Coming Soon: Isn't Your Science Just a Theory?

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If you think we're doing well in fostering science literacy, think again. Many of our fellow citizens believe that creationist claims deserve equal time with evolution in biology classes. "After all, isn't evolution just a theory?" If you don't read it already, take a look at Robert Park's weekly website "What's New" (www.bobpark.org) to learn how even our government occasionally gets taken in by proposals seeking support for junk science. I wrote to him several years ago and asked if he was making up things in his column to amuse us. He said that the world would be a better place if his reports were fictional and assured me that they were not.

The prevalence of junk science and superstition was brought home again recently when I visited a nearby bookstore to browse through paperbacks that might make good supplements for my fall course. The selection of science books was reasonable, if not extravagant, and I spent an hour scanning titles that I thought students would enjoy.

Then I walked to the other side of the row of books. At first glance, I read the sign as "astrobiology" and thought the shelf section might be timely and interesting. Then I took a closer look. There, in a section about as large as that of the science titles, I found a collection of works on astrology, mysticism, and related materials. I assume that astute bookstore managers monitor sales carefully, so the stuff must sell.

What's to be done? The federal government has spent billions on science education over the past 50 years. Curriculum development and teacher training at the pre-college level was supposed to make an impact, but many secondary school science courses are still taught by teachers who may not even have minors in their subjects. A large fraction of our citizens never get a higher education; many of those who do study as little science as possible. Some colleges and universities are considering increasing their science requirements beyond the traditional single semester or year for those who will not major in a science, but history suggests that unless we do things differently, the future will be much like the past.

Perhaps our departments need to take yet another look at our courses for those who will not become scientists. Must the topic coverage be so wide and texts so encyclopedic? For some of our students, participation in these courses is like drinking from the proverbial fire hose. Could we not cut back somewhat on topic coverage and include some discussion of just what constitutes science, contrasting genuine with junk science? JCST has carried articles describing courses that do this, but such approaches are hardly common. Even courses for science majors might profit from the inclusion of such material. Why not include discussions of antigravity shields and perpetual motion scams in physics classes?

It would not be difficult to introduce more discussion of current developments and issues where some knowledge of science is essential if one is to make reasonably informed judgments. Most students do not seem to read newspapers anymore, but they may look occasionally at web versions where a quick scan will reveal items for discussion.

Global warming, biodiversity (why should anyone care about ivory-billed woodpeckers?), the energy supply, tsunamis, stem cell research, preservation of rain forests, nuclear reactors and weapons proliferation, smallpox, gene manipulation, the feasibility of missile defense, the management and role of national laboratories, and national science policy (should we care if high-energy physics leadership shifts to Europe?), congressional timidity regarding the FDA's nonregulation of food supplements, and applications of biotechnology are only a few of the topics that leap out at readers.

Every science course could easily include such a topic from time to time to stimulate student interest and demonstrate that the material they are studying has significant social, political, and technological relevance to current issues and problems. It is up to us to respond to attacks by antiscience groups. Perhaps some seed money would help, but there is much that we can do on our own. If we leave it to others and just hope for the best, we will have no one to blame but ourselves when physics books have disclaimers saying that special relativity is just a theory.

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