[LETTERS]

FOSTERING DEBATE

Michael Mastromatteo's March/April article entitled "Key role seen for P.Engs in global warming debate" (*Engineering Dimensions*, p. 24) documents a presentation made by Michael Gerbis, P.Eng.

Mr. Gerbis suggests "the [climate change] debate is over" and encourages engineers to "examine critically the arguments of climate change skeptics, who [Gerbis says] tend to focus on isolated or extraneous data to undermine climate change science."

No engineer or scientist questions that an object dropped from a height will fall to the ground. That is why the law of gravity is a *law*. Several notable engineers and scientists believe climate change is a natural cycle and humankind's contribution is minimal. There is even a strong body of opinion that believes the culprit is sun activity and not CO_2. In my opinion, Mr. Gerbis' position that the debate is over is as dangerous to a truth-seeking society as David Suzuki's idea that all politicians who are not on board with the climate change bandwagon should be jailed. Given that Mr. Gerbis was trained by Mr. Gore, maybe his position is understandable. It is interesting to note that a UK judge ruled that before Mr. Gore's film, *An Inconvenient Truth*, can be shown as mandatory viewing in the schools, it must come with a disclaimer for its scientific and technical inaccuracies.

As far as Mr. Gerbis' point that non-believers use "isolated and extraneous data," I believe this approach is akin to wearing blinders that prevent looking at hard data that does not support the hypothesis. After all, scientific method involves creating a hypothesis and looking at data to see if it is supported. This approach requires consideration of data that does not support the hypothesis as well. Here are just a few pieces of data that are anything but isolated and extraneous:
1. Ocean temperature measurements from deep water buoys off Scandinavia have shown no increase in temperature over the last several years, and have actually shown a slight decrease over the past few years, and 2. Canadian wildlife scientists have repeatedly shown the polar bear population is actually increasing, not decreasing. In the interests of brevity, suffice it to say the debate is only over for, in my opinion, those who have made up their minds and do not want to be confused with facts.

As engineers, we need to continue the debate so the responsible actions we propose are both economically sound and represent solutions to the real problem, and do not just address political correctness. In the interim, there are solutions that make economic sense whether climate change is natural or influenced by man. Here are but two examples: 1. Given the disastrous snowfalls in Quebec with the resulting tragic roof collapses, it is time to change the National Building Code, and 2. No one can argue that reducing smog from auto emissions makes good sense whether or not it has an impact on temperature, as clean air is better than polluted air to breathe.

Contrary to Mr. Gerbis' assertion that the debate is over, I believe his views foster debate.

Rick Ross, P.Eng., North York, ON

GAINING RESPECT

Re President's Message, "Great expectations," in *Engineering Dimensions*, July/August 2008, p. 3.

I would like to comment on your sentence, "…we should restore our profession to its former

equivalence with the other learned professions of medicine and law," because I believe the respect that lawyers and doctors receive in this society is directly related to the number of doctors and lawyers that we have. It is like everything else: if there is abundance of something, this cannot be in high demand and, accordingly, the appreciation of that resource cannot be high.

We don't want engineers to become a scarce resource in the future. We don't want to make it harder for foreign trained engineering graduates to get a licence. We don't want to decrease the number of students in engineering programs. We don't want university fees to be so high that only a few can afford to go to university. If so, the reality is that we will never be able to "restore our profession to its former equivalence with the other learned professions of medicine and law."

We should never compare our profession to these two. We should work on achieving the respect for our profession, as much as it can be achieved without creating a shortage of engineers.

Marijana Bulatovic, Toronto, ON

[LETTERS]

ACTION NEEDED

In his message, "Progress for the common good" (p. 3), in the May/June issue of *Engineering Dimensions*, the new President Adams proposed a multi-tiered licensing model for engineers. It is nice to note such a progressive message from the new president. However, by the time each president's term expires there is little or no action on his or her message. I think there should be continuity in implementing the ideas proposed by each president by the succeeding president, especially this one, which is long overdue.

I am sure the proposal for multi-tiered certification is not a new one. In fact, it is followed by most associations throughout the world. There are many levels, such as student, graduate, associate, and full and fellow membership of an engineering association. Such a tiered designation based on a member's standing in the profession is urgently needed, even to distinguish the first-year member from those with 30 or more years of experience. In every country, an engineer or even a medical doctor with 25 to 30 years' professional standing and with a good record is automatically granted a fellowship in the profession. I feel this recognition is good for the profession and for the engineers involved. It is long overdue, very much in compliance with the title of the president's message, and it deserves to be implemented.

