

II

Forensic Evidence and The Centre of Forensic Sciences

A. Introduction

At both of Guy Paul Morin's trials, the prosecution placed substantial reliance on hair and fibre evidence tendered through forensic scientists who were (or had been) employed by the Centre of Forensic Sciences (the "CFS") in Toronto. Indeed, I was told that Crown counsel at the second trial regarded the hair and fibre evidence as some of the most significant evidence incriminating Mr. Morin.

As a result of the evidence tendered at this Inquiry, I am satisfied that the hair and fibre evidence collected from the body site, from Guy Paul Morin, and from his car and home was, essentially, valueless. Properly understood, it had little or no probative value in demonstrating Mr. Morin's guilt. Further, evidence only revealed at this Inquiry demonstrated that the fibre evidence was contaminated while in the possession of the CFS, suggesting that any findings relating to the fibre evidence may well have been tainted from the outset.

There is no doubt that the hair and fibre evidence was crucial to the decision to arrest Guy Paul Morin; its presentation to the jury at the second trial undoubtedly contributed to Mr. Morin's wrongful conviction. This chapter examines this, and other, forensic evidence tendered against Guy Paul Morin, the role that forensic evidence played in Mr. Morin's wrongful arrest and conviction, and it concludes with recommendations which might prevent the misuse of science in future criminal proceedings.

B. The Centre and its Scientists

The Centre of Forensic Sciences in Toronto is the principal laboratory where forensic examinations are conducted for criminal investigations in Ontario. It is a publicly funded institution, accountable to the Ministry of the Solicitor General. On a day-to-day basis, it is run by a Director. The laboratory is divided into five sections: biology, chemistry, firearms, toxicology, and documents and photography. Each section is administered by a section head and by an assistant section head. The biology section is of particular interest to this Inquiry, since it conducts, amongst other things, hair and fibre, serology and DNA testing.

Two forensic examiners, Stephanie Nyznyk and Norman Erickson, gave hair and fibre evidence at the instance of the prosecution in Mr. Morin's criminal proceedings.

Ms. Nyznyk was a forensic biologist, specializing in hair and fibre analysis. She joined the Centre as a trainee in 1979. She was largely trained in-house, and within two years, was accepted as a fully qualified analyst, responsible for her own files, with a caseload of 60 to 80 files per year. In January 1986, she testified for the prosecution at Mr. Morin's first trial. Shortly thereafter, she was in a serious car accident and ended full time employment with the CFS that year.

Prior to the second trial, Norman Erickson, then head of the biology section and himself a hair and fibre analyst for many years, was asked by the prosecution to review Ms. Nyznyk's findings and to conduct further examinations of the relevant hairs and fibres. It was feared that, because of her injuries, Ms. Nyznyk might not be physically able to testify at the second trial. As it turned out, both Ms. Nyznyk and Mr. Erickson were tendered by the prosecution as expert witnesses in 1992.

By then, Ms. Nyznyk had not worked as a forensic analyst for some time. She admitted that she had not re-examined the relevant fibres since 1986, and had spent about one hour re-examining the relevant hairs. Some of her original notes were missing, as were a number of slides containing original evidence.

At trial, the prosecution relied on the hair and fibre findings made by Ms. Nyznyk and Mr. Erickson to demonstrate that there was physical contact

between Christine Jessop and Guy Paul Morin, and that Christine was transported in the Morin Honda to her death by Mr. Morin. The evidence was said to refute Guy Paul Morin's denial that he had any physical contact with Christine and his specific assertion that Christine had never been in the Honda.

C. Definitions

To facilitate an understanding of the summary of evidence which follows, it is necessary to briefly define some of the terms used. These are not technical definitions, but those which I have derived from the substance of the evidence before me.

Hair and fibre evidence is a form of trace evidence. It is called trace evidence because it deals with often microscopic items found on a person or object. These items are compared for similarities or differences.

Hair evidence refers to comparisons between human or animal hairs. Hairs can either be shed or pulled out, and thereby transferred or deposited elsewhere.

Fibre evidence refers to comparisons between fibres of synthetic or animal origin. Such fibres may be components of clothing, furniture, carpeting and so on. Like hairs, they can either be shed or pulled out, and thereby transferred or deposited elsewhere.

Primary transfer refers to the transfer of hairs or fibres from one object to another through direct contact — for example, where a person's sweater rubs against a bus seat and deposits fibres upon it.

Secondary transfer refers to the transfer of hairs and fibres from one object to another, not through direct contact — for example, where fibres from a person's sweater are first deposited directly on a bus seat, and later transferred to the clothing of another person who subsequently sits on that seat. The transfer of fibres thus occurred from the first person to the second person without any contact between them. Of course, the transfer can be further removed, involving a number of intermediary steps.

Contamination refers to the presence of foreign items (including hairs and fibres) on trace evidence, which were deposited onto or alongside that

evidence during the collection, examination or storage of the evidence. For example, conclusions may be drawn from the similarity of fibres found at a body site and on an accused's clothing to prove his or her presence at the site. If some or all of the fibres compared were, in reality, deposited by investigators or scientists, the comparisons are meaningless. *Contamination* must not be confused with *environmental contamination*, which may explain why similar fibres are found on two different people or objects without direct contact between them. For example, two people may share the same environment (through adjoining properties or a common office or courtroom), within which fibres are transferred and deposited.

Extraneous fibres are fibres which do not form part of the make-up of a particular garment or other object. They are, rather, fibres which have been transferred to the garment, and are adhering to or are embedded in it.

Unknown hairs or fibres are hairs or fibres whose source, or place of origin, is unknown. They are normally compared to *known (or source) hairs or fibres*, the sources of which are known. It is significant to note that, where one extraneous fibre is compared to another extraneous fibre, there is no known source for the fibres. This may affect the strength of the conclusions which can be drawn from the comparison.

Taping and vacuuming represent two ways in which hairs, fibres and other items may be collected from an object or site.

Taping involves the application of adhesive tape to a surface in order to capture any hairs or fibres adhering to or embedded in the surface. The sticky underside of the tape attracts hairs, fibres and other items, often of microscopic size. This sticky underside is then stuck to one side of an acetate sheet, which is folded over the non-sticky outer surface of the taping to make a folder. The acetate sheet is later opened for the purpose of examining the taping attached to it. The taping is screened for hairs and fibres of interest. Once located, they are either marked for future removal or removed immediately. A scientist can access a desired fibre by either lifting up a part of the taping off the acetate sheet, or by making a V-shaped cut through the top of the taping or through the bottom of the acetate. The desired fibre is then pulled off the exposed underside of the taping with tweezers. A small amount of solvent is applied when needed to loosen the adhesive. The fibre is then *mounted* on a glass slide which has a substance on it ('perma-mount') to ensure that it stays on the slide. The slide is then covered with a cover slip.

Vacuuming involves the use of a vacuum cleaner to collect items (including hairs and fibres) lying on or embedded in a surface. The collected items are stored in a vacuum bag.

D. How Hair and Fibre Comparisons are Made

Hair comparisons are conducted both on a macroscopic level, (*i.e.* by the naked eye) and on a microscopic level. A number of hair characteristics are regarded as noteworthy — for example, the hair’s internal structure: how the pigment is distributed, whether the hair has a medulla (a central channel), and the type of medulla that is present.

Fibre comparisons may be effected through various kinds of examinations. For example, fibres may be compared simultaneously through a comparison microscope, or through microspectrophotometry (“MSP”), a process which measures the amount of light absorbed by the fibres. Both of these techniques were used on the Morin-related fibres.

Another means of fibre comparison is Thin Layer Chromatography (“TLC”). This is a process which allows the examiner to compare the dyes used to colour the various fibres. This process was not performed on fibres in the Morin case.¹

E. Inclusionary and Exclusionary Conclusions

The evidence is clear that hair comparisons can yield *exclusionary* results — that is, it is possible to definitively *exclude* someone as the donor of an unknown hair. To give the most obvious example: a blond-haired person can be excluded as the donor of a dark brown hair. A hair comparison which *excludes* someone as the donor of an unknown hair is an important investigative tool and can be of great evidentiary significance at trial.

The difficult issue arises where hair comparisons are used for *inclusionary* purposes — that is, to permit an inference that a person (usually

¹ There are other tests which can be performed which are unnecessary to this narrative.

the accused) was the donor of an unknown hair.² The evidence is clear that hair comparisons cannot yield a conclusion that a person was *definitely* the donor of an unknown hair.³ The characteristics of a person's hairs vary from hair to hair, and they may differ even within a single hair on a person's body. Hair comparisons are *not* akin to fingerprint comparisons. Hairs are not unique, and the assessment of the similarities, differences and importance of hair characteristics is highly subjective. Efforts to quantify, through statistical analysis, the probability that a person was the donor of an unknown hair are not generally accepted in the forensic community — in my view, with good reason.

Fibre comparisons raise similar, though not identical, issues.

The forensic scientists who testified at the Inquiry outlined the different expressions used to describe the strength of hair and fibre comparisons, introduced for their *inclusionary* value. Ms. Nyznyk testified that the strongest conclusion that can be drawn is that a hair or fibre is *consistent with* having come from a particular source. The second strongest conclusion is that a hair or fibre *could have* come from a particular source. Either conclusion does not exclude the possibility that the hair or fibre came from a different source.

Another conclusion which is sometimes drawn is that a hair or fibre *cannot be excluded* as having come from the same source. Some regard this as a weaker conclusion than 'could have come from'; others use the two phrases synonymously. Still others use 'consistent with' and 'could have come from' synonymously. Some scientists use the term '*match*' to describe two

² In *R. v. Terceira*, [1998] O.J. No. 428, the Court of Appeal used the term 'exclusionary,' in the context of DNA profiling, in a somewhat different way than has been used here. Here, evidence which is said to link the suspect/accused to the crime is tendered for inclusionary purposes; evidence which is said to eliminate the suspect/accused is relied upon for its exclusionary purposes. Finlayson J.A. states that the use of DNA as evidence that the suspect's DNA 'matches' the DNA found in the biology recovered at a crime scene serves an exclusionary purpose: "In the absence of further qualifications, a 'match' is no more than a failure to exclude a suspect's DNA from the crime scene." In DNA, probability statistics are then introduced in an attempt to bolster the significance of a 'match.'

³ This assumes that the condition of the examined hairs does not permit DNA typing. Some analysts believe that DNA typing does permit the expression of definitive conclusions, but it is unnecessary for me to decide this issue.

similar fibres or hairs; others avoid this term. (This topic is addressed at some length later in this Report.)

In summary, scientists (within and outside the CFS) express the same conclusions in different terms; sometimes they express different conclusions using the same terms. Some of the terms, even if used uniformly, are potentially misleading. The term ‘match,’ for instance, overstates the connection between similar hairs or fibres. The term ‘consistent with’ is interpreted by some to imply perfect or near identity of two items. The distinctions drawn by scientists are sometimes subtle and always important. However, due to the uneven use of language, as well as the inherent complexity of the subject matter, the scientists’ findings (and their limitations) are easily miscommunicated and/or misapprehended by non-scientists. As I note below, both the miscommunication and misapprehension of scientific findings contributed to Guy Paul Morin’s wrongful arrest and prosecution.

F. An Overview of the Hair Comparisons in *Morin*

(i) The Necklace Hair

When Christine Jessop’s body was discovered, a single dark hair was found embedded in skin tissue adhering to her necklace. This came to be known as the ‘necklace hair.’ This hair was not Christine’s and it was presumed to have come from her killer.

After Guy Paul Morin became a suspect, hair samples were obtained from him. Ms. Nyznyk testified at the second trial that the necklace hair was similar to Mr. Morin’s hair samples and *could have* originated from him. She was unable to state that the hair was ‘consistent with’ having come from Mr. Morin because she could not make a full comparison: the root end of the necklace hair had atrophied and the bulb of the root had decomposed. As such, she was unable to make a root comparison. She was also unable to compare the tips of the different hairs. The necklace hair was six months old by the time of her analysis,⁴ and Mr. Morin’s hairs would have changed to

⁴ Christine Jessop disappeared on October 3, 1984. Her body was not discovered until December 31, 1984, and her hairs were not compared with Mr. Morin’s until April 1985 or later.

some unknown extent over that period of time as they grew or were cut.

Mr. Erickson agreed with Ms. Nyznyk that the necklace hair was a ‘could have’ situation. In a letter to Mr. Scott, dated March 28, 1990, he wrote as follows:

It should be stressed that in order to have a complete and meaningful hair ‘match’, the following elements are normally required. 1. The unknown hairs should be complete hairs with roots. 2. There should be a one-to-one correspondence of major characteristics between the unknown hair and at least one hair from the comparison sample. 3. The comparison samples should be collected as near as practical to the date as the unknown is believed to have been shed. This minimises the chance that changes have occurred to the comparison sample, eg. length, changes to the tip end, cuticle damage, cosmetic alterations, et cetera. 4. No drastic changes should have occurred to the unknown hairs by accidental or environmental factors. *This is not to state that hair examinations cannot be useful as an investigative aid.* When the above elements are not present, however, the probative value of such an examination is minimised. The hair from the tissue B9 [the necklace hair] lacked a root, and had been exposed to environmental changes. The comparison samples had been collected several months after the disappearance of Christine Jessop, thus *the probative value of these hair comparisons are extremely limited.* (Emphasis added.)

