

Professional Ethics for Climate Scientists

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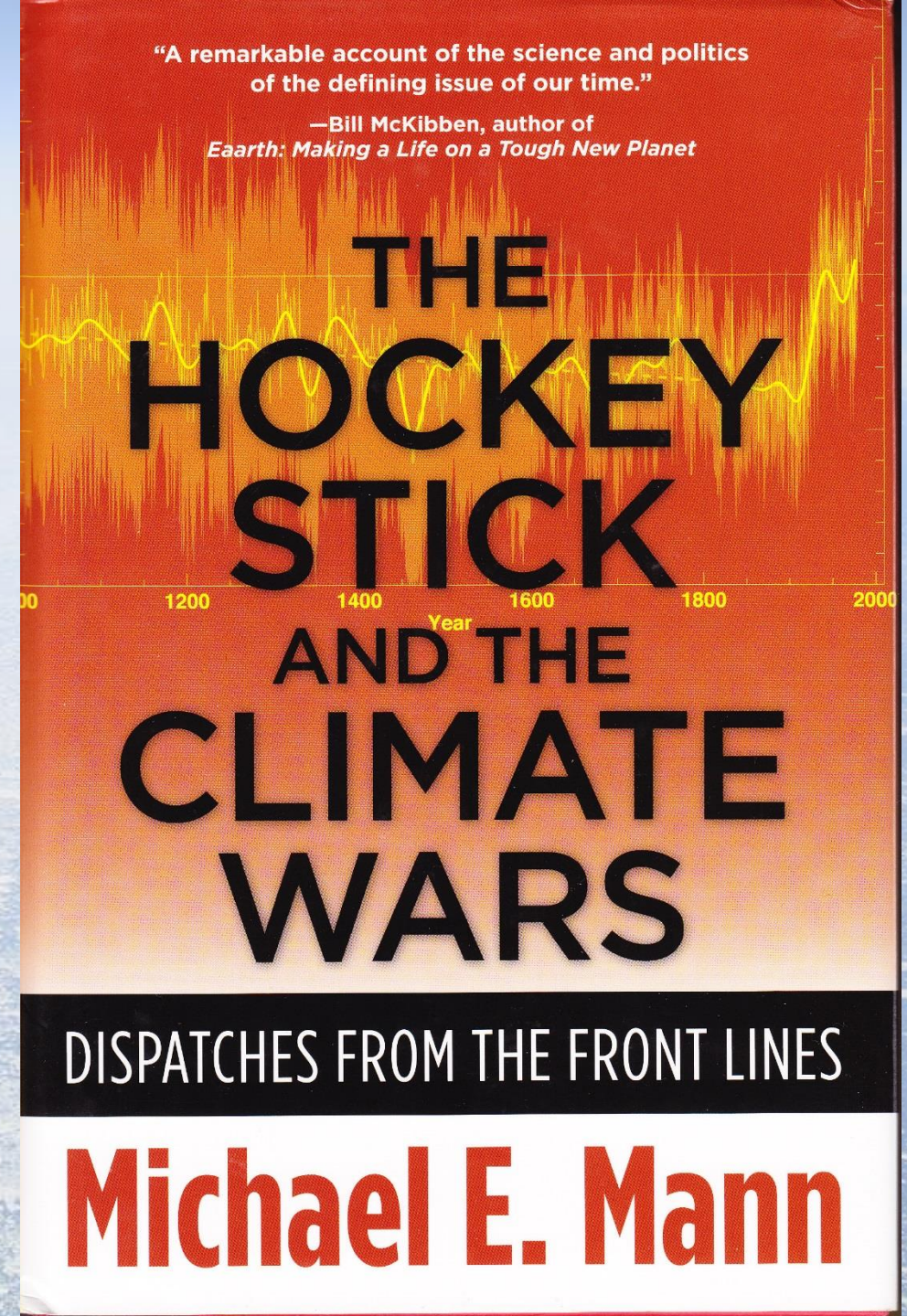
Thanks and Caveats: K.A.P. thanks the University of Lethbridge for support. This good organizations is not responsible for the content of this presentation. Background image: Greenland, 2012, by James Byrne.

