

**THE EASTERN CARIBBEAN SUPREME COURT
(CRIMINAL JURISDICTION)**

SAINT LUCIA

CASE NO: SLUCRD2009/0007

BETWEEN:-

EUGENE ST ROMAINE

Applicant

and

THE KING

Respondent

Before:

Her Ladyship Justice Taylor-Alexander

Appearances:

Ms Kelly Thomson together with Linton Robinson of Counsel for the Crown

Mr. Alberton Richelieu of Counsel for the Defendant

2023: November 28;
December 29.

- [1] **TAYLOR-ALEXANDER J;** The Defendant is on trial on an indictment for the Murder of his 13 year old daughter Verlinda Joseph (the Victim). She was found murdered on the 2nd of December 2002, in a heavily forested area yards away from the home she shared with the Defendant. She was discovered lying on her back, with her skirt hiked up above her waist, her panties missing, her left breast and external genitalia exposed, with froth emanating from her mouth. At the close of the Crown's case, the Defendant applied to have the case withdrawn from the jury, on grounds that if the Defendant is convicted on the tenuous evidence presented by the prosecution, it will result in a conviction that is unsafe.
- [2] It is accepted that a crucial element of the Crown's case, is expert testimony of DNA testing that concludes that there was a statistical match of semen of the Defendant found high in the vagina

and on the cervix of the victim. This was the evidence of Yvonne Cruickshank a Jamaican forensic scientist whose deposition evidence found semen on the genitalia of the victim and Christine Ann Kimber, a UK forensic scientist, who conducted LCN/DNA testing on the semen found and concluded that there was a statical match of 1 in 1 billion, that the semen belonged to the Defendant. Neither of the scientists were available to give oral evidence at the trial and their deposition evidence was read into the record by other scientists who worked with them at the time of the testing and in the case of Chistine Ann Kimber her evidence was read by Jonathan Whittaker who had supervised her work during the testing. The Crown's case is that the DNA evidence establishes motive for the Defendant to have committed the murder and the other evidence or witnesses who saw and interacted with the Defendant near the scene of the crime on the 2nd of December 2002, is evidence of the opportunity that the Defendant had to commit the murder.

- [3] Both parties filed written submissions and both were given the opportunity to amplify their written submissions at the hearing and to respond to each other's submissions. I delivered an oral decision concluding that there was a case for the Defendant to answer and the trial continued. I promised written reasons for my decision and the following is in fulfillment of that promise.

The Defendant's Submissions

- [4] The gravamen of the Defendant's submissions is this:—
- (a) If it is accepted that the DNA profile found on the swabs from deep within the vagina and on the cervix of the victim was a statistical match to the Defendant's DNA profile, there are other explanations that account for that match, the more plausible being that the victim was sexually assaulted by the Defendant. The Crown's evidence cannot establish the time of the deposit of this DNA whether it was during the commission of the offence of murder or at another time and without evidence to establish the time at which the DNA was deposited, a jury may unnaturally and without more convict the Defendant by concluding that the deposit of the DNA coincided with the victim's murder and that it was the Defendant who killed the victim. **(The First Submission)**
 - (b) The Low Copy Number (LCN) DNA testing that matched the Defendant's profile to the semen found in the remnants of the cervical swab, is an inherently unreliable test which was suspended on or about 31st December 2007. Given its unreliability, evidence of this testing, should not be left for a jury to conclude on. **(The Second Submission)**

The test to be applied on a no case submission

- [5] **R V Galbraith** [1981] 2 All ER 1060, continues to be the leading authority on the judicial officer's approach to a submission of no case to answer. In the course of his judgment in that case, Lord Lane CJ explained the test thus:—

“How then should the judge approach a submission of no case”? (1) If there is no evidence that the crime alleged has been committed by the defendant, there is no difficulty. The judge will of course stop the case. (2) The difficulty arises where there is some evidence but it is of a tenuous character, for example because of inherent weakness or vagueness or because it is inconsistent with other evidence.

(a) Where the judge comes to the conclusion that the prosecution evidence, taken at its highest, is such that a jury properly directed could not properly convict upon it, it is his duty, upon a submission being made, to stop the case.

