CHAPTER 5
THE EVOLVING CONTEXT FOR SCIENCE AND SOCIETY

ALAN I. LESHNER, PH.D.

American Association for the Advancement of Science, and Executive Publisher, Science, 1200 New York Ave., NW, Washington, DC 20005, USA, Tel +1-202–3266639, Email aleshner@aaas.org

Abstract: The relationship between science and society is undergoing substantial change, some of it quite negative in character. Some tension arises from different ways of evaluating the relative risks and benefits of new findings and technologies. Other sources of tension have to do with the way some scientific findings are encroaching upon issues of core human values. One consequence is increased efforts by the public and policymakers to unduly influence both the course and conduct of science. The relationship can only be improved through engaging the public in a true dialogue about their concerns about scientific issues and what to do about them.

Keywords: Science and society, Public engagement, Public attitudes, Communicating science

Science and technology are critical elements in every aspect of modern life. Science-based innovation is central to economic prosperity, and scientific advances have contributed enormously to improving the quality of life and health. There are virtually no issues or aspects of current society that do not have some science and technology component to them. This centrality of science and technology means that in order to live full and productive lives, citizens need both familiarity and comfort with science and scientific issues.

Progress in science itself, in turn, is dependent on a receptive, even appreciative society that must not only provide support for the conduct of science but must also be equipped to use the products of science in the most effective ways. That makes the societal context for science critically important, both to its success and to its usefulness to the people it is intended to benefit.

The current context for science is changing. There is a palpable increase in tension between science and members of the lay public. This tension is resulting in large part from an encroachment of science onto issues of human values, as discussed below.

The solution or resolution of that tension will depend on the willingness of the scientific enterprise to enter into a genuine dialogue with members of the public about their interests and their concerns, and what to do about them.

1. PUBLIC ATTITUDES

To be clear, whenever the general public is surveyed, we see generally positive attitudes; most people (70–90% in the United States) believe that the benefits of science outweigh the risks. However, in many places that overall view of science has deteriorated over the last decade. For example, in Europe, a 2005 survey found that only 52% of people thought the benefits of science outweighed the risks, whereas in 1992, 61% of people felt this way. Moreover, even though the numbers in the United States sound better, many Americans really do not understand what is and is not science. For example, 60% of Americans believe in extrasensory perception and 41% believe astrology is somewhat scientific.

2. THE NEW VALUES DIMENSION

Some of this change in the societal context derives from a new dimension emerging – or re-emerging – in the science-society relationship. Whereas historically, science and technology have been evaluated primarily on the basis of their relative costs or risks versus their benefits, we now are seeing issues of how science relates to human values being brought into the equation.

This values dimension is not really new, of course, since throughout history there have been many examples of the incursion of value issues – like whether the earth revolves around the sun or, more recently, whether scientists should work on nuclear weapons. However, right now there seem to be many more values-related issues on the agenda, and the effect on the science-society relationship is significant. Examples of current values-related issues include cloning and stem cells, whether to study such “personal topics” as sexual behaviour or the genetics of individual traits, and, of course, whether to teach “intelligent design” (ID) as an alternative to evolution in science classrooms.

The intelligent design/evolution issue is a clear example where scientific understanding can conflict with core values or religious beliefs. ID is a belief concept that says that although humans came to be as they are gradually over time and may have come from earlier life forms, there has been a supernatural intelligent designer who crafted the entire process and has been guiding it in explicit detail. ID proponents claim this is an alternative scientific view to evolution and that it should be taught as such in science classrooms. Scientists, on the other hand, object, pointing out that there is no science base to ID and, in fact, the very notion of an intelligent designer is not a scientific question. It cannot be tested scientifically. Scientists argue that ID

---