A Recommendation

- We highly recommend that part of the training of PhDs in the earth sciences include a survey course on science in the public sphere.
- It would include at least the following:
 - Ethics:
 - Theoretical
 - Professional
 - Certain aspects of law:
 - As it bears on responsibilities and possible liabilities faced by scientists
 - Legal self-protection for scientists
 - Communication as an integral aspect of scientific practice.
- What we say here could be applied to the physical and biological sciences as well, with suitable modifications.

Our Background....

One of us (M.E.M.) has experience as a central figure in the debates over human-caused climate change.



Engineering Ethics as a Model

- One of us (K.A.P.) has taught professional ethics for engineering students (Peacock & Shepherd, 1998).
 - My course (at U of Western Ontario) was called “Engineering Ethics and Environmental Concerns: or, *do you really want to be an engineer?*”
- Professional ethics, with its emphasis on public safety, and the duties to report and to inform, provides a model or benchmark for ethics for earth scientists.



Why This is Needed

- Dangers of Reticence
- Need for Ethical/Philosophical Framework for Scientists
- Protection of public and future generations
- Protection of scientists themselves from liability
- Basic Ethical Intuition: “If You See Something, Say Something”

Reticence

- Several authors (e.g., Hansen 2007, Risbey 2008, Brysse et al. 2013) have warned that climate scientists sometimes exhibit a tendency to “err on the side of least drama” (Oreskes) in reporting the risks associated with fossil fuel emissions.
- Scientists are often reluctant to comment on the implications of their work for public policy, despite the fact that because of their expertise they may be among those best placed to make recommendations about such matters as mitigation of and preparedness for climate change.
 - Hansen (2007): scientific reticence “hinders communication with the public about dangers of global warming.”

Need for Ethical Framework

- Scientists often have little or no training in ethics or philosophy, and consequently they may feel that they lack clear guidelines for balancing the imperative to avoid error against the need to speak out when it may be ethically required to do so.
 - This dilemma becomes acute in cases such as abrupt ice sheet collapse where it is easier to identify a risk than to assess its probability.
 - (This case is both an *ethical* dilemma and a *methodological* problem.)

Exemplar: A Glaciologist Who Was *Not* Guilty of Reticence

- “West Antarctic ice sheet and CO₂ greenhouse effect: A threat of disaster,” J. H. Mercer, *Nature* 271, 26 January 1978, 321-5.
 - “One of the warning signs that a dangerous warming trend is under way in Antarctica will be the breakup of the ice shelves on both coasts of the Antarctic Peninsula, starting with the northernmost and extending gradually southward.”
 - Larsen A (1995), Larsen B (2002), ...
 - Mercer also correctly predicted that the centre of WAIS would begin to thin and that outflow glaciers such as PIG and Thwaites would accelerate.



John H. Mercer
1922—1987

Protection of public and future generations

- Science cannot merely be the disinterested pursuit of knowledge for its own sake.
- Scientists must have an awareness of the possible implications of their work, both good and bad, for human welfare.
 - Especially since their work is to a large degree publicly funded!



Protection of scientists themselves from liability

- Scientists need to understand the laws that may affect their practice.
 - L'Aquila judgment (Torcello 2014):
 - Geologists were convicted not for failing to predict the quake, but for *failing to communicate the risk*.
 - This conviction was recently reversed on appeal, but legal precedent is likely to shift in the direction of expecting more guidance from qualified scientists in matters of public safety.



Protection of Scientists from Attack

- Climate scientists have often been attacked in various ways (see Oreskes & Conway 2012, Mann 2012, Powell 2012).
- Scientists need to know what to do if they come under personal attack when they express a professional judgement.
 - How to respond (or not respond!).
 - UCS (Union of Concerned Scientists) has some excellent guidelines [here](#).
 - Need to be aware of their rights and of the legal resources available.
 - The Climate Science Legal Defense Fund is a good source for help and advice.