Mr. Erickson explained in a subsequent letter to Elisabeth Widner (who acted with Jack Pinkofsky for Mr. Morin at the second trial) that there was no one-to-one correspondence of the major characteristics between the necklace hair and any one of Mr. Morin’s samples, and that while the hairs shared some similar microscopic characteristics, only the necklace hair had a bleached appearance at its tip.⁵

Mr. Erickson testified before the Inquiry that although the necklace hair could have come from Mr. Morin, it could also have come from any

⁵ Mr. Erickson explained that this could have been due to exposure to environmental conditions. This became a contentious issue at the second trial.

number of other people, male or female. Indeed, prior to the second trial, Mr. Erickson had examined hair samples from 32 of Christine Jessop's classmates. The necklace hair could have come from two of them as well.⁶ He confirmed in his trial evidence that the value of this comparison was "extremely limited."

(ii) The Car Hairs

Ms. Nyznyk testified at the second trial that three hairs found in Mr. Morin's car (the 'car hairs') were dissimilar to Mr. Morin's hairs, and could have come from Christine Jessop. As with the necklace hair, the car hairs had deteriorated over time and she was, therefore, unable to state that they were 'consistent with' Christine's hairs. They could have come from one person or from three different people. Mr. Erickson also testified that the car hairs could have originated from Christine Jessop. He would not "go to the wall" with these comparisons because he did not think there were enough characteristics to be very strong in terms of his conclusions.

(iii) Findings

Mr. Erickson's trial testimony fairly presented the hair comparison evidence and its limitations. Mr. Pinkofsky was able to use Mr. Erickson's concession, reflected in his letters referred to above, to extract a similar concession from Ms. Nyznyk as to the extremely limited value of the necklace hair comparison. This concession might otherwise not have been forthcoming (to the same extent, at least) from her.

Although the limitations of the hair comparison evidence were generally communicated by Ms. Nyznyk at the second trial, I find that (1) she did not adequately or accurately communicate these limitations to police and prosecutors prior to the second trial; (2) had these limitations been adequately communicated, Mr. Morin may not have been arrested when he was — if, indeed, ever; (3) the hair comparison evidence was misused by the prosecution in its closing address (though I do not find that this was done malevolently).

The evidence bearing upon these (and related) findings is summarized

⁶ The evidence as to why the classmates' hairs had not been examined by Ms. Nyznyk is addressed below.

below.

The introduction of evidence that hairs ‘could have come from’ Guy Paul Morin or Christine Jessop also raises an important systemic issue: does the probative value of such evidence, even if viewed as a piece of circumstantial evidence to be evaluated cumulatively, truly outweigh its prejudicial effect and justify its reception in support of guilt. Although our subsequently acquired knowledge that these hairs did not originate from Guy Paul Morin or Christine Jessop cannot dictate the answer to this question, the dangers associated with this evidence are surely highlighted by that known fact.

G. An Overview of the Fibre Comparisons in *Morin*

(i) The Conclusions Drawn by Ms. Nyznyk and Mr. Erickson

Fibres were collected from the taping of Christine Jessop’s clothing and recorder bag found at the body site, from the taping and vacuuming of the Morin Honda and from tapings of the Morin residence. Many thousands of fibres (perhaps hundreds of thousands) were examined. Several became significant. All of them were extraneous fibres, and no source was ever identified for any of them. As such, Ms. Nyznyk and Mr. Erickson could only conclude that the compared fibres were similar and *could have* come from the same source.

Ms. Nyznyk concluded that:

1. A pink/red animal hair fibre found on a taping from the front floor of the Honda could have come from the same source as a fibre removed from one of Christine’s socks and a fibre found on a taping of her right shoe;
2. A purple/pink animal hair fibre found on a taping of the rear floor of the Honda, and a purple/pink rabbit guard hair⁷ fibre found in a vacuuming from the same vehicle could have come from the same source as a fibre removed from the waistband

⁷ Guard hairs are an animal’s outermost hairs.

of Christine's corduroy pants and a fibre found on her sweatshirt;

3. A pink polyester fibre found on a taping of the gold seat cover in the rear of the Honda could have come from the same source as a fibre found on Christine's recorder pouch;
4. A dark grey animal hair found on a taping of the Morin living room rug could have come from the same source as two fibres found on tapings of Christine's turtleneck sweater.

Mr. Erickson was of the view that only one fibre collected from Christine Jessop's turtleneck sweater was similar to the dark grey animal hair collected from the Morin living room rug; otherwise, he agreed with these comparisons.

At the second trial, much time and effort was expended by the defence, through cross-examination of the Centre's experts and through its own expert evidence, to find out whether all of these compared fibres were true similarities. For example, the accuracy of the MSP graphs (as well as the conclusions drawn from them) was contested. In my view, the fibre comparisons were vulnerable for a more important reason: the similarities, *even if they all existed*, proved nothing.

Fibre similarities, assuming they exist, may be explained in different ways: (1) they may be random — that is, it may be (and often is) mere coincidence that several similar fibres are found in different locations; (2) the number of similar fibres, particularly where some or all are unusual, may be evidence of direct contact, and that, of course, was the position of the prosecution; (3) they may be evidence of a shared environment — fibres transferred without direct contact between the persons or objects on which the fibres are located ('environmental contamination'); (4) they may be explained by contamination during the collection, examination or storage of trace evidence ('contamination'). In this case, the fibre similarities did *not* favour the theory of direct contact.

(ii) Findings

Despite Ms. Nyznyk's evidence to the contrary at the Inquiry, I find that the clear thrust of her testimony at both trials was that these fibre

similarities were likely evidence of direct contact between Christine Jessop and Guy Paul Morin. She minimized the likelihood that the similarities could be explained by random occurrence or environmental contamination. She never admitted (though given an opportunity to do so when the topic was explored by the defence) that internal contamination at the CFS could also possibly explain these similarities. Again, despite her evidence at the Inquiry, I find that she advised police and prosecutors that these fibre similarities were truly significant in placing Christine Jessop with Guy Paul Morin and that they were not ‘neutral’ or insignificant to the prosecution’s case. Mr. Erickson’s trial testimony also conveyed his opinion that these fibre similarities, though not conclusive, were significant to the prosecution’s case. Mr. Erickson never disclosed that internal contamination at the Centre could possibly explain these similarities.

The thrust of their evidence is accurately summarized at paragraphs 106, 107 and 139 of the factum submitted by the Attorney General of Ontario in Mr. Morin’s appeal against his conviction. They read:

106. Based on [the hair and fibre matches] it was Ms. Nyznyk’s opinion that:

(a) Finding similar fibre types in the Appellant’s car and in his home was significant since it demonstrated that there was transference of fibres between the home and the car;

(b) Finding similarities between fibres on Christine Jessop’s clothing and the Morin living room rug was significant as it showed another instance of transference of fibres;

(c) With respect to finding several hair and fibre matches, as opposed to just one, Ms. Nyznyk stated:

If you found just one or two matches, then you would have to, you maybe have to consider the fact that it could have been be a random match, that it just happened to be that those fibres were there. The more matches you have, the less the chance, the less the possibility of having a random match of something just happening to be there and matching.

107. Mr. Erickson agreed with Ms. Nyznyk, stating:

Of course the more matches that you find, be it with hairs, fibres, paints, glass, the less chance there is of a random occurrence or a happening.

Well, if they just have come here randomly, there's less chance of that occurring. They still could be there, it's possible that they were there through a random occurrence but it diminishes with the more matches that you have. (References omitted)

.....

139. Ms. Nyznyk concluded her evidence by stating that, given the number of hair and fibre matches in this case, while it's possible, it's highly unlikely that they were all due to contamination. (References omitted.)

I find that (1) the fibre evidence was contaminated within the Centre of Forensic Sciences and this contamination might or might not have tainted any findings respecting fibre similarities; (2) this contamination was known to Ms. Nyznyk and Mr. Erickson prior to the first trial and withheld by them from the police, the prosecution, the Court and the defence at both the first and second trials; (3) further examination on already contaminated fibres was ordered by Mr. Erickson for possible use at the second trial; though no additional incriminating findings were used, certain findings which assisted the defence and undermined the prosecution were not communicated to the prosecution or the defence; (4) apart from the contamination at the Centre, the fibre similarities were not probative in demonstrating direct contact between Christine Jessop and Guy Paul Morin — instead, they were equally explainable by random occurrence or environmental contamination; the number and nature of the fibre similarities did not support the prosecution's position; (5) Ms. Nyznyk and Mr. Erickson failed to communicate accurately or adequately the limitations on their findings to the police, the prosecutors and the Court; (6) Mr. Erickson (and likely Ms. Nyznyk) provided the prosecution with a published study on fibre transference (the Jackson and Cook study), which did not support an inference that the fibre findings in the Morin case were significant; (7) Mr. Erickson and Ms. Nyznyk failed to

accurately or adequately communicate the limited relevance, if any, of the study to the prosecutors or to the Court; (8) the fibre findings and, more particularly, the Jackson and Cook study, were misused by the prosecution in its closing address (though I do not find that this was done malevolently); (9) this misuse was compounded by the defence's approach to this evidence. The evidence bearing upon these findings is summarized below.

The introduction of evidence that fibres 'could have come from' Guy Paul Morin or Christine Jessop raises an issue similar to that generated by the hair comparisons: does the probative value of such evidence, even if viewed as a piece of circumstantial evidence to be evaluated cumulatively, truly outweigh its prejudicial effect and justify its reception in support of guilt. Though our subsequently acquired knowledge that Guy Paul Morin was not in direct contact with Christine Jessop and that the fibre similarities were, in reality, insignificant cannot dictate the answer to this question, the dangers associated with this evidence are surely highlighted by those known facts.

H. Ms. Nyznyk's Early Communications with the Police

(i) The Necklace Hair

Detective Fitzpatrick and Inspector Shephard testified that on April 11, 1985, they brought 15 samples of Mr. Morin's hair to Ms. Nyznyk at the CFS. While they were there, she compared the samples to the necklace hair and advised the officers that they were *consistent with* having originated from the same source. She told them that she compared the root end, mid-portion and tip end of the hairs. She showed the officers the hairs under the microscope. Detective Fitzpatrick added that Ms. Nyznyk said her finding was confirmed by her assistant, Joanne, and that she would conduct further tests in order to verify her finding. Inspector Shephard, however, thought that Ms. Nyznyk did say that she could not be *certain* that the necklace hair was Mr. Morin's.

Ms. Nyznyk's recollection of their meeting differed. She denied that she even compared the various hairs on April 11th. She explained that such an examination takes a great deal of time: the hairs have to be measured, mounted on glass slides, and left to dry before they can be examined. Accordingly, she found it hard to accept that she could have done all that in

the two hours that the officers said they attended at the CFS. She estimated that it would have taken her a day or more. An English forensic scientist who gave evidence before the Inquiry, Roger Cook, testified that although one could mount a single hair and quickly look at it in two hours, a detailed examination would take much longer.

Ms. Nyznyk denied that she told Detective Fitzpatrick and Inspector Shephard that the necklace hair and Mr. Morin's hairs were consistent with having originated from the same source. The most she was ever able to say was that they *could have* come from the same source. But Inspector Shephard was confident that he never heard Ms. Nyznyk use the term 'could have.' Detective Fitzpatrick interpreted 'consistent with' to mean that the hairs matched (and came from the same person). Inspector Shephard said that Ms. Nyznyk never used the term 'match,' and Detective Fitzpatrick agreed that that was probably so. At the same time, he stated that Ms. Nyznyk appeared to understand how he was interpreting her results.

Ms. Nyznyk testified that she would not have told the officers that the hairs were consistent because the root of the necklace hair had atrophied and the tip was tapered. She may have said that she compared the root *end*, mid-portion and tip *end*, but she would have told the officers of the difficulties with comparing the actual roots and tips. Mr. Erickson testified that lay people might not recognize the distinction between terms like 'tip' and 'tip end' until it is explained to them.⁸ Ms. Nyznyk agreed. She did not know if she explained the distinction to Fitzpatrick and Shephard, but she did show them a chart of the different areas of a hair. Detective Fitzpatrick testified that he was somewhat familiar with the terms root end, mid-section and tip end, and that he understood that the strength of a comparison would be diminished if these areas had deteriorated.

Ms. Nyznyk also said that she may have told the officers that the hairs *matched* in certain areas; she used this term in her evidence at the first trial. Douglas Lucas, a former Director of the CFS, testified that police officers might become confused over the distinction between the terms 'match' and

⁸ The tip is the actual end of the hair. The tip end is the portion of the hair above the tip. I find that Ms. Nyznyk did not adequately communicate the distinction between the tip and the tip end, or the root and the root end, to the officers and that it was unreasonable to assume that the distinction could be drawn by the officers without adequate explanation by a scientist.

‘could have.’

