



Dr. Willie Soon: Polar Bears, Sun Spots And Rising Sea Levels

Dr. Willie Soon is an independent solar physicist at the Harvard-Smithsonian Center for Astrophysics who has been studying the Sun and its influence on the Earth's climate for more than a quarter of a century.

□ TN Editor

Canlorbe: *You say polar bears are far less endangered by global warming than by environmentalists dreading ice melt. Could you expand?*

Dr. Soon: Yes, indeed. I have argued that too much ice will be the ultimate enemy for polar bears. Polar bears need less sea ice to be well fed and to reproduce. Why? Think about this for a minute: Polar bears eat a lot. Any large colony will need a great deal of food. The bears' staple diet is seal blubber. But seals are a long way up the food chain. So

a fully functional and healthy eco-system is required. And that means oceans warm enough to support the lower links in the food chain from plankton all the way up to seals.

Indeed, a good puzzle for polar-bear science is to answer the question how polar bears survived during the ice ages, when ice covered coastal zones and large parts of the global ocean. Ice was piled miles deep on land, making it extremely difficult for eco-systems to provide enough food. Of course, areas of relative warmth, which population biologists call [refugia](#), always exist. They may well be the key to explaining how polar bears survived the Last Glacial Maximum about 21,000 years ago.

The so-called “environmentalists”, who seem to allow unreasoning emotion and political prejudice to stand in place of rational thought and sound science, became very angry when I asked them whether they would prefer to see a billion polar bears instead of the 20,000-30,000 living now. The real threat to polar bears was unregulated hunting, which reduced the population to perhaps as few as 5,000 bears in the early 1970s.

After the [November 1973 agreement](#) to regulate hunting and outlaw hunting from aircraft and icebreakers, the polar bear population rebounded. By 2017 it was approaching 30,000. In 2016 a survey by the Nunavut government found a vulnerable population in the western Hudson Bay region to have been stable for at least five years.

I should say categorically that this polar bear fear-mongering is evidence of mass delusion promoted by [group think](#). As a physical scientist rather than a biologist, I am generally reluctant to get involved in such topics as the [influence of climate](#) on [polar-bear population](#), health and biology. But in 2002, [Markus Dyck](#) asked me to examine independently these strange and insupportable claims by environmental extremists that polar bears are [threatened with extinction](#) by global warming.

Consider the facts. From 6,000 to 10,000 years ago, the Earth was considerably warmer than today. Yet the polar bears survived. In fact, they had evolved from land-based brown bears some 150,000 to 200,000 years ago, and to this day they rear their cubs in land-based dens

burrowed into the snow.

Readers curious about Al Gore's false statement that a scientific survey had found polar bears drowning because they could not find ice should see my talk on how environmentalists are [the real threat to polar bears](#).

The survey cited by Gore in his sci-fi comedy horror movie in fact found that just four polar bears had drowned, three of them very close to land, and they had died because of high winds and high waves in an exceptional Arctic storm. The authors of the paper were later victimized by their academic colleagues at the instigation of environmental extremists because they had stated - correctly - that it was the storm, and not global warming, that had killed the bears.

What is more, in the dozen years before the survey, the sea ice extent in the Beaufort Sea, where the survey took place, had actually increased slightly. At no point was Al Gore's story true. In 2007 the High Court in London condemned Gore for his false statements about polar bears, whose Linnaean classification is *ursus maritimus* - the Bear of the Sea. It is now known that they can [swim for more than 100 miles over periods of several days](#). Al Gore could not even ride a pushbike that far.

One positive aspect of my work in science is that I have befriended many seekers after truth. A polar bear expert, [Professor Mitch Taylor of Lakehead University](#), told me late in 2017:

Just finished up in Davis Strait with 275 DNA samples. The bears were in better condition this year than they were during the 2005-2007 study years. The Wrangel Island bears in the photo are in good condition, but the Davis Strait bears were even fatter. Markus [Dyck] has found the same in the Cape Dyer area. Local people confirm the bears are very fat this year and are also reporting a big increase in ringed seals (immigration, not local productivity).

Keen readers who may want solid information and frequent scientific updates about the overall health and trends of all 19 subpopulations of polar bears should visit the website of another friend of mine, Dr. Susan Crockford: <http://polarbearscience.com>.

