RANDOM SAMPLES

edited by CONSTANCE HOLDEN

DNA Fingerprinting Comes of Age

DNA analysis has always carried a caveat in court: It could eliminate suspects, but always left room for at least a particle of doubt. Even in O.J. Simpson's trial, prosecutors could only say the odds were billions to one that blood found at the scene was not O.J.'s.

But at a press conference last week, the Federal Bureau of Investigation (FBI) announced that, for the first time, their experts will be permitted to testify that DNA from blood, semen, or other biological evidence at a crime scene came from a specific person. That's because technological advances in the use of restriction fragment length polymorphisms—comparing short pieces of DNA from a sample with that from an individual—along with more complete data on the frequency of different DNA patterns in different ethnic populations, have made analyses much more precise, FBI officials said. The new policy states that if the likelihood of a random match is less than one in 260 billion, the examiner can testify that the samples are an exact match.

Such certainty suggests that DNA analysis can now rightly be called "DNA fingerprinting," says Dwight Adams, chief of the scientific analysis section at the FBI laboratory in Washington, D.C. The term "invokes in the mind of the jury that we are identifying one individual to the exclusion of all others."

Harvard population geneticist Daniel Hartl, who argued in the early 1990s that the chances of a random match were too high, agrees that the science is now precise enough to declare a specific match with enough DNA markers. The main uncertainties now are introduced by "human frailty at the laboratory level," says geneticist James Crow of the University of Wisconsin, Madison—so the best protection for a suspect is to preserve samples for retesting.

Blumenthal Bows Out

After taking a beating from breast cancer advocacy groups, psychiatrist Susan Blumenthal has declined a White House job as senior adviser on women's health. In a 9 November letter to President Clinton, she said "the timing is not right," as the controversy "is distracting from our shared goals."

Until recently director of the Office of Women's Health at the Department of Health and Human Services (HHS), Blumenthal has caught flak for allegedly putting funds that should go for breast cancer research into other activities (*Science*, 14 November, p. 1231).

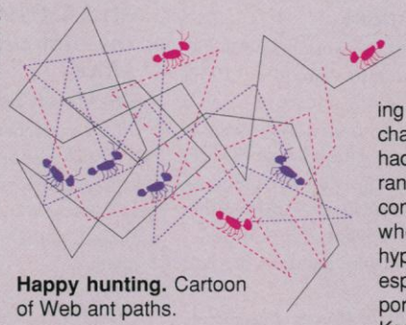
For her part, Blumenthal says the breast cancer coalition doesn't speak for everyone: "Lots of letters from other women's groups have been extremely supportive and feel this is a lost opportunity." She remains an assistant surgeon-general at HHS.

On the Scent of a Data Trail

Like ants scavenging for food, millions of computer users crawl around cyberspace in search of information. And just as an ant leaves a pheromone trail leading its brethren to a tasty treat, so too, argues information scientist Paul Kantor of Rutgers in New Brunswick, New Jersey, could Web surfers guide one another to useful data. He and his colleagues are developing a Web tool, dubbed for now the Ant World Server, to do just that.

"It's a step beyond the idea of the Web as a collection of static pages to be indexed," says Kantor. "There's a tremendous amount of intelligent activity that takes place on the Web as people try to find things." He wants "to capture some of that intelligence."

To establish the "pheromone" trails, the program would provide registered users a small box at a Net site where they can rate the site on a scale of 1 to 5. To follow the trail, a user would log into an "ant server" and give it instructions. A researcher seeking background on the uses of genetic engineering in surgery, for example, could explain her quest to the server. Then, as her Web search turned up links, she would find an ant icon next to every hyperlink for which the server had data from previous similar searches. Clicking on the icon would produce a chart showing how many clickers had preceded her and how they ranked the site. The chart would convey only the ratings of users who arrived via that particular hyperlink. The system would be especially useful when a person is poring over long lists of Web sites, Kantor points out.



P. KANTOR

Happy hunting. Cartoon of Web ant paths.

"It's a completely new take on the whole searching [process]," says computer scientist Jim French of the University of Virginia, Charlottesville. Such a rating system, he says, "is a valuable indication of the quality of information."

Kantor, who is developing the project under a $1 million grant from the Defense Advanced Research Projects Agency, has a demonstration running, and hopes to have the basic system available to the public within a year. Trailblazing the Web will be the hard part, he admits. It's like "the first person to buy a phone; there's nobody to call"—kind of like starting an ant colony with one ant. For information, see scils.rutgers.edu/baa9709/

UN Weighs in On Cloning

In the latest of a flurry of moves in Europe addressing the potential worries surrounding human genome research, the Paris-based United Nations Educational, Scientific, and Cultural Organization (UNESCO) last week announced ethical guidelines to help members develop laws to address biotechnology's dizzying advances.

The "Declaration on the Human Genome," adopted unanimously by UNESCO's 186 member states, outlines ethical research practices and calls for bans on any practice "contrary to human dignity," including human cloning. Following the general policy already laid out by key funding agencies in the United States and Europe, it declares the fundamental genetic material in every person to be "the common heritage of humanity" that "shall not give rise to financial gains." The intent is not to limit commercial applications stemming from the Human Genome Project, but to ensure that knowledge about the genome remains in the public domain, U.N. officials say.

The declaration warns that human genome research should be undertaken only after rigorous assessment of the potential risks and benefits. It "encourages scientific activity while emphasizing human rights," says Sandy Thomas of the Nuffield Council on Bioethics in Britain. Although the statement is not binding, Thomas says, it "helps provide a framework for southern countries which have not yet developed legislation on these issues."

The UNESCO document follows hot on the heels of the 40-nation Council of Europe's adoption this month of the first legally binding international ban on human cloning, which awaits ratification by member states. Britain has also recently published guidelines on genetic testing.