

Back to school

Francis Collins' wish for 2005 is "a big budget Hollywood movie epic that will make scientists the new idols of today's youth, causing a burst of interest in careers in science" (*Nature* **432**, 946; 2004). One cannot suppress a smile when he adds, "Back off, rock stars, TV actors and athletes!" The scientist image is indeed in serious need of revamping after generations of scientists portrayed as villains, irresponsible fools or, at best, eccentric old men. We would like to think that enthusiastic young scientists who have recently chosen a fascinating career could also help the cause, if provided with the opportunity.

Surely, the influence of fantasy on career aspirations is big. The recent explosion of interest in the study of forensic science following the success of the American TV series "CSI" (for "Crime Scene Investigation", if a definition is needed) is a prime example. Grasping the chance, the American Academy of Forensic Science has partnered with the Court TV network to produce a program incorporating scientific concepts into mysteries as teaching material for high schools. Science classes are indeed where the seeds of scientific interest should be sowed. However, though teachers welcome any support they can get, blockbuster history shows that it may not be wise to rely on movie producers to represent science. Scientists have a duty to engage with young people and pay the occasional visit to the classroom to talk about what they know best.

What is at stake is not only the recruitment of aspiring scientists; it is the education of citizens whose future decisions will influence how science is done. Last year alone, an unprecedented influence of scientific issues characterized the US elections. Also, stem cell research was put to the popular vote in the US state of California and in Switzerland. There is no reason to believe that science will leave the public forum anytime soon, with issues such as climate change, genetically modified food, bioterrorism and cloning in the pipeline. With scientific progress increasingly pushing the envelope of human ability, this is only the beginning. The important matter today is not to sway votes but to ensure that the next generation of voters will have a sufficient scientific background to understand the issues put to public debate and make informed decisions. For this, today's students need to opt in now to a decent level of scientific education, and this choice can be influenced by their encounter with enthusiastic and charismatic scientists. The same sense of duty that pushes high-level scientists

to accept time-consuming involvement in policy making should bring scientists to the classroom.

But why rely always on the same people? Graduate students, postdocs and lab technicians have the passion for science, and the familiarity with empirical reasoning, that badly need a fair representation in schools. Their age, interests and culture make them role models that teenagers can relate to. Moreover, given the urgent need for a boost in scientific literacy, communicating to nonspecialist audiences should be part of the training to become a responsible citizen of the scientific community and society in general. Junior scientists should be encouraged to such civic actions by those responsible for their training: supervisors, who should ensure dedication of time, as well as institutions and funding agencies, which should provide opportunities, incentives and a framework for preparation.

Mentoring and preparation are necessary to present scientific issues in an approachable way without oversimplification, to find examples of the impact of science on society that will engage the audience, and to fairly discuss social and ethical implications. If it is dangerous not to talk to the public, it is just as risky to give the wrong speech. When stepping out of the lab to talk about science, junior scientists will have to face questions that they are not used to hearing from their peers. It is counterproductive to send them unprepared.

Some organizations are working on these needs. For example, the US National Science Foundation is promoting partnerships between graduate students and high school teachers. The Wellcome Trust has done extensive surveys with British scientists on science communication (http://www.wellcome.ac.uk/doc_WTD003429.html). Resources are also becoming available from individual academic centers and professional societies, such as the American Society of Cell Biology (<http://www.ascb.org/committees/edcom/>) and the European Molecular Biology Organization, which offers online tips and workshops on science communication (<http://www.embo.org/project/scisoc/index.html>).

While we wish for Hollywood to break with the abused clichés, it is time to encourage the athletes and the rock-star personalities who populate research labs to step forward in defense of their own image. But we should also all remember that if these scientists were Hollywood stars, they would not get in front of the cameras without having read the script.