DNA References

Textbook

Chapter 12 of *Forensic Evidence in Canada, Second Edition*

Criminal Code

Sections 487.04 to 487.091, but in particular note:

487.04	Definitions and Lists of Primary Designated Offences and Secondary Designated Offences
487.05	DNA Warrant Criteria
487.051	DNA Databank Order upon Conviction

Relevant Cases

Admissibility of DNA Evidence

R. v. Terceira, [1998] O.J. No. 428 (Ont.C.A.)

FINLAYSON J.A.:--

47 It must be remembered that we are dealing with the admissibility of the opinion of an expert witness with respect to one piece of circumstantial evidence relevant to the identity of the perpetrator of a crime. I can think of no justification for imposing a special burden of proof upon the Crown with respect to these DNA experts. This after all is still identification evidence. Scientific methods of identification, including analysis of bodily fluids such as blood, semen, saliva, hair, as well as fingerprints, footprints, dental impressions, and striations on bullets, all depend upon the ability to match samples, one to another. DNA profiling differs from this earlier technology only in its increased power to discriminate between individuals.

58 A further point must be made on the ultimate issue. This DNA evidence does not tend to establish conclusively the identity of the perpetrator of the crime. In a given case, it can only eliminate conclusively a suspect. DNA profiles are designed to determine if the appellant's genetic makeup is consistent with the genetic makeup of the samples taken at the scene of the crime. In order to indicate the degree of consistency, the expert witness will normally provide both quantitative and qualitative statements directed at the probability of randomly matching an individual in the population to the DNA samples present at a crime scene. The problem with using qualitative modifiers such as rare, unlikely and remote is that they are awkward and fail to convey the potency of a match. For this reason, the scientific community seems to prefer to use specific figures, as in this case. On the other hand, the underlying

concern of the defence is that the jury will be permitted to fall into what is referred to as "the prosecutor's fallacy": equating the probability of a random match with the probability of the appellant's innocence. In other words, the concern is that the jury will convert the statistics into something approaching the ultimate issue. The conclusion that may be drawn from probability statistics is that it is rare or common to find this pattern among known DNA samples; one cannot make the leap to conclude that as a result of a match frequency the DNA found on a scene is that of a particular suspect.

65 At the conclusion of the evidence, the trial judge in his instruction should advise the jury in the normal way as to the limits of the expert evidence and the use to which it can be put. Additionally, in the case of DNA evidence, he or she would be well advised to instruct the jury not to be overwhelmed by the aura of scientific infallibility associated with scientific evidence. The trial judge should tell them to use their common sense in their assessment of the all of the evidence on the DNA issue and determine if it is reliable and valid as a piece of circumstantial evidence.

Validity of the DNA Databank

R. v. Rodgers, [2006] 1 S.C.R. 554

CHARRON J.:--

12 The Crown also filed affidavit evidence from Dr. Ron Fourney, a research scientist employed by the RCMP since 1988 and the current officer in charge of the data bank, describing the practical operation of the data bank. Mr. Rodgers did not dispute the accuracy of this evidence. In his affidavit, Dr. Fourney explains in some detail how the anonymity of the samples and profiles is preserved, their physical security maintained, and the genetic privacy of the individuals ensured. Arbour J. in *S.A.B.*, at para. 49, considered similar evidence and commented as follows:

> [Forensic] DNA analysis is conducted solely for forensic purposes and does not reveal any medical, physical or mental characteristics; its only use is the provision of identifying information that can be compared to an existing sample. The evidence of Dr. Ron Fourney at the *Proceedings of the Standing Senate Committee on Legal [page569] and Constitutional Affair*s, Issue No. 43, November 25, 1998, at p. 43:46, confirms the scientific community's understanding of the DNA used for forensic analysis:
>
> [A]s forensic scientists, we are interested in everything that does not code for anything. That is to say, we are looking at anonymous pieces of DNA. By international convention with Venice in 1993, forensic scientists all over the world agree that we will take STR markers - that is, short tandem repeat - or pieces of DNA. By convention, the only ones that we are permitted to use in forensics are those that do not predict any medical, physical or mental characteristics.

