

Secrecy, An APS Talk in Washington, DC

William Happer

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Today, I was asked to talk about secrecy. I am going to try to keep most of my talk focused on secrecy in science, since this is of particular interest to physicists. But I will begin with a few words about secrecy in general. There are many examples of secrecy – from the silly secrets of children and college fraternities to highly classified information that is vital to our survival as a nation. I am persuaded that we need secrecy to protect our country. But we need to be careful that we have the optimal amount of secrecy – neither too much nor too little.

Much of human life involves optimization of something that is necessary, but harmful in excess. If we eat too much we suffer from obesity – too little – and we suffer from malnutrition. Getting the right balance of calorie intake is not so easy, but at least we have a clear error signal – the reading of the bathroom scales, or how easily we fit into an old suit. Getting the balance right with secrecy is much harder, since the error signals on too little or too much secrecy are often ambiguous. But too much secrecy tends to be a more common problem than too little.

History gives us many examples where the loss of a secret had devastating effects. In 480 BC, a brave little band of Greeks held the pass at Thermopylae for two days against an enormously larger Persian army. Their position was nearly impregnable, and they would have probably defeated the Persians had not a traitor, Ephialtes of Trachis, betrayed the location of a secret mountain trail that allowed the Persians to go around the Greek defenses and attack them from the rear. As a result, the Greek defenders were all killed and the Persians proceeded to devastate Greece.

In the excellent film “Secrecy,” produced by Peter Galison and Robb Moss, many instances of necessary secrecy are discussed. For example, one would hardly want to have detailed blueprints on how to build a nuclear weapon freely available to Al Quaida, to Aum Shinrikyo or to many other organizations we could list. The film also has many examples of harmful secrecy. As Joseph Pulitzer once said[1], “There is not a crime, there is not a dodge, there is not a trick, there is not a swindle, there is not a vice which does not live by secrecy. Get these things out in the open, describe them, attack them, ridicule them in the press, and sooner or later public opinion will sweep them away.” What Pulitzer is saying is that that secrecy is a wonderful way to cover up errors – or worse things. Errors are unavoidable: as the Lord famously say’s in Goethe’s Faust[2], “Es irrt der Mensch solange er strebt.” But if you can correct errors, things can’t get too far off course.

We are accustomed to dealing with errors in physics. A key part of many physical systems is a well-designed feedback loop. The heart of a feedback system is the error signal. Secrecy

cuts off the error signal and forces the system to run “open-loop.” It is very hard to keep open-loop systems stable. Too many components have properties that are poorly defined or that are subject to drift. The intellectual and moral properties of humans can also be poorly defined or can drift. Since classified activities tend to have little or no feedback for controlling inevitable human failings, they are hard to keep on track. It is too easy for the people who run classified programs to use secrecy to cover up issues that would not withstand external scrutiny. If you simply say that potential critics have no “need to know,” you are safe. In my own career, I have reviewed many secret scientific programs, some excellent, but some that would be laughed out of an open scientific gathering. Since the programs are secret, even if you point out that they violate half a dozen fundamental physical laws, the programs are relatively safe because of the high level of classification. In fact the higher the level of classification, the more likely you are to find nonsense.

A traditional way to provide feedback to secret programs is with external review committees that have all the necessary clearances. But the members of the review committee are likely to be part of a fairly incestuous group with personal ties to the program participants. In cases where a secret program is really in trouble and needs major changes – or even cancellation – it is difficult for most external review committees to make such a recommendation because of personal ties. This classic problem was clearly articulated by James Madison in *The Federalist Papers*[3] where he reminds us: “No man is allowed to be a judge in his own cause, because his interest would certainly bias his judgment, and, not improbably, corrupt his integrity. With equal, nay with greater reason, a body of men are unfit to be both judges and parties at the same time.” Madison goes on to remind us that the smaller the community, the more likely that parties and judges will be one and the same.

In our nuclear weapons program, Los Alamos traditionally provided feedback to Livermore and vice versa. I know of many serious technical blunders that were caught early because of enthusiastic review of one lab by the other. People often ask why we need two nuclear weapons laboratories. I am firmly convinced that this has actually saved taxpayer’s money, since the adversarial peer review has resulted in higher-quality work. In contrast to classified programs I have reviewed in other branches of government, there are far fewer embarrassing programs in the DOE weapons laboratories. I think the competition between the laboratories is the main reason. I have never believed it was in our national interest to have completely friendly relations between Los Alamos and Livermore.