(b) Where however the prosecution evidence is such that its strength or weakness depends on the view to be taken of a witness's reliability, or other matters which are generally speaking within the province of the jury and where on one possible view of the facts there is evidence upon which a jury could properly come to the conclusion that the defendant is guilty, then the judge should allow the matter to be tried by the jury. There will of course, as always in this branch of the law, be borderline cases. They can safely be left to the discretion of the judge.”

- [6] The second limb of the test in **R V Galbraith** [1981] 2 All ER 1060, is far less straightforward than the first limb, and the authors of Blackstone's Criminal Practice 2019 at Paragraph at D 15.67 submit that it has to be understood in the context of the practice that developed after the passing of the Criminal Appeal Act 1966, s. 4(1)(a) (now Criminal Appeal Act 1968, s. 2(1)) of England, of inviting the judge to hold that there is no case to answer because a conviction on the prosecution evidence would be 'unsafe'. That form of submission reflected the power given to the Court of Appeal by first the 1966 and then the 1968 Act to quash a conviction on the basis that it was, in the court's opinion, 'unsafe or unsatisfactory' (but, since the Criminal Appeal Act 1995, Part I, came into force, simply 'unsafe'). This approach inevitably involves the court considering the quality and reliability of the evidence, rather than its legal sufficiency, and therefore involved the court carrying out the assessment of evidence and witnesses that would otherwise be the exclusive prerogative of the jury.

- [7] The Defendant has grounded his submission under the second limb as reformulated and has invited the court to conclude that the Crown's evidence is unreliable and a conviction on it would be unsafe. To avoid a miscarriage of justice the case should be withdrawn from the jury.

The Crown's Submissions

- [8] The Crown's case depends on the acceptance by the jury of a set of circumstantial events. This is not of itself unusual as criminal evidence often depends on a combination of circumstances no one of which would result in a conviction or more than a mere suspicion but taken together may create a stronger conclusion of guilt. In this case, DNA evidence is a substantial strand in the Crown's string of circumstantial evidence without which its case collapses.
- [9] It is submitted by the Crown that their case, taken at its highest is sufficient for a tribunal of fact, properly directed to arrive at a verdict of guilty. The evidence presented by their witnesses is that on the morning of Monday 2nd December 2002, the victim left her home, sent by her father to the house of a nearby seamstress who was tasked with altering her school uniform. She was last seen by witnesses walking along a track in the direction of her house after leaving the seamstresses' home. There are few homes along the track to the victim's house and those persons who lived along the track, saw the victim as she went to the seamstresses' house and back, but no one else was seen traversing the track that day. Later that morning at around 11:30 am, the Defendant claimed to have discovered the body of the victim in an isolated bushy area approximately 150 feet away from the home he shared with the victim. The body of the victim bore marks of violence and sexual assault. A post-mortem examination revealed manual strangulation being the cause of death.
- [10] Forensic evidence detected DNA on exhibit PSE 36 that was confirmed to be semen and from which a full STR profile was obtained of a single male contributor which matched the profile of the Defendant. Exhibit PSE36 is a swab of the cervix of the victim. The Crown submits that the evidence and all the surrounding circumstances support the proposition that the sexual assault and murder of the victim arose out of a continuous transaction and about the same time. The facts that support this include:
- (a) the medical injuries which were sustained including bruising on the introitus and labia
 - (b) the victim's missing panty
 - (c) the victim's exposed breast and vagina

(d) the presence of semen on the outside and inside of the victim's body when examined post mortem.

(e) The fact that there was no transfer of semen onto the skirt she was wearing.

[11] The Crown submits that it is not a quantum leap for the jury to infer that the person who sexual assaulted the victim was also the person who murdered her. They accept that semen can survive inside a vagina for 72 hours, and the semen could have been deposited at an earlier time, as one possible version of events the jury is entitled to accept, they submit however that the stronger inference is that the semen was deposited at the time of the physical assault and murder of the victim.