38 In my view, in considering the purpose of the DNA data bank provisions, the appropriate analogy is to fingerprinting and other identification measures taken for law enforcement

purposes. The purpose of the legislative scheme is expressly set out in s. 3 of the *DNA Identification Act* - "to help law enforcement agencies identify persons alleged to have committed designated offences, including those committed before the coming into force of this Act". The DNA data bank provisions contained in the *DNA Identification Act* and the *Criminal Code* are intended to put modern DNA technology to use in the identification of potential and known offenders. The *DNA Identification Act* is a modern supplement to the *Identification of Criminals Act*, R.S.C. 1985, c. I-1, which provides as follows:

> 2. (1) The following persons may be fingerprinted or photographed or subjected to such other measurements, processes and operations having the object of identifying persons as are approved by order of the Governor in Council:

Section 2 goes on to identify classes of persons charged and convicted of particular offences who are subject to the identification process. It is beyond [page583] dispute that DNA sampling is a far more powerful identification tool than fingerprinting. Therein lies the heightened societal interest in adding this modern technology to the arsenal of identification tools.

39 I am also of the view that a useful analogy can be drawn between DNA sampling and fingerprinting in considering the impact on the privacy interest of the concerned individuals. DNA sampling impacts on the privacy interest of the subject in two ways: it interferes with the bodily integrity of the person and it engages the informational component of privacy. With respect to the first, it is not disputed that the degree of offence to the physical integrity of the person is relatively modest and Mr. Rodgers takes no serious issue with this component of the privacy interest. The impact of DNA sampling on the physical security of the person was considered fully in *S.A.B.* and, the Court concluded that "the statutory framework alleviates any concern that the collection of DNA samples pursuant to a search warrant under ss. 487.04 to 487.09 of the *Criminal Code* constitutes an intolerable affront to the physical integrity of the person" (para. 47). The same statutory framework governs the taking of samples pursuant to DNA data bank orders and raises no greater constitutional concern in respect of the physical security of the person than does fingerprinting or the other identification procedures considered in *Beare*.

66 For these reasons, I would answer the constitutional questions in the negative. Section 487.055(1) of the *Criminal Code* does not infringe ss. 7, 8, 11(*h*) and 11(*i*) of the *Charter*. I would also conclude that there is no reason to interfere with the authorization judge's discretion to proceed with the s. 487.055(1) application on an *ex parte* basis. He was statutorily authorized to do so and no suggestion has been made that, if indeed so authorized, he [page601] did not exercise his discretion judicially. I would therefore allow the Crown's appeal, set aside the decision of the Court of Appeal for Ontario, dismiss Mr. Rodgers' cross-appeal and dismiss his *Charter* and *certiorari* applications.

Validity of DNA Warrants

R. v. S.A.B., [2003] 2 S.C.R. 678

ARBOUR J.:--

44 With regards to privacy related to the person, the taking of bodily samples under a DNA warrant clearly interferes with bodily integrity. However, under a properly issued DNA warrant, the degree of offence to the physical integrity of the person is relatively modest (*R. v. F. (S.)* (2000), 141 C.C.C. (3d) 225 (Ont. C.A.), at para. 27). A buccal swab is quick and not terribly intrusive. Blood samples are obtained by pricking the surface of the skin -- a procedure that is, as conceded by the appellant (at para. 32 of his factum), not particularly invasive in the physical sense. With the exception of pubic hair, the plucking of hairs should not be a particularly serious affront to privacy or dignity

48 The informational aspect of privacy is also clearly engaged by the taking of bodily samples for the purposes of executing a DNA warrant. In fact, this is the central concern involved in the collection of DNA information by the state. Privacy in relation to information derives from the assumption that all information about a person is in a fundamental way his or her own, to be communicated or retained by the individual in question as he or she sees fit (*per* La Forest J. in *Dyment, supra*, at p. 429). There is undoubtedly the highest level of personal and private information contained in an individual's DNA. However, it is important to recall that the bodily samples collected pursuant to a search warrant issued under ss. 487.04 to 487.09 are collected for a limited purpose, clearly articulated in the *Criminal Code*.

49 The DNA warrant scheme limits the intrusion into informational privacy by using only non-coding DNA for forensic DNA analysis. As previously noted, s. 487.04 defines "forensic DNA analysis" as the comparison of the DNA in the bodily substance seized from a person in execution of a warrant with the results of the DNA in the bodily substance referred to in s. 487.05(1)(*b*). In other words, the DNA analysis is conducted solely for forensic purposes and does not reveal any medical, physical or mental characteristics; its only use is the provision of identifying information that can be compared to an existing sample. The evidence of Dr. Ron Fourney at the *Proceedings of the Standing Senate Committee on Legal and Constitutional Affairs*, Issue No. 43, November 25, 1998, at p. 43:46, confirms the scientific community's understanding of the DNA used for forensic analysis:

> [A]s forensic scientists, we are interested in everything that does not code for anything. That is to say, we are looking at anonymous pieces of DNA. By international [page700] convention with Venice in 1993, forensic scientists all over the world agree that we will take STR markers -- that is, short tandem repeat -- or pieces of DNA. By convention, the only ones that we are permitted to use in forensics are those that do not predict any medical, physical or mental characteristics.