As an aside, let me mention that a serious problem for scientists who work almost exclusively in secret areas is their isolation from the national and international scientific community. Physicists, engineers and other scientists can become trapped in the world of secret research and they have a very hard time getting a job outside it. They publish much less in the open literature than their colleagues who work mainly on unclassified science, and they have a much smaller network of professional colleagues.

The misuse of secrecy is not exclusively a disease of governments. It can also be misused by agenda-driven, non-governmental organizations. For example, the *New York Times* downplayed the horrors of the Ukrainian famine in 1932, when somewhere between 6 and 10 million peasants starved to death. The *Times* reporting of the Soviet show trials of 1937 was also relatively sympathetic to Stalin. Some say the *Times* thought Hitler and fascism were so much worse than Stalin and communism that it was necessary to cover up Soviet crimes. But a crime is a crime, whether committed by your enemy or by your enemy’s enemy. It is

not the responsibility of news media to judge degrees of evil and to allow that judgment to intrude on its reporting.

In a more recent example of non-governmental secrecy run amok, consider the role of secrecy in the issue of climate change. The release of e-mails and other computer files from the Climate Research Unit (CRU) of the University of East Anglia[4] has revealed what amounted to classification of raw climate data. The data was freely shared between “cleared” individuals” with a “need to know,” that is, individuals who would do everything in their power to reinforce the message that the world faces apocalyptic global warming due to the burning of fossil fuels. There is clear evidence that there was pressure within the cleared group – implied or real – to steer results toward the desired conclusion. In an e-mail from a specialist in using tree rings to infer past temperatures, we read: “I tried hard to balance the needs of the science and the IPCC [the Intergovernmental Panel on Climate Change] , which were not always the same.” And secrecy led to private admissions of doubt while the party line was maintained in public. In an e-mail from a specialist in radiative physics, we read: “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.”

Such questioning is a normal part of the scientific process. What is abnormal is that it was kept secret while the same individuals gave us public assurances of definitiveness – sometimes in Congressional testimony. At the same time, those skeptical about how the raw data was processed were denied access. This was probably a violation of the British Freedom of Information Act. Indeed there was discussion in the e-mail exchanges, if not outright conspiracy, on how to exclude those with opposing views from accessing mainstream climate journals, how to punish climate journals or editors that dared publish any paper not approved by the CRU “team,” how to evade freedom-of-information requests for raw data, etc. The CRU team would have been better served by less secrecy, which would have made it easier for its members to respect the scientific process, and would have produced a more defensible, though probably much less alarming message about climate change.

In a news story last week by David Rose in the Daily Mail Online (February 7, 2010) we read: “The [British] Meteorological Office is blocking public scrutiny of the central role played by its top climate scientist in a highly controversial report by the beleaguered United Nations Intergovernmental Panel on Climate Change. ... Now, the Met Office is refusing to disclose Prof Mitchells working papers and correspondence with his IPCC colleagues in response to requests filed under the Freedom of Information Act. The block has been endorsed in writing by Defence Secretary Bob Ainsworth whose department has responsibility for the Met Office. Documents obtained by The Mail on Sunday reveal that the Met Offices stonewalling was part of a co-ordinated, legally questionable strategy by climate change academics linked with the IPCC to block access to outsiders.”

Why is access being blocked? According to the Daily Mail “Professor John Mitchell, the Met Offices Director of Climate Science, shared responsibility for the most worrying headline in the 2007 Nobel Prize-winning IPCC report that the Earth is now hotter than at any time in the past 1,300 years. And he approved the inclusion in the report of the famous hockey stick graph, showing centuries of level or declining temperatures until a steep 20th Century rise. By the time the 2007 report was being written, the graph had been heavily criticised by climate sceptics who had shown it minimised the medieval warm period around 1000 AD, when the Vikings established farming settlements in Greenland. In fact, according to some

scientists, the planet was then as warm, or even warmer, than it is today. Early drafts of the report were fiercely contested by official IPCC reviewers, who cited other scientific papers stating that the 1,300-year claim and the graph were inaccurate. But the final version, approved by Prof Mitchell, the relevant chapters review editor, swept aside these concerns.”

