

## Biometrics: still much too unreliable for everyday use

SIR — Anil K. Jain gives a misleading picture of the effectiveness of biometric technologies, which identify people on the basis of physical features (News & Views Q&A ‘Biometric recognition’ *Nature* **449**, 38–40; 2007).

Jain says that, since the inception of the US Visitor and Immigrant Status Indicator Technology (US-VISIT) in January 2004, more than 75 million visitors have been processed through it and about 1,000 have been denied entry. According to the US Department of Justice’s analysis of US-VISIT after its first year of operation ([www.usdoj.gov/oig/reports/plus/e0501/exec.htm](http://www.usdoj.gov/oig/reports/plus/e0501/exec.htm)), on average 118,000 people pass through each day. Of these, 22,350 are subject to secondary inspection and 1,811 of these are refused entry — considerably more than Jain states.

Of those who are subject to secondary inspection, 92% are subsequently admitted to the United States. These figures raise doubts about the reliability of the biometric systems used for primary inspections.

Applications such as US-VISIT need to reject virtually all impostors, and keeping the false accept rate (FAR) close to zero pushes the false reject rate (FRR) up. Jain states that current fingerprint-recognition systems can provide a FRR of up to 0.01% at a FAR of 0.1%. However, in a 2005 UK Passport Service trial (see [http://dematerialisedid.com/PDFs/UKPSBiometrics\\_Enrolment\\_Trial\\_Report.pdf](http://dematerialisedid.com/PDFs/UKPSBiometrics_Enrolment_Trial_Report.pdf)), the FRR for fingerprints was 19%.

One objective of the proposed UK National Identity Scheme is to make it easier for people to prove their identity. At current performance, biometrics based on fingerprints could instead make it harder for nearly a fifth of the population to prove that they have the right to work in the United Kingdom and enjoy social entitlements.

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## Biometrics: easy to steal, hard to regain identity

SIR — In your News & Views Q&A ‘Biometric recognition’ (*Nature* **449**, 38–40; 2007), Anil K. Jain asserts that biometric technologies are more difficult to abuse than traditional methods of identification. However, we all leave a biometric trail in our daily lives: our fingerprints on a drinking glass, our voice on a telephone answering machine, our iris patterns on a photograph. We have little ability to change such characteristics and little control over this trail, which makes biometrics useful to forensic science.

But it’s exactly these properties that make biometrics a poor replacement for passwords and ID cards, since it’s easy for an intruder to collect someone’s fingerprint or iris scan without their knowledge, and then inject it into a biometric identification system. Even if the victim becomes aware of the problem, it’s impossible to revoke the biometric. If your credit card is stolen, the card company can send you a new one with a different number, but you can’t get a new set of fingerprints.

It is precisely because biometric information is irrevocable and unwittingly provided in our daily lives that it is so useful to organizations that regulate the individual (for example, the US Immigration Service), but of little use where the individual controls identification and authorization.

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## Organic synthesis remains relevant in drug discovery

SIR — As you point out in your News story ‘Chemists synthesize a natural-born killer’ (*Nature* **448**, 630–631; 2007), some researchers question the merits of organic synthesis, whereby chemists seek to recreate a synthetic version of a natural product. In its defence, I want to remind readers that when Elias James Corey received a Nobel prize in 1990 for the development of organic synthesis, the press release stated: “To perform the total syntheses successfully, Corey was also obliged to develop some fifty entirely new or considerably improved synthesis reactions or reagents... which... have become commonplace in the synthesizing laboratory.”

Such newly discovered reactions and reagents are routinely used in the discovery of drug candidates. The cost of pharmaceuticals is, to some extent, directly related to the ease or complexity of their synthesis, and there are still many drugs in the pipeline whose development has been hindered by problems encountered during their manufacture. This underlines the point that the science of organic synthesis is still a worthy cause to be pursued.

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## Ocean-drilling vessel should soon be afloat again

SIR — Those involved in the Integrated Ocean Drilling Program (IODP) are delighted by your encouragement of their work in your Editorial ‘Drill often, drill deep’ (*Nature* **449**, 260; 2007) and News Feature

‘Staying afloat’ (*Nature* **449**, 280; 2007). However, it is not correct to state that the IODP’s US platform, the *JOIDES Resolution*, has languished at a shipyard since 2003. This research vessel completed 10 expeditions between June 2004 and December 2005, each with a full complement of scientists from the United States, Europe and Japan.

The *JOIDES Resolution* has been in a Singapore shipyard since September 2006, undergoing a complete overhaul. Work has continued since it entered the shipyard, although the hostile business climate described in your Editorial has caused a few delays, as sky-high oil prices have meant higher costs and increased pressures for time in the yard. Interested readers can track progress via pictures of the overhaul at [www.joiscience.org/SODV/status](http://www.joiscience.org/SODV/status).

The *JOIDES Resolution* is scheduled to resume drilling activities in spring 2008. The shipyard schedule, weather conditions and Japanese fishing-fleet restrictions will not allow it to join its sister ship, the Japanese *Chikyu*, in 2008. But the *JOIDES Resolution* will be an active participant in NanTroSEIZE, the Nankai Trough Seismogenic Zone Experiment, by 2010.

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## Sic is not enough; historical wording should be changed

SIR — Your decision to insert *sic* after “scientific men” in reprints of your historical mission statement (‘Men [*sic*]’ *Nature* **448**, 728; 2007) shows that you are more concerned about the historical integrity of your mission statement than for decency and justice. Why make a mere “tiny step” in the “right direction”? A simple addition of “...and women” would have brought you to the goal.

Isn’t it enough that even such a “tiny step” took *Nature* nearly 140 years? Pious traditionalism is being used to excuse prejudices in many quarters, but it is shocking to encounter it in a supposed bastion of enlightenment and intellectual progress. Do not consider yourself excused.

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The Editorial related only to reprinting of our historical 1869 mission statement, not to our current statement ([www.nature.com/nature/about/index.html](http://www.nature.com/nature/about/index.html)), which uses the term ‘scientists’. Comments are welcome at *Nautilus*, [http://blogs.nature.com/nautilus/2007/08/women\\_and\\_men\\_of\\_science.html](http://blogs.nature.com/nautilus/2007/08/women_and_men_of_science.html) — Editor, *Nature*.