SEEKING ABSOLUTE TRUTH

Like others who do not read Computer with engineering blinders on, I take issue with Bob Colwell’s attempted missionary work in his June 2005 At Random column (“Frames of Reference,” pp. 9-13).

Colwell’s attempt to convert the statement that “engineers are most responsible for our technological society” into an argument to introduce “absolute truth” to nonengineers falls short because it is poorly formulated and weakly based.

For example, Colwell cites C.P. Snow’s 1959 two cultures lecture, which was based on experiences from 1930s British schooling. Since then, interdisciplinary studies have become commonplace, allowing students the opportunity to cross Snow’s “chasm” to try to understand the “other side.” Professionals today need not be categorized as science or arts types; there are myriad opportunities to become modern-day renaissance men [sic]—unless they choose not to do so, remaining entrenched in their own world.

Colwell falls into a common trap of assuming absolute and fixed categories. His Camp A and Camp S inadvertently lump together science and engineering, which are two different enterprises. Perhaps his criterion for doing so was that people either enjoy math while at university or they do not. This confusion skews all further argument about absolute truth. This is something that engineers may indeed cherish (so that jetliners do not fall out of the sky), but it is not, despite what Colwell suggests, what scientists seek.

We should not confuse rigor or precision with truth. Science is not conducted in a vacuum—it has always been influenced by religion, politics, and personal bias. Scientists rarely speak of truth but rather of plausible explanations of how the world works.

Colwell states that those in the technology business are in the service of absolute truth, which must be guarded, developed, and continually explained to the other side. He does not tell us, however, what exactly this truth is. Is it that technology should dominate art? Does he expect the arts community to utilize more quantitative methods, to be more mathematical? Does it need to “understand” that engineers have all the answers to life’s problems?

What, exactly, does Colwell think the other side needs to be told?

Michael Gould

Bob Colwell responds:

If scientists do not seek absolute truth, then on what basis do they reject one hypothesis for another?

At all times, science tries to select the explanation or model that its practitioners believe corresponds most closely to the known facts and data. When a new idea comes along that corresponds even better, it supplants the old. I call that process “seeking absolute truth.”

Scientists and engineers both believe there is an objective reality “out there” that we can understand via a rational process. That reality isn’t just a human convention, like language or music or culture; technologists believe the universe is wired a certain way and that it would be that way even if we weren’t around to notice.

This is not a trivial distinction. It means that, like Galileo, we must accept the universe on its own terms, not as we are predisposed to believe it is. Yes, science is a human endeavor, and it is influenced by things other than just the relevant data; all the more reason why we must never forget what distinguishes it from all other human endeavors. We measure our ideas against Nature’s own yardstick. We seek that absolute truth.

In a world where creationism is again being touted as a hypothesis as worthy of consideration as evolution, despite huge amounts of evidence for evolution and none for creationism, it seems obvious that: a) there exists a large body of people in the world who do not understand science, and b) those same people are more than willing to let their ignorance damage science itself in the form of corrupted education of their children.

At no point did I imply that people are either technologists or not, with nothing in between. The problem is how do we keep the world running stably when people are heavily dependent on science and technology but largely do not understand that science and technology also do not understand how dangerous that ignorance is?

We must make real sacrifices to avoid calamitous global warming within our children’s lifetime. We need courageous, farsighted political leadership to help us get the message across, and we clearly do not have that right now. Part of Bill Wulf’s lecture recounts how he personally works on this problem and explains how we technologists can help.

Gould asks what I think the “other side needs to be told.” I submit that this is not the right question. The question is, how can the necessary dialog be held between the people who understand the coming global choices and their implications (the scientists and engineers) and the vast population who will have to endure a changed lifestyle, not for their own sake, but for the sake of generations to come?

That is the chasm I believe must be bridged, and I think it must start with the technologists. We can’t wait until everyone sees the problems—that will be too late.

We welcome your letters. Send them to computer@computer.org.