Canlorbe: *Climate change is surely nothing new. It is a long-established, cyclical behavior of our planet, which has long been oscillating between glaciations and interglacial warm periods. Should we diagnose Mother Nature with a bipolar disorder?*

Dr. Soon: Earth's climate system dynamically oscillates between icehouse and hothouse conditions in geological time or, to a lesser degree, between the glacial and interglacial climates of the last 1-2 million years. But, as with many interesting questions about the Earth's climate, there is no certain answer. The data do not support oversimplistic accounts.

Sea level rise - mother of all scares

I was fascinated to discover that changing sea levels, including extremely high global sea levels 65-250 feet (20-75 m) above today's mean, occurred during the "hothouse Earth" era. One does not need an enormous ice sheet for sea level to be high, chiefly because the Earth's coastal zones and ocean basins may be more porous and capacious than one would imagine. Indeed, deep geological studies proffer good evidence to support my position. I included this empirical evidence in [an essay](#) I recently co-wrote with Viscount (Christopher) Monckton of Brenchley.

In addition to the ever-changing shape and depth of the ocean basins and coastal zone boundaries, one must also bear in mind the "[leaky Earth](#)": There appears to be a continuous exchange of water between the ocean bottom and the Earth's crust, as Professor Shige Maruyama of Tokyo Institute of Technology has shown.

Sea level has risen by 400 feet over the past 10,000 years. For the past 200 years it has been rising at about 8 inches per century, and that rate may well continue. It has very little to do with global warming and much more to do with long-term climate cycles. In fact, so slowly has sea level been rising that environmental-extremist scientists have tampered with the raw data by adding an imagined (and imaginary) "global isostatic adjustment", torturing the data until they show a rate of sea-level rise that has not in reality occurred.

My own examination of the Earth's climate system extends beyond the solar system to include our place in the galaxy. When the solar system was born, we were [1-3 kiloparsecs closer to the galactic center than today](#). We are now 8 kiloparsecs from the galactic center.

The solar system drifts along the [spiral density wave](#) that orbits the center of the galaxy about [every quarter of a billion years](#). Sometimes, the solar system has lain above or below the plane of the galactic disk. Also, we need to consider the evolution of the Sun from its thermonuclear-burning core to its outer thermosphere. Furthermore, for 4.5 billion years the planets have continued to push and pull the Sun around the barycenter of the solar system.

It was 13.82 billion years ago that, at the moment of creation that we now call the Big Bang, God said, Let there be light, and there was light. The solar system, including our planet, is thus one-third as old as the known universe. Our place and time in the universe cannot be ignored in assessing the climate. The original proposition to resolve the [Faint Young Sun Paradox](#) by [Weijia Zhang](#) of Peking University concerned the relevance of Hubble expansion flow in affecting the mean distance between the Sun and the Earth over geological time. One must even consider our galaxy's interaction with passing stellar systems, especially the [coming merger](#) (in a few billion years) between the Milky Way and the M31 Andromeda galaxy to form the [Milkomeda cluster](#). This very likely event will occur within the five billion years of the Sun's lifetime. Gravity rules even over very large distances.

These are just a few of the considerations that lead me to insist on being open-minded in pursuing my scientific study. I study the Sun mainly to improve my own understanding. As A.E. Housman's Greek chorus used to put it, "I only ask because I want to know."

It's the Sun, stupid!

Canlorbe: *You suggest that the Sun's behavior is the driving force of climate warming, not factory smokestacks, urban sprawl or our sins of emission. Would you like to remind us of the keystones of your hypothesis?*

Dr. Soon: For a quarter of a century I have studied the hypothesis that solar radiation is causing or at least modulating climatic variations over periods of several decades. The most up-to-date report of my sun-climate connection research is in a [chapter](#) I and my colleague Dr. Sallie Baliunas contributed to a book in honor of my late colleague Professor Bob Carter of Australia (1942-2016). For the more serious science geeks, [a fuller paper](#), with my two excellent colleagues from Ireland, the *Connollys pere et fils*, is worth reading. If your readers have any difficulty in finding these works, just contact me.

I have sought the best empirical evidence to show how changes in incoming solar radiation, accounted for by [intrinsic solar magnetic modulation of the irradiance](#) output as well as planetary [modulation of the seasonal distribution of sunlight](#), affects the thermal properties of land and sea, including temperatures. In turn, temperature change affects atmospheric water vapor as well as the more dynamical components of [equator-to-pole insolation](#) and of [temperature gradients](#) that vary on timescales of decades to hundreds of years.

