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Possibly the most controversial law expected to be passed this year is an amendment to the **Criminal Procedure Act** of 1977 that could make DNA profiling mandatory and create a detailed DNA database to step up the fight against crime. It is a highly debatable topic, and even experts in the realms of crime-fighting, justice and science are at loggerheads about almost every aspect of the proposed Bill. Add to that allegations of human rights' infringements and the fact that decision-time is fast approaching, and the conditions are ripe for a heated argument. In the interests of providing the public with as much information as possible, this would even be desirable, but it appears that the little public participation that has been heard is the sum of it, and the ground-breaking conclusion arrived at by a not-especially qualified ad hoc committee will be presented to parliament before the year is out.

By Aly Verbaan





As the reality of what had happened sunk into Vanessa's mind—she describes it as a “dark, tight closing out sensation between my temples”—she sank to the floor of the OR Thambo International Airport with a cry and gave in to her pent-up grief. An unknown fellow traveller put his arms around her and asked her what was wrong. “My father is dead, he’s been murdered, my dad is dead,” she replied in disbelief. The man held her for some ten minutes until her husband Stuart came to find her.

Five years have passed since that fateful day, yet Vanessa Lynch still remembers this act of random kindness—the very antithesis of why she was experiencing what she describes as “the worst moment of my life”.

Vanessa and Stuart and their 18-month-old daughter were in Johannesburg after receiving the call we all dread: a member of your family, a loved one, has been killed.

Just the previous day, Vanessa had said goodbye to her parents after a visit to Cape Town, never imagining that within 24 hours their lives would have been irrevocably changed by the arbitrary and bloody murder of her father in his own home in a random armed robbery.

Vanessa describes arriving at the scene to meet her mother: “I knew in that moment, as I looked at my mom, that I had in fact lost both parents—my mother has never recovered from losing my father so traumatically. She couldn’t even walk the few steps to meet me, she was in such shock.”

The murder of John Lynch is just one of thousands that take place every year in South Africa, and many people are familiar with what the Lynch family has been through.

But the loss of her father changed the course of Vanessa’s life in a very

practical way. A commercial lawyer by training, Vanessa gave up her practice and has dedicated the past five years, not to finding her father’s killers per se, but to championing a drive to make a DNA criminal database a workable reality in this country.

This is no easy task—forensic law here is still governed by the Criminal Procedure Act of 1977, and does not take into account the vast strides made in the fields of forensics or genetics in the past three decades.

For this reason, a highly controversial amendment Bill is currently under review, which, if passed, will see the establishment of a comprehensive national DNA database and a radical shift in way suspects are treated with regard to the taking of bodily samples—blood in particular.

But it is also now possible to detect DNA in things like sweat cells left on walls, a fibre of clothing or a single strand of hair found at the crime scene, and is not confined to blood or semen samples to provide a match.

But, stresses Vanessa, without competent crime scene management, none of this means anything. In her father’s case, Vanessa was horrified to find that the blood on the scene had been hosed down before any samples could be taken.

“I know people do this out of kindness, to spare the family the trauma of seeing the horror, but it is essential that everything that can be salvaged from the scene is collected and analysed. Because my father lived for some hours after having been shot several times at almost point blank range, he was taken to hospital where doctors tried to save him. They couldn’t, but his clothes, vital pieces of evidence, were simply incinerated at the hospital. And when I confronted police about the whereabouts of the bottle of brandy and coke the killers had left in the back garden, I was told it had been thrown

out, ‘because we [SAPS] do not have the ability to uplift DNA information from a bottle’. This is simply not true.”

At the time of John Lynch’s killing, the kidnapping and subsequent murder of 21-year-old Leigh Matthews was making headlines. In this case the killer was caught relatively easily, having left a string of cellphone evidence for police.

But for Vanessa there was no closure and her father’s killers are still at large. But rather than give up and let her grief and frustration consume her, Vanessa decided to be proactive. “I know nothing can bring my dad back, but I want his death to achieve something positive. I know his journey did not end with his death, and for me, it had only just begun.”

Vanessa contacted Leigh Matthews’ father, Rob, and proposed they work together to improve South Africa’s criminal database, or, if necessary, start a new one, using the breakthroughs in forensic and genetic science since the 1977 Act to radically reform the way we keep track of suspects and criminals. Together with a qualified geneticist, Dr Carolyn Hancock, Vanessa and Rob set up a registered public benefit organisation, simply called The DNA Project. (Although it was initially attached to the Leigh Matthews Trust, The DNA Project is now a separate NPO thanks to the support it garnered from donors.)

