

No science in Plimer's primer

ONE of the peculiar things about being an astronomer is that you receive, from time to time, monographs on topics such as "a new theory of the electric universe", or "Einstein was wrong", or "the moon landings were a hoax". The writings are always earnest, often involve conspiracy theories and are scientifically worthless.

One such document that arrived last week was Ian Plimer's *Heaven and Earth*. What makes this case unusual is that Plimer is a professor — of mining geology — at the University of Adelaide. If the subject were anything less serious than the future habitability of the planet Earth, I wouldn't go to the trouble of writing this review.

Plimer sets out to refute the scientific consensus that human emissions of CO₂ have changed the climate. He states in his acknowledgments that the book evolved from a dinner in London with three young lawyers who believed the consensus. As Plimer writes: "Although these three had more than adequate intellectual material to destroy the popular paradigm, they had neither the scientific knowledge nor the scientific training to pull it apart stitch by stitch. This was done at dinner."

This is a remarkable claim. If Plimer is right and he is able to show that the work of literally thousands of oceanographers, solar physicists, biologists, atmospheric scientists, geologists, and snow and ice researchers during the past 100 years is fundamentally flawed, then it would rank as one of the greatest discoveries of the century and would almost certainly earn him a Nobel prize. This is the scale of Plimer's claim.

Before reading any further, I examined Plimer's publication list on the University of Adelaide website to see what he has published in refereed journals. There are a scant 17 such papers since 1994, two as first author with the titles "Manganoan garnet rocks associated with the Broken Hill Pb-Zn-Ag orebody" and "Kaso-

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Heaven and Earth

By Ian Plimer

Connor Court, 503pp, \$39.95

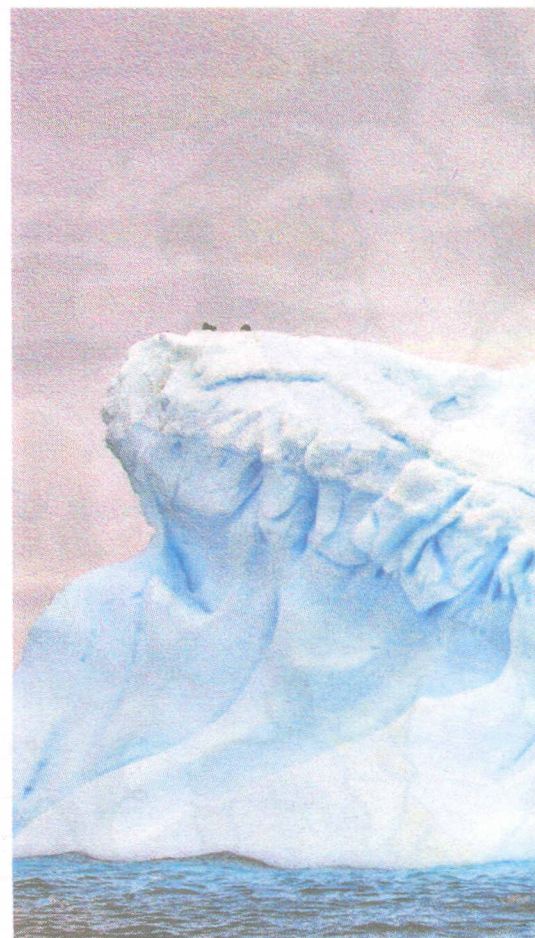
lite from the British Empire Mine". Absolutely nothing on climate science.

Now, before I am accused of attacking the man and not the argument, let me point out that scientists regard peer-reviewed journal publications as fundamental for advancing science. They allow ideas to be exchanged, tested, improved on and, quite frequently, discarded. If Plimer can do what he claims, and can prove that human emissions of CO₂ have no effect on the climate, then he owes it to the scientific community and, in fact, humanity, to publish his arguments in a refereed journal.

