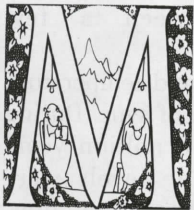


Before the present alarm a number of scientists were warning against the cooling that was to come. In 1977 the Central Intelligence Agency of the United States announced that the world was overdue for a new Ice Age, when the glaciers would begin to march again and “could usher in a ninety-thousand year tyranny of ice and snow”.

MIRRORS AND MAZES

By George Cardinal Pell



MIRRORS AND MAZES is an excellent guide to the debate on what we once called global warming. As the warming

has stopped across the world for about 17 years we are now encouraged to think of climate change.

Does it make sense for a non-expert to take an interest in this topic? Why might a priest who is not a scientist publish another short article? Isn't there a scientific consensus about the damage to the environment from greenhouse gases?

A few preliminary clarifications on Church and science are useful. I believe that it is no coincidence that the scientific revolution, the fantastic progress in physics, chemistry, biology etc occurred in our Western Christian civilization and not in China nor in Muslim lands, nor in South America. Many early scientists were not only Christians, but clergy. Craters on the moon are named after the Jesuit astronomers who “discovered” them. The Danish bishop Nicholas Steno was the father of geology, Gregor Mendel a Czech monk was the father of genetics and the Belgian priest George Lemaitre developed the theory of the Big Bang as the start of creation.

However the Church's record is mixed. Despite early encouragement by Pope Clement

Mirrors and Mazes: A guide through the climate change debate, 2nd edition 2017, by Howard Thomas Brady. Available in Australia and N.Z. from the website: www.mirrorsandmazes.com.au

VII and some cardinals in the 1530s of Copernicus' theory that the sun is the centre of the solar system, not the earth, about a century later Pope Urban VIII condemned Galileo and Copernicus' heliocentric theory. In the public imagination the Church still pays heavily for this mistake.



My particular interest is that the Catholic church not make another big error by officially embracing mistaken or unsubstantiated theories about the causality and consequences of climate change. That should be left to governments. Christians are morally bound to respect the environment, the laws governing ecology and health and remember the rights of future generations, and the official Church should keep its distance from particular scientific theories.

Members of the public must keep an eye on the experts to judge whether they practise what they preach on seeking the truth. The censorship, exclusion and denigration of opponents are always danger signs and should be examined. It is in society's interest to scrutinize whether the experts' models and predictions fit the facts and history is always interesting and illuminating; especially climate history.

Before we come to list a few facts, mainly historical facts, it might be interesting to note some particular incidents and examine how they fit into our personal understanding and the prevailing politically correct consensus.

During the Medieval Warming there was a 39-year drought in Australia, and the River Rhine in Europe dried up once or twice. Much later we find a severe drought and famine in Northern China from 1628-48 which probably contributed to the fall of

the Ming dynasty, just as drought provoked or at least contributed to the disappearance of the Mayan civilization in late tenth century South America.

On the other hand around the time of the Little Ice Age during the Great Frost of 1683-4 the River Thames in London froze for two months. The severe winter in Russia in 1812 during the so called Dalton Minimum helped force Napoleon and his 400,000 troops into a disastrous retreat.

Quite a few worry that the ice sheets of the Arctic and Antarctic are melting and retreating. In 1942 six fighter planes and two bombers crashed on the Greenland Ice Sheet. In 1992, one of them, dubbed the Glacier Girl, was recovered from the ice sheet buried in 81 metres of snow, accumulated over fifty years.

We should always be wary of the adjective “unprecedented” because dramatic changes have been a constant in the climate history of the earth. However some fixed points are acknowledged in this quirky, non-linear and perhaps unpredictable story.

For most of the earth’s four-billion-year history no ice caps existed at the poles, the surface temperature was 3-5° C warmer than today and dinosaurs have sun-baked in Antarctica. However a number of Grand Ice Ages have interrupted these balmy times, when the ice advances towards the equator, covering e.g. Chicago with about two kilometres of ice. Such an age can last 30 million years, while the warmer times, the interglacial periods, are much shorter, varying from 13,000 to 28,000 years ago, so we are probably safe for a while.

During the last few thousand years the climate has also varied, but less radically. The Holocene Thermal Maximum period between 8,000 and 4,500 years ago was much hotter than today, with sea levels two metres higher.