Ashok N. Kumar, PhD, P.Eng., Georgetown, ON

A FEAR-MONGERING RELIGION

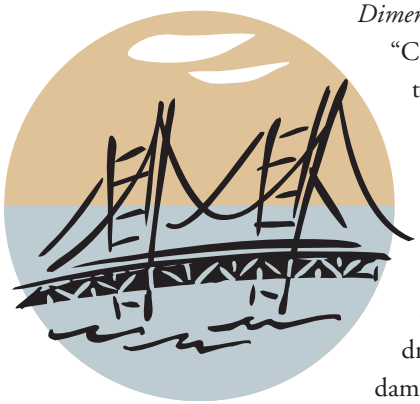
David Moffat's letter in the January/February issue of *Engineering Dimensions* (p. 10) regarding John C. Tysoe's article on global warming contains numerous assumptions that are either not correct or at the very least highly debatable, and must be responded to. Mr. Moffat assumes that global warming is occurring, but I have yet to see any scientific proof, based on the scientific method and not breathless hypothesizing. Even if one were to grant the occurrence of global warming, the assumption of Mr. Moffat that humans have had anything to do with it also remains entirely unproven via scientific methods (How would one then explain the warming that occurred in the 13th century that allowed crops to be grown in Greenland and grapes for wine to be harvested in England?). Similarly, there is nothing I have ever seen that would prove to me that any actions humans take would do anything to "prevent or slow" any effect on the Earth's temperature whatsoever.

Global warming is not the first time we have heard all this end-of-the-world fear mongering. Perhaps Mr. Moffat is too young to remember all the claims 35 years ago that overpopulation would destroy the world, or that in the '70s we were witnessing the beginning of the next ice age! Look how all that turned out.

I disagree entirely with Mr. Moffat's claim that only one of his scenarios leads to the end of the world as we know it (the scenario of not taking action to prevent global warming, if it was true) and all others (i.e. doing something about global warming) would not have any impact on the world as we know it, if implemented. For example, if we were to strictly implement all the requirements of the Kyoto Accord (which may or may not even affect the Earth's temperature) our economy would be devastated. The prices for anything related to oil would skyrocket. This includes food (we need diesel to run tractors to harvest crops), anything requiring transportation (Do any goods not require transportation?), anything requiring plastic, anything requiring any kind of hydrocarbon whatsoever, home heating, electricity, the list goes on and on. Companies would have to cut wages and jobs to reduce costs to remain in business. In short, we would be plunged into a depression, the likes of which have not been experienced since the 1930s. I personally think such an occurrence would end my and my family's world as we know it, and I would rather think it would end Mr. Moffat's world as he knows it as well–and all this to assuage the guilt of the Kool-Aid drinkers of the new religion of global warming, something that hasn't even been proven yet. I know that holding such ideas as mine are blasphemous to this new religion, but as an engineer I have to consider all aspects of an issue, scientific and economic, and demand proof good enough to convince an engineer of the worth of actions that will seriously affect my life as I know it.

Mike Wierdsma, P.Eng., Austin, TX

COMMENTS ON OUR INFRASTRUCTURE



I found the May/June 2008 issue of *Engineering Dimensions*, which featured the theme "Confronting the infrastructure crisis," to be thought-provoking and I would like to make some comments about reinforced concrete structures, particularly bridges.

In a recent article in *Chemistry World* (March 2008, pp. 62-66) entitled "The Concrete Conundrum," it was stated that corrosion damage to the steel reinforcement was "the cause of well over 90 per cent of problems of concrete durability."

Structural deterioration begins when chlorides, moisture and air (oxygen) penetrate the concrete cover via pores or cracks and then attack the carbon steel reinforcing bars (rebars). The resultant corrosion product (rust) occupies a much greater volume than the original steel and thus exerts a significant pressure on the surrounding concrete, causing it to crack and, eventually, to spall.

The barrier walls and decks of so many of our concrete road bridges have suffered this kind of deterioration and have had to be extensively repaired or replaced, often after only about 30 years in service.

At present, one hears a lot about high performance concrete (HPC). It was developed to be less porous and stronger than traditional concrete. One might question whether the in-service experience with HPC has been long enough to justify the claim of high performance. While as-cast HPC has been accepted as being less porous, HPC has been said to be prone to cracking. When migrating through the concrete cover towards the carbon steel rebar, chlorides do not care whether their pathway involves pores or cracks. It is expecting a lot for the concrete cover to withstand the constant pounding of heavy 18-wheelers, the hot summers, the extremely cold winters, freeze-thaw conditions, the large summer-winter temperature differences and the scraping and chipping caused by snowplow blades.

The obvious way to avoid a corrosion problem is to select a material with inherently good corrosion resistance, instead of a corrodible material like carbon steel. Several stainless steels have inherently good resistance to chlorides and they are readily available as rebar and tie-wire. When the life-cycle cost benefits of stainless steel reinforcement are being discussed, one often hears the comment, "Stainless steel is so expensive." Well, replacing bridge decks after only 30 years in service is very expensive and having bridges collapse is extremely expensive (in terms of injuries, loss of life and replacement).

