

*Private Members' Business*

• (1910)

There have been cold periods too. The Norse settlements of Greenland, which existed between the 11th and 14th centuries, disappeared because of a climate change. The glaciers actually advanced out over the settlements. They lost all contact with the old country and some hundreds of years later when people came back they found some genetic vestiges of them in the Eskimos. It is only in very recent years that they have begun to find their ancient stone and earth works because the glaciers have been receding again.

Less than 300 years ago Europe had what was called the little ice age, when hundreds and thousands of peasants died of exposure or starvation because their crops failed. We had this terrible cooling period.

Cores of ice from Greenland and the Himalayas prove that carbon dioxide levels on earth have varied radically over time. Curiously one peak period of atmospheric carbon dioxide corresponds to the period of the little ice age.

How much time do I have left, Mr. Speaker?

**The Acting Speaker (Mr. Kilger):** Regrettably one minute would be about the tops right now.

**Mr. Morrison:** I would like to present some facts and figures.

**The Acting Speaker (Mr. Kilger):** Well, it might be helpful to the House if the member could indicate how long that might be.

**Mr. Morrison:** About four minutes.

**The Acting Speaker (Mr. Kilger):** Is there unanimous consent to allow the member from Swift Current—Maple Creek—Assiniboia to conclude his remarks?

**Some hon. members:** Agreed.

**Mr. Morrison:** I thank the House. We have two well-established facts before us. The carbon dioxide content of the atmosphere is higher than it was a century ago, and the average earth temperature has been increasing for a little over a decade.

Are these two phenomena related? We do not know. There is no convincing evidence to say that they are, and I would say that it ain't necessarily so. There are just too many variables and they are not well understood.

The earth's reflectivity, for example, varies from year to year, depending on the amount of frost and snow we get in the polar regions, or depending on the amount of cloud cover. Ocean currents, particularly in the eastern Pacific, have a gross effect on temperatures. Solar flare activity is probably the most important, and yet this is a factor that has never been thoroughly studied and is only partially understood.

However, let me play devil's advocate and say that, okay, CO<sub>2</sub> increasing in the atmosphere is truly a problem. Termites are said to contribute 50 billion tonnes a year of carbon dioxide to the atmosphere. That is more than is produced by all of the human consumption of fossil fuels on earth. If we are having an increase in CO<sub>2</sub>, the major contributor is probably a negative rather than a positive effect. I am referring to the destruction of the world's rain forests which serve as a carbon sink. If the carbon dioxide has nowhere to go it stays in the air.

To proceed with an energy plan based on flimsy and rather badly scientifically studied evidence I would say is irresponsible, and I wonder if the long term motive behind all of this might be to excuse the installation of the carbon tax. We have discussed that several times in the House.

But suppose global warming is a real threat? What are the reasonable alternatives? The motion speaks of alternative energy sources, but in my experience alternative energy, as most people describe it, could more properly be described as "supplementary energy". Wind, solar and biomass all have a legitimate place in the energy mix but to quote Dr. Petr Beckmann: "You cannot run a modern industrial state on sunbeams, summer breezes, fumaroles and chicken manure". There are only three practical energy alternatives and those are coal, oil, and nuclear.

• (1915)

The hon. member for Davenport as a scientifically trained man knows that wind and sunlight are very diffuse sources of energy. For example, the total energy output from the sun which can be received on earth under optimum conditions at the equator is not much more than one kilowatt per square metre.

I would suggest that my colleague's estimate of land requirements for solar thermal conversion are low by a factor of about five. I sharpened up my own pencil and using very optimistic assumptions of thermal and mechanical efficiency, panel spacings and so on, I calculated that a 600 megawatt solar plant would occupy a land area of about 50 square kilometres.

This monster, according to the Solar Energy Research Institute, or some figures I have extrapolated from one of its publications would require about 20,000 tonnes of aluminum, 1,200,000 tonnes of concrete, 350,000 tonnes of steel, 45,000 tonnes of glass, and 4,500 tonnes of copper.

What would be the energy balance? I would hesitate to try to calculate it. I do not feel I have the competence but I wonder with all of those extremely high energy consuming materials if we would not end up with a solar plant serving out its total operational life and giving out less energy than what went into building it in the first place.