The American Physical Society weighed in on climate change through a statement issued by the APS Council on November 18, 2007. One paragraph of the statement reads: “The evidence is incontrovertible: Global warming is occurring. If no mitigating actions are taken, significant disruptions in the Earths physical and ecological systems, social systems, security and human health are likely to occur. We must reduce emissions of greenhouse gases beginning now.[5]

The APS statement says “the evidence is incontrovertible.” This is pretty strong language for physicists, for whom skepticism about evidence was once considered a virtue. But in a perverse sense the drafters of the current APS statement were right. It never was possible for “uncleared” outsiders to examine the raw data on global warming since it was kept “secret” by the CRU and their US allies. In fact, as the e-mails from CRU make clear, much of the raw data on global temperatures has been destroyed to make sure it can never be examined by skeptics. So the APS statement could have used the adjective “unverifiable” with more accuracy than their choice, “incontrovertible.”

In fact, the whole mantra of climate-change alarmism is incontrovertible. This week both the New York Times and Time magazine assured us that this snowy winter was just what has been predicted by IPCC. If it is a warm year, it is due to CO₂, if it is a cold year, it is due to CO₂, if it is a tedious, average year, it is also due to CO₂. We are up against a theory that is unfalsifiable. Is this science or religion?

Many members of the APS were troubled by the statement on climate change, and more than two hundred APS members, including a large number of APS Fellows and members of the National Academies of Science and Engineering, submitted an open letter to the APS Council, asking them to replace the current statement with one more in keeping with the traditions of physics. The APS Council agreed to reconsider the statement in its November meeting of 2009. In preparation, an ad hoc committee was tasked to examine the statement and give advice. The decision to form a committee and the committee makeup were not shared with the membership of the APS. As the time of the November Council meeting drew near, a few of the petitioners wrote to as many fellow members of the APS as they could to alert them about the upcoming Council meeting. As a result, the entire membership was sent the an e-mail note from the APS President. I quote a from this note

“Subject: Unsolicited Climate Change Email

Dear APS Member:

Recently, you may have received an unsolicited email from Hal Lewis, Bob Austin, Will Happer, Larry Gould and Roger Cohen regarding the APS and climate change. Please be assured that this was not an official APS message, nor was it sent with APS knowledge or approval.... If the e-mail addresses used to send this message were obtained from our membership directory, this was contrary to the stated guidelines for members’ use of the directory. We are continuing to investigate how the senders obtained APS member email addresses.

As many APS members are already aware, the Council of the Society has tasked the Panel on Public Affairs to examine the 2007 APS statement on climate change for issues of tone and clarity.

Some members of the APS have asked the Society to craft a statement regarding the issues surrounding the release of climate files stolen from the Climate Research Unit (CRU) at the University of East Anglia. ...The APS leadership has concerns about both the improper release of private e-mails and any premature rush to judgment regarding scientific integrity at the CRU. Both the CRU and the IPCC are in the process of investigating the affair.

Best Regards,
Cherry Murray
APS President”

What was so threatening about some members writing others on a matter of considerable scientific importance? Why did the APS management feel compelled to write the whole APS membership to reaffirm their support of the alarmist Council statement on climate change? As the message from the APS President makes clear, the source of the embarrassment was the “climate files *stolen* from the Climate Research Unit.” Yet to this day it is not clear whether the files were stolen or whether they were leaked by a whistle-blower who could no longer stomach the secrecy. And why did the APS care about the CRU? Perhaps because the primary references in the ad hoc APS committee report came, ultimately, from the CRU.

Why the need for secrecy in climate-change science? The climate-change business is an amazingly lucrative source of income, the mother of all causes. It is a textbook case of what James Madison called “a faction.” In Madison’s essay 10 of the Federalist Papers[3], we read: “By a faction, I understand a number of citizens, whether amounting to a majority or a minority of the whole, who are united and actuated by some common impulse of passion, or of interest, adverse to the rights of other citizens, or to the permanent and aggregate interests of the community.” Or to put it the wonderful words of the great Russian poet Pushkin “Bylo by koryto, a svin’i-to budut – All you need is a trough, and pigs will show up”[6]. Any doubt about the apocalyptic climate scenario could break many troughs.

In her message to the members, the APS president assures us “Both the CRU and the IPCC are in the process of investigating the affair.” What about Madison’s warning[3] “no man is allowed to be a judge in his own cause?” Make no mistake. The IPCC and the CRU, which have interlocking members, are investigating themselves. The APS has the same problem. Both the APS Panel on Public Affairs (POPA) and the ad hoc committee that reviewed the Council statment on climate change, had members whose main source of income depends on climate-change alarmism.