Looked at from the point of view of the victims of violent crime, writing a DNA database into the proposed Criminal Procedure Amendment Act seems an obvious step in the right direction, and while there is widespread support for it, there are many, including some experts in the legal field who are vehemently opposed to the proposed Bill.

An explanatory summary of the Bill was published in the *Government Gazette* in December last year, and the Criminal Law (Forensic Procedures) Amendment Bill was referred to an Ad Hoc Committee in

January.

It was required to report to the National Assembly by 23 January, but after its first meeting just three days before the due date, an extension was requested and granted until 10 March. The committee comprised nine ANC members, two DA members, and one member each from the IFP, MF and UDM.

Interested parties were invited via five national newspapers to submit written comments on the Bill. Only 10 were received by the due date, and, of those, six participated in public hearings on 3 February. Essentially, the National Prosecuting Authority (NPA), Business Against Crime (BAC) and The DNA Project were in agreement with the concept and need for a national justice system DNA database, but exact details and the implementation of the Bill were not settled.

The South African Human Rights Commission (SAHRC) argued that “a number of the Bill’s provisions were objectionable and open to constitutional challenges”, and recommended that the Bill be implemented along the same structure used in Britain, which has the largest DNA database in the world, with some 4 million profiles on record.

The Police and Prison Civil Rights Union (POPCRU) expressed the most dissent, suggesting that the Bill could pave the way to corruption of law enforcement by private entities, which would almost certainly be involved in the testing of DNA samples as the state laboratories were not yet equipped to deal with the substantial increase in workload that the Bill would represent.

The two fundamental objections, then, are that DNA profiling could constitute an infringement of human rights, and that the implementation of such a system in a country like South Africa poses serious difficulties.

Although all members expressed that they were in favour of passing the Bill, the committee came to the conclusion that it needed yet more time to consider the



TESTING JOB: Biochemist Cedric de Wet about to begin the DNA extraction process at the SAPS Criminal and Forensic Science Centre in Cape Town.

implications thereof, and that more public participation was necessary.

With the 22 April elections forcing the committee to hold off further discussions until this month, there is some uncertainty as to what the next step will be. It is also speculated that a new committee will have to be formed due to changes in government positions, which will delay the process further.

While it would be safe to say that many people would support any breakthroughs in science that would assist in crime-solving, a number of people have expressed serious reservations about DNA profiling in this country, with reasons ranging from fear of an Orwellian nanny-state where the government has access to personal information, concerns of who would be obliged to be tested by whom, to whether such a complex project is possible in a developing country and how it could be guaranteed that test results would not find their way into the hands of departments other than that of justice.

This is where Vanessa points out that people need to be more informed on how profiling works. “The method of testing we are in favour of and that is currently used—Short Tandem Repeats—is nothing more than a set of numbers (nine) derived from the DNA sample, which would be taken at a crime scene and/or from a suspect.

“These numbers do not reveal anything genetic about a person, so of what use would they be to anyone else?”

But medical biochemist Dr David Klatzow, who works as a private forensic consultant adamantly disagrees: “You only have to look at the margin of error that occurs on the British database to see that it is not the silver bullet [that kills the werewolf].”

Klatzow also feels that South Africa does not have enough properly qualified people to operate such a comprehensive database. “We have the planes, but no pilots. So, should we get more planes?”

According to Klatzow, a genetic database of any sort, whether only for convicted criminals or for the general population, would be unimplementable in South Africa and would provide endless opportunities for abuse and corruption.

Says Klatzow: “As an example, just think back about 20 years, when the state promised us that fingerprints were only to be made available to the department of home affairs. But already they are being shared with the police, which is a problem. The corruption is out of this world, and if you are falsely accused with DNA evidence and you don’t have the money for a good lawyer, you’re dead, Fred.”

William Booth, a high-profile defence lawyer, is not as set against the proposed Bill as Klatzow is, however. Booth said he would be concerned in the main with sample collection—who would be entitled what from whom and how? This is but one of the Bill’s sticking points: currently, only a medical practitioner or district surgeon may take blood samples; the Bill proposes that qualified police officials be obliged to take a non-intimate sample, such as a buccal (oral) swab or blood from a finger prick, or even nail clippings of any person charged with a crime. If the person is not convicted, it recommends destroying the DNA profile after five years. Here, too, is another point of debate, with some saying all information should be kept, as with fingerprints, and just keep growing the database, while others ask why innocent

people's information should be kept on record.

