November, 5th 2016 Rally at Airdrie

Intro:

Dr. John Harper, FGSA, FGAC, PGeol., former director of the Geological Survey of Canada and guest speaker at the Friends of Science 13th Annual Major Event, May 2016. Dr. Harper is President, Harper Consulting International Inc. and has an extensive background in industry, academia and government circles. He worked for Shell Development Company, Trend Exploration Ltd. and Conoco Phillips Canada. He was a Professor of Geology and Sedimentology, at Memorial University.

Précis of Dr John Harper's talk to the Alberta-wide Rally against the NDP Carbon Tax:

Good afternoon: It is good to see the size of this crowd and from the look of it I am seeing the people who have founded this land and who care deeply about any potential damage which might occur to the fruits of their labour. I have been asked to talk about the Carbon Tax but that is not my objective here. I want to give you background information so you can assess for yourselves the validity of the actions of the NDP. They are working very hard to convince us that we believe what it is they want us to believe. They are always telling us that "Albertans think this or that way" as if we can't think for ourselves. Their ads are a blatant attempt to "brainwash" the public at our expense. That is the way a dictatorship operates. So let us get on with the information.

Years ago Pierre Elliott Trudeau stated that "wherein there is accepted opinion, therein lies the fallacy". This is apropos for the present discussions over climate change, carbon dioxide, and Carbon Taxes. In Ottawa I was constantly being told that "perception is more important than facts". Again this relates to trying to convince us that we believe what they want us to believe. Finally let us understand that "if the premise is wrong, you can be sure the actions based on the premise are wrong."

I want to take you to first principles by reviewing the climate history of the Earth for the past 600 Million years. The Earth's climate has oscillated between two extremes, those being very cold or glaciation to very hot or evaporitization. Glaciation means very cold, year-after-year, for tens of thousands of years, equivalent to the climate of Antarctica where ice and snow exists year-round. Evaporitization means very hot, year-after-year, for tens of thousands of years or longer, equivalent to the climate of the Dead Sea region where salt is a significant sedimentary deposit. The rocks of the Earth provide the historical geologic record of climate and climate change. We have been documenting this record for a few centuries, gradually gaining better understanding of character of this dynamic planet.

600 Million years ago glaciation characterized this Earth. Gradually the climate warmed through Temperate to Tropical conditions and finally by 544 M.y. the Earth had attained Evaporative conditions with extensive salt deposition. By about 500 M.y. the climate began to cool, passing through Tropical and Temperate conditions and returning to Glaciation by 445 M.y.. Warming again occurred until by 425 M.y. very hot Evaporative conditions had developed and continued until about 350 M.y. ago. During that time Alberta and Michigan were characterized by hundreds of metres of salt and other evaporite mineral precipitation. From 350 M.y. to 290 M.y. the Earth underwent cooling, again passing through Tropical and Temperate conditions and finally attaining Glacial conditions. It is significant to know that each time there were glacial conditions the land masses of the Earth were concentrated in the Polar regions. So ice occurred where one would expect it to occur. When the continents broke up during continental drift periods the land masses drifted toward equatorial regions where broader ocean circulation and shallow water shelves assisted global warming and ultimately evaporation occurred in restricted shallow sea areas.

It is also important to know that when the climate extreme was hot the CO2 concentration in the atmosphere was high, being as high as 3000 to 5000 ppm. When the climate extreme was cold, as we have today, the CO2 concentration was low, being as low as 400 to 200 ppm. Realize that at these times humans did not exist but CO2 levels were 10 to 15 times greater than we are considering to be catastrophic today. If humans were not causing the “problem” then what was? It should be noted as well that the glaciation at 425 M.y. was previously thought by scientists to be characterised by high CO2 concentrations but recent research has now identified new data areas where the anticipated low CO2 values have been determined. This just illustrates that science evolves as new data are added to our knowledge base.

From 290 to 270 M.y. the Earth underwent warming to Evaporative conditions and remained so until 220 M.y. when cooling began to occur. This warming period saw salt deposited from Newfoundland to the Gulf of Mexico and south to Argentina. The cooling trend continued until about 60 M.y. when Antarctic ice began to expand. The “last“ of the dinosaurs occurred at this time and it was at this time that the Chicxulub meteorite impact crater occurred in the Yucatan, and was tagged by some scientists as the reason for the demise of the dinosaurs. In reality the dinosaurs were already in decline possibly due to the climate change to colder climates. The meteor impact may have exacerbated that decline in some areas of the Earth. This cooling interval was followed by rapid warming at 7.2 M.y. to the point that the Mediterranean region was characterized by significant evaporative conditions which then began to cool as the Arctic began to become glaciated by 2.6 M.y. The whole of the northern latitudes were covered in ice. Alberta had two to three kilometres sitting over the Province. It is this last glaciation that we find ourselves experiencing. After that time and we live in the latest warming period.

One needs to know that these climatic oscillations are what we consider to be First-order cycles. However we are aware from the last 2.6 M.y. that there are several lesser cycle orders, those being lesser ranges of warmings and coolings within the main cycles, just as days and nights are lesser cycles within our annual winter and summer cycles. These warm lesser cycles are called Interglacials of which there are 7 and at least in this current glacial interval the interglacials average about 45Ky. Our present Interglacial has been in existence for about 15K to 20K years. This could suggest that if we stick to the average we still have 25K to 30K years before we will know if we are to enter into another glaciation. If that is not the case then perhaps we are already beginning on a first-order trend to an Evaporitization extreme. Who knows? Again the CO2 levels we are experiencing today are a consequence rather than a cause of global warming and certainly have nothing to do with causing climate change. So much for the "sky is falling" fear-mongering of the politicians and Al Gore.

400K years ago humans we classify as Neanderthals made their appearance. We modern humans hesitate to call them humans but they did intermix with modern humans and their DNA has been identified as such in today's populations in Europe. They were on Earth until about 40K years ago when their record went extinct, but they competed with modern humans when the "moderns" showed up about 100K years ago. About 13K years ago modern humans had migrated from Asia into North America. About 9000 years ago a young woman and her dog were entombed in the La Brea tar pits of Los Angeles, USA. About 1000 years ago Europeans were inhabiting Labrador and Newfoundland. There are legends to suggest that Europeans migrated much earlier than 1000 years ago. DNA will ultimately address that suspicion. The Industrial Revolution was well underway by the 1900s. It is quite evident that climate change had been going on well before the 1900s and that CO2 was a consequence of those climate changes. We didn't cause the change; it is natural order on our planet. The premise the politicians are trying to sell us is wrong and therefore our attempts to change the natural order will fail. The perceptions politicians are trying to convince us are real are not consistent with the facts. As pete Trudeau was quoted at the beginning of this talk: "Wherein there is accepted opinion, therein lies the fallacy". Let us stop playing games as do the politicians play and seriously look at what we can alleviate where we ARE causing damage.

Thank you very much.