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Mirrors and Mazes: review

By Cliff Ollier

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The International Panel on Climate Change (IPCC) has dominated debate on Global Warming (later Climate Change) since its creation in 1988. Brady's book *Mirrors and Mazes: A Guide Through the Climate Debate* shows how they did it, and the 'mirrors and mazes' of the title refers to tools used by magicians to trick their audience. I have read many books on climate change, but I found much new material here.

The present is not unprecedented, either in climate or alarm: in the 1970s the worry was the coming Ice Age. The modern panic started with the claim that increasing greenhouse gases would lead to runaway Global Warming. This led to conservation issues like reducing CO₂ (or even carbon), reducing use of fossil fuel and subsidising alternative energy. Despite no warming since 1998 the alarmist message is still to curtail global warming by reducing CO₂, emphasised by warnings of catastrophe from charismatic prophets. In reality CO₂ does not correlate with temperature either on the geological time scale or since the inception of the IPCC. In the ice age that occurred 450 my ago the CO₂ level was 10 to 15 time higher than today: the one 350 my ago had CO₂ like that of today.

Brady bravely attempts to explain chaos (non-linear) theory. The climate system is so complex it cannot be treated with simple math formulae as in models: different outcomes can result from the same conditions. Even the IPCC admits: "In climate research and modelling, we should recognize that we are dealing with a coupled non-linear chaotic system, and therefore long-term prediction of climate is not possible." But they persist in using mathematical models!

Climate has numerous cyclic effects. Ice ages coincide with periods when the solar system crossed one of the spiral arms the Milky Way. The Milankovitch cycle results from changes in Earth distance from sun, and wobble and tilt of the Earth. Other cycles are Sunspot cycles, the El Nino-Southern Oscillation and many others. There are three warming periods roughly 1860-1880, 1910-1940 and 1975-1998. All had similar temperature gradients, though different CO₂ levels, and only the last is attributed to AGW.

The Holocene Thermal Maximum (8,000 to 4,500 years ago) was warmer than today and sea level was 2 m higher. The Minoan Period, the Roman Period and the Medieval Warm Period were warmer than today, so present day temperatures are NOT unprecedented. To produce his 'hockey stick' graph showing temperature rising at an ever-increasing rate, Michael Mann had to remove the Medieval warming period! European glaciers have excellent records of advance (cooling) and retreat (warming). The modern retreat started in the 18th C, before any rise in CO₂ levels.

The media usually describes any severe weather event as exceptional or unprecedented, and links it to increasing CO₂. But over the past 150 years the CO₂ levels increased 40% yet there was no meaningful increase in storm frequency. The increase in human population and infrastructure means that storms today do more damage than in the past. This does not mean there are more storms, and insurance statistics cannot be a proxy for extreme events. Cyclones, droughts and floods show no increase over time.

Sea level as measured by tide gauges shows a rise in the 20th C of about 1.5 mm/y, which is no cause for alarm. There is no solid evidence for acceleration of sea level rise. But governments and consultants still appear to accept the IPCC predictions (properly 'projections') including extreme guess of 82 cm by 2100. The National Oceanic and Atmospheric Administration (NOAA, 2016) is now using up to 6.6 feet (2m) of sea level rise everywhere.

Satellite measurement indicate higher sea level rise than tide gauges, but results have been adjusted and the raw data are not made public. Some even use satellite data as a benchmark and adjust the tide gauge data! In Australia the most reliable tide gauge is Fort Denison, but the shorter records of Port Kembla and Jervis Bay shows a sea level rise three times greater.

Rising sea levels impinge on the coast, and so lead to of disputes about coastal management. Local authorities and consultants use IPCC Reports as 'non-controversial' accessible authority. Engineers tend to use the Bruun 'Rule', which is based on forces working at right angles to a straight beach, ignoring real topography and processes such as longshore drift. It is virtually useless but gives neat numbers, such as "one metre of sea level rise causes 100 m of coastal retreat".

Sea ice comes from frozen sea water and floats, so by Archimedes Principle it does not affect sea level. In the Arctic Ocean there is no land mass, so there is only sea ice. Available maps show a warm Arctic period from 1920-1930s; cooling from 1938 onwards. Satellites show a dramatic decrease in ice from 2000 to 2012.

Mapping Antarctic sea ice was difficult until satellite surveys in the 1970s. Since then it has steadily increased, contrary to climatic model predictions. The Arctic and Antarctic show opposite trends, so they cannot both be due to increasing CO₂.

Are the icecaps of Greenland and Antarctic ice sheet growing or shrinking. Zwally et al. (2015) reported that the East Antarctic ice sheet is growing and more than compensating from loss by coastal glaciers. Between 2003 and 2008 it gained 82 billion tonnes of ice per year. An ice core from West Antarctica shows the area had warmed since the 1950s but larger warming trends occurred in the 18th and 19th centuries, and the stronger warming occurred before any rise in carbon dioxide levels.

