

Another exchange on climate change FREE

Ron Larson



Physics Today **65** (3), 10 (2012);
<https://doi.org/10.1063/PT.3.1454>



CrossMark



INSACO INC. has the ability to grind and polish almost any geometric feature in glass, ceramic, and sapphire!

JANIS

Cryogen Free Probe Stations



- Applications include nano science, materials and spintronics
- <K - 675 K cryocooler-based systems
- Vibration isolated for sub-micron sample stability
- Up to 8 probes, DC to 67 GHz, plus fiber optics
- Zoom optics with camera and monitor
- Horizontal, vertical or vector magnetic field options are available

Other configurations: LHe, LN₂, room temperature and UHV systems

Contact us today:
sales@janis.com
 +1 978 657-8750
www.janis.com/

CryogenFreeProbeStation.aspx
www.facebook.com/JanisResearch

a job of that magnitude any time in the near future.

It seems quixotic to me that physicists, of all people, should fail to point out, at every available opportunity, that nuclear power is the only feasible and potentially effective resolution to the challenge posed by global warming. While calling attention to the moles in others' eyes, it would be useful for scientists to contemplate the moles in their own and become champions of nuclear power before it is too late.

William R. Dickinson
 (wrdickin@dakotacom.net)
 University of Arizona
 Tucson

■ **The inspiring article** "Science controversies past and present" describes similarities among current climate change debates and some historical ones about the acceptance of Copernicus's heliocentric theory and Einstein's general theory of relativity. However, author Steve Sherwood does not mention an important key feature shared by each of the two historical examples: the accurately and convincingly corroborated predictions made according to the framework of both theories that led to their acceptance (no dogma needed) by the scientific community and ultimately by the public.

General relativity provided a specific prediction for the motion of the perihelion of Mercury, with no room for fakery. As Banesh Hoffmann put it,¹ "There was nothing arbitrary that could be specially adjusted to fit the fact." Similarly, as John Rigden wrote,² Urbain Leverrier "did not simply say, 'My calculations prove that something is out there.' Not at all. Leverrier pinpointed a location: right ascension 22 h 46 m; declination, -13°24'." With that precise information, Neptune was seen for the first time, was added to the map of known planets, and definitively indicated the Copernican system.

Perhaps the link missing from Sherwood's article is a pointer to a precise prediction of a specific consequence of climate change.

References

1. B. Hoffmann, in collaboration with H. Dukas, *Albert Einstein, Creator and Rebel*, Viking Press, New York (1972), p. 124.
2. J. S. Rigden, *Am. J. Phys.* **73**, 1094 (2005).

Sergio Rojas
 (srojas@usb.ve)

Simón Bolívar University
 Caracas, Venezuela

■ **I was extremely** disappointed to see Steve Sherwood's article comparing resistance to heliocentrism half a millennium ago with modern resistance to the

idea that dire consequences will result if urgent action is not taken soon to reduce carbon dioxide emissions. How can those ideas even be put on the same footing? The first is a physical theory whose validity poses a single, clear question, while the second involves a large set of issues, some scientific, some economic, some technological, and some political, with answers that are not yes or no but involve matters of degree and prudential judgment.

There are legitimate questions about how much recent warming is due to CO₂, how much warming will occur in the future, how harmful it will be, how effective different mitigation strategies will be, how reasonable it is to expect action from enough of the world to make a difference, and what the cost-benefit calculation will be. Sherwood's psychological judo maneuver of comparing those pushing back against demands for immediate drastic action against CO₂ emissions with those who resisted heliocentrism delegitimizes any push-back efforts. The following portion of Sherwood's article ought to have been a clear tip-off that the intent was not to further scientific understanding and communication but to shut it off:

Many who are unwilling to accept the full brunt of greenhouse warming have embraced a more comforting compromise reminiscent of the Tychonic system: that CO₂ has some role in climate but its importance is being exaggerated. But accepting a nonzero warming effect puts one on a slippery slope: Once acknowledged, the effect must be quantified, and every legitimate method for doing so yields a significant magnitude. As the evidence sinks in, we can expect a continued, if slow, drift to full acceptance.

Excuse me, but what the heck can that mean? What does "full acceptance" mean? That we must cut CO₂ production to zero tomorrow? Anything less can be construed as less than "full acceptance." And what does "significant magnitude" of warming mean? Must every warning of even worse warming or worse consequences be accepted or else one is guilty of standing on the "slippery slope"?

I have respected PHYSICS TODAY for its previous excellent historical pieces. It is therefore a shock to see such a blatantly political article published in the magazine.

Ron Larson
 (rlarson@umich.edu)
 University of Michigan
 Ann Arbor