At least the British press has picked up on the conflict of interest in the CRU investigation. In yesterday’s (12 February, 2010) issue of The Times[7] we read:

“A member of the panel set up to investigate claims that climate change scientists covered up flawed data was forced to resign last night, just hours after the inquiry began.

Philip Campbell stood down after it was disclosed that he had given an interview in which he defended the conduct of researchers at the University of East Anglia’s Climatic Research Unit (CRU), insisting that they had done nothing wrong.

The panel members said in a statement yesterday morning that they did not have a “pre-determined view on climate change and climate science”. However, it then emerged that Dr Campbell, the editor-in-chief of the journal *Nature*, had told Chinese state radio last year that he did not believe that the e-mails had shown any evidence of improper conduct.”

A number of APS members resigned after the APS management refused to change its alarmist statement on climate change. Others hope to reform APS practices and we will not be so easy to get rid of – although there have been calls that we be excommunicated from APS. I use the word excommunicated advisedly, because you get excommunicated from a religion, not from a scientific society. But what an opportunity has been lost by the actions of the APS Council! Only a few weeks after the APS Council triumphantly re-endorsed its alarmist statement on climate change, citing chapter and verse of reports by the IPCC, the cascade of scandals around IPCC commenced. Dr. Phil Jones, the Director of CRU has resigned and may face criminal prosecution for violations of the British Freedom of Information Act. Dr. Pachauri, The Chairman of the IPCC, is under increasing pressure to resign because incompetence, knowingly tolerating falsehoods in IPCC reports, and conflicts of interest. To its credit, the *New York Times* finally ran a front-page story on the IPCC scandal earlier this week, February 9, 2010. But you will search the *Washington Post* or many other mainstream media in vain to find that climate scientists working under IPCC oversight manipulated data to get the results they wanted. Or that NASA and NOAA eliminated two-thirds of their temperature monitoring stations in colder locations around the globe, giving falsely higher temperature trends. Or that many alarmist claims we have been warned about have been revealed as bogus: fast-melting mountain glaciers, hurricanes and floods, disappearing rain forests, African droughts, ... all flawed. University of Colorado policy analyst Roger Pielke Jr. writes[8], “The claims made by the IPCC about the relationship of disasters and climate change ... were not just wrong. The claims were based on knowledge that just doesn’t exist.”

It is perfectly reasonable for members of the APS to be interested in the physics of climate. The key scientific issues for climate all come from physics: blackbody radiation, emissivity, reflectivity, Rayleigh scattering, atomic and molecular absorption of ultraviolet, visible, infrared and microwave radiation, thermodynamics, heat capacity, latent heat, phase changes from vapor to liquid to solid, adiabatic expansion and compression of gases, fluid mechanics, the Coriolis force, the list goes on and on. Climate is a fascinating subject for physicists. But the current position of the APS, made clear from the former President’s e-mail and by many previous signals is that climate physics is different. The APS Council has declared that the climate is being ruined by the burning of fossil fuels – case closed.

Let me summarize this talk by restating that secrecy in science is absolutely essential for some aspects of national security. But outside of national security, and perhaps a few other areas like a patient’s right to privacy in medical research, secrecy has no place in science. It is sad to see that much of the mainstream media has helped to enforce the secrecy surrounding questionable climate science. Where is Emile Zola when we need him? I could give many other examples of the sad results of secrecy in science, from Lysenko’s biology in the Soviet Union to eugenics in the West. Woodrow Wilson[9] had it right when he said: “Everybody knows that corruption thrives in secret places, and avoids public places, and we believe it is a fair presumption that secrecy means impropriety.”

References

- [1] Alleyne Ireland. *Joseph Pulitzer: Reminiscences of a Secretary (An Adventure with a Genius)*, p. 115 (1920).
- [2] Johan Wolfgang Goethe. *Faust, Der Tragödie erster Teil*, (1808).
- [3] Alexander Hamilton, James Madison and John Jay. *The Federalist Papers*, Number 10 (1788).
- [4] <http://www.climate-gate.org/>
- [5] APS News, January, Volume 17, Number 1 (2008).
- [6] Alexander S. Pushkin. *Dubrovsky*, (1832).
- [7] <http://www.timesonline.co.uk/tol/news/environment/article7023520.ece>
- [8] Roger Pielke, Jr. <http://rogerpielkejr.blogspot.com/>
- [9] Woodrow Wilson. *The New Freedom, A Call For the Emancipation of the Generous Energies of a People*, (1913). p 92.]