[12] The following evidence presented by the Crown is not challenged by the Defendant: —

- (i) The location and way the body of the victim was found.
- (ii) The evidence of the civilian witnesses namely (i) Priscilla St. Helene who said that the victim came to her home that morning at about 7:30am to have her uniform hemmed. She was observed to be normal with nothing unusual about her body. The uniform was hemmed and placed in a nylon bag; (ii) Joseph James; that he met the victim at about 7:45 or 7:50am, along the track where they lived heading toward her home. He made no observations of her other than what she was wearing and a nylon bag she had in her hand. (iii) The evidence of Gabriel Josephat that the Defendant came to the school at 10:30am that morning to say that the victim was missing; (iv) The evidence of Vincent Naitram that he arrived at his home at about 10:50 am that morning and saw the Defendant by the school gate speaking to Gabriel Josephat. The Defendant came to ask him if he had seen his daughter. The Defendant left to go toward his home to look for his daughter, came back within 30 to 45 minutes and said he saw her dead in the bush. That the Defendant said that he had observed footprints going to family lands he looked around near where he saw the footprints and observed her body; (v) The evidence of Ira Marrietta that on the morning of the 2nd of December 2002 she went down to the Defendant's home after 10am to ask him to come and cut her spice tree for her. She met the Defendant not far from his house, brushing his teeth. He had a hose. and with a bath towel on his arm. The Defendant agreed to cut down the tree and went for his axe. He cut the tree. During that time she was with the Defendant he never said anything about his daughter being missing. (vi) The Evidence of Dr. Stephen King that the time of death was between 7:30 am, when the deceased was last seen and 11:30 am when her body was

allegedly discovered. The cause of death was determined to be the result of asphyxia due to manual strangulation. There were bruises to the victim's labia, bruise to her introitus, a gelatinous mucoid substance was found in the vagina and on the cervix; (vii) The evidence of Christine Ann Kimber that there was a single male contributor to the semen retrieved on PSE 36 which matched the profile of the Defendant. The profile recovered on PSE 36 was a full profile meaning that the Defendant's DNA profile was detected at every single loci, and the STR profile obtained is extremely rare; (ix) The evidence of Dr. Yvonne Cruickshank the Director of the Forensic Lab in Jamaica in December 2002, confirming the presence of semen on multiple swabs and exhibits, including (two) vaginal swabs, deep vaginal swabs, introital swabs, cervical swabs, clitoris swabs, perianal swabs, swab from near the vagina, swab from bottom and a purple bra; (x) The evidence of Andrew Palmer Forensic scientist who testified to examining fingernail cuttings which established a mixed DNA profile from which the Defendant could not be excluded as a contributor.

- [13] The Crown submits that the evidence of the civilian witnesses establishes the opportunity available to the Defendant to commit the offence, his proximity to the scene where the incident occurred and the DNA evidence of semen in the vagina of the victim which matched the DNA profile of the Defendant who was her father, establishes a motive for the murder, as it establishes that he committed a sexual assault on his daughter.

The first submission

- [14] The Defendant submits that DNA evidence is not a panacea, but it is only one part of the Crown's case. That the victim was murdered by the Defendant because his DNA was found in semen deposited deep within her is not the only available rational inference for the presence of his semen there if that evidence is accepted. The Crown has a duty to discharge other rational inferences, one of which is that the Defendant may, at most, have sexually assaulted the victim up to 72 hours prior to the events that led to her death.
- [15] I do not accept this to be correct approach to the discharge of the evidential burden borne by Crown. The case of **Jayasena v the Queen** [1970] AC618, explains the position to be that the evidential burden on a particular issue is discharged by the Crown adducing sufficient evidence to justify as a possibility, a finding by the tribunal of fact that the legal burden on the same issue has been discharged. In other words, such evidence as, if believed and if left uncontradicted and

unexplained could be accepted by the jury as proof. The authors of Blackstone's Criminal Practice say of the evidential burden that it is not a burden of proof, but the burden of producing evidence or 'the duty of passing the judge' in other words the burden imposed on the party to adduce sufficient evidence on the fact or facts in issue to satisfy the judge that such issue or issues should be left before the tribunal of fact. A judicial officer must be satisfied that the Crown has adduced sufficient evidence on the facts in issue that its case can be put to a jury.