Readers may like to follow [the original hypothesis](#) of a connection between the Sun and climate advanced by the team led by my excellent colleague Professor Hong Yan of the Institute of Earth Environment, Chinese Academy of Sciences at Xi'an, China. Our paper examines how the incoming solar radiation modulates the expansion and shrinkage of the rain-belts in dynamically active regions such as the Western Pacific Warm Pool. A [second example](#) shows how the Indian summer monsoonal rainfall is correlated with a specific metric for incoming solar radiation.

A [third example](#) would be the research on how incoming solar irradiance influences China's thermometer temperature records, showing that over periods of many decades the variations in total solar irradiance in the upper atmosphere are matched by variations at the surface.

I regard this empirical result, detectable notwithstanding the complexities of cloud fields within the atmospheric column, as of the highest importance. We are on the right track after all in investigating solar radiation (rather than something else) as the driver and modulator of most things climatic.

The Maunder Minimum

Canlorbe: *The Maunder Minimum, also known as the “prolonged sunspot minimum”, was the subject of a book you co-authored with Steven H. Yaskell in 2003. For the layman, would you like to explain the stellar phenomena observed during this period?*

Dr. Soon: The Maunder Minimum was indeed a very notable period in the study of sunspot activity or, more specifically, of the Sun’s magnetism. It lasted from 1645-1715, covering most of the reign of the Sun King (Louis XIV, 1638-1715; *regnavit* May 14, 1643 to September 1, 1715). Indeed, the late [Jack Eddy](#) (1931-2009) was fond of popularizing this fact by saying that “the Sun King’s reign appears to have been a time of real anomaly in the behavior of the Sun”.

Another interesting coincidence is the fact that [Saint-Gobain](#), makers of the glass for the Hall of Mirrors of Versailles, also made the mirrors for the 60-inch telescope at the Mount Wilson Observatory where my colleagues (especially [Dr. Sallie Baliunas](#)) and I used to study the variations in the activity of solar-type stars. From these observations, we were able to confirm the general Maunder-Minimum-like phase of solar-stellar magnetism.

I worked with Steve Yaskell in writing this book as a [labor of love](#). Our first purpose was to honor the insights of the two dedicated observers of our Star, E. Walter Maunder (1851-1928) and Annie Maunder (1868-1947). I also wanted to dismiss the arrogance and poor scholarship I had noticed among climate scientists. Professors Raymond Bradley and Philip Jones, for instance, had said with great certainty in one of their books that the geologist Francois Emile Matthes (1874-1948) had originated the term “Little Ice Age” which is roughly coincidental with the period of the Maunder Minimum. However, a little research (see pp. 208-209 of our book) shows that Matthes had attributed the phrase not to himself but to “a clever journalist”.

Only a few decades before Louis XIV came to the throne of France, Galileo Galilei (1564-1642) and others had first observed sunspots. During more modern times, the Maunder, re-examining sunspot records

kept at the Royal Observatory in Greenwich, England, established the famous [butterfly diagram](#) that shows the quasi-symmetrical distribution of sunspots between about 40 °N and 40 °S over the 11-year solar cycle – one butterfly per cycle.

What is special about the Maunder Minimum is the fact that during that period sunspots barely appeared on the Sun's northern hemisphere and, when they appeared in the Southern portion, the dark spots were very narrowly crowded within a narrow band 20 degrees off the solar equator. This information is uniquely available thanks to the impeccable telescopic observations from L'Observatoire de Paris. My late colleague, Elisabeth Nesme-Ribes (1942-1996), very poetically described this period as that of the "broken butterfly wings".

The butterfly diagrams of sunspot activity from 1666-1719 (left) contrasted with 1945-1990 (right). From J.C. Ribes and E. Nesme-Ribes (1993) The sunspot cycle in the Maunder Minimum, 1645-1715, Astronomy & Astrophysics 276:549, fig. 6.

It is sometimes said that the Maunder Minimum was merely an illusion or a confusion. However, several colleagues and I, led by Professor Ilya Usoskin of the University of Oulu, Finland, were able to [affirm the reality of the Maunder Minimum](#) by summarizing all available evidence, including confirmation from the broader phenomenon of [Grand Minima](#) as deduced from [cosmogenic isotopes and other proxies for pre-instrumental solar activity](#).