The whole alarmist spectre starts with CO₂, and its effect on radiation. Brady explains radiation and radiation bands, but also adds the important role of convection, and effect of the Earths spin. He puts greenhouse gases in order of their greenhouse effect. Water vapour is top at 82% and CO₂ second at 11%. The IPCC uses water to enhance the small effect from CO₂ alone, but the modelling of water vapour is a nightmare – beautifully described here. The NASA Carbon Observatory satellite launched in 2014 gives high resolution pictures of CO₂ levels around the world. Some plumes of CO₂ are over the ocean, others over rainforest, and the only ones over industrial areas were in China.

Models have their problems. The grid blocks used in global models are huge and only one figure can be placed in each cell. The computer tells us how data put in *might* interact, but ignores the problems of chaos described earlier. To make a model work, estimates are inserted and then varied while the model is running, called tuning. To avoid responsibility the IPCC only gives 'projections' (derived from extending a line on a graph) and not 'predictions', but politicians, the media and consultants continue to treat their numbers exactly as predictions, all based on models..

Between 1975 and 1998 temperature and CO₂ (as measured by NASA) were rising in tandem, but after that began to diverge, to the embarrassment of modellers. One leading IPCC author opined "The fact is that we can't account for the lack of warming at the moment and it is a travesty that we can't." and went on to suggest the data must be wrong! But the pause he thought was an artefact is still with us today.

Explanation for the pause include: heat is buried in the ocean (but the heat cannot be found); cooling is caused by aerosols (but this cannot account for earlier coolings); and volcanic eruptions (which do not fit climate history). Very large eruptions do cause global cooling of about one degree C, but only for a few years.

IPCC models predict a tropical hot spot at an altitude of 10-15 km due to heat given out when water vapour condenses. This theoretical hot spot has never been detected despite over 20 million radiosonde balloon readings taken in tropical regions.

Heat transfer is hard to model but is absolutely necessary. The transfer of heat from the equator to the poles is one

problem. Another is transfer from atmosphere to ocean. The heat capacity of the upper few metres of the ocean equals the total heat capacity of the atmosphere. "The ocean accounts for over 90% of total energy accumulation and for almost all uncertainty."

Clouds are of enormous importance in climate, but are generally neglected. A change of just 1% in the cloudiness of planet Earth could account for all the 20th Century warming. However, the IPCC computers don't do clouds.

Despite the alarmist emphasis on CO₂ the sun is the driver of climate. There is discussion of sunspots, magnetic cycles, ultra violet rays, and total solar irradiance. Isotopes formed by cosmic rays, recorded in ice sheets and tree rings for example, provide strong evidence of the Sun's dominant role in the Earth's climate. Times of low sun spot activity correlate with cold periods such as the Maunder and, Dalton Minima, and the low sunspot count at present suggests we are in for another time of cooling.

Having assembled the evidence, the IPCC is assessed. Right from the start is assumed that greenhouse gases controlled temperature. From this arose the advice to control emissions to stop a rise in temperature. A number of future greenhouse scenarios were formulated in the IPCC Fifth Assessment Report (2014). The scenarios (called Representative Concentration Pathways) make assumptions on population, changes in methane concentration, fossil fuels and more. At present there are 300 baseline scenarios and 900 mitigation scenarios.

The IPCC summary statements also contain interpretative propositions that are sometimes incorrect, and some not based on solid data. Many examples (six pages) of IPCC speculation and false statements versus the truth are presented. To pick just the shortest example:

IPCC Each of the three decades since 1980 have been successively warmer than any preceding decade since 1850.

False. The first two decades were warmer but temperatures have stalled in the latest decade.

There is a brief section on conflicts of interest, mentioning Al Gore, Pachauri and Sterne and their business connection. A brief mention of the Climategate affair notes that many of the people involved are still dominant figures in IPCC committees. But Brady generally steers clear of personalities and politics and sadly, La Framboise's brilliant expose of IPCC is not discussed or listed in the references.

In IPCC reports even solid scientific data is processed and squeezed into a final shape so that the IPCC Summary statements reflect an exaggerated and false view about how the Earth's climate is behaving. At the present time there is no evidence of climate behaving outside its normal non-linear boundaries due to human influence.

The final chapter is a rather dismal view of 'what comes next'. Depressing features of the 'debate' include: the funding of research and of universities; the sacking or legal action against dissenters; the prevention of publication of opposing views; the economic arguments of emission control; the rush to alternative energy; the intervention of religion. Brady suggests that the path forward requires a complete restructuring of the IPCC (perhaps abolition would be better). He hopes one day the edifice of global warming, built over the past 40 years and fuelled by greenhouse gases, will collapse.

This is a review *Mirrors and Mazes: A Guide through the Climate Debate*, H T Brady (Mirrors and Mazes, Canberra)

In Australia the book can be purchased for \$20.00 from the website www.mirrorsandmazes.com.au. Overseas the book is printed and distributed by Amazon in North America, UK and Europe in the currencies of those countries.

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