- [16] **In D.P.P. v. Selena Varlack**, Privy Council Appeal No. 23 of 2007 an appeal from the Court of Appeal of The British Virgin Islands at paragraph 21 and 22 of the judgement Lord Carswell clarified the approach thus:-

*"The basic rule in deciding on a submission of no case at the end of the evidence adduced by the prosecution is that the judge should not withdraw the case if a reasonable jury properly directed could on that evidence find the charge in question proved beyond reasonable doubt. The canonical statement of Law, as quoted above is to be found in the judgement of Lord Lane, C.J. in **R v. Galbriath** [1981] 1 W.L.R. 1039 1042. That decision concerned the weight which could properly be attached to testimony relied upon by the crown as implicating the defendant, but the underlying principle, that the assessment of the strength of the evidence should be left to the jury rather than being undertaken by the judge, is equally applicable in cases such as the present, concerned with the drawing of inferences."*

"The principle was summarised in such a case in the judgment of King CJ in the Supreme Court of South Australia in Questions of Law Reserved on Acquittal (No 2 of 1993) (1993) 61 SASR 1, 5 in a passage which their Lordships regard as an accurate statement of the law:

"It follows from the principles as formulated in Billick (supra) in connection with circumstantial cases, that it is not the function of the judge in considering a submission of no case to choose between inferences which are reasonably open to the jury. He must decide upon the basis that the jury will draw such of the inferences which are reasonably open, as are most favourable to the prosecution. It is not his concern that any verdict of guilty might be set aside by the Court of Criminal Appeal as unsafe. Neither is it any part of his function to decide whether any possible hypotheses consistent with innocence are reasonably open on the evidence ... He is concerned only with whether a reasonable mind could reach a conclusion of guilty beyond reasonable doubt and therefore exclude any competing hypothesis as not reasonably open on the evidence..."

I would re-state the principles, in summary form, as follows. If there is direct evidence which is capable of proving the charge, there is a case to answer no matter how weak or tenuous the judge might consider such evidence to be. If the case depends upon circumstantial evidence, and that evidence, if accepted, is capable of producing in a reasonable mind a conclusion of guilt beyond reasonable doubt and thus is capable of causing a reasonable mind to exclude any competing hypotheses as unreasonable, there is a case to answer. There is no case to answer only if the evidence is not capable in law of supporting a conviction. In a circumstantial case that implies that even if all the evidence for the prosecution were accepted and all inferences most favourable to the prosecution which are reasonably open were drawn, a reasonable mind could not reach a conclusion of guilt beyond reasonable doubt, or to put it another way, could not exclude all hypotheses consistent with innocence, as not reasonably open on the evidence."

- [17] On a no case submission therefore the court is obligated to ensure that the prosecution has produced sufficient evidence on a particular fact, such that the determination of that fact should be left to the tribunal of fact. Where such evidence is capable of other rational inferences, a judge must only be concerned with whether the inference proposed by the prosecution, if accepted, is capable of producing in a reasonable mind a conclusion of guilt beyond reasonable doubt and thus is capable of causing a reasonable mind to exclude any competing hypotheses as unreasonable.
- [18] The Prosecution case relies on a string of circumstantial evidence of which one is the DNA evidence in PSE36 found in semen recovered from the vagina and cervix of the victim. I accept the Crown's submission that it has lead evidence to establish that the manner of the exposure of the victim when she was found, the positioning of her body, the exposure of her private parts and her missing underwear can infer that the victim was killed at the time she was sexually assaulted and it is probably that the semen was deposited at the time of that assault. Additionally, I accept that there is evidence of geographical associations between the Defendant, where he lived and was on the morning of the offence and the location where the body was found within close proximity of his house. I also accept that the DNA evidence in PSE36 revealed a full DNA profile that came from a single male contributor and that DNA matched the DNA profile of the Defendant.
- [19] All of this evidence can produce in a reasonable mind a conclusion of guilt beyond reasonable doubt. It is in the evidence that the semen on the cervix and vagina could have been deposited 72 hours before and the Defendant in his Defence has relied on Alibi. Through cross examination, he challenged the Crown's evidence of his whereabouts on the morning of the 2nd

of December 2002. That evidence satisfies me that the jury is capable of other rational inferences if the jury is not satisfied beyond a reasonable doubt of the inferences advanced by the Crown. Consequently, I reject the submission of the Defence on the first submission as it does not provide a basis to withdraw this case from the Jury.