Ms. Nyznyk conceded that she may have told the officers that the necklace hair and Mr. Morin’s hair appeared to be macroscopically similar, an opinion which she acknowledged to be essentially meaningless. Detective Fitzpatrick testified that he thought macroscopic and microscopic meant the same thing.

(ii) Other Information Communicated to the Police

Detective Fitzpatrick wrote a supplementary report dated May 31, 1985, about their meeting with Ms. Nyznyk on April 11th. In addition to the information about the necklace hair, the report reflects that Ms. Nyznyk said that a hair located in the Morin Honda could not be ruled out as coming from Christine Jessop, that red plastic chips were found in the Honda and on Ms. Jessop’s socks and panties, and that the same dyed red animal hair was located on Christine Jessop’s shoes and socks and in the car. Detective Fitzpatrick testified before the Inquiry that Ms. Nyznyk said she had determined that the red animal hairs were from the same source. He also indicated that Ms. Nyznyk said the plastic chips were consistent with coming from the same source.

Ms. Nyznyk testified that she would not have said that the animal hairs were from the same source or were identical. The most that she could have said was that they *could have* come from the same source, given that the source for all of the fibres was unknown. Ms. Nyznyk further testified that she would not have made any comment about the plastic chips, since she was not responsible for their analysis — the CFS chemists were.

Inspector Shephard swore in his application for a warrant to search the Honda that Ms. Nyznyk had said that goldish-beige fibres found on Christine Jessop’s body were consistent with the type of fibres used in upholstery and floor coverings for cars. Ms. Nyznyk testified that it was not possible that she had said that.

Detective Fitzpatrick swore an affidavit relating to the Crown’s appeal from Mr. Morin’s acquittal at the first trial. In it, he stated that Ms. Nyznyk said that as a result of her findings, she was satisfied that Christine had been in the Honda; Detective Fitzpatrick testified before me that Ms. Nyznyk said that in 1985. Inspector Shephard testified on a pre-trial motion before the

second trial that Ms. Nyznyk had formed the opinion that there had been contact between Christine Jessop and Mr. Morin. Ms. Nyznyk testified before the Inquiry that she said neither of these things.

(iii) Miscommunication vs. Misperception

Ms. Nyznyk was asked whether Detective Fitzpatrick's and Inspector Shephard's confusion over her findings could have been due to miscommunication on her part, rather than misperception on theirs. She did not think so. With respect, I disagree.

Ms. Nyznyk ultimately conceded that she had very little detailed recollection of her meetings with Detective Fitzpatrick and Inspector Shephard. Her evidence about what she did or did not say on April 11, 1985 was based on what she normally would have said, and not from any memory of the event. She ultimately admitted that she could not say for certain that the necklace hair comparison was not conducted on April 11th (although she doubted it was). She could not recall if she expressed a preliminary opinion about it. Ms. Nyznyk did not make a record of the content of her conversations with the officers. She agreed that such conversations should be recorded. Mr. Lucas felt similarly. Although the quality of Detective Fitzpatrick's and Inspector Shephard's notes are sorely lacking in other areas, their notes of the April 11th meeting, and their related supplementary reports, largely support their recollection of the encounter with Ms. Nyznyk.

(iv) Findings

I accept the officers' evidence where it differs from the evidence of Ms. Nyznyk. Indeed, I generally find Ms. Nyznyk's evidence to be unreliable. She repeatedly minimized her own role in implicating Mr. Morin, effectively blaming police and prosecutors for their failure to understand the limitations which she placed upon her evidence. At one point, she suggested that Mr. Scott had pressured her to make her evidence stronger; later, in re-examination, she resiled from this position, and claimed that she did not appreciate that she had indeed implicated him. She repeatedly claimed that she had expressed to police, prosecutors and the Court that her evidence did little or nothing to support Mr. Morin's guilt. Ultimately, the overwhelming evidence to the contrary at this Inquiry compelled her to admit that she may have overstated her conclusions to police, prosecutors and the Court and

thereby contributed to their misunderstanding. Unfortunately, I am unable to place any weight on her unsupported evidence where it differs from the evidence of others.

I find that Ms. Nyznyk did conduct a hasty, preliminary comparison of the necklace hair and Guy Paul Morin's hairs in the officers' presence. She did communicate a preliminary opinion to the officers. That opinion, however, was overstated and, to her knowledge, left the officers with the understanding that the comparison yielded important evidence implicating Mr. Morin. There is no credible evidence that the officers or Mr. Scott pressured Ms. Nyznyk to express stronger opinions. There is no doubt that the officers did repeatedly contact her by telephone or in person to produce her results more quickly. Mr. Scott also sought to have her produce more timely results. This was, perhaps, less than helpful, and at times counterproductive.

The time constraints on scientists at the CFS remain a systemic concern which I later address. However, I am not prepared to criticize either the officers or Mr. Scott in this regard. Their concerns were legitimate and their actions did not cross any line of inappropriateness. But Ms. Nyznyk crossed that line. Early in the investigation, she lost her objectivity; rather than remaining neutral and dispassionate, she acted in a manner favouring the objectives of the prosecution. She also had an inadequate understanding of the limitations upon her own science. It is, therefore, not surprising that she failed to adequately and accurately communicate the findings which could properly be drawn from the evidence, as well as the limitations upon those findings. It is also not surprising that officers focussing on Mr. Morin would understand her findings to be significantly incriminating of Mr. Morin and act upon them. I also believe that Ms. Nyznyk privately expressed to Detective Fitzpatrick and Inspector Shephard her own view that Christine Jessop had been in the Morin Honda. She may have been carried away by her importance to the investigation.

Apart from any inadequacies in Ms. Nyznyk's communication of her findings, the oral communication of complicated and subtle findings and, more important, the limitations upon those findings, may lead to gross misunderstanding. The recipients of the information (like the investigators here), whose attitudes are no doubt coloured by their own preconceptions, may well misinterpret the scientist's opinions, even if accurately expressed. *Inadequately expressed oral opinions and their limitations make it even easier for the listeners to hear what they want to hear.*

(v) Reliance on Communications

Inspector Shephard testified that Ms. Nyznyk's 'finding' of April 11, 1985, convinced him that Mr. Morin had committed the murder. Detective Fitzpatrick testified that Ms. Nyznyk's evidence was probably the most significant information supporting his belief that Mr. Morin was guilty. He stated that the necklace hair finding made Mr. Morin the prime suspect in the case. He added that the findings with respect to the car hairs, the red animal hair fibres and the red plastic chips led him to believe that Christine Jessop had been in the Honda. Both officers testified that Ms. Nyznyk's opinions played an important part in the decision to effect Mr. Morin's arrest. It also contributed to the grounds for a warrant to search his home.⁹

At this Inquiry, Ms. Nyznyk expressed concern with the officers' position that the decision to arrest Mr. Morin was prompted — in large measure, at least — by her finding with respect to the necklace hair. She explained that by April 22, 1985 (the date Mr. Morin was arrested) she did not really have any findings, except that the necklace hair *could have* come from Mr. Morin. That was not a conclusive result. She could not recall if the police advised her that they would be taking further action based upon the information she conveyed on April 11th. She admitted that she knew that the police were giving her evidence more weight than they should have, but she claimed that she was unaware of the extent to which they were doing so. There is no evidence that she expressed any concern in this regard to the police or to the prosecutors.

Detective Fitzpatrick also relied upon Ms. Nyznyk's oral communication of her findings in his testimony at Mr. Morin's bail hearing, conducted on June 17, 1985.

He told the Court that Ms. Nyznyk had concluded that the necklace hair and samples of Mr. Morin's head hairs were *consistent with* coming from the same source. He said that three different areas of the hairs had been compared (the root end, the mid-section and the tip end) and that all three were *consistent with* being from the same source. When asked by the Crown

⁹ Mr. Scott similarly testified to how significantly Ms. Nyznyk's information contributed to Mr. Morin's arrest and prosecution.

whether this similarity could happen randomly or whether it was a very significant piece of evidence, he told the court that it was a very significant piece of evidence. He added that Ms. Nyznyk had a lot more testing to do on the hairs.

Ms. Nyznyk told the Inquiry that Detective Fitzpatrick had not accurately described her finding in relation to the necklace hair. She had *not* concluded that the hair was *consistent with* having come from the same source as Mr. Morin's hairs, but rather that it *could have* come from the same source — a weaker opinion. She did not feel that the necklace hair was a very significant piece of evidence but, on the contrary, a fairly weak one. She also had no further tests to conduct on the necklace hair. Her opinion was already as high as it was ever going to get.

Detective Fitzpatrick also testified at the bail hearing that Ms. Nyznyk had compared a hair found in Mr. Morin's car with a hair found on Christine Jessop's body and concluded that they could not be ruled out as coming from the same source. He added that Ms. Nyznyk could not conclude that the hairs were consistent with coming from the same source because the hair roots had atrophied over time. Ms. Nyznyk testified before the Commission that Detective Fitzpatrick's evidence was accurate with respect to the strength of her finding, but misleading to the extent that it indirectly put the necklace hair in a better category than the other hairs. The problem of an atrophied root applied similarly to the necklace hair.

As for fibre evidence, Detective Fitzpatrick testified at the bail hearing that Ms. Nyznyk had concluded that dyed red animal hairs found on Christine Jessop and on the front floor of the Morin Honda were from the same source. He agreed with the suggestion that there was 'a similarity to or an identical match between' the animal hairs. Ms. Nyznyk testified before the Commission that the most she was able to say was that the animal hairs *could have* come from the same source. She could not state that they actually were from the same source, and certainly could not say they were identical.

The last piece of forensic evidence which Detective Fitzpatrick brought to the Court's attention at the bail hearing concerned the red plastic chips found on Christine Jessop's clothing. He stated that a 'similar-type' chip had been found in Mr. Morin's car, and that the CFS had concluded that they were consistent with having come from the same source. He added that further chemical testing had to be done to determine the exact source. Ms.

Nyznyk testified before the Commission that she made no findings about the plastic chips. The issue was to be decided by chemists at the CFS, not the forensic biologists.

Mr. Justice John Holland, who presided at the bail hearing, appeared to appreciate, to a greater extent than Detective Fitzpatrick, the intrinsic limitations on this kind of evidence. However, he would have no way of knowing just how insignificant Ms. Nyznyk's true findings were at that point. Some aspects of Fitzpatrick's evidence may have resulted, in part, from his own misapprehension of what Ms. Nyznyk told him. However, his evidence was not deliberately misleading and is explained, in large measure, by the inadequate way Ms. Nyznyk's findings (and their limitations) were communicated by her. My recommendations later address the miscommunication and misapprehension of forensic opinions.

I. The True Significance of the Comparisons

(i) The Forensic Opinions at this Inquiry

I summarized above the inadequacies in the way Ms. Nyznyk communicated her early findings to the investigators. The evidence discloses that Ms. Nyznyk and Mr. Erickson also failed to adequately communicate the limitations upon their findings (specifically, in relation to their fibre comparisons) to the prosecutors and to the Court. This conclusion requires an examination of the true significance of the hair and fibre comparisons to the case against Guy Paul Morin, in contradistinction to how this evidence was conveyed to the prosecutors and to the Court.

At this Inquiry, Ms. Nyznyk admitted that her findings in Mr. Morin's case were not of great significance:

A. ...The [fibre] findings would be either there was direct contact, secondary contact or tertiary. I wouldn't be able to say one way or another whether it was — what type of contact it was.

.....

Q. So that, would it be fair to say that adopting what

you've said, the findings in the Applicant's case can be readily explained by coincidental fibre matches. The Applicant and the deceased living in the same environment. Some of the actions of the police during their investigation, or primary contact.

A. Yes, I would have to add that...

Q. Any one of those.

A. Any one of those ... There would be — *each one would be as equally probable as the other.*

.....

Q. [I]s it your evidence that you never intended to communicate to the jury that you thought that your fibre findings supported the position that there had been primary transfer between Christine Jessop and Guy Paul Morin?

A. That my findings didn't support that?

Q. Yeah.

A. Yes, I agree with that. They did not support that.

.....

Q. And, when it comes to the fibre evidence — and this goes back to your evidence yesterday morning, you testified yesterday that, in your opinion, your findings with respect to fibres, did not demonstrate that — or lead to the conclusion, that Christine Jessop had ever been in Mr. Morin's Honda. Is that right?

A. That was one of the conclusions possible, but it didn't necessarily lead to that.

Q. I don't know what that means. Does that mean it was just — I mean, it's always possible, everything's possible. Are you telling us that your evidence really didn't advance the cause one way or the other? That's how I understood what you were saying.

A. That's correct.

Q. So, in a sense, then, if one wanted to show that Christine Jessop had ever been in the Morin Honda, effectively, from the Crown's perspective, they'd better find evidence other than yours, because yours didn't help. Is that right?

A. That's correct. It wasn't strong enough for that. (Emphasis added.)

Ms. Nyznyk similarly downplayed the significance of her hair findings:

Q. I want to now just talk briefly about your actual hair findings, and your evidence was that in your view, the hair findings, that is, the necklace hair finding, and the Honda hairs findings were of very, very limited value, evidenciary (sic) value in terms of establishing a relationship between Christine Jessop and Guy Paul Morin; is that right?

