THE WORLD REPORT

Fear keeps up as DNA science speeds forward

Britain's system is far more advanced than the USA's. American privacy advocates are thankful for that.

By Richard Willing
USA TODAY

BIRMINGHAM, England — The dead man was long in his grave, hanged in 1962 for a murder his family still insists he did not commit. To prove his innocence, investigators needed a sample of DNA, the man's unique genetic code, and digging up the body was not an option.

That's where the case of James Hanratty stood in 1998. Then, the United Kingdom's Forensic Science Service got involved.

Even for the world's leader in crime detection using DNA, the case was a challenge. But lab technicians in this British Midlands city found a postcard Hanratty had mailed to his mother in 1961. They removed the stamp. From skin cells locked inside a 37-year-old saliva stain, they extracted enough DNA to form a partial genetic profile that could help exonerate Hanratty. His conviction 38 years ago is now being reviewed.

"We all know the power of (DNA), and in this country we've seen some of what it can do," says Paul Ferrara, director of Virginia's crime lab, one of the top DNA facilities in the USA. "But with the British, sometimes you just have to step back and say, 'Wow.' "

'Amazing' results

The nation of 60 million, less than a quarter of the size of the USA, has the world's best DNA technology, the biggest database of suspects and by far the best record for solving crimes through DNA analysis — more than 51,000 since 1995. The U.S. system, the runner-up, has solved 1,082, although U.S. officials say that's probably an undercount. The Forensic Science Service (FSS) enjoys popular approval, unrivaled government support and worldwide publicity, thanks to its role in identifying the bones of Russian Czar Nicholas II and his family in 1993. The FSS' successes are "amazing," says Christopher Asplen, director of the U.S. Justice Department's Commission on the Future of DNA Evidence."

But privacy advocates here and in the USA are increasingly concerned that Britain's brave new world of DNA databases is going too far. British police now draw DNA not only from convicted murderers and rapists, but even minor traffic offenders. They can sweep into an area, do DNA "dragnets" and test everyone — just to find a single suspect. The practice has already spread to Germany. It has been tried by police in Florida, Maryland, Michigan and California, despite concerns that it violates constitutional protections against unreasonable searches.

Questions that remain unresolved in Britain are only now being debated in the USA: Should the government be allowed to keep blood and saliva samples drawn from suspects, once the DNA profile has been identified and added to a database? And what should be done to keep DNA information on life expectancy, paternity and susceptibility to disease from employers, insurance companies or researchers who might examine police files?

Pool photo by Sean Dempsey

Publicizing the database: Jayne Thomas takes a saliva sample from British Prime Minister Tony Blair in November.

1998 file photo by Alexander Zemlianichenko, AP

DNA detective work: Alexei Nikitin lays out the bones identified by DNA analysis as being those of Russia's last czar and his family, who were slain in 1918.

In '86, technique came 'out of the laboratory'

In 1986, a suspect had confessed to the rape and murder of two schoolgirls in Britain's East Midlands district. But police weren't sure they had the right man.

They called upon University of Leicester geneticist Alec Jeffreys to apply DNA technology he had developed two years earlier. Jeffreys compared DNA drawn from semen at the crime scene with the suspect's blood sample. The conclusion: One man committed both crimes — but he was not the man in custody.

Police decided to ask all male residents of the area to provide blood samples. They tested 4,582 men before learning that a local baker, Colin Pitchfork, had paid another man to take the test in his place.

When tested, Pitchfork's DNA matched the crime-scene sample.

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Britain's DNA database

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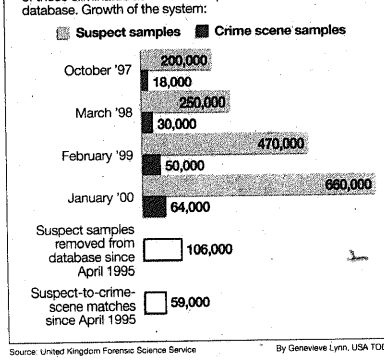
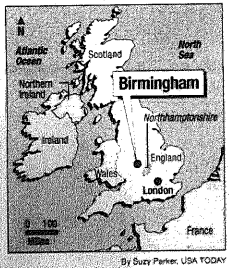


Source: United Kingdom Forensic Science Service

By Genevieve Lynn, USA TODAY



By Suzy Parker, USA TODAY

tential crime suspects, which opened in April 1995, works this way: DNA is taken from a blood sample or, increasingly, by running a cotton swab around the inside of the subject's mouth. It is analyzed and stored digitally. DNA taken from crime scenes and from new people who are arrested is matched against profiles in the database. In Britain, anyone arrested for a crime or even cautioned by police for a minor offense, such as swearing at an officer, can have his DNA added to the database. As of more than 50,000 burglaries, car thefts and lesser property crimes.

"One of the reasons (the database) has been taken on quite well by the public is that it really does get results," says Rob Smith, a spokesman for the FSS. "There's no arguing that."

The FSS' image has been burnished by several high-profile successes. A series of rapes committed in Northamptonshire in 1984, the pre-DNA era, was solved after 14 years. Microscopic blood specks were recovered from the polish on a killer's shoes and used to tie him to the murder of a Birmingham woman. In Yekaterinburg, Russia, the FSS identified bones found in a shallow grave as the long-missing remains of Czar Nicholas II, his wife and three of their five children — executed by Bolsheviks in 1918.