Perhaps we will find a stitch-by-stitch demolition of climate science in his book, as promised? No such luck. The arguments that Plimer advances in the 503 pages and 2311 footnotes in *Heaven and Earth* are nonsense. The book is largely a collection of contrarian ideas and conspiracy theories that are rife in the blogosphere. The writing is rambling and repetitive; the arguments flawed and illogical.

He recycles a graph, without attribution, from Martin Durkin's *Great Global Warming Swindle* documentary, neglecting even to make the changes that Durkin made following an outcry over the fact that the past two decades of temperature measurements had been mysteriously deleted.

Plimer claims that scientists such as himself, who do not agree with the consensus, are labelled deniers, "yet their scientific doubts are not addressed". Nothing could be further from the truth. All of Plimer's arguments have been addressed ad nauseam by patient climate scientists on websites or in the literature.



To appreciate the errors in Plimer's book you don't have to be a climate scientist. For example, take the measurement of the global average CO₂ concentration in the atmosphere. This is obviously important, so scientists measure it with great care at many locations across the world.

Precision measurements have been made daily since 1958 at Mauna Loa Observatory in Hawaii, a mountain-top site with a clear airflow unaffected by local pollution. The data is in excellent agreement with ice cores from several sites in Antarctica and Greenland. Thousands of scientific papers have been written on the topic, hundreds of scientists are involved from many independent research groups.

Plimer, however, writes that a simple home experiment indoors can show that in a week, CO₂ can vary by 75 parts per million by volume, equal to about 40 years' worth of change at the present rate. He thinks this "rings alarm bells" on the veracity of the Mauna Loa data, which shows a smoothly rising concentration.

While it is undoubtedly true that if you measure CO₂ in your home it could vary by large amounts from day to day — depending, for example, on whether you have the windows open or closed, or how many people are in the house at the time — this is not the right way to measure a global average. That's why scientists go to mountain-tops or Antarctica or to the isolated



Cape Grimm on the Tasmanian coast rather than measuring CO₂ in their living rooms.

Incredible as it may seem, this quality of argument is typical of the book. While the text is annotated profusely with footnotes and refers to papers in the top journals, thus giving it the veneer of scholarship, it is often the case that the cited articles do not support the text. Plimer repeatedly veers off to the climate sceptic's journal of choice, the bottom-tier *Energy and Environment*, to advance all manner of absurd theories: for example, that CO₂ concentrations actually have fallen since 1942.

Plimer believes "global warming" occurring on Mars, Triton, Jupiter and Pluto proves human emissions of CO₂ don't affect Earth's climate. He believes that once CO₂ levels reached 200ppmv (about half of today's value) the CO₂ had absorbed almost all the infrared energy it could, and further increases will not have much effect. He believes global warming does not lead to biological stress. He believes volcanoes emit significant quantities of chlorofluorocarbons. He believes the sun formed on the collapsed core of a supernova. All these ideas are so wrong as to be laughable: they do not offer an "alternative scientific perspective".

Plimer probably didn't expect an astronomer to review his book. I couldn't help noticing on page 120 an almost word-for-word reproduction

Don't try this at home: Scientists go to isolated spots such as Antarctica to track global CO₂ levels

of the abstract from a well-known loony paper entitled "The Sun is a plasma diffuser that sorts atoms by mass". This paper argues that the sun isn't composed of 98 per cent hydrogen and helium, as astronomers have confirmed through a century of observation and theory, but is instead similar in composition to a meteorite.

It is hard to understate the depth of scientific ignorance that the inclusion of this information demonstrates. It is comparable to a biologist claiming that plants obtain energy from magnetism rather than photosynthesis.

Plimer has done an enormous disservice to science, and the dedicated scientists who are trying to understand climate and the influence of humans, by publishing this book. It is not "merely" atmospheric scientists that would have to be wrong for Plimer to be right. It would require a rewriting of biology, geology, physics, oceanography, astronomy and statistics. Plimer's book deserves to languish on the shelves along with similar pseudo-science such as the writings of Immanuel Velikovsky and Erich von Daniken.

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