It must be said that the Ontario Ministry of Transportation has been leading the way in North America with regard to the use of stainless steel rebar in bridges with high traffic densities. Depending on the design and complexity of the bridge, the total project cost may only increase by a small percentage when selectively substituting stainless steel rebar for carbon steel in the corrosion-prone parts of the structure. The resulting bridges will have greatly extended lifetimes and much lower life-cycle costs.

It would be unthinkable, and very dangerous, to restrict the chemical process, power or oil and gas industries to using only carbon steel. Therefore, why not encourage our civil and structural engineers to use better and well-established materials for our important infrastructure? I would much rather see our tax dollars going towards schools, colleges, hospitals, water treatment plants, water distribution systems, sewers, sewage treatment plants and new bridges than see the repeated repair or replacement of existing bridges.

Frank N. Smith, P.Eng., Kingston, ON

ENOUGH OF GW

One hopes PEO will not, as a professional association, devote too much time to global warming (GW). As a couple of correspondents have already pointed out, GW has embedded in it a much larger proportion of political correctness than science at this point.

It would be good to see PEO thinking outside the (politically correct) box and espousing causes with long-term benefit. May I invite readers to propose ideas?

One I like is pursuit of research to improve desalinization technology to the extent of making it commercially viable. Coupled with better irrigation, there could be the possibility of converting tracks of marginal land into food production.

D.A. Hogg, P.Eng., Scarborough, ON

[LETTERS]

DEFINING HARASSMENT

Having just read the July/August *Engineering Dimensions*, I was somewhat perturbed to see that an enforceable component of professional misconduct will now include "harassment" (pp. 35, 66). Its definition, "vexatious conduct," is so subjective and open to individual interpretation that even this letter to you could be subject to prosecution, since it is likely "unwelcome" and will probably "irk" or "annoy" any of you who favour the definition and its enforcement. I think that to allow this "non-engineering" clause to stand will be the beginning of the end to legitimate criticism within PEO and its peripheral organization. Most criticism is unwelcome (a PEO-prescribed and defined component of "harassment"), so who will determine when to lay a charge when any unwelcome, irksome comments are perceived to be harassing?

Surely harassment is already a criminal charge under Canadian law and predefined therein. Why does PEO think it can do better? To eliminate criticism, I suppose, is a justifiable objective in its eyes (and in many Asian, African and far-east countries). Hopefully this component of professional misconduct will be deleted from the final version of the act's revisions.

William A. Este, P.Eng., Garson, ON

Ed note: Just to clarify, harassment has been included in the definition of professional misconduct in Regulation 941/90 since 2000. The definition included in the regulation is largely drawn from the definition in the Ontario Human Rights Code. The proposed legislation revisions are intended simply to make the Code of Ethics enforceable and reflect a consolidation of conduct-related items from the existing definition of professional misconduct into a revised code. For information on PEO's policy on human rights as related to professional engineering practice, please see PEO's Guideline on Human Rights in Professional Practice*, available at www.peo.on.ca.*

PEER-REVIEWED THEORIES

I'm disappointed you published "The facts" in the July/August letters (*Engineering Dimensions*, pp. 7-8). The letter starts off factual, but there are some pretty big leaps to CO_2 being trivial and its rise is the result of global warming and not the cause. Then the statement that carbon dioxide is coming out of the oceans along with the other statements goes against all peer-reviewed articles I've read.

The scientific community has a very good system for releasing new information and new theories. It's called peer review. Every scientist wants to be associated with a new idea or theory, so if another scientist promotes an opposing idea in the same field, the first scientist will try to discredit it. Therefore, the peer-reviewed ideas that are published have gone through intense scrutiny.

Some people who know their ideas or theories will not stand close scrutiny have turned to the press to have their ideas published. The press generally does not have scientists on staff able to give such theories close scrutiny and, unfortunately, these untested theories get published and people read and believe this inept science. If a person really believes he or she has discovered a new important theory, they will go through the peer review process and receive their appropriate place in history.

The relatively easy publishing of pseudo-scientific articles in the press and on Internet blogs was a boon for the tobacco industry as an avenue to spread the idea that cigarettes are not habit-forming and do not cause cancer, and more recently a blessing for the people who don't believe that humans are causing global warming through the emissions of carbon dioxide.

The website www.realclimate.org contains only peer-reviewed articles by scientists, for scientists. They have critiqued Al Gore's *An Inconvenient Truth* and have come to the conclusion that Mr. Gore basically, except for a few minor items, got it right.

Lee Norton, P.Eng., St. Catharines, ON

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