Canlorbe: *In the view of many, IPCC's predictions based on computer models are little better than Tarot cards and astrological predictions. Given your expertise in solar and stellar physics, do you see solid reasons not to regard astrology as reliable?*

Dr. Soon: I am confused by the question. As a scientist, I do not see either evidence or any mechanism by which the relative positions of very distant heavenly objects can assist us in predicting whether any of us will "meet a tall, dark stranger" or win the lottery. However, [an active area of scientific enquiry](#) asks why and how the Sun's magnetism varies. It may be that it is modulated by inertial oscillations within the plasma

body of the Sun owing to perturbations caused by the planets, and chiefly by the gas giants, Jupiter and Saturn. But that is astronomy, not astrology. Astronomy is clearly within the scientific realm, but divination by means of astrology, just as clearly, is not.

At this point, I wish to say something about the misuse of computer climate models by the United Nations' IPCC as a supposed "scientific" mode of divining the Earth's climate over the next 20, 50, 100, [1,000](#) or even [100,000 years](#). Dr. Dallas Kennedy has coined the phrase "uncontrolled numerical approximations" for all climate model simulations inconsistent with the observed climate and insufficiently scrutinized.

The current state of our understanding of the dynamical evolution and variability of the Earth's climate, in the observational as much as in the theoretical domain, is so immature that, as prudent and careful scientists, we should stop and think. I am confident that, even if we were able to find some "agreement" between the outputs of the current generation of climate models and the available measurements and observations, we ought to be cautious, because we can be almost 100% certain that the apparent agreement is fundamentally incorrect.

Let us heed the [caution](#) raised by the world's most knowledgeable atmospheric physicist, Professor Richard Siegmund Lindzen of the Massachusetts Institute of Technology:

What historians will definitely wonder about in future centuries is how deeply flawed logic, obscured by shrewd and unrelenting propaganda, actually enabled a coalition of powerful special interests to convince nearly everyone in the world that CO₂ from human industry was a dangerous, planet-destroying toxin. It will be remembered as the greatest mass delusion in the history of the world - that CO₂, the life of plants, was considered for a time to be a deadly poison.

The Philosophy of Science

Canlorbe: *The Sun has inspired a famous analogy in Plato's theory of*

forms: namely, that the Sun, as the sixth book of The Republic says, allows us to see material things in the visible world, just as the Idea of the Good allows us to comprehend incorporeal or abstract concepts in the intelligible realm. Any entity existing in the visible world is intelligible only by virtue of a corresponding Idea that gives it an order, a sense, and an identity. And the Idea of the Good is the divine Sun that allows us, once it is grasped, to know all existing Ideas in the intelligible world. As a debunker of “scientism”, do you recognize some relevance to this Platonic concept of scientific inquiry?

Dr. Soon: I agree with the claim made by [Justice Louis Brandeis](#) (1856–1941) that “*if the broad light of day could be let in upon men’s actions, it would purify them as the Sun disinfects*”. Transparency in all human affairs, including our scientific endeavors, is essential.

Honestly, I am less of an epistemological philosopher than a natural philosopher – a mere humble scientist, or, if you like, a Shakespearean “rude mechanical”. I subscribe to David Mermin’s principle: “Shut up and calculate!” Science starts with quantitatively expressible evidence and applies to that evidence the honest, careful, disciplined manipulation of numbers that we call mathematics. Mathematics, then, is at once the language of science and its currency. In scientific inquiry, fully open and objective transparency (especially concerning the methodology and openness of datasets) is the most important requirement. Unfortunately, after more than a quarter of a century working in climate science, I have seen at first hand that these simple rules of science are too often honoured more in the breach than in the observance.

To bear witness to how damaging the flawed processes have been in climate science, I strongly recommend reading the refined essay by Professor Lindzen titled “Climate science – is it currently designed to answer questions?”

For more detail on the level of corruption and dishonesty that prevails in global warming science, I recommend my recent talk given at the 2017 meeting of Doctors for Disaster Preparedness: <https://youtu.be/aYAy871w9t8>. For debunking the popular “scientism”, I recommend a serious article that I wrote with my late

friend, Professor István Markó (1956–2017) for [Breitbart](#).

There are scientists and there are mere propagandists. For instance, Bill Nye, the *soi-disant* “science guy”, is in truth Bill Nye the totalitarian propaganda guy. In telling it like it is about Bill Nye, [Luke Barnes](#) said this:

In an age when a number of prominent scientists have said profoundly idiotic things about philosophy, Bill Nye, the “science guy” has produced the Gettysburg Address of philosophical ignorance. It would be hard to write a parody that compressed more stupidity and shallowness into 4 minutes.