A. As I say, they were all could-have situations, yes.

Q. Right. But as I understand it, it went a lot further than that. These were really weak comparisons within the context of a hair comparison. Is that right?

A. That's correct.

.....

Q. Looking at the Honda hairs, madam, which you also have expressed here, the findings of comparison, so-called, weren't worth a whole lot; right? I'm sort of colloquializing the way you presented it here. Is that fair?

A. There is still — they weren't again, it was a could-have situation. I could not exclude them.

Q. And it was a kind of a weak could-have?

A. But it's a weak — yes.

Ms. Nyznyk agreed with Mr. Erickson's opinion, expressed in his March 28, 1990 letter to Mr. Scott (quoted above), that the probative value

of the necklace hair was extremely limited. *She testified that, overall, she found nothing to prove a primary transfer between Christine Jessop and Mr. Morin.*

Mr. Erickson agreed at the Inquiry that the hair and fibre evidence did not prove contact. He testified as follows with respect to the fibre evidence:

Q. [A]m I right that the similarities between the fibres in the Morin environment and the body site environment did not compel the conclusion that a transfer had taken place. Am I right?

A. A contact, is that what you're saying?

Q. A contact, that's right.

A. I wouldn't draw that conclusion, no.

.....

Q. [Y]our position, the more similarities between fibres, the more likely there was contact in itself, it is not of a whole lot of assistance to a jury, unless they have some idea as to what kind of numbers they are going to take it from one likelihood to another. Would you agree with that?

A. Yes, the number that you find in order to establish contact should be quite high.

Q. All right, and of course, all you had in this case was five. Is that quite high? Is it?

A. No, in my estimation, it is not.

.....

Q. All right. Well, based on the information provided to you, we've heard from Ms. Nyznyk that it's her view, and she testified here several days ago that based upon everything that she had, the fibre evidence was equally consistent with primary transfer, namely Christine Jessop having been in the car, and with fibres being explained by the common environment, and with potential contamination, and with random

occurrence. Do you agree or disagree with what she had to say about it?

A. Those were the possibilities that existed. Whether they were all equal, I don't know. We were provided with information, firstly, that Christine Jessop had not been in that car, secondly, there was no contact between Christine Jessop and Mr. Morin, and thirdly, the relationships between the two households, although they were in proximity to each other, there was very little social aspects to the two neighbours. So given that set of circumstances is a premise that we worked under. And as Ms. Nyznyk tried to explain, that had there been evidence to the effect that Christine Jessop had been in and out of that car, that there'd been evidence to the effect that there had been a lot of coming and going between the two families, then we probably wouldn't have undertaken that exercise to show that Christine Jessop could possibly be in that car.

As indicated above, Mr. Erickson thought that the probative value of the necklace hair was extremely limited. He testified before the Commission that, as a whole, the hair evidence in the Morin case was a weak 'could have' situation. He nevertheless felt that his evidence did assist the prosecution: the hair evidence did have some probative value; the necklace hair could incriminate Mr. Morin because he could not be eliminated as the donor. Mr. Crocker, another CFS analyst who testified at the Inquiry, disagreed that such evidence was incriminatory; it only indicated that Mr. Morin was a member of a class of indeterminate size.

Mr. Cook testified that the fibre findings in Mr. Morin's case were neutral. They assisted neither the prosecution nor the defence. They certainly did not help prove that Christine Jessop had or had not been in the Honda. He testified:

Q. Do you have an opinion as to the probative value, or relevance, of [the fibre] matches I've just described to you in the evidence. Leaving aside — I know there are environmental factors come in here, if you can, leave them out of your opinion. Just looking at the numbers of fibres and colours, is there any probative value to prove that Christine Jessop was carried that Honda to her death?

A. I've got to take some account of what happened in the case, to give an answer to that. But, given the sort of examination that I understand took place in the case work situation, I think that these findings do not help prove that Christine was actually transported in that car.

Q. All right. And, there is, as we'll get to the evidence on, there is an environmental link which apparently may explain the matches?

A. That's my view, yes.

.....

Q. Well, do the fibre findings in the Morin case — and if you can leave the environment out of it for now, prove anything?

A. In my view, given the type of examination that was carried out here, that they could be just coincidental matches.

Q. Random deposits.

A. Exactly.

Q. And why is it your opinion that they, having regard to the facts of this case, in effect, they don't prove anything?

.....

A. What happened, my understanding of what happened in this case, was the extraneous fibre population, the fibres that were on the surface, if you like, of Christine's clothing, were compared with extraneous population of fibres, in other words, the surface fibres from the Honda, and also some surface fibres found within the household of Mr. Morin.

And I think if you're doing an examination of that kind, where you're comparing two populations of fibres, there is a strong chance that you're going to come across a few matches, even without the environmental influence. And I think the environmental influence is

very important in this and no doubt we'll come to that.

Mr. Cook was later taken through some of the evidence indicating that the Morins and the Jessops, neighbours in Queensville, shared a common environment. He testified that the fibre findings “are explained as well by the shared environment as they are by [Christine Jessop] being [in] the car.” This evidence is discussed further below.

Mr. Crocker testified that the fibre findings did not assist in proving that Christine Jessop had been in the Morins' car. Though he did not offer a definitive opinion, he felt that the findings were so weak as to be virtually useless, since the evidence was subject to several different interpretations, all of which were equally probable.

Mr. Crocker also had an opportunity to make a quick comparison between the necklace hair and Mr. Morin's hairs. He felt it was a very weak comparison. It was at the lowest level, *i.e.* the necklace hair could not be excluded as having come from Mr. Morin. Although there were similarities present, there were also definite differences between the hairs, including a colour difference on the tips of the hairs. Mr. Crocker testified that he had discussed his opinion with Mr. Erickson, and felt that they were “on the same wavelength with respect to [the] matching and non-matching characteristics.”

There appeared to be substantial agreement among the forensic scientists who testified at the Inquiry as to the value of the hair and fibre comparisons in this case. Any differences seem to involve (1) whether a hair comparison which yields nothing more than a conclusion that the suspect cannot be excluded as the donor of an unknown hair can be characterized as ‘incriminating’ or not; (2) whether the fibre comparisons should even have been undertaken (even assuming no contamination within the CFS), given the shared environment in which the Jessops and Morins lived and other circumstances which potentially undermined the ability to draw any useful inferences from the fibre comparisons. (This latter issue is expanded upon below.)

(ii) Findings

I find that the necklace hair comparison, properly interpreted, yielded nothing more than a conclusion that Guy Paul Morin, together with countless others, could not be excluded as the donor of the necklace hair.

I find that the car hairs comparison, properly interpreted, yielded nothing more than a conclusion that Christine Jessop, together with countless others, could not be excluded as the donor of these hairs.

I find that the fibre comparisons, properly interpreted, yielded nothing more than a conclusion that the fibre similarities could be attributed to direct contact, environmental contamination or random occurrence. The comparisons did not favour the theory of direct contact over the other alternatives.

Indeed, it is arguable that the absence of certain fibre similarities supported the position of the defence that there was no direct contact. At the trial, there was an issue whether the absence of certain fibres (which one might have expected to find, had there been direct contact) was attributable to their dispersal over time and the non-shedability of certain fibres (as alleged by the prosecution) or, alternatively, tended to prove that there had been no contact between Christine Jessop and Guy Paul Morin. It is unnecessary for me to resolve the extent to which the absence of certain hair and fibre similarities supported Mr. Morin's defence. However, the way in which this issue was dealt with by the CFS was totally unsatisfactory. (This issue is elaborated upon in a later section of this Report.)

J. Advisability of Undertaking Fibre Examination

Apart from the true significance of the fibre comparison results, it has been suggested by some at this Inquiry that the fibre comparison work should never have been undertaken in the first place — that is, the circumstances known to the scientists pre-ordained that any comparisons were to be worthless.

Mr. Cook testified that the fibre examination performed in Mr. Morin's case was unusual, inappropriate and dangerous. He explained that there are two common types of fibre examinations. The first involves searching for primary transfer from the non-extraneous fibres of a source item (e.g. searching the victim's clothing for fibres which make up a suspect's sweater). The second involves searching for primary transfer from the extraneous fibres found on a source item, *where very large numbers of a particular type of extraneous fibre are found on that item*. Neither of these examinations were employed in Mr. Morin's case. Instead, Ms. Nyznyk

sought to compare *individual* fibres from one fibre population to *individual* fibres found in other fibre populations. Mr. Cook said that this type of examination is not done very often.

Mr. Cook would not have performed the examination conducted by Ms. Nyznyk. He felt it was dangerous to do so. In comparing two fibre populations, there is a strong chance of finding a few coincidental similar fibres. In addition, given that the Jessops and the Morins shared a common environment, it was inevitable that there would be a small measure of a shared fibre population. As such, the few fibre findings made by Ms. Nyznyk could be explained and, therefore, added nothing to the understanding of what may have happened in the case. Conducting the examination, however, imperilled the liberty of Mr. Morin.

Mr. Erickson testified that, in hindsight, he agreed with Mr. Cook's opinion on this issue, given the environmental links between the families.¹⁰

Ms. Nyznyk felt differently. She testified that it is not up to the scientist to decide that an examination should not be conducted because no evidentiary significance could ever be attributed to it. On the contrary, a scientist, she said, is obliged to examine every case, report on her findings, and let a court decide what significance the evidence should be given.

Mr. Cook, on the other hand felt it was part of a scientist's role to determine whether an examination would be worthwhile. Ms. Nyznyk acknowledged that there are times when she would not embark on a requested analysis (*e.g.* when it is clear that two people shared a common environment).

Mr. Crocker initially testified that he did not agree with Mr. Cook that the examination should never have been done. (Indeed, he expressed this disagreement to Ms. MacLean during the course of Mr. Morin's appeal proceedings.) But he later clarified his evidence: while he would have conducted an examination to discover whether there were large numbers of similar extraneous fibres on an item, he would have abandoned further examination if he failed to find such a number.

¹⁰ Mr. Erickson testified that he had been unaware at the time of the second trial of much of the evidence of a shared environment between the Jessops and the Morins. This position is later analyzed.

As a non-scientist, I find it difficult to dictate when a fibre examination should or should not take place. However, I do not view the positions adopted by Mr. Crocker and Mr. Cook as irreconcilable. A forensic scientist should approach the situation with an appropriate understanding and respect for the limitations of the fibre comparison process. The scientist should inform himself or herself of the relevant background facts or hypotheses, appreciating that they may later change or be the subject of contested evidence. If the fibre examination will clearly be worthless because it cannot permit any reliable inferences to be drawn, it should not proceed. Only scientists — not investigators or counsel — can make that determination. Otherwise, the scientist can embark on a preliminary examination to assess whether the quantity and type of fibres available justify a full-fledged enterprise. Messrs. Cook, Crocker and Erickson all agreed (Cook sooner than the others) that the *Morin* investigation should not have engaged in that full-fledged fibre examination.

K. The CFS Evidence at Trial

(i) The First Trial

As indicated above, Ms. Nyznyk testified for the prosecution at the first trial. Any of the difficulties with her testimony at this trial can more usefully be addressed when her testimony at the second trial is reviewed. Of significance here is the fact that Mr. Erickson, her supervisor, read a transcript of her first trial testimony before he gave evidence at the second trial. *He thought that her findings were given more emphasis (by her) than they warranted.* For example, he interpreted her evidence to be that the hairs were ‘consistent with’ when she should only have said they ‘could have come from’ the same source. He felt her evidence might have been perceived to be stronger than it was.

Given Mr. Morin’s acquittal at the first trial, I do not propose to resolve the issue of whether Mr. Erickson’s perception of Ms. Nyznyk’s testimony was accurate. However, any action or inaction that he, as a section head, demonstrated in response to his perception that her findings were ‘overemphasized’ invites comment.

Mr. Erickson said he spoke to Ms. Nyznyk about the problems with

her testimony, but did nothing to correct any misperception held by the defence (or Crown) because Mr. Morin had been acquitted. He testified:

Q. All right. So why should the defence know for the purposes of the second trial? Is that your attitude?

A. No. We just don't do it.

Q. You just don't do it? And yet you present yourself, sir, as a balanced organisation with balanced employees who favour neither the Crown nor the defence?

A. That's my position.

There is no suggestion that Mr. Erickson recorded his concerns in any case file, in any personnel file or anywhere else.

Mr. Cook testified that if he thought a junior examiner had misrepresented her evidence in a case he would convey his opinion to the relevant counsel.

Mr. Erickson should have done so as well. I appreciate that it is difficult to reflect upon a colleague in this way. However, Mr. Erickson was the section head of biology and Ms. Nyznyk's supervisor. Meaningful supervision brings with it responsibility — particularly where potentially misleading or inaccurate evidence is given at a murder trial. In fairness to Mr. Erickson, he partially addressed the problem by specifically setting out the great limitations upon the hair comparison evidence in his letter to Mr. Scott.