A Basic Ethical Intuition

- Mann 2014: “If scientists choose not to engage in the public debate, we leave a vacuum that will be filled by those whose agenda is one of short-term self-interest. There is a great cost to society if scientists fail to participate in the larger conversation — if we do not do all we can to ensure that the policy debate is informed by an honest assessment of the risks. In fact, it would be an abrogation of our responsibility to society if we remained quiet in the face of such a grave threat.”



Key Elements of Professional Ethics

- Licensed professionals have a *duty to report* (“whistleblow”) which is codified in law and precedent.
 - They can be found negligent if they fail in this duty, even in cases where it could cost them their jobs.
- Closely related is the *duty to inform*—to communicate with and educate the public on matters of wide concern (such as climate change!).



Duty to Decide

- Professionals have a *prima facie* **duty to decide**: life and death decisions must be made in real time, often under conditions of uncertainty.
 - Decisions often have to be made without what Hansen (2007) called, “the comfort of waiting for incontrovertible confirmations.”
- Duty to decide is implicit in the entire nature of professional practice.
- It is not explicitly expressed in most professional codes (because it’s too obvious to mention, perhaps), but professionals can be found negligent if they *fail* to act when circumstances demand it.

Global Warming May be Such a Circumstance...

- Mann (2014):
“...another 15 years of failure to cut heat-trapping emissions would make the problem virtually impossible to solve with known technologies...”



A Disanalogy

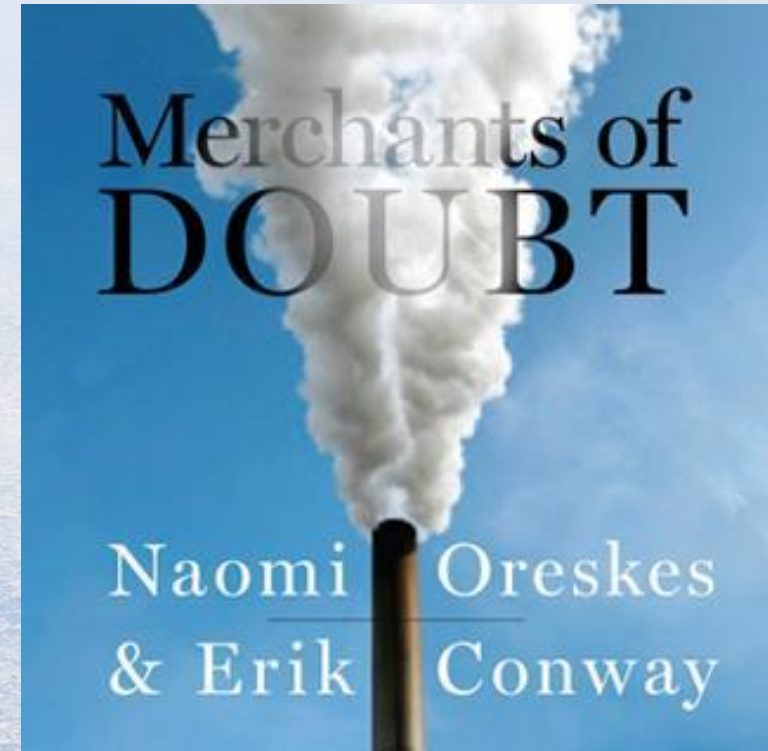
- Codes of ethics are typically written into the laws that govern licensed professions such as engineering and medicine.
- Engineers and other legally accredited professionals are therefore *required* to be ethical.
 - Therefore, professional ethics must be a *required* part of the program for engineering students.
- No one can or should legally *compel* an earth scientist to be ethical.
 - However (!), legal precedent may evolve such that scientists are increasingly expected to communicate their knowledge of risks (again, the l'Aquila case; Torcello 2014).