The Second Submission

- [20] That evidence retrieved from PSE36 determined to be semen swabbed from high in the vagina and on the cervix of the victim matched the DNA profile of the Defendant. As the cellular material recovered was so small, the Forensic scientist used Low Copy Number (LCN) DNA testing to obtain a profile. In the deposition of Christine Ann Kimber, she states that she obtained a full DNA profile from 132 sperm cells recovered from the vaginal and cervical swabs. Using LCN/DNA analysis she concluded that the profile came from a single male contributor and that the results are what she would expect to find if the sperm cells had originated from the Defendant.
- [21] The Defendant, relying on various Commonwealth authorities and academic treatise has challenged as unreliable the LCN/DNA testing, which in December 2007 was suspended in the UK. The suspension came following criticism of the testing procedures by the Crown Court of Northern Ireland in **R v Hoey** [2007] NICC 49 (the so-called “Omagh bombing trial”). Hoey was charged with several offences arising from thirteen incidents, including the Omagh car bomb and mortar attacks on army bases in Northern Ireland. The prosecution’s case consisted of LCN DNA analysis, that provided evidence of contact between the Hoey and phenomena pertinent to the bombs and mortar attacks. After the events, items relevant to the case were recovered and subjected to LCN DNA examination. However, the investigators did not exercise the required precautions regarding the recovery, storage, and transmission of DNA material, necessary for reliable LCN DNA examination. The suspension was to enable a rigorous examination of the recovery, storage, transmission, and testing procedures. The suspension was lifted after 6 weeks and after revising the protocols at the Forensic Science Services (FSS) Laboratory. The Court also considered the use of a Stochastic Threshold¹ for analysis of DNA for human identification.

¹ Stochastic thresholds are set for analysis of DNA for human identification to indicate the potential for missing data in compromised samples. The stochastic thresholds for analysis of STRs are understood to be the peak height at which there is a reasonable to high probability of a missing allele

- [22] The DNA evidence in this case would have been tested by Forensic Science Services (FSS) before implementing the revised protocols that followed the **R v Hoey** case. The Defendant submits that there are issues with amplification for testing small samples of DNA using the LCN process. He said that several phenomena can occur. He gave as an example that exaggerated stochastic sampling effects can occur, including a substantial imbalance of 2 alleles at a given heterozygous locus, allelic dropout, or increased stutter. With increased sensitivity of detection there is a concomitant increased risk of contamination.
- [23] Under Section 114 of the Evidence Act, the court may refuse to admit evidence where the danger of unfair prejudice is outweighed by the probative value of the evidence or where the evidence may mislead the jury. The Defendant submits that there is no evidence that the DNA retrieved met the stochastic threshold to allow for a reliable analysis. In the circumstances the Defendant submits that this evidence should be withdrawn from the Jury.
- [24] The Crown on the other hand submits that in the absence of evidence of a stochastic threshold, the evidence presented shows that 132 sperm cells were recovered to enable reliable testing. These cells came from a single male source and was not a mixed profile. This DNA was recovered within the body of the victim and the protocols used in the collection of, transmission and testing of the samples, militate against its contamination. In this case there was double testing done by Ms. Kimber, the forensic scientist, to eliminate the possibility of allele drop in, or drop out and the test revealed a match with two alleles at each of the loci tested. All these factors, the Crown submits, establishes the reliability of the testing in this case. Ms. Thomson for the Crown submits that the probative value of the evidence is evident in its conclusions which speak to a single male contributor that matches the profile of the Defendant. The Crown submits that if this evidence were to be excluded, that would bring the Crown's case to an end and justice would not be served.
- [25] The Crown further argued that the Defendant did not challenge the process of recovery, transmission and testing of the samples, his challenge lay solely in the failure of the experts' report to identify whether the Stochastic Threshold was met. This the Crown submits is easily remedied by recalling the expert on the voir dire to give evidence as to whether the data tested met the Stochastic Threshold for LCN/DNA testing. Doing so would render the results reliable and capable of being left with the jury.
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Analysis of the Second Submission

- [25] Despite it being used in a growing number of criminal trials, Saint Lucia has not developed protocols to govern the recovery, transmission testing and the use in criminal trials of forensic evidence, against which I could assess the reliability of the DNA evidence presented by the Crown. I therefore sought guidance from international best practices and the common law.