(ii) The Second Trial

The tenor of Ms. Nyznyk's evidence at the second trial has been earlier noted. Unlike the cross-examination conducted at the first trial, the cross-examination by Mr. Pinkofsky at the second trial was very lengthy and implicated Ms. Nyznyk's expertise, skill and qualifications, and not merely the inferences that could be drawn from the hair and fibre similarities and whether these were really similarities at all. For example, Ms. Nyznyk was cross-examined on the presence of 'looped cuticles' in the examined hairs; as noted in the Centre's written submissions, "she should have understood the meaning

of 'looped cuticles' in hair analysis.” Many of the points made by Mr. Pinkofsky could have been well taken. Unfortunately, the lengthy cross-examination may also have led the jury to believe that the comparisons demonstrated more than even Ms. Nyznyk claimed they did.

At the end of her examination-in-chief by Ms. MacLean, Ms. Nyznyk said this:

Q. Is there any significance that can be attached to the conclusions or any significance to the conclusions that can be drawn by the fact that several hair and fibre matches are found as opposed to finding just one?

A. Yes. If you found just one or two matches, then you would have to, you maybe have to consider the fact that it could have been a random match, that it just happened to be that those fibres were there. The more matches you have, the less the chance, the less the possibility of having a random match of something just happening to be there and matching.

Ms. Nyznyk gave similar evidence in re-examination by Ms. MacLean:

Q. Now, you were asked about the probative value of that single hair. Is the probative value [of] conclusions one might draw any greater where you have two hairs, such as hair in a chain, and one in the car?

A. The same conclusions would be reached, that I could not exclude.

Q. All right. And when we're talking probative value or the weight to be attached to the evidence, is the probative value any greater if you have hair in a chain, three hairs in a car, four or five fibres between the clothing and the car and the house?

A. Well, yes, the chance of a random match is greatly reduced in that case and the probative value, I would have to agree, the more matches would be — it would be greater.

Ms. Nyznyk testified before the Inquiry that, in giving this evidence, she was commenting on general principles and not on Mr. Morin's case. She

did not interpret the questions as referring to the *Morin* case. But Ms. MacLean, who led Ms. Nyznyk's evidence, testified that the purpose of the questions was to elicit evidence applicable to Mr. Morin's case. She felt that the intent was obvious from the content of the questions, as well as from the fact that, in examination-in-chief at least, the relevant question followed a series of questions about Ms. Nyznyk's findings in the case. I agree with Ms. MacLean.

Ms. Nyznyk testified that she was content with her evidence that finding more than *two* matches diminishes the chance of a random match. She did not think that she had left a wrong impression with the jury, despite the fact that she did not believe that randomness was an explanation less likely than contact. She testified:

Q. Do you think, madam, that another way of saying what you just said there was: You got enough findings from me in this case that you can draw the conclusion that the findings are not findings of a random match?

A. Now, I've mentioned the word, it's a possibility that that can occur.

Q. Well, you don't. You say, "The more matches you have, the less the possibility of having a random match."

A. Yes, but the less the possibility, but still a possibility.

Q. And that's more than two. You say, "If you found just one or two ...? You have found significantly more than one or two; haven't you?"

A. Yes.

.....

Q. So do you think, Ms. Nyznyk, that any normal citizen, and indeed, any normal lawyer, and any normal judge would conclude from what you said there, that the findings that you made in the *Morin* case should lead to the probable conclusion that Christine Jessop had been in the *Morin Honda*?

A. I don't think it should be taken — would have been taken on that statement.

Ms. Nyznyk acknowledged that, after giving her evidence about general principles, she did not add that her findings in the case had no real significance. She stated that it simply did not occur to her to mention that her findings were as consistent with randomness as contact. She ultimately agreed that the impression she left in her evidence was that, given the number of hair and fibre findings in the case, it was highly unlikely (although possible) that they were all due to coincidence. She admitted that it might have been wise to mention that she found nothing to prove primary transfer. (*With respect, this is an understatement of mammoth proportions.*) She swore that she had not intended to inform the jury otherwise. She accepted that she may have contributed to the erroneous view that her findings incriminated Mr. Morin.

Ms. Nyznyk added that sometimes her opinions are not conveyed properly in court because, as an expert, she can only answer the questions asked. She feared that she would be labelled an advocate if she expressed an opinion without being specifically asked for it. She explained that this was the reason why she did not tell the jury at the second trial that her evidence did not assist the Crown's case.

Mr. Cook testified that Ms. Nyznyk's evidence at the second trial was misleading because the findings did not demonstrate that Christine had been in the Honda, and could easily have been explained by other factors, such as environmental contamination (or random occurrence). He had some sympathy for Ms. Nyznyk's view that experts are not allowed to volunteer opinions, but felt that the likelihood of alternative explanations for the findings was so important that it should have been brought out in evidence. An expert, he said, must apply any general statement of principle to the case at bar or there will be room for misinterpretation. Mr. Cook also felt that Ms. MacLean's questions to Ms. Nyznyk were sufficiently open-ended to give Ms. Nyznyk the opportunity to say that her findings had no significance to the case.

Mr. Lucas testified that an expert in court is essentially limited to answering the questions asked of her, and that it is sometimes hard to keep answers precise in the context of the particular questions asked. He also felt, however, that it was incumbent on an expert to make as clear as possible, within the limits of the adversary system, just what she considers the significance of the evidence to be.

(iii) Findings

I do not accept that Ms. Nyznyk's failure to volunteer that her evidence was neutral was motivated by her fear of becoming an advocate. On the contrary, this opinion was not forthcoming because, at the time, she did not believe that her findings were neutral. Her answers were intended to apply to Mr. Morin's case and were understandably taken by Ms. MacLean and the defence to so apply. The unequivocal impression left by her testimony — and intended to be left by her testimony — was that her findings were significant in proving direct contact between Christine Jessop and Guy Paul Morin and that random occurrence was a highly unlikely explanation for these findings. This was a serious overstatement of the significance of her hair and fibre findings, even if the accuracy of her laboratory work is assumed.

Having said that, this evidence does highlight a systemic issue raised at this and other Inquiries: what should the scientist's obligation be to correct potentially misleading or misunderstood scientific evidence? I later address this issue in my recommendations.

Mr. Erickson testified at the second trial that finding several matches decreased, but did not eliminate, the possibility of random occurrence. At this Inquiry, Mr. Erickson did not feel that the five fibre comparisons in Mr. Morin's case were enough to establish contact. Yet he did not advise the jury of this at the second trial. Mr. Cook testified that Mr. Erickson's opinion should have come out in evidence.

Mr. Erickson testified before the Inquiry that, while the animal hair fibres in Mr. Morin's case were distinctive, the number of findings with respect to those fibres was not high. He did not mention this opinion in his evidence at the second trial. He stated that he never considered doing so. He accepted that his evidence may have come across a lot stronger than his actual opinion.

I find that the tenor of Mr. Erickson's testimony at the second trial was that the fibre findings provided significant support for the prosecution's theory of direct contact between Christine Jessop and Guy Paul Morin, though other possibilities did exist. I agree with Mr. Cook (and Mr. Erickson's present position) that the findings did not make the prosecution's theory more likely than random occurrence or environmental contamination.

Mr. Erickson should have appreciated that the number and nature of the few fibres found, together with the background circumstances, did not support the tenor of his testimony. He did appreciate and articulate the severe limitations upon the inferences which could be drawn from the hair comparisons.

Ms. Nyznyk demonstrated a lack of scientific rigour or care in the expressions of her opinions, together with a loss of objectivity. Mr. Erickson demonstrated a lack of scientific rigour or care in the expressions of his opinions on fibre evidence. It may be that the inadequacies in his fibre-related evidence were not attributable to a loss of objectivity or impartiality. However, the issue of his partiality is later addressed in the context of the in-house contamination evidence and the work of another CFS employee, Shirley Stefak.

The inadequacies in Ms. Nyznyk and Mr. Erickson's testimony are more fully explored in the context of the prosecution's presentation of their evidence, particularly in Mr. McGuigan's closing address.

L. The Jury Address

(i) Cautionary Notes

Ms. MacLean prepared several drafts of the hair and fibre portion of Mr. McGuigan's address to the jury. Mr. McGuigan changed these drafts in several respects. It was alleged before me that aspects of the Crown's closing address dealing with the hair and fibre evidence were misleading or potentially misleading. The evidence supports that conclusion. However, I cannot find that this was deliberate. I outline those misleading aspects of Mr. McGuigan's closing address, not as a basis for a finding of misconduct, but rather to explain how science came to be misused in this case and how such misuse might be prevented in the future.

In assessing the Crown's closing address, I am mindful of these cautionary notes: (1) Crown counsel are entitled to advocate, with vigour, their position throughout the trial and in their closing address; (2) Mr. McGuigan's closing address cannot be evaluated on the basis of Mr. Morin's subsequently proven innocence — no jury address could survive that kind of scrutiny; (3) Similarly, the closing address cannot be evaluated on the basis of

what is now known about the lack of significance of the hair and fibre evidence. Mr. McGuigan was entitled to rely upon Ms. Nyznyk's and Mr. Erickson's opinions expressed back then (as opposed to now).

(ii) Random Occurrence and the Jackson & Cook Study

Overview

At the second trial, the prosecution led evidence, through Ms. Nyznyk and Mr. Erickson, of a 1986 published study entitled "The Significance of Fibres Found on Car Seats." This study was conducted by two English forensic scientists, Roger Cook and Graham Jackson. Mr. Erickson (likely together with Ms. Nyznyk) had provided the study to the prosecutors in preparation for the second trial. Mr. McGuigan referred extensively to the study in his closing address, heavily relying upon it as support for the prosecution's position that the fibre similarities showed direct contact between Christine Jessop and Guy Paul Morin. The study, properly understood, did not support the case for the prosecution. Further, the details of the study were completely irrelevant to the proceedings against Mr. Morin. The study was seriously misused at Mr. Morin's trial and likely misled the jury. The CFS scientists themselves did not adequately communicate the study's lack of significance to the prosecutors or to the Court. Accordingly, although the Crown's closing address, in some respects, took the study farther than anything that the scientists had said about it, I do not find that the study's misuse by the prosecution was deliberate.

The Nature and Purpose of the Study

Cook and Jackson undertook the study because cars were often being used to commit crimes in Great Britain. The study's purpose was to determine the significance, if any, of finding particular fibres (which may be linked to a particular suspect) on the front seats of 'getaway' cars. Messrs. Cook and Jackson wanted to know how likely it was to find the fibres by chance and, conversely, how likely it was that finding such fibres indicated the suspect had been in the car.

Cook and Jackson employed the following methodology. They chose two very common fibres taken from two very common garments in the United Kingdom: red wool from a sweater and brown polyester from a pair of

trousers. These were designated the 'target fibres.' They then searched for those fibres on the front seats of 108 cars owned by their colleagues at work, taking precautions to ensure that the sweater and trousers in question did not come into contact with any of the cars. They found 4,430 red fibres and 4,006 brown fibres in the cars. They compared these fibres with the target fibres, using a high powered comparison microscope, microspectrophotometry (MSP) and thin layer chromatography (TLC). In the end, they found 37 similar red fibres and eight similar brown fibres.

Mr. Cook testified that, in broad terms, all 45 similar fibres were there by random chance, since none of the cars had been in contact with the actual sweater or trousers from which the target fibres were taken. However, for 27 of the red fibres, primary contact appeared to be a likely explanation for their occurrence (though not primary contact with the sweaters which produced the target fibres). The 27 fibres were found in two cars (20 in one and seven in the other), and in each case a relative of the car's owner owned a garment made up of fibres which were exactly similar to those in the target sweater. During Mr. Morin's second trial, the remaining 10 red fibres were often referred to as the 'random fibres.'

The 10 'random' red fibres were distributed amongst six cars. One car had three, two others had two, and the remaining three cars had one fibre each. The eight brown fibres were distributed amongst five cars. One car had three, another had two, and the remaining three had one each. In only one car were brown and red fibres found (one of each).

The conclusion of the study was as follows: When significant numbers of more than one type or colour of matching fibre are found on a car seat, the evidence for contact appears to be highly significant. When a small number of fibres is found, which match a commonly occurring fibre colour and type, the possibility of a spurious random match or of a secondary transfer must be taken into account.

Relevance of the Study to the *Morin* Case

Mr. Cook testified before the Inquiry that his study had no relevance to Mr. Morin's case. He further testified that he did not think the study should have been introduced in the case: the jury might have been led to believe that it was relevant and used it to conclude that the fibre findings in Mr. Morin's case were not random.

Mr. Crocker agreed with the opinion expressed by Mr. Cook. The study in no way paralleled the circumstances of the Morin case. Mr. Crocker felt that any expert would know just from reading the study's abstract that it could not be used as a parallel. He could not understand why evidence about it was adduced at Mr. Morin's trial.

Mr. Cook took serious issue with the relevance given to his study by Ms. Nyznyk and Mr. Erickson and the impression conveyed by their trial testimony. On the totality of the evidence, I find that the study's relevance to the Morin case was minimal, and that a very different impression was left by the expert testimony at trial. The problem was compounded by the prosecution's closing address to the jury. It therefore becomes necessary to examine the study (and the references to it in the closing address) more closely.

Distinctions Between the Study and the *Morin* Case

There were a number of distinctions between the study and Mr. Morin's case which are of importance, and the prosecution's closing address must be evaluated in light of these distinctions.