Professional Ethics as a Model for Scientific Ethics

- Our suggestion here is not that scientists become legally accredited (academic degree + professional license) but rather that those scientists who seek ethical guidance can look to the licensed professions for a model to be adopted voluntarily.
- Professors in fields such as climate science may well feel, as well, that they are *obliged* to advise their students on what they may be up against in their careers!

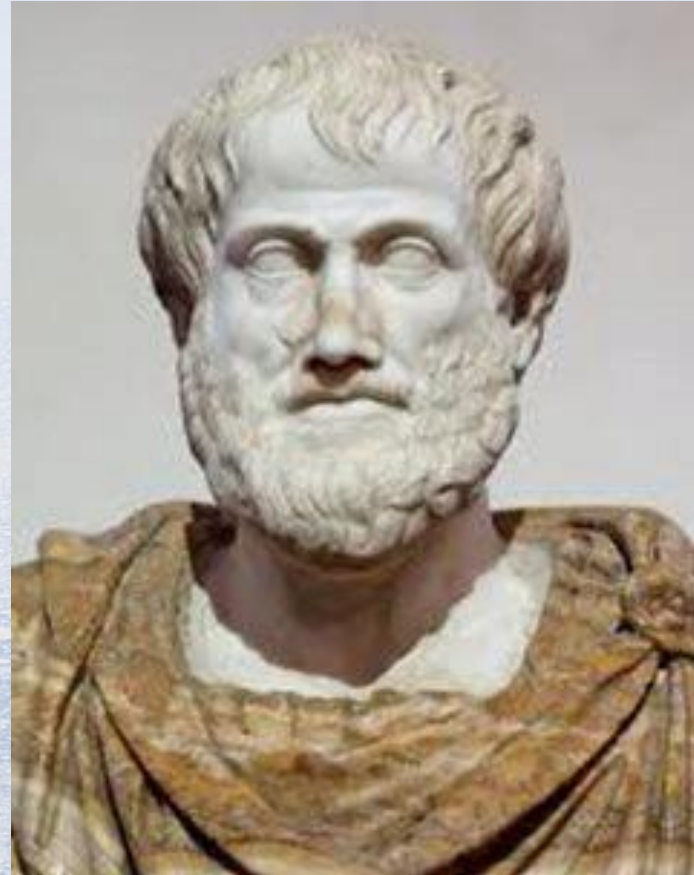
Curriculum

- Some relevant history of climate science and recent debates.
 - Oreskes & Conway 2011 a valuable resource here!
 - “Those who cannot remember the past are condemned to repeat it...” (Santayana, 1948)



