

offences such as murder and rape, has expanded to include samples from anyone arrested for any recordable offence — even dropping litter — and to keep them on record even if the arrest does not lead to a conviction. Moreover, the data have been used not just to match individuals to crimes, as originally intended, but also for more dubious applications such as searching for a perpetrator's blood relatives (see *Nature* **449**, 377–378; 2007).

As a result, Britain's DNA database has grown to become proportionally the largest in the world; it contains samples and data for 7% of UK citizens, far ahead of Austria in second place with 1%. The European Court's decision thus paves the way for 850,000 people, including tens of thousands of children, to have their records removed.

DNA databases are but one small tip of the emerging surveillance society. Even leaving aside law-enforcement and security initiatives, vast amounts of data are being collected by private firms through citizens' use of credit cards, mobile telephones and electronic travel tickets, not to mention the Internet and e-mail. These data are typically gathered not for any sinister purpose, but as legitimate efforts to offer customers better service. But the databases exist. And without strong safeguards, they could slowly and steadily be linked into an all-pervasive monitoring system that would make George Orwell's concept of 1984 look technologically tame — all in the name of security, efficiency and convenience.

Such concerns are certainly not new; Orwell's book was published in 1949. But the dizzying pace of technological advance makes them

ever more salient — even as it makes the world's multitude of existing privacy acts seem light-years behind. Scientists, in particular, have an ongoing responsibility to reflect on the human-rights issues raised by the technologies they develop, and to lobby for appropriate oversight and controls. The risks posed by overzealous surveillance (see page 680) and the associated technologies are topics that should be addressed by the American Association for the Advancement of Science's Science and Human Rights Coalition, a forum of scientific bodies and human-rights groups to be created in January 2009 (see *Nature* **456**, 2; 2008).

Technology can be a powerful force for human rights. Earth-observation satellites, for example, have provided evidence on conflicts and ethnic atrocities in areas where journalists are banned. And DNA fingerprinting has resulted in the freeing of wrongly convicted individuals, a role exemplified by the US Innocence Project in New York. The idea that the identity of a human can be revealed from samples of any cell in his or her body is a symbol of the fact that every person is unique. The declaration of human rights asks us to treasure and honour all these unique individuals with respect for their autonomy — not to simply look for better ways to barcode them. ■

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Failure in the field

The US military's human-terrain programme needs to be brought to a swift close.

The US Department of Defense's Human Terrain System, an attempt to have social sciences inform military decision-making, is failing on every level.

In theory, it is a good idea. The Human Terrain System aims to embed anthropologists and other social scientists in military units in Iraq and Afghanistan to help improve understanding of local cultures and thus relieve tensions between civilians and soldiers. In practice, however, it has been a disaster. Questions have been raised about how well the programme vets its employees (see *Nature* **455**, 583–585; 2008). Some scientists who have joined the system have complained about inadequate training. And qualified researchers have been dismissed for seemingly trivial reasons, even though much more questionable people seem to breeze onto the payroll.

A case in point is Issan Hamama. Under investigation by the Federal Bureau of Investigation since 2003 as a possible former spy for Saddam Hussein, Hamama nonetheless managed to secure a job as a translator for the Human Terrain System. Late last month, he was arrested in Maine and indicted for conspiracy; he is currently free on bail.

Another contractor, bodyguard Don Ayala, is also out on bail after being indicted for a murder committed in Afghanistan last month. According to a military affidavit, Ayala shot Abdul Salam

at close range in the head after Salam doused his colleague, social scientist Paula Lloyd, with petrol and set her on fire. Lloyd had approached Salam on the street — he was carrying a fuel jar — to ask him about the price of petrol.

Lloyd returned to the United States to recover from her burns; some of her colleagues have not been so lucky. Social scientist Michael Bhatia was killed in Afghanistan in May; Nicole Suveges, a PhD student from Johns Hopkins University in Baltimore, Maryland, died in Iraq the following month.

Their names and sacrifices should be remembered. But the programme that employed them should not — except, perhaps, as an example of yet another good idea gone wrong on the war fields of Iraq and Afghanistan.

The immediate problems with the Human Terrain System can be traced to BAE Systems, the military contractor based in Rockville, Maryland, that screens potential employees, then trains those it hires. It has failed in every one of those functions, and army management has failed in its oversight of BAE.

But the larger question is whether the Human Terrain System is viable at all. *Nature* is not opposed in principle to academics working with the military; we have said before that social science can and should inform military policy (see *Nature* **454**, 138; 2008). We continue to believe that the insights of science have much to offer strategies in a war zone — not least through training combat troops to understand the local cultures within which they operate.

But as currently constituted, the Human Terrain System is not the way to do this. Unless the programme can be reborn in a format less plagued by deadly mistakes, it needs to be closed down. ■