Number of Target Fibres

Mr. Cook testified that only two target fibres were used in the study, whereas 153 to 463 target fibres were used in the *Morin* case. In an affidavit prepared for Mr. Morin's appeal, Mr. Cook professed that this would have a profound effect on the results of any comparison:

If 154 to 463 target fibres had been used in the Jackson & Cook Study there can be little doubt that:

- □ the number of matching fibres found would have increased;
- the number of front car seats upon which matching fibres were found would have increased; and
- the number of cars in which more than one type of matching fibre was found would have increased.

Simply put, as the number of target fibres one looks for increases, the

more likely it is that coincidental ‘matches’¹¹ will be found. The fact that the red animal hair fibres found in the *Morin* case were uncommon did not alter Mr. Cook’s opinion. He noted that the greater number of target fibres, the greater the chances of finding some unusual matches.

Mr. Erickson questioned the basis for Mr. Cook’s determination of the number of target fibres in the Morin investigation, but agreed with the point made:

Q. So you examined far more potential targets than Mr Cook examined?

A. Yes.

Q. Yes, all right. Which would tend to suggest, would it not, sir, that any attempted numbers game comparison between the Jackson & Cook study and what Nyznyk and you did is a fruitless exercise?

A. I would agree.

Q. Which is what Cook said; right?

A. Yes.¹²

Mr. Crocker also agreed, but Ms. Nyznyk would not quite go that distance, although her point of departure was unclear to me:

A. Actually, I disagree with certain aspects of [what Mr. Cook says] ... First of all, Mr. Cook, he looked at 108 vehicles but he doesn’t state that he, himself, removed from those vehicles, almost 8500 fibres, looking for just two types that he had a common source

¹¹ Elsewhere, I have noted the misuse of the term ‘match.’ It is used in this section of the Report because that is the term used both in the study and by Mr. Cook in his commentary. Mr. Cook made, however, the appropriate cautionary comments in relation to the term.

¹² Mr. Cook based those figures on the number of fibres removed from Christine Jessop’s clothing (463) and the number of descriptive categories into which the fibres were placed by Ms. Nyznyk (154). Mr. Erickson testified that the 463 fibres were only potential targets, some of which would have been eliminated if they were found to be too common for examination. It is unnecessary to resolve this issue, given Mr. Erickson’s concession.

for. In this case, I removed fibres that were extraneous to her clothing as an investigative tool. Basically, it's very, very, different from his study.

Q. Well, I think with respect, that may be his point, that the comparison involved in his study raised very different kinds of issues when one looks at how the process began, than the comparisons that you were doing — and I take it, from what you've just said, you agree with that. Or do you?

A. The process, basically, is similar, but yet different. An investigative case is very different from a controlled study. His results, his conclusions — if you look at the number of automobiles he's looked at, the number of initial fibres, like he's saying that my target fibres were many. His target fibres — he knew his sources.

At this point in time I had no sources, so, essentially, the 463 fibres that I removed were not all target fibres as he calls them. He, himself, removed over 8500 fibres just looking for a red and a brown.

I was looking for anything that I could help with the investigation. Anything, as you said, extraneous fibres for this. So, essentially, we were doing the same — exactly the same kind of work by removing all those numbers of fibres. If he removed 8500, but he had a common source, he was looking just for reds and browns. At this point in time, I was removing fibres looking for anything.

Q. Well, I think that's his point, isn't it? That if he's only looking for two fibres and found a certain number, that you were looking for a much wider variety of fibres that could match, and could therefore be expected to find more matches. I think that, as I understand it, is the point that he making. And, would you agree with that?

A. Not exactly, no.

I find that no inference whatsoever can be drawn from the fewer number of random similar fibres found in the study that the greater number of fibre 'matches' found in *Morin* were significant in proving direct contact.

However, this was the very inference which Mr. McGuigan asked the jury to draw from the Jackson and Cook numbers. A portion of his address is illustrative:

Mr. Erickson testified that the study indicated that taping of 108 vehicles was done, resulting in 8,436 fibres being removed for examination. Out of that number only 12 of the 108 cars were found to have either of the very common target fibres in them. Twelve out of 108. Out of those 12 cars and of the 8,436 fibres from all the cars, there were only 45 fibres in total, ... notwithstanding, as I said, these were common fibres, and only one car out of 108 was found to have both target fibre types.

Two common types of fibres, 108 vehicles, one car contained these two common fibres.

In terms of the red wool fibres, 4,435 which were examined in total, and 37 were found to be indistinguishable to the target red wool. The 37 fibres were found in only eight of the 108 cars. So 100 of the cars did not have any of the very common red wool fibres being looked for.

In one of the eight cars they found seven red wool fibres and in a second car they found 20 red wool fibres. In those two cases they went back to the people who owned the cars and found that these people owned the garments which were the direct sources of the red wool fibres. That is, they were examples of primary transfers.

With respect to the other six cars there were only 10 red wool fibres in total. Three of the cars only had one fibre in them, two cars had two fibres and one car had three fibres, all of the same type of fibres.

The transfers in these cars were considered to be examples of secondary transfers, because they didn't find a source garment.

With respect to the very common brown polyester target fibre, 4,006 fibres in 108 vehicles were examined and out of all those fibres only eight were found of this brown polyester type. Only five of the 108

cars had fibres of this very common type.

So, of 108, only 12 had the very common fibres looked for, and only one of those cars had both the brown polyester and the red wool fibre. Of those 12 vehicles a source garment was determined in only two instances.

Now these people concluded, as a result of their study, that when you have large numbers of more than one type or colour of matching fibres, the evidence of contact appears to be significant. There is a higher likelihood of contact having occurred if there is a high number of colours and fibre types.

I submit, and I repeat to you, ladies and gentlemen, the results of this study are very significant to this case.

Absence of Environmental Links

There were no known environmental links in the study between the target fibres (taken from one red wool sweater and one pair of brown polyester trousers) and the cars being searched. Mr. Cook distinguished this from Mr. Morin's case where there were two known environmental links between the Morin and Jessop families: they were neighbours who had direct contact both before and after Christine Jessop's abduction, and the police had come into contact with both the items associated with Christine Jessop and the items associated with Mr. Morin. Mr. Cook suggested that it was inevitable that some shared fibres existed.

Ms. Nyznyk disagreed with this too. In her view, there *was* a shared environment in the study: all the cars that were examined belonged to employees working at Mr. Cook's laboratory. Fibres could have transferred between employees; therefore, some of the transferred fibres may have been deposited into the cars that were examined. Ms. Nyznyk was questioned about this view:

Q. In his study, you've got two target fibres, right? And what he's suggesting is those target fibres that were taken from Marks & Spencer, had never been in contact with any of the people whose cars were involved on the other environment. Right?

A. Hmm-hmm.

.....

Q. And, what you're saying is that as between the cars, there was the possibility of contamination or transfer, right?

A. That's correct.

Q. But isn't his point that there is no possibility of a shared environment between the target fibres taken from Marks & Spencer and the 108 cars?

A. But he was comparing the target fibres to fibres randomly picked from these cars. So, essentially, those target fibres were his source. So, if one person — so his results, when it comes down to it, his results were, like, if one person sat in one car, went to work, sat down in another car, he can't explain the transfer of those fibres.

The target fibres, yes, they were never in contact with those cars. I agree with that. And the environmental factors, yes, I definitely agree with that, but I disagree with his facts saying that there were no known environmental links between his — in his study.

Q. All right. Well, leaving aside how one characterizes, because I think elsewhere he makes it clear that, indeed, there are the environmental links as between owners of cars and what have you. Would you agree that the absence of an environmental link between the two target fibres and the cars, is a significant difference between his study and the case in which you were involved?

.....

A. Again, you can't really compare it because there was no source fibre. There was no source for any of the fibre matches that I had.

Mr. Cook noted that any environmental link between the cars examined in the study was irrelevant because there was no environmental link between the cars and the target red wool and brown polyester fibres. It is a

fallacy to say that the *Morin* case and the study are analogous because both have environmental contamination. (The environmental link between the study's cars is no different than the environmental link between the Morins within their household. The existence of that link does not advance the analysis.)

At this Inquiry, Mr. Erickson and Mr. Crocker understood that the analogy is a false one. Ms. Nyznyk did not.

Mr. McGuigan's closing address reflected Ms. Nyznyk's view:

The 108 vehicles were a random selection of cars belonging to the members of staff and friends at the home office, Forensic Science Laboratory. *A lot of them worked together so that even within that framework, there would be a possibility of contact.* (Emphasis added.)

The latter sentence was not included in the draft prepared by Ms. MacLean. Based upon Mr. McGuigan's and Ms. MacLean's evidence, I think it likely that Mr. McGuigan inserted this thought. (As will be noted below, a similar theme was developed during Mr. Erickson's trial evidence.)

Front Seats Only

The study looked for fibres only in the front seats of cars. In *Morin*, the Honda was taped and vacuumed throughout. Fibres were also removed from Mr. Morin's house, broadening the search area further. Mr. Cook testified that any comparison between the number of matches found in the *Morin* case and the number of matches found in the study is meaningless. How could one reasonably infer that the greater number of matches found in the Honda than the random matches found in the English cars supports the existence of direct contact when only the front seats of the English cars were examined? As Mr. Lockyer noted in his submissions, the fallacy is exposed by asking oneself how many matches were found in the front seat of the Honda. The answer is none. Had the Jackson and Cook methodology been employed, the scientists would have reported that the Honda yielded no fibre matches.

In his closing address, Mr. McGuigan repeatedly invited the jury to draw an adverse inference against Mr. Morin from the very few random fibre matches found in any one of the English cars. This minimal number (compared

with the *Morin* findings) was thought to support the prosecution's position that the fibre findings from the Honda were unlikely to be random. As Mr. Cook noted, it was "meaningless to invite a comparison between the number of matching fibres found in [Mr. Morin's] case and the number of matches found in any one car whose front seats had been examined in the Jackson & Cook study."

Mr. Erickson agreed with Mr. Cook's position on this issue. He also admitted that, at the time of the trial, he had not considered the fact that if Ms. Nyznyk had only examined the front seats of the Honda no similar fibres would have been found. He also agreed that it might have helped avoid a miscarriage of justice if he had.

Some of Ms. Nyznyk's testimony on this point was confusing. Ultimately, she did say this:

Q. Would it be a scientifically valid argument to make to a jury, that because the Jackson & Cook Study found, at most, three random fibres in the front seat of a car, it follows that there must be significance to the five fibres that Ms. Nyznyk found in this case. I mean, is that comparison a valid comparison?

A. I think the comparison would be valid to the point that you'd have to say that there are — the way that the fibres arrived there, or the secondary transfer, or whatever aspect of that. The more matches — matches, as you say, that you have, the more chance it is less of a random tertiary, say, contact. So, in a way, I would have to agree that it would be more significant to have more matches than less.

Q. All right. It would be more significant to have more matches rather than less. All right. I think I'm asking you something a little bit different, and that is, could one take the numbers from the Jackson & Cook Study and say, because the numbers there were one, two, three, five fibres found, one can infer primary transfer from the existence of five fibres in the Guy Paul Morin case. You know, two more fibres, that means it's significant.

A. Not primary transfer.

The Thin Layer Chromatography Figures

The study identified 87 similar red wool fibres after completion of MSP testing. The authors then used thin layer chromatography to further reduce the number of similar red wool fibres to 37. Thin layer chromatography, a more discriminating test, was not used during the *Morin* investigation. It would, therefore, be misleading to rely on the TLC figures to demonstrate how few random fibre matches were identified in the study, making it more likely, by comparison, that the number of *Morin* fibre matches could not be random. Every witness at this Inquiry appeared to understand the fallacy inherent in this kind of submission.

In his closing address, Mr. McGuigan reviewed the study's findings, emphasizing that only 10 random red wool matches were found in 108 cars. The figure of 10 random matches, however, and indeed all the figures cited by Mr. McGuigan, were achieved *after* TLC. He did not refer to any of the figures found after MSP testing. He also did not remind the jury of the distinction between the MSP and TLC figures. Mr. Cook pointed out that if the Crown had referred to the appropriate MSP figures, the number of random matches would have been considerably higher (potentially making it appear not so unusual to find them).

Both Mr. Erickson and Ms. Nyznyk agreed with Mr. Cook on this issue. They also both accepted that if TLC had been employed in Mr. Morin's case, it might have reduced the number of fibre matches to zero.

Ms. MacLean wrote a draft of the portion of the jury address dealing with the Jackson and Cook study. It contains the following observations:

[Note: You may not want to use this paragraph:

Using the comparison microscope only, the scientists originally thought there were 192 similar red wool fibres, then using microspectrophotometry this was reduced to 87 and then using thin layer chromatography (destructive test) this was reduced to 37 fibres of the red wool type.]

.....

