

►University, says courts need to guard against the “likely” risk that a search of tens of thousands of profiles would yield a random match between an entry and a crime sample.

Hartl says that courts need to confirm such matches by checking a fresh sample from the suspect against a larger number of genetic loci. This would also check for errors in data entry, he adds. Hartl agrees, however, that the profiling procedures used by courts have generally improved. And “DNA-savvy” defence lawyers have made courts more aware of potential sources of errors, he says.

The controversy over the probabilities of a match occurring by chance began in 1991, when Hartl and Richard Lewontin — now also at Harvard — argued that the FBI’s use of only three reference US populations — Caucasians, Blacks and Hispanics — did not take into account the presence of numerous ethnic subgroups.

Simply put, this would mean that if an Amish committed a murder, for example, then DNA from another innocent Amish suspect would more closely resemble that found at the scene of the crime than would DNA from the Caucasian, Black or Hispanic reference groups. In more usual circumstances, the same logic would apply to Polish, Italian and other ethnic subgroups in the United States.

Lewontin and Hartl’s arguments gave defence lawyers scientific ammunition, and sent the FBI scurrying around the planet to collect data on the genetic make-up of ethnic subgroups (see *Nature* 355, 663; 1992). According to Hartl, however, the FBI has not yet changed its practices in the light of these data. “They argued that the differences in frequencies between ethnic groups didn’t matter. Their data show that they do, and it’s very inconvenient.”

Hartl argues that the entire problem of statistics could be avoided by using eight probes instead of the three or four now commonly used. He says that eight — as now used in the state of Minnesota — would “make it inconceivable, by any scientific standards, that the blood came from someone else”. But Cellmark, a major DNA fingerprinting company based in the UK, defends the four locus ‘standards’ as “sufficiently discriminatory”. **Declan Butler**

Linus Pauling dies



Nobel prize winner and anti-nuclear campaigner Linus Pauling died last week at the age of 93. See leader article, page 584.

Royal Society of Canada spurned as national academy

Ottawa. A panel appointed in 1992 by Canada’s former Progressive Conservative government has recommended against making the 100-year-old Royal Society of Canada the country’s national academy.

According to its report, submitted to the present Liberal government last April but released to the public only on 11 August, “the Society does not have the organizational capacity to evolve into the kind of Academy envisioned by the panel”. The report says that in the panel’s view such an academy should “represent the perspectives of all sectors in the economy, generate funds to ensure its independence from government, and achieve and maintain the public profile required to stimulate and contribute to public debate of complex issues”.

Instead of using the Royal Society, the panel recommended setting up a new body, independent from government but funded initially by up to C\$250,000 a year, and led by a “limited number of highly regarded Canadians”. Its “pivotal role” would be “to identify, analyse and provide advice on issues of critical importance to Canadians” — issues as diverse as “the impact of technology on jobs, ethics and biotechnology, and sustainable development”.

The mandate of the panel, chaired by Brian Segal, publisher of the popular news magazine, *Maclean’s*, and including two Royal Society fellows, was to advise the federal government on whether it should support the formation of a national academy and whether the Royal Society could serve in that purpose.

The society, founded in 1883 and granted its royal charter by Queen Victoria, was modelled on the Royal Society of London and l’Institut de France. As an independent, non-profit-making organization, it promotes learning and research in the arts and sciences. Its fellows (numbering around 1,400) are elected on the basis of distinction in their field. Its usual operating budget has been around C\$500,000 annually, from subscriptions and other sources.

The society has for some time considered itself as Canada’s national academy: its descriptive brochure, published in 1990, is subtitled *Profile of a National Academy*, and the brochure describes its role as such.

In 1989 the government’s department of industry provided a grant of C\$5 million over five years to enable the society to strengthen its organization, management and fund-raising capacity, apparently with the aim of further developing its “academy” role. Under the terms of the grants, it was also to produce three studies that would evaluate Canadian research, consider the advancement of women in scholarship and

promote public awareness of science.

But on 24 December last year, the department terminated the final C\$250,000 instalment of the grant without warning. This led to the dismissal of all but three of the society’s core staff of about a dozen.

An assessment of the society’s use of the grant, led by a consultant appointed by the federal department, was included in the panel’s report. It said that less of the money than intended was used to fund the studies, mainly because the society failed to obtain the expected revenues from other sources. Moreover, it was not happy about the studies themselves. It characterized the society’s work in research evaluation as “poor”, and in the advancement of women as “medium” in quality and usefulness. The third study is continuing.

The society has reacted defensively to the panel’s report. It already performs many of the proposed new academy’s functions, it says. It has, for example, mounted expert panels for studies of issues such as the impact of AIDS, at the request of the government, which have been well received.

It accuses the government of “trying to reinvent the wheel”, and warns that the creation of a new academy could cause confusion, particularly abroad because “many national academies abroad recognize the Royal Society of Canada as their Canadian counterpart... and are perfectly happy with this arrangement”.

The proposal that the head of the academy would be recruited and paid by the industry department would be regarded with suspicion, it argues. Additionally, it could run into difficulties with Quebec’s French-speaking intellectuals, many of whom are nationalists: “a new synthetically created pan-Canadian organization, fostered by the federal government, could well arouse suspicion (and cause the abstention) of many Quebec scholars, artists and scientists”, while the society has dealt with the two cultures for more than a century.

The society also points out that during the five years during which it received the industry department grant, it raised more than C\$6 million from other sources, which was used to fund activities appropriate to a national academy.

While the panel claims that its new academy would “build on the strengths of existing organizations” and “maximize the impact of scarce resources”, observers note ironically that some of its functions were formerly carried out by the Science Council of Canada, which was abolished by the same Conservative government that created the panel.

David Spurgeon