Low Copy Number (LCN) DNA Profiling

- [26] Low copy number (LCN) typing, particularly for current short tandem repeat (STR) typing, refers to the analysis of any sample that contains less than 200 picograms of template DNA.
- [27] The standard profiling test involves copying using 28 cycles. Originally 2 nanograms of DNA were required. In 1999, the SGM+ test permitted 1 nanogram (one billionth of a gram (10^{-9})) of DNA to be used as the standard starting template. The standard kit used is designed optimally to produce a full profile on 1 nanogram which is the approximate equivalent of 160 human somatic (cells other than egg or sperm cells).
- [28] There are a number of methodologies to increase sensitivity of detection to enable LCN typing. A chemical technique known as "DNA amplification" or "PCR" (polymerase chain reaction) is used to copy the informative STR regions of the DNA many times so as to enhance their concentration relative to the other DNA. During the process these STR regions are targeted by synthetic pieces of DNA called primers which seek out the STR regions. Each primer is labelled with a fluorescent dye so that the newly generated STR copies are tagged and can be visualised and measured in the laboratory. There then follows a further part of the process known as gel or (more recently) capillary electrophoresis.
- [29] The DNA is then extracted from the cells by chemical treatment and can be measured. The process of measurement is known as quantification. The process of quantification itself consumes part of the amount of the available DNA. The DNA obtained is generally divided into three parts (aliquots). Two are used in the tests carried out immediately and one retained for use in a further test or for the defence.
- [30] If the amount of DNA is of good quality and of sufficient amount, then a full or complete profile with two alleles at each of the 10 loci will be produced. If the DNA is degraded or present in very small amounts, some alleles may not be detected and there will be a partial profile with alleles

only being shown for some sites. The less information that the profile contains, the weaker the ability to assess the match of the profile to that of the individual whose DNA is under comparison.

[31] In the LCN process, the DNA is copied using 34 cycles in the PCR process as opposed to the 28 cycles used in the standard SGM+ test. The objective is to produce increased sensitivity and a stronger result from Low Template DNA samples. Statistically random or stochastic effects can be produced in the LCN process. These include allelic “drop out” (an allele that should be present but is not detected, giving a false negative for that allele), allelic “drop-in” (an apparently spurious allele seen in electrophoresis, potentially giving a false positive for that allele) and an increase in stutter. The threshold below which stochastic effects can be produced is at present accepted to be between 100 and 200 picograms – a picogram is one million millionths of a gram. Above the stochastic threshold, the stochastic effect should not affect the reliability of the DNA profile obtained. Below that stochastic threshold the electrophoretograms may be capable of producing a reliable profile, if for example there is reproducibility between the two runs. However, the stochastic effects may be such that no reliable profile can be generated.

[32] In **R v Reed Reed and Garmson** [2009] EWCA Crim 2698, a judgment on which I have relied to compile the learning above the court fixed the following parameters for the use of LCN DNA analysis in criminal trials:-

i) Low Template DNA can be used to obtain profiles capable of reliable interpretation if the quantity of DNA that can be analysed is above the stochastic threshold – that is to say where the profile is unlikely to suffer from stochastic effects which prevent proper interpretation of the alleles.

ii) There is no agreement among scientists as to the precise line where the stochastic threshold should be drawn, but it is between 100 and 200 picograms.

iii) Above that range, the LCN process used by the FSS can produce electrophoretograms which are capable of reliable interpretation. There may of course, be differences between the experts on the interpretation, for example as to whether the greater number of amplifications used in this process has in the particular circumstances produced artefacts and the effect of such artefacts on the interpretation. Care may also be needed in interpretation where the LCN process is used on larger quantities than that for which it is normally used.

iv) A challenge to the validity of the method of analysing Low Template DNA by the LCN process should no longer be permitted at trials where the quantity of DNA analysed is above the

stochastic threshold of 100-200 picograms, in the absence of new scientific evidence. A challenge should only be permitted where new scientific evidence is properly put before the trial court at a Plea and Case Management Hearing (PCMH) or other pre-trial hearing for detailed consideration by the judge.

v) It is now the practice of the FSS to quantify the amount of DNA before testing. There should be no difficulty therefore in ascertaining the quantity and thus whether it is above the range where it is accepted that stochastic effects should not prevent proper interpretation of a profile.