[Note: You may not want to use this paragraph:

Using only the comparison microscope, only 11 brown fibres were found to be similar, then using the

microspectrophotometer this was reduced to 8, and then using thin layer chromatography, no additional fibres were eliminated, i.e. still 8 found to be similar]

Mr. McGuigan chose not to use these paragraphs. Instead, he used only the final figures of the Jackson and Cook study, comparing those figures to the number of fibres found in the *Morin* investigation. Counsel for the Morins suggested that Ms. MacLean's draft and Mr. McGuigan's decision not to allude to the more appropriate figures for comparative purposes indicated a preconceived plan to mislead the jury about the study. Ms. MacLean denied that was the case:

A. No, I believe I've already testified to this earlier, what happened was, Mr. McGuigan was very concerned about the length of the parts of the closing I had written for him, and that was one of those areas where after viewing the draft, he said basically: Well, I don't know why we have to get into all this. The jury's heard all these details, more or less. He asked me to put a note to him so that he would be clued in, depending where he was in his closing, he would be clued into whether he wanted to use a paragraph or not depending on time constraints with his closing. So that note to him was put in at his request simply as a matter of time.

Q. You see, madam, that position might be credible, I'd suggest, if Mr. McGuigan had taken out, in the interests of saving time, all the figures that he spent some three pages relating in his closing from the Jackson and Cook study, if he hadn't read in how many vehicles there were, how many fibres there were, how many car seats there were, how many fibres were found in this car, in that car, and so on and so forth. If he'd left all that out, what you're saying might be credible, because then you've really got a shortening of the closing.

A. Well, if you read my draft compared to what he read on the second day, he edited large portions out. I can't tell you why Mr. McGuigan chose to leave some parts in and leave other parts out. You would have to ask him that, but he did edit out other portions at length.

Ms. MacLean further responded that the prosecution was relying on the conclusion of the study (that it is hard to randomly find even common fibres) as opposed to the specific numbers contained within it. Accordingly, the passage was unnecessary. She also stated that all the figures were canvassed during the trial, and that Mr. Pinkofsky cross-examined at length on the failure to perform TLC testing. (He also asked Mr. Erickson about the distinction between the TLC and MSP figures in the study.) She added that the prosecution could not summarize all the evidence of a nine month trial, and said they counted on the jury to recall the nature of the study.

Mr. McGuigan explained that he eliminated the passage because both Mr. Erickson and Ms. Nyznyk were questioned at length during the trial about the fact that TLC was not performed in the case, and about the effect that the test has. He also stated that he was telling the jury what the study showed, and “you end up with the last figures in order to accurately reflect the results of the study itself.” Mr. McGuigan denied that he deleted the passage in order to obscure the fact that the comparison between the study and the case was not an apt one. He stated that this would have been clear to the jury.

I am not at all convinced that this would indeed have been clear to the jury. However, I do not believe that Ms. MacLean was directing her mind to the misleading aspect of referring only to the final figures when she wrote her note to Mr. McGuigan. Nor do I find that Mr. McGuigan removed these passages to intentionally mislead the jury, though it potentially had that effect. I also note that the defence did not object to Mr. McGuigan’s closing address in this regard.

The Study’s Conclusions

In his closing address referable to the study, Mr. McGuigan stated:

Now these people concluded, as a result of their study, that when you have *large numbers of more than one type or colour of matching fibres*, the evidence of contact appears to be significant. There is a higher likelihood of contact having occurred if there is a high number of colours and fibre types. (Emphasis added.)

Elsewhere, he noted:

[I]t was Miss Nyznyk's expert scientific opinion that given the number of hair and fibre matches in this case, it was highly unlikely that they could all be due to contamination.

Mr. Erickson and Ms. Nyznyk both testified that in their expert scientific opinion the fact that there were several hair and fibre matches found in this case was significant. Miss Nyznyk testified that *if just one or two matches* had been found, *she would have to consider the possibility that it was just a random or coincidental match.*

Both Erickson and Nyznyk indicated, however, that the more matches found the less chance there is of having a random match. The chance of a random match diminishes with the more matches that are found and I submit to you that the trace evidence found in this case was not just a coincidence and is significant, probative evidence which assists you in arriving at the conclusion that the accused murdered Christine Jessop.

In addition, ladies and gentlemen, if you were to put all the science aside and look at the results just using good old common sense, I would submit that you would have to conclude that Christine Jessop was in that Honda motor vehicle on October 3rd, just prior to her death. (Emphasis added.)

The essence of the argument made by Mr. McGuigan is this:

1. The study found that large numbers of more than one type or colour of matching fibres strongly support direct contact.
2. Ms. Nyznyk's expert opinion is that randomness would have to be considered if there were only one or two matches.
3. There were more than one or two matches found in the Morin case.
4. The numbers (and types) of fibres found in the Morin case were therefore 'significant' or 'large' within the meaning of the study.

In my view, Mr. McGuigan or Ms. MacLean cannot be criticized for this argument, which reasonably could be taken from Ms. Nyznyk and Mr. Erickson's advice to police and prosecutors and, more importantly, from their trial testimony. Ms. Nyznyk's expressed opinion that randomness would have to be considered as a possibility for *one or two matches* seriously overstates the value of fibre comparison evidence. The Jackson and Cook study did not support an inference that the number or type of fibre matches in the Morin case was 'large' or 'significant' and therefore unlikely to be explained by random occurrence.

It is, therefore, necessary to examine how the study came to be presented that way.

What the Court was Told About the Study

Ms. Nyznyk

At the second trial, Ms. Nyznyk was questioned at some length by Ms. MacLean about the Jackson and Cook study. She explained its purpose, methodology and findings.

Ms. MacLean ended her examination of Ms. Nyznyk on the issue as follows:

Q. And did the results of these tests indicate anything about the significance of fibre matches when they are found in vehicles.

A. Well it indicated that when you have large numbers of more than one type or colour of matching fibres, that the evidence for contact appears to be significant, that there was a very high likelihood of a contact occurring if you had a high number of colours and fibre, and/or fibre types involved and the more you have the more significance.

Q. And do you yourself accept the results of this study?

A. Yes, I do.

Q. Do you agree with that conclusion that you just

indicated?

A. Yes. Just from my own experience in case work.

And later:

Q. Is there any significance that can be attached to the conclusions, or any significance to the conclusions that can be drawn by the fact that several hair and fibre matches are found, as opposed to finding just one?

A. Yes. If you found just one or two matches, then you would have to, you maybe have to consider the fact that it could have been a random match, that it just happened to be that those fibres were there. The more matches you have, the less the chance, the less the possibility of having a random match of something just happening to be there and matching.

As we have seen, Mr. McGuigan's closing address repeated and relied upon these answers.

At the Inquiry, Ms. Nyznyk testified that she never contemplated that the jury might use the study to conclude that there was a high likelihood of contact. She now admits that the jury may have so interpreted her evidence. Her findings did not support such a conclusion. She never advised the jury that such an inference was not legitimate. When asked why she did not, Ms. Nyznyk responded that she was never asked whether the study applied to the case. She stated that she does not offer opinions at trials unless specifically asked for them. She answered questions about the study simply because she was asked about it. She claimed that she did not know that the study was introduced to emphasize the likelihood of primary transfer. Ms. Nyznyk characterized some of her answers as commenting on general principles and not on the Morin case.

Ms. Nyznyk acknowledged that the cut-off point of two matches which she referred to at trial was not derived from the Jackson and Cook study. She testified that she learned this from another study (she could not recall which one) and through personal experience in case work.

In my view, the jury could only infer from Ms. Nyznyk's trial testimony that she regarded the Morin matches as significant enough to

favour direct contact and that she thought the study supported that view. I do not accept that there is any credible scientific support for the proposition that anything more than one or two matches tends to refute randomness.

Mr. Cook expressed similar concerns before me. He was asked how many fibre findings have to be made, according to his study, before they become significant enough to indicate primary contact. He responded that it is very difficult to pinpoint a particular number. The circumstances of each case must be taken into account when making such an assessment. In general, however, findings start to become significant when 10 or more similar fibres are found. It was clear that the *Morin* findings did not meet any threshold of significance.

Mr. Erickson

At the second trial, Mr. Erickson was questioned at some length by Ms. MacLean about the Jackson and Cook study. He testified that the authors were well respected. He outlined in some detail the study's findings. He stated that the study was generally accepted in the forensic community. He testified that the conclusion of the study was that it is very difficult, even with the most common source garment, to go out and randomly look at a vehicle and find that particular target fibre. He also stated that as more matches are found there is less chance of random occurrence.

At this Inquiry, Mr. Erickson testified that he never used the study to show that there were a sufficient number of fibre matches in Mr. Morin's case to bring it within the conclusions of the study. When asked why he thought he was taken through the details of the study at trial, he responded that he did not know, but he thought it was "in terms of the observations [he] was trying to make from that paper." He did not know that the prosecution had successfully applied to the Court for permission to use the study to help the jury understand the significance of the *Morin* fibre findings.

Mr. Erickson agreed that he presented evidence at the trial which would have led the jury to believe that the fibre findings were more consistent with Christine Jessop having been in the Honda than with random occurrence. He testified that jurors may have inferred from his evidence that the study supported that conclusion, but that his evidence was not so intended.

In my view, the jury likely inferred from Mr. Erickson's testimony

(though less directly articulated than Ms. Nyznyk's) that he, too, regarded the Morin matches as sufficiently significant to favour direct contact and that he felt the study supported that view.

At the trial, Mr. Erickson was asked in examination-in-chief whether some of the fibre matches found in the study might have been attributable to transfer between the various car owners in the study (who all worked in the same laboratory). He replied that this was possible. As previously noted, the environmental link *between cars* had no relevance to the *Morin* case, and there was little or no valid point in adducing the evidence. We have seen that the suggestion that the study and the *Morin* case had parallel environmental contamination was repeated by Mr. McGuigan in his closing address.

In re-examination at trial, Mr. Erickson was actually asked to review how the 10 'random' red fibres in the study were distributed amongst the various cars. He testified before the Inquiry that it never occurred to him that the jury might think it important that while four significant fibres were found in the *Morin* Honda, the most found in any single car (out of the 108 examined in the study) was three. Yet that is precisely how his evidence was later used.

If Ms. Nyznyk and Mr. Erickson truly did not intend to apply the specifics of the study to the Morin case (and felt that the specifics had no application), it is difficult to understand what they thought was occurring in the courtroom.

Mr. Cook

Mr. Cook reviewed the evidence given by Mr. Erickson and Ms. Nyznyk at the second trial. He felt that it reflected an attempt to relate his study to the case. The simple fact that it was introduced at trial indicated that someone was trying to link it to the case. Mr. Cook could not think of any good reason for introducing the study and then just leaving it there completely divorced from the case.

Mr. Cook believed that, left with evidence about the study along with evidence about the findings in the case, the jury might have inferred that the study had relevance to the case. The testimony of Ms. Nyznyk and Mr. Erickson might have led the jury to believe that the study gave added significance to the fibre findings. It might have led them to conclude that the

matches were not random. He felt that the study had been misused. I agree.

Mr. Cook testified that the study's lack of relevance to the case should have been made clear. He would make sure, as a witness, that the trial judge knew it was irrelevant, if this was not elicited by the prosecutors. He agreed that it had been open to the defence in Mr. Morin's case to bring out the irrelevance of the study in cross-examination or through its own witnesses.¹³ It seems clear that the defence did not appreciate just how irrelevant the study was to the case. Mr. Pinkofsky conceded as much in an affidavit later filed in support of the application to tender Roger Cook's evidence as fresh evidence on appeal.

What the Prosecutors were Told About the Study

Ms. MacLean testified that, in preparation for the second trial, she asked Mr. Erickson if there were any studies dealing with finding fibres in cars that had relevance to the Morin case. One of the studies Mr. Erickson gave her was the Jackson and Cook study.¹⁴ Not surprisingly, she assumed that the study had some application to the case. In any event, she specifically discussed its relevance with both Mr. Erickson and Ms. Nyznyk. She was told that it would help demonstrate the significance of Ms. Nyznyk's findings. Ms. MacLean testified:

A. You see, my understanding then, of the Jackson and Cook study, was the ultimate conclusion that in that study they had looked for common fibres and found relatively few...And the conclusion they reached in the study was, well, if you find significant numbers of fibres, that was the phrase used, that was scientifically significant...Because you just wouldn't, at random, find even common fibres. So the way it was explained to me that it related to our case was, well here we have uncommon fibres...So the chances of finding uncommon fibres would be even less likely than the two target fibres that were used there, the red wool and the brown polyester. So the way I understood

¹³ Mr. Crocker would have expected the defence to try to distinguish the study. He would also have expected the defence experts to point out the study's irrelevance.

¹⁴ Ms. MacLean also referred to the studies which "they" provided. Ms. Nyznyk testified that she and Mr. Erickson provided the studies to Ms. MacLean.

it and the way it was explained to me that would assist our case was to demonstrate to the jury that in that case, with common fibres, there were very, very few found. So in our case, with uncommon fibres, it had scientific significance.

In preparing Mr. Erickson and Ms. Nyznyk to testify, Ms. MacLean told them that the study would be led from them. At no time did they explain the limitations of the study as it applied to Mr. Morin's case, or state that it had no relevance.

