

EDUCATION FOR THE ENVIRONMENT: POINT OF VIEW FOR DEBATE

“Am I worried about Climate Change? ... ”

Professor David J. Bellamy, OBE., BSc., PhD., Hon; FLS., DSC., D.Univ., C.Biol., FIBiol., FRIN.

... *I certainly am*, having researched and taught the subject at University for longer than I care to remember.

17,000 years ago ...

Seventeen thousand years ago the world was still in the grip of the last ice age, or was it the last and has it actually ended? The Amazon basin was then covered with open savannah and the locals hunted Mastadonts and Giant Ground Sloths - some say to extinction. Although there is now very good evidence that natural climate change had a hand in it.

Ice sheets start to melt ...

As the ice sheets began to melt, thanks to a completely natural rise in temperature, more water vapour (the other raw material of photosynthesis and the most important greenhouse gas) was put into circulation and Amazonas felt the benefit of more rain; enough to allow the tropical forests along the river to spread out colonising much of the catchment area as we now know it. The big game, that then fed the population, could not hack life in the forests and so the local people had to change their lifestyle and eventually turn to slash and burn farming to make ends meet. Thank goodness there were not enough of them to do too much damage to those enormous forests

Colonisation of Britain

Meanwhile back in Britain the higher temperatures allowed the rapid colonisation of the bulk of these islands with forests locking up carbon dioxide from the atmosphere into biomass and peat. Peat - that recorded a set back as the temperature cooled; however the trend of natural global warming was enough to counteract this and, with increasing temperatures, the rate of respiration of all the biota across the world increased the concentration of carbon dioxide in the atmosphere.

Britain: Stone Age to mid-19th century

Open tundra, was soon covered by trees and new waves of immigrants were soon having to slash and burn to make a living from stone age farming that began to clear the land. Smelting metals for bronze and iron also speeded the destruction of forests. The Romans grew grapes in York and medieval agriculture basked in a prolonged period of warm weather. Faced with the so called Little Ice Age and the ague, (malaria in modern speak) King Canute strip-mined fenland peat to keep his spin doctors warm and created the Norfolk Broads, today a multimillion pound tourist attraction. Samuel Pepys recorded ox roasts on the frozen Thames and hurricanes stripping the roofs of London. This cold snap and there is ample proof of at least six smaller waggles in temperature around this time began to draw to an end around 1850 while Darwin was Beagle-ing around the world and sail was giving way to steam.

Demand for fossil fuels from new technology

The availability of fossil fuels speeded the invention of the internal combustion engine and the chain saw, speeding the destruction of ever more of the world's ecosystems. The daisy wheel of Gaia that had kept the temperature of the world on a regular life was being systematically destroyed.

21st century: global temperature within Life's limits

I take heart in the fact that Earth's climate has remained within the limits tolerated by life, for several billion years. During this time the planet has experienced unimaginable volcanic events which liberated huge amounts of CO₂; we have collided with extraterrestrial objects which triggered either increase or decrease of temperature and even the energy flow from the sun has altered over such a span of geological time. And yet here we are! Life remains. The global temperature is well within life's limits - indeed the present-day is cooler than much of previous geological time. There is one circumstantial conclusion and one only: Earth's climate has enormous capacity to self regulate.

'A global warming heretic' ?

Yes, in some people's eyes I am regarded as a global warming heretic, whatever that means. Yes, I am worried about the burning of all our fossil fuel because it is the only raw material for our future, plasto-chemical life styles. Yes, I am worried about the continued destruction of every type of habitat from mountain-tops down to the deepest coral reefs.

Habitat destruction

Why? Because I know that the main reasons for soil erosion, salination, floods, droughts, famines, the collapse of coral reefs and the extinction of species are habitat destruction, overgrazing and over-fishing over the past 10 decades.

Temperature rise

What really worries me most is that over the past 15 years many climatologists backed by the media have latched on to a 0.6 of a degree Celsius rise in temperature as the cause of all this trouble. Add to that the fact that many of the temperature records that show the largest increases in temperature to which they refer are now engulfed in ever growing urban sprawl. While many that are in rural areas or wilderness show little or no rise at all.

Release of carbon dioxide

I take heart in the fact that it has been stated time and again, that over half the carbon dioxide released into the atmosphere over the past decades has been due to the destruction of old growth vegetation, the soils and rural communities that went with them, drainage of wetlands and killing of coral reefs.

Helping to save habitats

So heretic or not I am still doing my best to do what I have been trying to do for over 50 years: helping people to save habitats and the species they contain, and nurse their patch back into more natural working order. My rationale is that this must not only lock up carbon dioxide but must help prepare the world for whatever climate change may sling its way. This surely was the original ethic of conservation that gave rise to the IUCN and thousands of NGO's that have been doing Trojan work to slow the destruction so we and the many living things with which we must share this planet have a chance of survival.

Natural phenomena

Like climate change, tsunamis are a completely natural phenomena and will come again and again as they have done since long before the theory of tectonic plates was written down. Better warning arrays will do wonders, money well spent. Likewise with the right integrated coastal management systems in place, the effects of the next tsunami will be ameliorated - again money well spent. The development and marketing of that technology will provide a lot of worthwhile jobs. In the same way protection and proper management of Old Growth Forests and natural vegetation of every type can do no harm. This is what nature conservation has been all about.

Climate change is happening

Climate change is happening spiced some say by the carbon dioxide released by the profligate use of fossil fuels. If we all do our bit to save as much fossil fuel as we can we are certainly helping on two counts. We are helping to make them last longer and slowing the release of carbon dioxide into the atmosphere.

New technologies of energy conservation

The other good news is that new technologies of energy conservation are now being shared across the world - a massive act of technology transfer. Whether we like it or not that was the conclusion of G8 2005 Conference at Gleneagles Golf Course, itself a grade one site of special scientific interest and a hot spot of local biodiversity. That is why I am still happy talking about and to plants and all those people who know how important they are in the balance of the biosphere.

Laws of physics

The laws of physics tell us that if we doubled the pre industrial concentration of carbon dioxide in the atmosphere there would be an extra 600 million tonnes of potential plant fertilizer (for that's what carbon dioxide is) and about 1 billion tonnes of extra irrigation water in cycle. Good news indeed and it is already happening across the world. Sadly these are facts rarely if ever mentioned by the pro global warmers. Likewise Newton's Law of cooling, which states "*the rate of cooling of a hot body is proportional to the difference in temperature of the hot body and that of its surroundings*". proves in the simplest of terms that if the non-radiative properties of water, (evaporation, albedo, mass transfer, etc.) were not already at work at the earth/atmosphere

interface, the Earth's surface would be some 17°C warmer. Thank goodness that to reach that concentration of carbon dioxide we would have to burn all the world's known reserves of natural gas and oil and a third of all the known reserves of coal.

That's why I still put my faith in Mother Nature to balance our most important books.

Differing views are put forward regarding issues around Climate Change and Global Warming – David Bellamy's views above are just some of many. This environmental topic affects us all, and is a relevant subject for discussion and debate at school. Useful websites include www.foe.co.uk which has a range of free and downloadable resources including their *Energy and Climate Change information booklet for ages 12+years*, *Shoutabout Climate Change Pack* for teachers and youth leaders of 11-13 year olds (see Review in Vol 80 of this journal). Look out for more climate change websites in the Autumn journal. In the meantime, please email NAEE with *your* views!