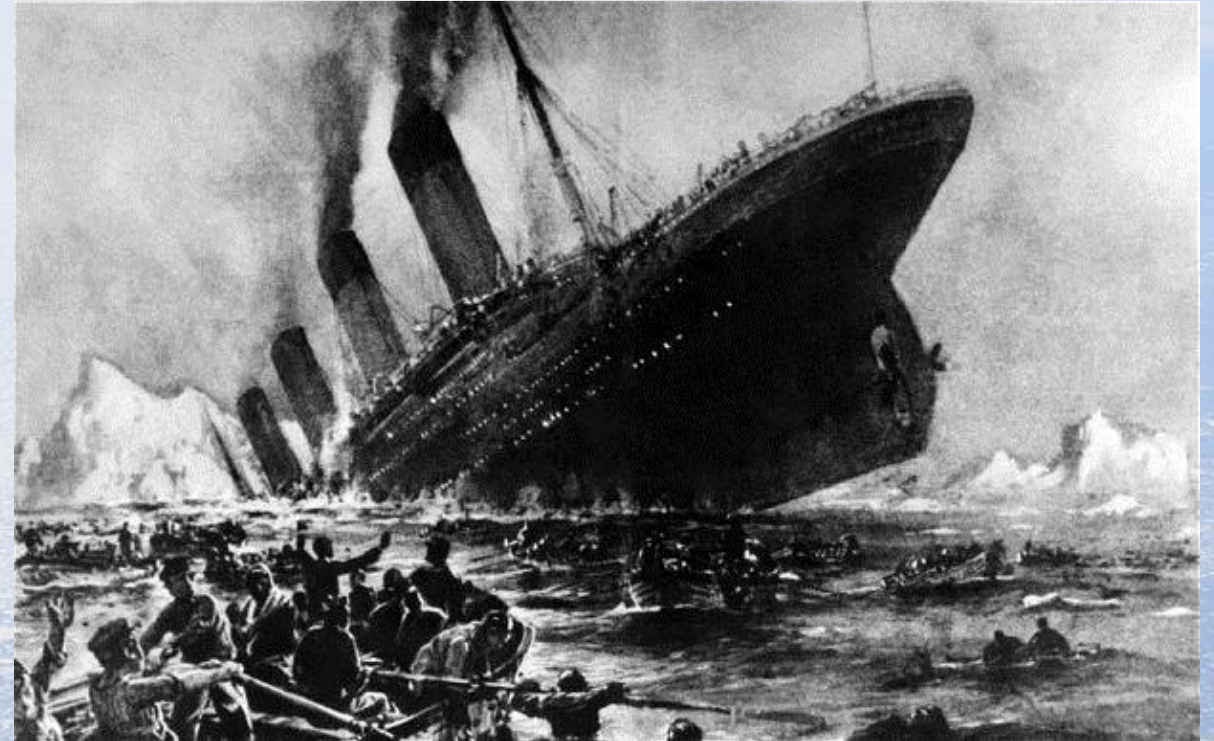
Curriculum (con't)

- Overview of ethical theory: deontic, utilitarian, virtue perspectives.
 - (Professional ethics, with its emphasis on good judgement, is remarkably Aristotelian...!)



Curriculum (con't)

- Basics of professional ethics (especially engineering, medicine) as a standard and point of comparison.
 - Emphasis on duties to decide, report, and inform.
 - Study of some famous disasters (e.g., *Titanic*, *Challenger*,...) is very instructive.
 - Gerstein & Ellsberg 2008 is a good resource.



Curriculum (con't)

- Aspects of risk analysis.
 - Need to understand why “uncertainty is not our friend” with respect to climate change (Lewandowsky *et al.* 2014).
- Couple this with the Precautionary Principle:
 - “Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation” (from Rio Declaration 1992, quoted in Brysse *et al.* 2013).

Curriculum (con't)

- Need to understand the risk of “seepage” (Lewandowsky 2013).
 - Seepage: climate scientists may be *unconsciously* reticent when exposed to the often-poisonous atmosphere of science denial.
 - Awareness is probably the best defence!
- Relevant aspects of law:
 - Scientists’ rights and obligations.
 - How to defend yourself when you “draw fire”.

In Summary –

- Young scientists must be better aware of their societal role as innovators and communicators.
 - Must have the opportunity to gain background in basic ethical thought, especially as it bears on professional and scientific practice.
 - Must be aware of the personal and legal risks they could face, and ways of coping with those risks.
- Therefore, a substantial course in relevant ethics, law, methodology of decision-making and risk analysis, could well be an integral part of the graduate curriculum for earth scientists.

A Sense of Nobility

- Mann (2012): “I remain convinced that there is nothing more noble than striving to communicate, in terms that are simultaneously accurate and accessible, the societal implications of our scientific knowledge.”
- It would be good to instill that sense of nobility in our young scientists today...!



Rick Piltz

July 29, 1942—October 18, 2014

Rick was willing risk his livelihood to do what he knew was the right thing to do. When he witnessed fossil fuel industry moles directly editing government reports to downplay the climate change threat, he sacrificed everything by blowing the whistle. He saw something. And he said something. Our planet is better off for his efforts. We have lost both a friend and a hero in his passing.

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