The Roman Warm period of about 2,500-2,000 years ago



was warmer than the Medieval Warm Period 1,000 years ago. In Roman Britain we find vineyards in northern England, while England was exporting grain to the continent. The Carthaginian Hannibal crossed the Alps to invade Italy in 218 BC with elephants and 90,000 soldiers. Temperatures today are similar to those of the Medieval Warm period and cooler than Rome 2,000 years ago. The evidence for all this is now incontrovertible.

The Medieval Warming was followed by the Little Ice Age or Maunder Minimum (1645AD-1710) (when the Thames froze) and other shorter 30-40 year cold snaps have occurred.

Many of the characteristics of carbon dioxide are also well established. It is one of the greenhouse gases with water vapour, (which is by far the most important, contributing variously 80 and sometimes 90 percent of the greenhouse effect) methane, nitrous oxide and ozone. Carbon dioxide is not a poison, but beneficial to life, regularly used in hot houses to enhance plant growth. One claim has it that over the past 100 years despite the destruction of many rainforests green vegetation on the earth has grown by more than 10 percent helped by the 35 percent increase of carbon dioxide in the atmosphere.

The alarmist theory is that the greater amount of greenhouse gases from human, especially industrial activity is raising temperature levels dangerously to

diminish the icecaps at the poles, raise the sea levels of the oceans and the number of droughts and storms etc.

Positing such a relationship of cause and effect is simple minded, expensive (in Australia at least) and either plain wrong or at least not justified by the evidence. The vast climate system has multiple interacting forces with different timescales producing complex effects. It is a classic example of E.N. Lorenz’s Chaos or Nonlinear Theory at work. Climate workings cannot be reduced to simple relationships between a few variables.

Carbon dioxide and temperature levels are often out of sync. During the Ice Age of 450 million years ago carbon dioxide levels were 10-15 times higher than now. During a later Ice Age 300 million years ago carbon dioxide levels were as low as today’s.

During the nineteenth and twentieth century the temperature rose steadily except for three periods of pause 1880-1910, 1940-75 and 1998-2017. During these three temperature pauses the level of carbon dioxide increased each time by 3.4%, then 6.5%, then 9.00% between 1998-2017. The earth continues to warm slowly.

The complexity of the whole system, the bewildering interaction of forces especially water vapour, the role of the sun as it wobbles and travels through the Milky Way and especially sun spots, the influence of other greenhouse gases, of the oceans as heat basins, ocean currents, not to mention solar flares, volcanoes and the occasional meteor or comet strike cannot be captured and projected into the future.

No computer climate model so far has predicted actual temperature changes and (to quote the author) they “are not even close to mimicking climate change in the real world”. The “hot spot” posited by models in the mid-troposphere has not been

discovered despite 20 million radiosonde balloon readings in the tropics.

Before the present alarm a number of scientists were warning against the cooling that was to come.

In 1977 the Central Intelligence Agency of the United States announced that the world was overdue for a new Ice Age, when the glaciers would begin to march again and "could usher in a ninety-thousand year tyranny of ice and snow". We shall see.

But it is likely that young adults today will hear during their long lifetimes a deal of talk about a cooling. Between 1986 and 2017 a continual drop in sunspot numbers has occurred and history shows a strong correspondence between very cold periods, low sunspot numbers, high cosmic ray activity and weak solar magnetic forces. Such was the case in the 17th century Little Ice Age and the Dalton Minimum in the early nineteenth century that helped bring down Napoleon. Some Russian scientists are predicting that sunspot numbers will continue to drop and by 2030-2040 - the world might be much colder. If widespread industrialisation does contribute much to global warming it might be useful in such a world!

It is always unwise to devise and implement public policy on mistaken premises and on scientific errors or inadequacies. These few words and indeed Howard Brady's excellent book do not produce clear new answers but they do show the instability and inadequacies behind the present bad-tempered status quo.

We are forced to grapple with millions of climatic variables and the failure of all the climate models demonstrates that we have not emerged into the light from the "tricky, nonlinear, chaotic maze that stretches through space and in time".

HIS EMINENCE GEORGE CARDINAL PELL is Prefect of the Secretariat for the Economy of the Holy See. He is affectionately remembered by the Catholics of Melbourne and Sydney as their former Archbishop.

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