Let me close this reply on the philosophy of science by quoting Professor Chris Essex of the University of Western Ontario, from [his review](#) of the book *The Climate Caper* by Garth Paltridge:

Anti-skepticism isn't science. At best it's a kind of para-science, because skepticism is inherent to the scientific process. This para-science is the unprecedented, powerful, well-funded force, not the much-maligned skeptics. Even the oil companies go against the cliché and fund it. It's the skepticism inherent to science that is embattled. Everything else is delusion and lies. That is how the science has been damaged. ... Many scientists, including me, are worried that humanity has been paying too high a price in subordinating science to these agendas. Years from now, historians will look back on this period as extraordinary. The great social fervour was over something that only seems like science. It's of science but lacks the heart of science. It will take generations to pick through the detritus, but this period will ultimately tell us far more about ourselves than Nature. Soon it will be over. If doom has not ensued, the climate science tourists will leave for other errands.

Canlorbe: *If I may somewhat reformulate Rudolf Clausius' statement of the Second Law of Thermodynamics, the total entropy of a sufficiently isolated system, no matter where it be in the universe, tends to a maximum. It is not uncommon to hear that the Second Law is proven wrong by the imagined history of the cosmos, given the universe, from*

the very first particles and atoms to the most advanced human civilizations, appears to have been evolving steadily towards higher degrees of order and complexity. Another opinion is that the Second Law remains true, although life on Earth, which receives energy continuously from the Sun and which is not, therefore, an isolated system, seems at first sight to violate the Law. As an astrophysicist who specializes in solar activity, how do you react to the arguments against the universality and truth of the Second Law?

Dr Soon: Before I reply, it is interesting that you raise the name of Rudolf Clausius (1822-1888), because Clausius' derivation, together with Emile Clapeyron (1799-1864), of the Clausius-Clapeyron relation between the temperature of the atmospheric space and the capacity of that space to carry water vapor is critical to the construction of [a proper theory of climate](#).

As to the reformulation of the Second Law following its original formulation by Sadi Carnot (1796-1832), Clausius, of all the citizens of the universe, understood that life on Earth is made possible owing to the energy from the Sun. Low-entropy photons begin their journey to Earth at a temperature of about 6,000 K. By the time they reach the upper atmosphere, entropy has already done its work and they keep the Earth at [a temperature 20 times less](#) than that at which they began their eight-minute journey.

To bring this reply down to Earth (pun intended) and to return the focus to climate, it has long been realized that strict application of conservation of energy alone may not yield to the full understanding of climatic variations. Starting in the 1980s, an active field of scientific research was developed by the gurus of the maximum-entropy principle in climate models, such as imaginative scientists like Garth Paltridge, whose book I mentioned earlier. If one is interested in this esoteric subject, there is [a recent paper](#) treating entropy as the emergent primary quantity for describing the nature of couplings and interactions in the climate system.

I should also point out that the theory of greenhouse gas warming does not, as is sometimes thought, in any way violate the Second Law. It is not

the theory that is wrong, but the incorrect modeling that leads official climatology greatly to overstate the warming that will occur as we return to the atmosphere some small fraction of the carbon dioxide that came from the atmosphere in the first place.

As you will have gathered, I am a natural philosopher and not an epistemological or moral philosopher. My language is not that of theology or of ideology but of science. I conclude my answer to your query by saying that I am simply happy to be alive, following the strictly unidirectional arrow of time, as proof that the Second Law of Thermodynamics is sound.

Notwithstanding the crazy and highly corrupt atmosphere that exists in the climate science theatre, sensible, solid and active scientists such as [Bjarne Andresen and Christopher Essex](#) ask meaningful questions and reach for reasonable answers. I am content to search for topics in which I can add to the scientific understanding of the complex fluid dynamics of the Earth's climate.

Hotheads and hot weather

***Canlorbe:** People from South America, Africa, Italy and the Middle East are sometimes thought of as having elevated testosterone levels and, consequently, a propensity to solve political conflicts through violence. These populations are thought of as being warm-blooded, or even hot-headed, owing to the hot climates in which they live. Do you warmly welcome this hypothesis or hotly deny it?*

Dr Soon: I am very happy to receive such a question, for I am always trying to understand the extent to which life is dependent upon and influenced by the Sun.

