Liberty, safety or neither?

Generals, according to the old cliché, are always fighting the last war. It is much the same with terrorism. Everyone has assumed that the threat to our safety emanates from men with beards, seeking to impose a strict version of sharia law. Similarly, most risk assessments are based around the assumption that the tactics they are likely to employ are enshrined in a few simple bomb-making recipes widely available on the Internet. Yet the experience of 9/11 taught us that they are perfectly capable of shaving off their beards and adopting audacious methods foreshadowed only by a few fiction writers. Those who dream of a worldwide caliphate are certainly not the only ones liable to threaten peace and security, as the recent carnage in Norway illustrates.

Terrorism is an orchestrated campaign of violence, directed typically by a small band of individuals, targeting a country or other organization against whose policies they hold a grievance. The methods employed by such groups vary according to the times. Ancient terrorists used trumpets to break down the walls of citadels (some supporters used a similar tactic at last year's World Cup). In the nineteenth and early twentieth centuries they threw home-made bombs at princes, precipitating revolutions and wars, and were still making use of this approach as late as 22 November 1963. Nowadays they are more likely to employ electronic malware, and could so easily adopt many other strategies, including those based on a simple knowledge of molecular biology, to strike fear into the heart of any enemy.

The story is well known of how agents of Saddam Hussein's regime studied microbial genetics in England in the 1980s, in order to acquire the knowledge to create biological weapons. While these individuals were serving a sovereign government, albeit with malicious intent, there is no

reason to believe that terrorists could not similarly penetrate our graduate schools and even be working in our midst. How could we ever find out, without entangling ourselves in a web of subterfuge, espionage and mutual suspicion, effectively turning all of our laboratories into willing accomplices of a police state?

We do already subject ourselves to intrusive searches when we board an aircraft or enter a government building. So it's surprising that the state has not identified molecular biology laboratories and graduate schools as equally vulnerable to terrorist infiltration, and established its own network of spies among us. (Perhaps it has: this might explain why so many 'students' never seem to graduate).

Contrary to popular belief, terrorists are not nihilists bent on wanton violence, but almost always have clear political goals. Furthermore, because their aims are interpretable, they tend to leave behind footprints, which a lunatic executing a random act of bloodshed would not. It should therefore be possible to identify the main sources of risk and use all legal tools at our disposal to obtain information about the activities of those who would harm us. Terrorist acts, when they succeed, are almost always the result of a failure of intelligence gathering.

It must also be said that the biggest threat of misuse of laboratory materials or know-how probably comes not from a terrorist conspiracy, but from the unhinged loner with a grudge against former colleagues, as was vividly illustrated by the US anthrax case. Against that we have little protection, other than to be aware of the possibility and inform the competent authorities where serious suspicions are aroused. We are also direct targets ourselves on some occasions: animal rights extremists are an obvious threat, but militant creationists and anti-abortionists may also translate their grudges into action.

As Franklin observed, there is no guarantee of safety that is bought without a surrender of some liberty. Recent American governments have arguably been too cavalier with civil liberties in confronting perceived threats, but to err on the opposite side is just as mistaken, if the threats are significant and the potential damage catastrophic. Nevertheless, I would prefer the police to be gathering information in the background, than be forced into becoming personally an agent of the state in the daily management of my lab. I would hate having to refer every postdoctoral applicant to the secret police; just as I would hate to find locks on my freezer doors, PIN codes to access NCBI databanks, DNA synthesizers that check every oligo against a database of infectious agents or PCR machines that would only function on a dual-key basis as if they were thermonuclear warheads. Instead I would much prefer the more expensive but hopefully invisible option of discrete surveillance—operated within legal limits and under judicial scrutiny.

Some might argue that the state has no place in an academic laboratory, but I believe the threat is real enough that this blanket appeal for trust and virtue is insufficient as a response. Other than choosing to live in a perfect society where nobody has any grievances against anyone we cannot avoid some risk. However, we have a duty to ensure that any dangers issuing from our laboratories are minimized. Giving the security services the discrete right to hack in to the laboratory notebooks of our staff might be the lesser of two evils.

No security system can be perfect. But democratic societies and responsible scientists need to be vigilant and proactive, in confronting tomorrow's threats.

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