52 I can therefore conclude that, in general terms, the DNA warrant provisions of the *Criminal Code* strike an appropriate balance between the public [page701] interest in effective criminal law enforcement for serious offences, and the rights of individuals to control the

release of personal information about themselves, as well as their right to dignity and physical integrity.

Obtaining a DNA Sample without a Warrant

(i) Consent

R. v. Wills, [1992] O.J. No. 294 (Ont.C.A.)

In my opinion, the application of the waiver doctrine to situations where it is said that a person has consented to what would otherwise be an unauthorized search or seizure requires that the Crown establish on the balance of probabilities that:

> (i) there was a consent, express or implied;
> (ii) the giver of the consent had the authority to give the consent in question;
> (iii) the consent was voluntary in the sense that that word is used in Goldman, supra, and was not the product of police oppression, coercion or other external conduct which negated the freedom to choose whether or not to allow the police to pursue the course of conduct requested;
> (iv) the giver of the consent was aware of the nature of the police conduct to which he or she was being asked to consent;
> (v) the giver of the consent was aware of his or her right to refuse to permit the police to engage in the conduct requested; and,
> (vi) the giver of the consent was aware of the potential consequences of giving the consent.

The awareness of the consequences requirement needs further elaboration. In Smith, supra, at pp. 726-28 S.C.R., pp. 322-23 C.C.C., McLachlin J. considered the meaning of the awareness of the consequences requirement in the context of an alleged waiver of an accused's s. 10(b) rights. She held that the phrase required that the accused have a general understanding of the jeopardy in which he found himself, and an appreciation of the consequence of deciding for or against exercising his s. 10(b) rights.

(ii) Cast-Off or Discarded DNA

R. v. Nguyen, [2002] O.J. No. 3 (Ont.C.A.)

[12] On May 3, the plan was put into effect and it worked. The police were able to obtain the appellant's DNA from two pieces of gum which he accepted, chewed and then discarded. The details of the plan and the trial judge's findings in relation to it are found in the trial judge's ruling, dated August 11, 1995, in which, over the objection of the defence, he held that the DNA evidence derived from the gum samples was admissible:

> Before application for the warrant was made, investigators conceived and carried out a plan to provide opportunity to obtain epithelial cells from the accused's mouth for

> DNA analysis. The plan was intended to circumvent the accused's refusal on the advice of counsel to provide bodily samples. Investigators knew the accused was not required to provide such samples and that any consent by him was ineffective unless fully informed.
>
> The plan involved the accused chewing and discarding gum while in custody, either in the detention centre, a police car, or the court house. The ploy was to be implemented incidental to a court appearance on this charge of first degree murder.
>
> Two female police officers were selected to transport the accused in an attempt to create an atmosphere conducive to acceptance of the gum. The officers were to respond if spoken to and were to participate in conversation unrelated to the case. The sliding window into the back seat of the police car was left open for this purpose. Gum was to be offered, officer to officer, accepted, and then offered to the accused. Acceptance by the accused was to be voluntary. The officers were not to suggest, persuade or insist. They were neither to ask for the return of the chewed gum, nor to suggest the accused discard it. If the accused swallowed the gum or put it in his pocket, nothing was to be done. If the gum was discarded, they were to retrieve it.
>
> The toilet bowl in the court house security cell was drained. Paper towelling was placed to catch anything dropped in the bowl. A clean waste basket was placed outside the cell to provide another opportunity for the accused to deposit the gum. …

[20] In our view, the factors considered by the trial judge in his s. 7 analysis and the findings made by him are determinative of the issue at hand. In short, we agree, for the reasons given by the trial judge, that the trick used by the police to obtain the gum samples was acceptable and it did not amount to an improper subversion of the appellant's decision not to provide bodily samples to the police. Accordingly, we reject the appellant's submission that the gum samples should be characterized as conscriptive evidence.

[21] As for the s. 8 violation which, in light of *Stillman*, supra, Ms. Fairburn has conceded, we agree, for the reasons outlined by her at para. 16 above, that the DNA evidence derived from the gum samples was properly admissible under s. 24(2).

Probative Value and Weight Relating to DNA Evidence

R. v. Paul, [2009] O.J. No. 2184 (Ont. C.A.)

3 Identity was the only issue at trial. Much of the evidence is summarized in the earlier judgment of this court. For present purposes, it is sufficient to outline the case in broad terms. It was the theory of the Crown that the deceased was abducted by the appellant while she was in his apartment building with a co-worker soliciting subscribers for a local daily newspaper. On the Crown's theory, the appellant sexually assaulted the deceased,

strangled her, and at some point later that evening deposited her body in the stairwell several feet from the apartment where he lived. The appellant did not testify.

