A Failure to Communicate . . .

Perhaps the most difficult question that any of us has to answer on a regular basis is asked not by our students, fellows, professors, Department Chairs, or Deans. Rather, it is asked by strangers who sit next to us on airplanes or with whom we strike up a casual conversation as we watch our kids’ soccer matches. Ironically, the question is one to which we should be uniquely prepared to respond, since for most of us the answer occupies much of our conscious and a frightening portion of our subconscious thought. This deceptively simple and innocent question, which I expect we each have come to dread, is “So what do you study in your lab?”

Of course we can answer this question. After all, the answer is often so central to our definitions of ourselves that we can’t help but meditate upon it as we push a grocery cart, run on a treadmill, or stand in the shower. We are called upon to offer articulate and pithy answers to this question for grant review committees, journal editors, prospective students, and seminar audiences on a regular basis. Why then does this question inspire uncertainty and discomfort when asked by friends and neighbors? I expect that it is because we do not know how to answer it meaningfully in a manner that is both instantaneous certainty from their pundits. Scientists are trained to exclude them. Scientists are trained to answer questions precisely and completely. We are comfortable with uncertainty and, when we are at our best, present each side of an intellectual controversy with balance and nuance. Unfortunately, we have reached a point in the information age where more is less. Many people do not have the patience to listen to extended scientific debate or to accept the proposition that questions that have yet to be answered do not represent failures of the scientific method. Since they do not have the background to understand scientific complexities, they often embrace instead pseudo-scientific simplicities. An alarmingly large proportion of the American populace believes that Creationism or Intelligent Design provides more satisfying insights into the origin of species than does natural selection, notwithstanding the vast and growing body of evidence supporting Darwin’s theory. In fact, the very word “theory” is seen as a sign of weakness by people who have come to demand absolute and instantaneous certainty from their pundits.

Because we as scientists have done such a lamentable job of making science approachable by nonscientists, the general public too often superimposes upon science its own irrational fears and superstitions about forbidden knowledge or unnatural experimentation. In his play Saint Joan, George Bernard Shaw explored the prejudices of the Middle Ages in order to hold an unflattering mirror up to his own contemporary society. These words from his preface to that play are as true now as they were when he wrote them in 1924: “In the Middle Ages people believed that the earth was flat, for which they had at least the evidence of their senses: we believe it to be round, not because as many as one per cent of us could give the physical reasons for so quaint a belief, but because modern science has convinced us that nothing that is obvious is true, and that everything that is magical, improbable, extraordinary, gigantic, microscopic, heartless or outrageous is scientific.”

Why is any of this important? Why can’t we continue to live in a society where scientists make discoveries and deliver them as received truths to a credulous or skeptical, but largely uncomprehending, public? The answer is twofold. First, it is profoundly dangerous for most of the residents of the developed world to live lives, every facet of which is touched by science and technology, without having any sense of how these marvels are derived. In such a society, science and technology become magic and scientists become magicians. History tells us that societies often revere their magicians for only as long as the magic is forthcoming. When the people or their powerful leaders perceive that the magic is inadequate to suit their purposes, the magicians rapidly become heretics and occasionally find themselves barbecued at the stake. Second, we scientists depend upon the largess of the general public, offered through its tax dollars and contributions to charitable foundations, to underwrite the very corporeal costs of elucidating timeless truths. If we want the general public to continue to pay our salaries, we owe it to them to do a much better job of explaining to them what it is we do and why they should care.