

From a lecture delivered by the late Michael Crichton at the California Institute of Technology on Jan. 17, 2003 and reprinted in the WSJ

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'Aliens Cause Global Warming'

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Cast your minds back to 1960. John F. Kennedy is president, commercial jet airplanes are just appearing, the biggest university mainframes have 12K of memory. And in Green Bank, West Virginia at the new National Radio Astronomy Observatory, a young astrophysicist named Frank Drake runs a two-week project called Ozma, to search for extraterrestrial signals. A signal is received, to great excitement. It turns out to be false, but the excitement remains. In 1960, Drake organizes the first SETI conference, and came up with the now-famous Drake equation:

$$N = N * fp * ne * fl * fi * fc * fL$$

Where N is the number of stars in the Milky Way galaxy; fp is the fraction with planets; ne is the number of planets per star capable of supporting life; fl is the fraction of planets where life evolves; fi is the fraction where intelligent life evolves; and fc is the fraction that communicates; and fL is the fraction of the planet's life during which the communicating civilizations live.

This serious-looking equation gave SETI a serious footing as a legitimate intellectual inquiry. The problem, of course, is that none of the terms can be known, and most cannot even be estimated. The only way to work the equation is to fill in with guesses. And guesses -- just so we're clear -- are merely expressions of prejudice. Nor can there be "informed guesses." If you need to state how many planets with life choose to communicate, there is simply no way to make an informed guess. It's simply prejudice.

The Drake equation can have any value from "billions and billions" to zero. An expression that can mean anything means nothing. Speaking precisely, the Drake equation is literally meaningless, and has nothing to do with science. I take the hard view that science involves the creation of testable hypotheses. The Drake equation cannot be tested and therefore SETI is not science. SETI is unquestionably a religion. . . .

The fact that the Drake equation was not greeted with screams of outrage -- similar to the screams of outrage that greet each Creationist new claim, for example -- meant that now there was a crack in the door, a loosening of the definition of what constituted legitimate scientific procedure. And soon enough, pernicious garbage began to squeeze through the cracks. . . .

I want to pause here and talk about this notion of consensus, and the rise of what has been called consensus science. I regard consensus science as an extremely pernicious development that ought to be stopped cold in its tracks. Historically, the claim of consensus has been the first refuge of scoundrels; it is a way to avoid debate by claiming that the matter is already settled. Whenever you hear the consensus of scientists agrees on something or other, reach for your wallet, because you're being had.

Let's be clear: The work of science has nothing whatever to do with consensus. Consensus is the business of politics. Science, on the contrary, requires only one investigator who happens to be right, which means that he or she has results that are verifiable by reference to the real world. In science consensus is irrelevant. What is relevant is reproducible results. The greatest scientists in history are great precisely because they broke with the consensus.

There is no such thing as consensus science. If it's consensus, it isn't science. If it's science, it isn't consensus. Period. . . .

I would remind you to notice where the claim of consensus is invoked. Consensus is invoked only in situations where the science is not solid enough. Nobody says the consensus of scientists agrees that  $E=mc^2$ . Nobody says the consensus is that the sun is 93 million miles away. It would never occur to anyone to speak that way. . . .

To an outsider, the most significant innovation in the global warming controversy is the overt reliance that is being placed on models. Back in the days of nuclear winter, computer models were invoked to add weight to a conclusion: "These results are derived with the help of a computer model." But now large-scale computer models are seen as generating data in themselves. No longer are models judged by how well they reproduce data from the real world -- increasingly, models provide the data. As if they were themselves a reality. And indeed they are, when we are projecting forward. There can be no observational data about the year 2100. There are only model runs.

This fascination with computer models is something I understand very well. Richard Feynman called it a disease. I fear he is right. Because only if you spend a lot of time looking at a computer screen can you arrive at the complex point where the global warming debate now stands.

Nobody believes a weather prediction twelve hours ahead. Now we're asked to believe a prediction that goes out 100 years into the future? And make financial investments based on that prediction? Has everybody lost their minds?