4 The Crown's case relied primarily on expert evidence interpreting DNA samples retrieved from stains containing semen found on two articles of clothing worn by the deceased. The semen samples were very small. According to the expert's evidence, the appellant's DNA was a match at six loci and he could not be excluded as a contributor at the remaining three loci tested. The expert opined that he could not exclude the appellant as the donor of the sperm found on either item of clothing. A second expert gave statistical evidence suggesting only a very slight possibility that someone other than the appellant had deposited the sperm.

7 The defence did not call any expert evidence challenging the Crown's DNA evidence. Defence counsel did, however, vigorously challenge that evidence on cross-examination. The defence contended that the Crown expert had changed important parts of his evidence from his earlier testimony on a *voir dire* to determine admissibility. The defence also contended that the Crown expert had approached his analysis in a way that gave the Crown the benefit of any doubt the expert had in interpreting the results of the tests. Defence counsel stressed both features of the cross-examination in his closing. No objection was taken on appeal to the manner in which the trial judge put the position of the defence or to his review of the substance of the expert evidence.

32 Counsel for the appellant made several closely linked submissions concerning the DNA evidence and the burden of proof. Ultimately, we understand him to have argued that the jury should have been told that if it had a reasonable doubt as to whether the appellant could be excluded as the donor of the DNA at any of the sites tested, it must acquit the appellant.

33 The burden of proof applies to the entirety of the evidence and not to individual pieces of evidence unless, of course, proof of an essential element of an offence depends entirely on a single piece of evidence. As important as the DNA evidence was in this case, it did not stand alone on the identity issue. As set out above, the very close proximity of the appellant's residence to the stairwell where the body was found and his statement to the police provided some support for the Crown's contention that the appellant was the killer.

34 While the DNA evidence did not stand alone, it was certainly central to the Crown's case. It is fair to say that a jury acting reasonably could not have convicted the appellant without accepting the evidence of the Crown expert. The trial judge's instructions made the importance of the expert DNA evidence crystal clear. There can be no doubt that the jury appreciated the importance of that evidence. We reject the submission that the trial judge was obliged as a matter of law to tell the jury that a doubt about one aspect of the testimony given by the expert, as important as that piece of evidence might have been, would necessitate an acquittal. The jury had to assess the totality of the expert's evidence and place it in the context of the rest of the evidence. The burden of proof and the

appellant's entitlement to an acquittal if the jury had a reasonable doubt on the totality of the evidence was properly and repeatedly explained to this jury.

35 Counsel also argued that the trial judge should have instructed the jury that the Crown expert had taken an improper approach in his analysis of the raw data upon which his opinion was based and that it must acquit if the jury believed that the expert had entertained "reasonable doubts" about the interpretation of some of the raw data.

36 Witnesses, including expert witnesses, are not called upon to apply the burden of proof before giving their testimony. The jury applies that burden to their testimony. A jury could only be confused by instructions that somehow suggested that expert witnesses had to have regard to the burden of proof when formulating their opinions.

37 More to the point, counsel's submission assumes that it was common ground that the Crown expert gave the benefit of "reasonable doubts" to the Crown in his preparation. He denied that he did so. This debate over the expert's approach to the raw data was a central feature of his cross-examination. The respective positions of the parties were fully and fairly dealt with by the trial judge in his instructions. He did not, quite properly, frame the defence submission as a legal proposition compelling an acquittal.

Application of DNA Evidence

R. v. Karas, [2007] A.J. No. 1306 (Alta. C.A.)

The Applicant Karas was charged with first degree murder. The victim was strangled and stabbed at least 30 times. A minute amount of seminal fluid was found on her body, providing a DNA profile. The police investigation found nothing else in or around the victim's house to help them identify the murderer.

Karas' father provided a voluntary blood sample, which revealed that a first degree relative might have been a match. It was subsequently determined that the DNA of Karas matched the DNA found on the victim's body. The trial judge found that while the constable had not been completely candid in saying that Karas was not a suspect, he was clearly told and clearly understood that the police officer would not obtain a blood sample from him without his consent. The trial judge found that Karas' alleged belief that the police would get the sample from him by force, if he refused, was not supported by anything said by the police.

A binder containing business documents from the forensic laboratory was, along with the other exhibits entered during the trial, left with the jury. The jury convicted Karas. The C.A. dismissed the appeal.