Podium for the opposition?

This is quite a paradoxical era. Scientific research is in its most productive phase and it continues to produce many beneficial technologies for mankind. For example, we rapidly progress towards a better understanding of many diseases and come up with multiple new approaches to cure them. At the same time, however, the voices against science and technology have never been more shrill. But unsubstantiated concern about new developments is a constant throughout time and, presumably, the more extensive the progress, the more robust the opposition to it.

Indeed, the Science & Society section of this journal is dedicated to debating the impact that both parties have on each other, because, as we all know, not everything is sweetness and light between the research community and society at large. But this section was never intended to be a unidirectional flow of information. It is fundamental to biology that every event is the outcome of an equilibrium between forward and back reactions, even if some reactions do not seem to be beneficial at first glance. So we constructed the Science & Society section in a similar way, although it may seem perverse to provide space for, and even to encourage, articles that oppose technological progress. Indeed, that was the initial reaction of some scientists we consulted about an article discussing the environmental threats of GM crops. This article, written by two Greenpeace activists, was scheduled to appear in this issue. Unfortunately, they withdrew it when they learned that we would print a parallel viewpoint to discuss their arguments.

This is regrettable since we think that scientists must listen to opposing views, and that these should be aired and debated in a scientific forum. We have published articles that, for instance, expressed viewpoints diametrically opposed to each other on the question of cloning. One reason for doing so is to ensure that scientists reading such

'contra' articles would thus learn about the arguments made by those who have a different opinion to the one with which they are familiar. Crucially, though, a balanced argument must also be presented, as we live in a world where the publicity machine attacking technology is so professional and so seductive that many citizens—including scientists—accept the basic messages that it promotes. As a consequence, it has become close to a social stigma to be associated with work that is related to GM organisms. Indeed, the way in which institutes sometimes rush to deny that they are involved in legitimate transgenic plant or animal research indicates how such research has become unacceptable to the general public.

Plant scientists are, of course, on the front line of such debates, and many of them detect a willingness of their colleagues in other areas, such as medical research, to distance themselves from the public discourse on GM plants. It has been suggested, for instance, that a referendum of the Swiss type, in which non-medical research is dissociated from medical research, would lead to a ban on any work that involves GM organisms which have no potential health benefits. Those who are not working in plant research may quietly think: 'So what?' Well, I think that some further thought is needed as this could have far-reaching implications for all biological research. Many of those opposed to GM plants are opposed to all genetic manipulations. Their core philosophy is utterly conservative with a wish that the world would return to some imagined 'good old days'. If society, and that includes scientists, is seduced by arguments about the possible disasters that could result from GM plants, then it will be very difficult in the long term to argue that genetic manipulations in other areas are without equivalent dangers.

Highlighting the fundamentalist and essentially anti-scientific viewpoint of environmental organizations shows that we accept the reality that they are filling a need. Society is very concerned that the scientific train is travelling too fast and anticipates that some disaster is imminent. Some would believe that it has already occurred in the case of BSE, HIV/AIDS and even foot-and-mouth disease, and attribute these to laboratory inventions. All evidence says otherwise, and we must ensure that careful safety measures maintain that any type of scientifically generated disaster does not occur. But we scientists must also inform and familiarize ourselves with the arguments of those who would use such problems as a starting point to delay any research. I found it very instructive to read the originally submitted Greenpeace article and the accompanying response, which is now being published alone. Having read them, I feel that I am better informed and able to understand the basis of those anti-GM conversations that inevitably arise at dinner tables when non-scientists, in particular, air their concerns. It is a great shame that we can only present the arguments of the 'pro' side in this current issue. Nevertheless, we would like to present the counter-arguments as well and hope that we will be able to do so in one of the upcoming issues of *EMBO reports*. I hope that this will be your opinion too. For this reason we will continue to bring to your attention via the viewpoint section—a title that clearly separates the article from a dispassionate scientific contribution—views that are occasionally opposed to the mainstream of scientific thinking. Without such inputs there is no dialogue. And without a dialogue there can only be confrontation.

Frank Gannon

DOI: 10.1093/embo-reports/kve124