vi) There may be cases where reliance is placed on a profile obtained where the quantity of DNA analysed is within the range of 100-200 picograms where there is disagreement on the stochastic threshold on the present state of the science. We would anticipate that such cases would be rare and that, in any event, the scientific disagreement will be resolved as the science of DNA profiling develops. If such a case arises, expert evidence must be given as to whether in the particular case, a reliable interpretation can be made. We would anticipate that such evidence would be given by persons who are experts in the science of DNA and supported by the latest research on the subject. We would not anticipate there being any attack on the good faith of those who sought to adduce such evidence.

I have relied on the guidance of **Reed** to assess the reliability of the LCN DNA evidence produced by the Crown in this case.

[33] During the trial Dr. Jonathan Whittaker, a UK forensic scientist and the then supervisor of Christine Ann Kimber at FSS, was cross examined on behalf of the Defendant by Mr. Alberton Richelieu, on the reliability of LCN/DNA profiling. Dr. Whitaker worked alongside Christine Ann Kimber. He was presented as an expert witness, with intimate knowledge of the work performed by Christine Ann Kimber, with the explicit purpose of facilitating cross-examination on the findings of the report of Christine Ann Kimber. Christine Ann Kimber was the forensic scientist who analyzed the PSE 36 sample using LCN DNA profiling. She was unavailable at the trial and upon application by the Crown leave was granted to have her deposition evidence read into the record. Her evidence was read by Dr. Whittaker.

[34] Dr. Whittaker confirmed that allele dropout can happen when the amount of DNA recovered is small. Generally speaking, it can also cause severe peak imbalances. He said that DNA is made up of DNA markers and when the amount of DNA is high you will expect to see successful results on each marker. When it is low there will be dropout as the test is not sensitive enough to pick it

up. There would be gaps in the markers. He says that when doing LCN testing the methodology is to conduct the test 2 sometimes 3 times to account for allele dropout, and the method of interpretation accounts for that.

- [35] It is agreed that the expert report of Christine Kimber does not state whether the Stochastic threshold was met. The case of **Reed** provides guidance on the calculation of Stochastic Threshold where the cells are human somatic cells as oppose to sperm or egg cells, the calculation being 1 nanogram/1000 picograms being the approximate equivalent of 160 human somatic cells. I am unable to assess the calculation for sperm or egg cells or determine if the Stochastic threshold was met.
- [36] The does not result in the automatic withdrawal of the evidence from the Jury. In **Reed** the justices opined that in the absence of a stochastic threshold scientific disagreement can be resolved by expert evidence as to whether in the particular case, a reliable interpretation can be made. The justices said that that such evidence would be given by persons who are experts in the science of DNA and supported by the latest research on the subject.
- [37] In this case there was no challenge to the process of recovery, transmission and testing of the DNA evidence recovered at the crime scene and from the suspects in this case. There is no challenge to the test that detected semen in PSE36 nor was there a challenge to the evidence that it was recovered on the cervix and in the vagina of the victim. The manner of deposit of the cellular material remains unknown. The Defendant submits that it is impossible that it is his sperm, whereas the Crown submits that the location of the recovery of the cellular material makes it unlikely that it was anything but a primary deposit.
- [38] I have objectively considered the test conducted in this case. I considered that; the result found was replicated after second testing militating against allele drop in and drop out; the DNA analyzed came from a single male contributor; a complete profile was retrieved and that militated against a conclusion that a complete profile is not possible in samples that are too small; the opinion of the experts that finding all of an individual's alleles in a sample of the kind analysed in this case was either "rare" or "somewhat unusual" .
- [39] All of these factors allow me to conclude, that despite my inability to calculate the stochastic threshold in this case, the testing employed, the procedures in place and the evidence of Dr. Whittaker satisfies me of the reliability for interpretation, of the results.

[40] For this reason, I also reject the second submission of the Defendant and find the evidence of the LCN/DNA profiling in this case is reliable evidence. Placing this evidence before the jury will not result in a verdict that is unsafe.

[41] The no case submission is rejected, and the Defendant is invited to put his case to the Jury.

Georgis V. Taylor-Alexander

High Court Judge

By the Court

Registrar