Freedom's roar

The year 2011 has thus far been marked by a wave of revolutions, sparked by the desire of oppressed people all over the world—notably the Arab world—for freedom and democracy. Some dictatorships have fallen, whilst others have trained their guns on their own people, in a vain attempt to postpone the day of reckoning for their regimes.

But, lest we delude ourselves that reason and tolerance are finally emerging as humanity's guiding principles, we should remember that the upheavals of the past year have also included a spate of violent protests in Afghanistan, fuelled by religious fundamentalism. The spark that ignited that particular eruption of anti-Western fervour was itself an act of extreme religious intolerance: the Koran burnings by American fundamentalist zealots. We have also witnessed continuing communal strife in Nigeria, Iraq and other countries, driven by ethnic or sectarian hatred. In the countries that still adhere to the veneer of communist ideology, there is also little evidence of any relaxation of state control or respect for basic human rights.

Despite the liberal thread running through the revolutions of 2011, recent decades have seen an unmistakable resurgence of religion and other rigid ideologies, including extreme nationalism, in the politics of many countries. The open, pluralistic societies built on reason—which emerged over many centuries in Western nations, and have been the norm since 1945—are not a universal model. In the West, we have tended to turn a guilt-ridden, blind eye to the rejection of liberal values in the post-colonial world, as an understandable reflex action against 'imperialism'. Now, whilst rejoicing at the chance that many more people might enjoy freedom, we should be aware of the danger that revolutions may simply open the door to new forms of dictatorship, as happened in Iran in 1979, or in Burma in 1990.

'Western' values are not even fully secure in the Western countries themselves. In the USA, the first country that succeeded in throwing off the burden of arbitrary rule by King and Church, the word 'liberal' has nowadays become a term of abuse in political discourse. In many of its states, 'creation science' has a legal protection requiring educators to place it on a par with real science as an explanation of the world. And one of its two mainstream political parties is in serious danger of being hijacked by a coalition of patriotic populists and religious fundamentalists who portray global institutions such as the UN as pernicious, godless influences. In Europe too, dogma often trumps reason in framing public policy, even on subjects on which science should be setting the agenda, such as the development of stem-cell technologies or the regulation of genetically modified organisms.

What do scientists have to offer in the midst of the tumult now engulfing the Middle East? In every society we are one of the groups most affected by restrictions on liberty, whilst being seen by others as guarantors of whatever liberty remains. Discomfortingly, however, we must acknowledge that the most egregious tyrannies of the twentieth century cloaked themselves in ideologies that purported to be based on scientific principles. We would be foolish to imagine that scientific ideas could not be abused in the future by totalitarian regimes, just as they were by the Soviets or the Nazis. Our main line of defence is to ensure that science itself produces a cacophony of ideas. Although the findings from an experiment may be irrefutable, their interpretation is not.

Sometimes we fall into the trap of doctrinaire thinking that not only is detrimental to science itself, but also mutes our ability to serve as the proponents of liberty more broadly. The language we use to describe scientific ideas can restrict our own freedom to judge. For example, the 'central dogma' limits our thinking on the biological roles of RNA. We refer to 'non-canonical'

signalling pathways as if they were heretical exceptions that hopefully will be proven fallacious at some point. Proteins that are found to have a second function in the cell from the one originally proposed are considered to be 'moonlighting'.

If we are to fulfil our role as the conscience of societies in democratic transition, and defend precious liberties won over many centuries, we need to practice what we preach; even if keeping an open mind about RNA is not going to topple any dictators. In the wider context, we must assert our role as guardians of free speech and free thought. Instead of trying to shut down competing ideas that may be based on fundamentalist or other kinds of ideologically driven dogma, we must simply argue more stridently against them, whilst defending their right to be heard. The concept of intelligent design, for example, should have no place in a science classroom, but we should be vocal in explaining the arguments against it, rather than complaining about it being mentioned.

We must empower students with an understanding of not only the benefits of reason and of the scientific approach, but also the opposing arguments used by others, and the importance of open debate. We are not party cadres, waving the little red book of DNA. We would no more want to see busts of Watson and Crick on every town square or the central dogma recited in every workplace as a daily pledge of allegiance, than any other kind of thought control. Within our community there is, and must remain, a diversity of views about the meaning of experimental data and about how science should be applied. We now need to be clearly on the side of those demanding wider liberty, but making the case for divergent opinions to be heard amidst the chants, slogans and curses.

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EMBO reports (2011) 12, 743.
doi:10.1038/embor.2011.136