Professor John Todd of the University of Cambridge has recently [published a paper](#) that focuses on how some 5,135 out of 22,822 human genes studied for immunity and general physiology exhibited seasonal dependence on incoming sunlight. This finding that the Sun directly influences about a quarter of our genome adds a profound insight and possibly legitimacy to the broad statements you list above. But far more importantly, it proffers a proper and scientific approach to

such a question. This is why it is not a complete surprise that the [2017 Nobel Prize in Medicine](#) was given for the discovery of “molecular mechanisms controlling the circadian rhythm.” But far more importantly, it proffers a proper and scientific approach to such a question.

Indeed, for what is worth, in 1927 Sir Arthur Eddington (1882–1944), on page 9 of his book [Stars and Atoms](#), remarked that the height of a man (2 m) is about halfway between the diameter of an atom (2×10^{-10} m) and that of the Sun (2×10^9 m): “Nearly midway in scale between the atom and the star there is another structure no less marvellous: the human body”.

Recent statistics from 380 sites in Australia, Brazil, Canada, China, Italy, Japan, South Korea, Spain, Sweden, Taiwan, Thailand, UK, and the USA show that [cold weather kills 20 times more people](#) than warm weather. What is more, 90% of the world’s species thrive in the tropics, and less than 1% exist at the Poles.

We must distill the question to a solvable core and examine it properly through scientific methodology. I recently gave [a talk](#) about the powerful relationships among various co- factors including seasonal sunlight, seasonal temperature change, sea level, and even tectonic activity that extends back to the bipolar Quaternary ice-ages and interglacial warm periods of last 2.6 million years.

Are environmentalists Fascist?

Canlorbe: *Although environmentalist and self-proclaimed antifascist movements obviously share the totalitarian dimension of Italian Fascism – at least, in its final version – they may not share the anthropology and the view of nature that were at the heart of Fascist ideology. As Benito Mussolini wrote in *The Doctrine of Fascism*, published in 1932, “Fascism wants man to be active and to engage in action with all his energies; it wants him to be manfully aware of the difficulties besetting him and ready to face them. ... Hence the high value of culture in all its forms (artistic, religious, scientific) and the outstanding importance of education. Hence also the essential value of work, by which man subjugates nature and creates the human world (economic, political,*

ethical, and intellectual).“ Does Trumpian conservatism or green socialism come closest to the spirit of historical Fascism as expressed above?

Dr. Soon (with help from Christopher Monckton of Brenchley): Fascism, National Socialism, International Socialism and Communism are all disfiguring and mutually indistinguishable instances of the totalitarianism that the political philosophers of early imperial China excoriated as “legalism” and the French philosophers as *étatisme*, *intégrisme* and *dirigisme*. The contrasting political theory was and is known to Chinese thinkers as Confucianism and to us as libertarianism and democracy.

Mussolini no more acted upon the fine-sounding sermons he preached than did Hitler, Lenin, Stalin or Mao Tse-Tung. Each of these monsters, whatever they may have preached about the importance of science, showed the same propensity to interfere with it, to politicize it and to wrench it into conformity with some dull but dangerous, ingenious but ignorant, marketable but murderous Party Line as environmentalist International Socialism does today.

Some 250 million people have been killed by totalitarian regimes of the extreme Left - the Communists, the Nazis and the Fascists - over the century since the dismal October Revolution of 1917. You will understand, therefore, that I disagree with your apparent attempt to assert that President Trump is a fascist: for his supporters would no doubt argue that he has spoken and acted for those working people whom the totalitarian “Democrats”, with their pointlessly costly regime of taxes, charges and regulations intended to destroy the coal, oil and gas industries and the many other industries depending on them, had wantonly abandoned. And it should never be forgotten that modern environmentalist socialism was invented by Hitler in *Mein Kampf* as a method of exercising that fingertip control over every aspect of people’s lives and work that all totalitarians crave.

Such questions, however, are more political than scientific. Beyond saying that science tends to be corrupted by cruel notions such as eugenicism or Lysenkoism under totalitarian regimes, and to prosper in

a climate of freedom, I respectfully decline to address your question. I do not do politics, as the environmentalist socialists do. I do science. As Lucretius put it, *Felix qui potuit rerum cognoscere causas* - happy is he who finds the why of things. Science is my be-all and end-all.

[Read full story here...](#)