams can only be built to a certain scale. Even if some way of storing up on energy for the "cloudy periods" could be developed, these technologies

require a lot of space; to power Toronto through wind turbines, a land area three times the size of P.E.I. would be needed.

Fuel cell technology is the combining of hydrogen and oxygen to power motors. Its only by-product is water, and it is reusable. The one problem is that hydrogen is very combustible. Very. So that if a match gets too close, some pretty terrific explosions are going to occur.

There is only one choice left: nuclear energy. It will last as long as uranium does, and it does not send pollutants into the air. On the other hand, it does leave behind radioactive waste that is difficult to dispose of (we “dealt” with it by dumping it in lakes). It is also necessary to overcome the public mistrust caused by the accidents that occurred in Chernobyl and on Three-Mile Island.

And what happens if we ignore the problem, as we have been doing so well? The world will have to resort to coal once again, which, regrettably, can still be found in plenty. Absolutely nothing is dirtier than coal. The streets and houses of Edinburgh turned black from it, and the people of London died from it. It pollutes the air, covers everything in soot, and smells awful.

Fossil fuels may be better than coal, but that does not belittle the carbon monoxide and (especially) carbon dioxide (CO₂) they release into our atmosphere. One of the presentations described the carbon cycle, a process that does occur naturally, but which our constant emission of CO₂ has disrupted. For example, by the turn of the century, we had released 200 gigatonnes of carbon into the atmosphere. Just to clarify how much that actually is, 200 gigatonnes would be equal to eleven years worth of water flowing over Niagara Falls. Luckily for us, the reason we aren't choking on all the carbon in our air is that the land is acting as a “sink”, which means it is soaking some of it back up. Better yet, because Canada has such a large land mass, and so many trees, it has just such a sink. That does not mean that we do not release many pollutants. On the contrary, Canada is one of the worst “energy hogs” on the planet, but the natural carbon cycle here far outweighs our input.

Speaking of input, there are several situations in which Canada could have had the “energy advantage”, but did not take it. We were the ones who developed specialized wind turbines of unique design, yet Denmark, the country with less room, is actually using wind energy as an important source of electricity. Ontario has one of the best nuclear power systems, but it is still trying to decide whether or not it should invest in modernizing some of the plants. Canada is an expert in the field of hydro-electricity, and is asked to help with dam projects all over the world, yet it provides us with a very low percentage of our energy. Why does all this happen? It is because of us, the public, the consumers. We are perfectly happy in our snazzy sports cars, noisy motorcycles, and gasoline-guzzling monster trucks. We complain when gas and oil prices go up yet we don't want to invest in technology that could fix this problem. We are perfectly content with spending our cash on cell phones, or dishwashers, or microwaves, yet we are also interested in saving money. The government will not introduce measures that would save energy or help the environment unless we push them to. Right now, this is not our priority, and if it stays that way, then you can be sure we'll be reverting to coal again pretty soon.

I do not want to give the impression that all Canadians are lazy slobs who would rather watch T.V. than plant trees. Quite the opposite, there could be a creative genius

lurking in any one of us. At the convention, Allan Rock, minister of industry, told the story of one man in Charlottetown. He used to run a beer-case manufacturing business, but when production costs went up, he had to shut down operations, leaving 50 people unemployed. Yet now he is running a very prosperous enterprise, the only one of its kind in the world. This man, in collaboration with Charlottetown University, developed a device that cleaned exhaust from ships, turning the dirty gas into hot air. It's clean and economical, even though, as Allan Rock put it, we get quite enough hot air around Ottawa anyway. But monumental discoveries do not necessarily require time or money, as two men in New Brunswick were able to prove. They learned that by throwing old aluminum cans into Drain-O™, they had found a new way of making hydrogen.

What can we draw from all this? To help put some of this information into a more personal light, I talked with Andrew Miall, the chair of this symposium.

Q: How can we get young people, the future generation, to participate?

A: I think that young people are very interested in the problems of today, and can more easily get involved because they aren't worried about money or offending certain people. We have to explain the issues and work together, because youth often have a different way of looking at things.

Q: What is there for us to do? What actions can we take to help energy conservation and the environment?

A: The best would be to develop a personal lifestyle that is conscious of these problems. Walk when you could get a drive, ride a bike, take the bus. Stay healthy, and stay mindful of the consequences of your actions.

Q: What would be necessary for us to be able to implement changes?

A: First of all, Canadians would have to favor a different kind of economic development. Right now, it is focused on making everything better and faster than before, and getting people to keep buying more and more. If the public changes, then the government must also, but what if the public does not want to? Then it is the government's responsibility to take decisive steps of its own because it knows it is the right thing to do. Redistributing taxes is a good way to start: raising the cost of fossil fuels, and then lowering the price for ethanol (fuel from garbage) gets the message across.

Q: What mentality are we facing? Can society change?

A: Many people don't have faith in the government, or don't trust its judgment. Another problem is that taxes are seen in a negative light, yet they can be a very good thing. A lot of people would not understand an energy tax, because they would be thinking only of the immediate future, not what this could mean for us later. And can society change? Certainly. We are convinced into acting a certain way, or buying certain products, or using certain language all the time. No one wanted SUVs before, but after the company had advertised the car repeatedly, people started buying them, and the trend caught on. It can happen the same way with energy efficiency.

A: Do you have any message for Canadians?

Q: Government and public life are very important; we need cooperation, trust, and an understanding of what our priorities are. Remember that you do not have to be persuaded into doing anything, and, above all, keep up your social responsibility, optimism, and sense of the public good, because that is all any country would need.

This gathering of people and ideas was an eye opener for me. It made me realize that real life is never entirely what we think it is, but that all of us have something we can add to it that could make living it a little easier. People have to wake up; they have to see that our energy resources are drying up, and that the atmosphere is our wastebasket and the land, and all life on it, is our slave just waiting to go on strike. No one is asking us to become saviors overnight, but what we cannot do is just sit back and watch.