The U.S. system, by comparison, is a muddle. Each state and the federal government has its own policy on when to draw DNA and from whom. Only six states — Alabama, New Mexico, Tennessee, Virginia, Wisconsin and Wyoming — take and store DNA samples from all convicted felons. Four others — Idaho, Iowa, Louisiana and New Hampshire — collect no DNA at all, despite state laws mandating a database.

Testing systems differ widely, too. The FBI tests genetic markers at 13 points along the DNA molecule — a system that allows for matches with less than a 1-in-1 billion chance of error. Some state labs have adopted the FBI system, but many others continue to use outdated systems.

All that makes it difficult to solve crimes via the FBI's fledgling national database. Funding shortfalls and technical incompatibility mean that only 22 states are linked to the federal DNA system. "(The British) have been able to sit down and strategically plan how they'll use (DNA analysis) to target crime, right across their country," says the FBI's Stephen Niezgoda, manager of the national identification system. "We haven't, and we may never be able to."

Privacy advocates, however, say the jumbled state of U.S. databases actually might help prevent privacy abuses. By sampling only convicts, not people who have only been arrested, keeps the databases relatively small, they note. And large workloads at most state labs — more than 350,000 samples have been drawn but not yet analyzed nationwide — make it less likely that technicians will have the time for unauthorized research. "The (American) system's so-called inefficiencies may in some sense be its strengths," says Simon Davies, U.K. director of Privacy International, a watchdog group.

But in the long term, privacy advocates would like to see more protections, especially for the blood and saliva samples from which DNA profiles are extracted. Only Wisconsin requires that the samples be destroyed after the DNA is drawn.

"This stuff makes people very uneasy," says the Shriver Foundation's Reilly, who is both a lawyer and a medical doctor.

"As the technology moves forward, we've got to continue to address society's issues and concerns. That's the only way this is going to work."

Britain's system offers more leeway

Britain's legal system gives police a distinct advantage over U.S. law enforcement in applying DNA technology: It offers wide leeway over whose DNA samples to take and store.

In more than 125 "targeted screens," British police have taken more than 43,000 samples from all males living near a crime scene. So far they have scored 46 DNA matches.

While samples usually are given voluntarily, police have the power to demand them without a search warrant.

In the USA, such dragnets have been tried fewer than a dozen times and have met strong opposition. Critics cite the Eighth Amendment to the U.S. Constitution, which bars unreasonable searches and seizures. Britain has no written constitution.

Britain's small size gives it yet another edge: There is one crime laboratory and one DNA testing policy for an entire nation.

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Little debate on DNA

"Within 10 years, it is quite possible that virtually everybody (in the USA) is going to be on a database," says Philip Reilly, a lawyer, geneticist and president of the Shriver Center for Mental Retardation in Waltham, Mass. "That isn't necessarily bad, but it's all happening with very little public discussion or even awareness."

DNA — deoxyribonucleic acid — carries an individual's inherited traits and is contained within virtually all living cells. First identified in the mid-19th century, DNA came into its own as a crime-solving tool in 1984, when British researcher Alec Jeffreys found a way to compare multiple points of DNA genes on a grid that resembled a supermarket bar code. He called his method "DNA fingerprinting."

The FSS' national database of potential crime suspects, which opened in April 1995, works this way: DNA is taken from a blood sample or, increasingly, by running a cotton swab around the inside of the subject's mouth. It is analyzed and stored digitally. DNA taken from crime scenes and from new people who are arrested is matched against profiles in the database. In Britain, anyone arrested for a crime or even cautioned by police for a minor offense, such as swearing at an officer, can have his DNA added to the database. As of January, the database held profiles of 660,000 people — including Prime Minister Tony Blair, who voluntarily placed his DNA in the system to advertise its potential.

The results have been dramatic. Through December, the database had matched 59,054 suspects to crime scenes in its 4½ years in operation. In 8,639 other cases, DNA from unsolved crimes was linked to other crime scenes, allowing police to identify a pattern. The database has helped solve 701 major crimes — murders, rapes and arsons — and more than 50,000 burglaries, car thefts and lesser property crimes.

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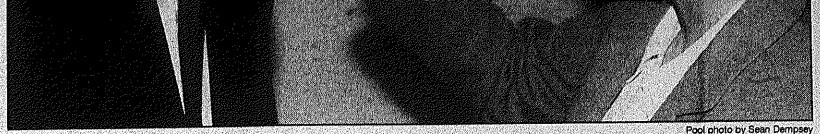

Pool photo by Sean Dempsey

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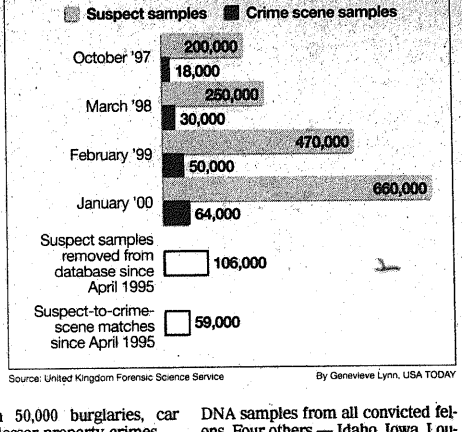

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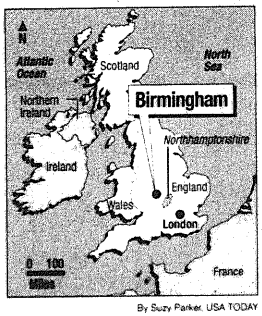

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