



Of course scientists can communicate

Tim Radford takes aim at the popular myth that researchers are hopeless at explaining their work to a general audience.

There are several canards about scientists, but one is more pernicious simply because so many scientists themselves repeat it: scientists are not good communicators.

Once again, the allegation is to be the subject of discussions, this time at next month's annual meeting of the American Association for the Advancement of Science in Washington DC. It can be found on *Nature's* website, heard in research councils, it is even occasionally propagated by the public-engagement community, and sometimes endorsed by journalists. In response, I can only say bosh, balderdash and Bronowski, and follow with other intemperate expletives such as Haldane, Hawking and Huxley, Eddington and E. O. Wilson, not to mention, as if in a state of terminal exasperation, Dawkins!

Between 1980 and 2005, I commissioned working scientists to write for *The Guardian* newspaper — from astronomers royal to impoverished doctoral students — and almost all of them delivered high-standard, well-focused newspaper prose and many of them went on to live by the pen. I also encountered distinguished scientists who had already become literary stars.

One was the astronomer Carl Sagan, who told me that his literary hero was Thomas Henry Huxley. Another was the industrial chemist, poet and writer Primo Levi, who when I tried to ask him about the Two Cultures debate — the apparent divide between the humanities and sciences — gently reminded me that Dante Alighieri (himself the subject of at least one paper in *Nature*), was a member of the Florentine guild of physicians and apothecaries. And a third was the Czech poet and dissident Miroslav Holub, who wrote his occasional *Guardian* column in English, and asked that at the end of each I describe him as the author of *Immunology of Nude Mice* (1989). All three were better writers than most writers: two will still be famous as writers a century from now.

They were, of course, exceptions. We all inherit the gift of words; the gift for words, however, is unevenly distributed. Even so, there are reasons why scientists, in particular, should be and often are good communicators. One is that most scientists start with the engaging quality of enthusiasm — to get through a degree course, the PhD and all the research-council hoops, you would need it — and enthusiasm is derived from a Greek term that means divinely intoxicated. Enthusiasm is infectious, but to command an audience of readers, scientists should exploit their other natural gifts. One of these is training in clarity. Another is training in observation. And a third is knowledge.

Those who can think clearly can usually write clearly: thoughts have value only when expressed,

and the more clearly they are expressed, the greater their potential value. Those whose business is to observe are aware of subtle differences that must be described, or the observations would be meaningless. And those who write must have something new or useful to say: if not, why say anything? A novelist who does not publish is not a novelist. A scientist who does not publish remains a scientist — at least for the duration of the research-council grant — but the science performed is of no apparent value until somebody else hears about it.

The problems for the scientist as a public communicator start with academic publishing: the language, form and conventions of the published scientific paper could almost have been devised to conceal information. Even in conversation, scientists start with a communication problem — words that are perfectly ordinary within science are simply never heard on a football terrace or in a tavern or bus queue. So

to be effective communicators, scientists have to learn to stand back from their own work and see it as strangers might do.

It is not a difficult trick: even journalists have learned it. What is the most significant thing about your research? Is it that, at cosmological distances, type Ia supernovae in high redshift galaxies seem insufficiently lustrous? Or is it that you have just realized that you cannot account for 71% of the Universe; make that 96% if you throw in dark matter alongside this newly discovered dark energy? Which is more likely to make people attend? Humphry Davy and Michael Faraday were stars of the lecture halls. Many distinguished scientists — Richard Feynman, J. B. S. Haldane and Peter Medawar among them — knew how to hold a popular audience, and they weren't afraid to address their peers with the same vividness and economy. In fact, their fame became inseparable from their gift for words. So the

case for scientists as inherently bad communicators is a canard.

And while we have our ducks in a row, let me invoke the canard that scientists occasionally propagate about the media: that it does not appreciate scientific uncertainty. That one is especially irritating. It seems to say "I, as a scientist, wish to have it both ways. I want the privilege of knowing better than you, and the indulgence of being wrong without guilt, because science, don't you see, is really about uncertainty." To which the foolish answer might be "In which case, why should we listen?" But alas, people in any case listen selectively, even to the best communicators, which might be why so many Americans think Darwin's theory of evolution is "only a theory". Scientists are not the only people to blame for a problem in communication. ■

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