"For one thing", explains Senior-Superintendent Mafiki Maluleke (BSc medical microbiology), Commander of the Biology and Forensic Science Laboratory Unit near Cape Town International Airport, "people need to stop thinking of themselves as guilty, if they are indeed not, and think about the help it be to an individual or family who is the victim of abduction or murder. If you are on the database, we might be able to trace you or, hopefully not, identify your body. The mortuaries are full of people who simply cannot be identified. If you've got nothing to hide, what's the problem?"

A tour of the labs too scientifically detailed to go into in any depth showed the process of DNA profiling using STR as Vanessa had described, the final result being a sequence of nine numbers and one gender marker (X or Y). The only personal attribute, then, to be determined from the result is whether the sample comes from a man or a woman. The sequence is then simply compared to the profile retrieved from the individual concerned, and it is either a match or it is not.

Now, while both Klatzow and Booth pointed to the current debate in England about errors in the system, Maluleke said the system of controls in place in the lab (positive, negative and control samples) was such that he was prepared to verify any results "100 percent".

"In particular, one should remember, that if DNA profiling is involved and you are innocent of the crime with which you are charged, this process will exonerate you immediately and spare you a lengthy and expensive trial—and even jail time.

When put to him that new debates were being batted about as to whether the saying that no two people's DNA is unique, besides identical twins, Maluleka dismissed this as semantics.

"99% of all our DNA is the same, but that 1% (called 'junk' DNA) that differs is extremely variable, and if people now want to say the chance of duplication is one a billion, that doesn't really change anything. If our samples show any type of vagaries or signs of contamination, or cannot be tested for any reason, we will call a 'no result'."

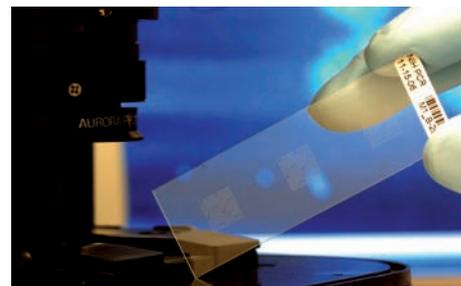
The work of the DNA Project is to be seen everywhere in the labs, with two complex machines donated to it named after the victims whose deaths brought the project into existence: Leigh Matthews and John Lynch.

• *At the time of going to print a spokesperson for deputy minister of justice and constitutional development, Johnny de Lange, said "one could not be sure of one's position in government until the new cabinet is announced, but that De Lange would undoubtedly push for the Bill to be passed as soon as was feasible.*

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LEIGH'S LEGACY: Chantel Burgess (left) and Romedah Davids use this machine, dubbed "Leigh" and donated by the DNA Project, for the electrophoresis of samples.



FORENSIC DNA CRIMELINE

1980 – American geneticists discover a region of DNA that does not hold any genetic information and which is extremely variable between individuals. Ray White describes first polymorphic RFLP marker

1984 – Alec Jeffreys discovers a method of identifying individuals from DNA - Restriction Fragment Length Polymorphism (RFLP). He dubs it 'DNA Fingerprinting'.

1985 – Police in the UK first use forensic DNA profiling.

1986 – Kary Mullis discovers Polymerase Chain Reaction (PCR) method of replicating particular regions of a DNA molecule.

1987 – In the UK the first criminal case in which DNA was used provided a vivid demonstration of the method's potential – not only for convicting the guilty but also for exonerating the innocent. It also demonstrated for the first time that a DNA fingerprint could be used to find a perpetrator from within a population.

1988 – FBI starts DNA casework.

1995 – The world's first national DNA database commences operations in the UK on 10 April 1995.

1998 – FBI launches CODIS database.

1998 – In South Africa, DNA profiles begin to be entered into the National DNA Criminal Intelligence Database.

1998 – SA opt to use the STR system (Short Tandem Repeats) for DNA Profiling.

2000 – In the UK, the Forensic Science Service announces that the number of DNA profiles of suspects and convicted criminals on the national DNA database has reached one million or roughly one third of the estimated criminally active population.

2006 – The world's first fully automated system for high-volume forensic DNA analysis and profiling goes live in Arcadia, Tshwane, South Africa in August 2006, putting the Biology Unit of the SAPS Forensic Science Laboratory at the forefront of global DNA analysis technology.