Both Mr. Erickson and Ms. Nyznyk testified that they had not intended to use the study to support the conclusion that Christine Jessop had been in Mr. Morin's car. Rather, they regarded the study as having some relevance to the case. Mr. Erickson said that he used it to support the observation that it is very difficult to locate a particular type of fibre through a random vehicle search, even if the fibre is the most common type of fibre. The significance of the Morin findings and the relevance of the study were only discussed to the extent that Christine Jessop could have been in the Honda. He did not use the study to state that it indicated primary contact. Other possible explanations existed and that is why he said the fibres could have come from the same source. Ms. Nyznyk testified that the study added to the evidentiary value of her findings because it demonstrated that "the more fibre types, the more matches 'that you have,' the more significant the results would be"; in other words, the more matches there are, the less chance there is of random contact.

Findings

I find that Ms. Nyznyk and Mr. Erickson failed to adequately explain the limitations upon the study's applicability to the *Morin* case. The most important issue respecting the fibre evidence was the *significance* of the fibre similarities. How likely was it that the number and nature of the fibres demonstrated direct contact, environmental contamination, or random occurrence? The study did not advance in any way the likelihood of direct contact. The numbers of fibres found in the study were irrelevant to the numbers of fibres generated in the Morin case, due to the distinctions earlier discussed. Accordingly, the numbers contained in the study also did not advance in any way the likelihood of direct contact.

Ms. Nyznyk and Mr. Erickson both believed that the more similar fibres were found, the less likely that it was a random occurrence; the more uncommon the similar fibres found, the less likely it was random. They obviously believed that the study supported these general propositions. This misses the point. The study was designed to see when an inference can reliably be drawn that the fibre similarities are likely attributable to direct contact, as opposed to random occurrence. The study's results, if anything, support the defence position that the finding of similar fibres in the Morin numbers do not permit a reliable inference that direct contact is a more likely explanation than random occurrence. Further, the study says nothing about the likelihood that environmental contamination explains the Morin fibre similarities.

I believe that the distinctions now apparent between the Morin investigation and the English study were not then apparent to the scientists and certainly not explained to Crown counsel. I accept Ms. MacLean's testimony that Ms. Nyznyk and Mr. Erickson expected her to lead evidence relating to the study and must have known that she was doing so to show the significance of the fibre findings in this case. This should have prompted Ms. Nyznyk and Mr. Erickson to clearly articulate the uses that could or could not properly be made of the study. They failed to do so.

(iii) The Eight Percent Figure

As part of his submissions to the jury about the necklace hair, Mr. McGuigan reasoned as follows:

Mr. Erickson testified, including the teachers and classmates and one other person, there were hairs from 32 people examined. Out of that group, hairs from two of the classmates ... were found to have microscopic characteristics similar to the B9 necklace hair.

Mr. Erickson concluded that the others could not be donors of the necklace hair and they were eliminated.

So, including the accused's hair, which I will address in a moment, three out of 33 people were found to have hair similar to the necklace hair. Even though the hairs of the accused and the two classmates did not have the yellowish tinge to them, this did not prevent Mr. Erickson from including all three sources as similar.

Looking at the numbers we have in this case, if you include the hairs of Robert, Janet and Kenneth Jessop, which Ms. Nyznyk testified were also dissimilar to the necklace hair, there were in fact only three of 36 people found to have hair similar to the necklace hair. *Now mathematically, I submit to you that this means that only eight per cent, 8.3 to be exact, including the Jessops, 9 per cent without the Jessops, of the people whose hairs were looked at, had similar hairs to the necklace hair.*

The accused, therefore, falls within that eight per cent, because 92 per cent of the people were limited. The accused was not eliminated. (Emphasis added.)

Mr. Erickson testified that it is not scientifically valid to extrapolate from the sample of 36 to the general population. He added:

Q. Okay. Now that argument, the statistical argument that was being advanced by Mr. McGuigan in the closing address, was that argument, which was later presented to the jury, ever discussed or run by you or Ms. Nyznyk in your presence?

A. No.

Q. How would you have reacted if the argument had been run by you?

A. I would have said that you can't use that statistical number. In fact, when it comes to hair comparison, I would stay away from any statistical number in court. We don't use statistics with respect to hair comparisons.

Q. And again, why not?

A. Why not? Well, it's subjectivity to start with, as I describe hair comparisons, subjectivity conditioned by experience and one looks at, over a period of time, in terms of these comparisons. But we don't say that this represents 1 per cent of the population; these characteristics that I see here in a hair, for example, represents 1 per cent of the population or 10 percent of the population.

We can give you general figures in terms of — we know red-heads are the smallest percentage of the population with respect to hair colour, so that if you had a reddish coloured hair, is of the smallest sub-population, as opposed to a brown to a dark brown hair, which we know are more prevalent in the population. So we just don't give statistics with respect to hair comparisons.

Mr. Erickson later agreed that Mr. McGuigan never explicitly extrapolated the eight percent figure to the general population, and simply did a mathematical calculation.

Mr. McGuigan did not specifically recall whose idea it was to advance this argument. Ms. MacLean testified that Mr. McGuigan was the one who wanted the mathematical figure in the address. She further commented on the passage:

A. Mr. McGuigan wanted this in, and we discussed this issue, and he asked me to include it. It's in the draft, but that's at his request, and I remember us discussing the point about this, and I had raised an issue about statistics with Norm Erickson about the fibres and hairs, and he said "You can't really do a statistical analysis there for a number of reasons"...

[S]o when this issue came up, I said to Leo, "Well, you have to be careful, because they had said you can't really do that statistical thing with the fibres. But what Leo wanted to say wasn't inaccurate; it was 8 percent of the hairs looked at, and he didn't say 8 percent of the general population; he was simply saying 8 percent of all the people looked at. And I thought that's exactly what he was trying to convey to the jury. I don't know why he wanted to express it in mathematical terms, but..."

Q. Why do you think?

A. Well, I don't know.

Q. Well, it's not fair. The accused falls within the 8 percent of that group; is that fair?

A. He did fall within 8 percent of that group.

Q. I mean, would you write that again that way?

A. But I didn't write that. I wrote it because of Mr. McGuigan. I would not myself have said it based on my discussions with Mr. Erickson about statistics. I indicated that to Leo, and Leo decided to include it, and I deferred to his judgment, but I indicated that I didn't agree with using the numbers.

.....

A. I would not have done it. I told Leo that — you know, I wouldn't have done it this way. He chose to do it, and I guess other people can judge what it meant. But what he stated was not inaccurate.

Ms. MacLean did not feel that the jury had been misled by the calculation included by Mr. McGuigan. Mr. McGuigan did not misstate anything; he simply stated the facts and applied a percentage to them. She also noted that the jury was told right afterwards that the necklace hair had extremely limited probative value.

Mr. McGuigan testified as follows about his mathematical calculation:

Q. Now, what was the point that you were endeavoring to make with the jury in putting before them the mathematical calculations reflected in that portion of the closing address?

A. Well, first of all, I was amazed that there were two others who had characteristics that would cause the examiner to say that they could not be eliminated as coming from that particular person. And as a result of that, and probably based on something that Mr. Pinkofsky was doing with the hairs, he was saying how many had dark brown hair and was fourteen, so if you take — so out of fourteen, you had this particular number.

What I wanted to do was to focus in on that group and the words are of whose hairs were looked at, I'm limiting it to the actual people who took part in this — the classmates and the Jessops, who took part in this, that out of that group, this is what it comes down to, because I thought, quite frankly, that was a much more

palatable number to put before the jury as an advocate.

And I know that from reading about the past that the issue was just to, somehow, apply to the public at large, and I think it's clear from the wording that it doesn't apply to the public at large. I talk about the people who were examined, and that's certainly not — the whole public wasn't examined.

Q. I'm not sure I understand that, and since I was the person that was putting that as a potential extrapolation to the public, perhaps I'll ask you this. When you were telling the jury that the accused falls within the 8.3 percent of the people examined whose hair compared favourably to the necklace hair, was it not an argument that you were advancing to the jury that when one looks at that very small number of people within this group that had been examined that conformed to the necklace hair, one can infer generally that very few people will have a matching hair? I mean, wasn't that the whole thrust of why you were putting it?

A. No. It wasn't a thrust at all. I was taking a factual situation, an actual factual situation and limiting it to that. As I said, I was amazed that three out of whatever the number is, that had similar hair. I would have thought that if you did the public, it would be a lot less than that.

Q. Well, that's what I don't understand then. So, let's say you, as an advocate, are trying to get into the minds of what you'd like the jury to do, and you'd like them to go back in the jury room and say, "Mr. McGuigan told us that only 8.3 percent of the people whose hairs were examined, had hair that could conform to the necklace hair, now, what should we do with that?" And what would you like them to do with that?

A. Well, as I said to you, I don't know the answer to this. But I would be totally surprised that if they had gone to the — whatever it takes to constitute a public examination of hairs, that I'd be willing to bet a fair amount that you wouldn't get 8. something percent of the public who had hairs that matched the hair that was in question here. I just — it astounds me that that

number of classmates' hairs, two classmates' hairs were similar to this.

Now maybe it's my lack of knowledge of the hair and fibre trade, but that just astounded me. And all I wanted to do was to take a factual situation, which we had there, and to dress it up so it was a little more palatable; that's all.

Q. I'm not quite sure I know what you mean. Palatable in what sense?

A. Well, I just thought if I was on the jury and I heard there were two classmates, I would say I don't care what those experts say, this doesn't mean much, this study or science of hairs. And so to try and put it just in another — just another way of saying what had been said before. But giving it a percentage which I think sounds a little better when you use a percentage than it does if you use the actual figures that are there.

So there's no attempt to extrapolate it from the general public because it's my opinion that a) you'd be inaccurate because it wouldn't be that high, and b) I never tried to do that because I used the words of the — whose hairs of the people whose hairs were looked at.

Mr. McGuigan acknowledged that he never discussed the issue with Ms. Nyznyk or Mr. Erickson. He explained that he thought it was just simple math.

Mr. Smith testified that there was some discussion amongst the Crown attorneys about referring to the mathematical calculation in the jury address. He said:

And my recollection is that that came up in response to something that Mr. Pinkofsky had said with respect to those particular hairs. And the conversation, as I recall, it was that Mr. McGuigan thought that by pointing out that, yeah, there were two other classmates' hairs that matched, and I think, frankly, Mr. McGuigan was very surprised that had happened, that it put it in a proper perspective to point out that they were only 8.3 percent, or whatever the figure was,

of the people who'd been sampled.

Findings

I accept Ms. MacLean's evidence that it was Mr. McGuigan's idea to rely upon this argument and that she registered her concern about it. Everything in Mr. McGuigan's closing address was there for a purpose — not surprisingly, given his status as a pre-eminent advocate. The introduction of the 8.3 percent figure into his address was obviously done so as to cause the jury to infer that the necklace hair was likely Mr. Morin's, given the small percentage of classmates whose hair was equally similar. The argument was invalid, since the small sample (and the absence of any evidence as to the composition of the class) permitted no such inference to be properly drawn. However, I cannot find, notwithstanding Ms. MacLean's intervention, that Mr. McGuigan deliberately made an argument which he knew to be fallacious.

(iv) “As Good as it Gets”

In his closing address, Mr. McGuigan made submissions about the strength of the hair findings in the case. This is what he said in part:

I suppose if you had someone who had a hair that was seven feet long, and you found another seven-foot hair, you might be very close to say I think, probably, all the other things, that that came from that head. But that's not normal — it doesn't permit you to say it came from a specific source. If the questioned hair possesses similar characteristics to the known sample, the strongest conclusion that the hair examiner can arrive at is that the questioned hair is similar to the known hair and could have originated from that source. So, similar to the known hair and could have originated from that source. The hair cannot be excluded as coming from that source. That's just another method of saying it.

This type of expert opinion, in relation to hair, that's *as good as it gets in the science of hair comparison. It doesn't get any better.*

.....

After conducting all the scientific tests for those hairs,

which I discussed with you earlier, both Mr. Erickson and Miss Nyznyk formed an expert scientific opinion that all three hairs located in the accused's car were similar to the known hairs of Christine Jessop and could have originated from that source. As I said to you earlier, ladies and gentlemen of the jury, dealing with the examination of hair, *it doesn't get any better than that.* (Emphasis added.)

Mr. Erickson and Ms. Nyznyk indicated to me that it was incorrect to say that a finding of 'could have' is truly 'as good as it gets.' The correspondence between hairs may permit a finding that two hairs are 'consistent with' a common origin. In their trial testimony, Mr. Erickson and Ms. Nyznyk differed on how often such a finding (which is said to involve a 'one-to-one correspondence') can be made. Their evidence can be interpreted to mean that such a finding can be made rarely (Nyznyk) or often (Mr. Erickson).

Findings

Ms. MacLean drafted the reference to 'could have' being the strongest conclusion a hair examiner can reach. Mr. McGuigan inserted the references to "as good as it gets" and "it doesn't get any better" in the closing. I find it difficult to be overly critical of either for the use of this language.

Mr. McGuigan explained that, while it is theoretically possible to make a finding of consistency in hair comparisons, 'could have' was indeed the strongest conclusion possible in the context of the evidence led. Prior to the passages in issue, he had mentioned to the jury that the ideal hair comparison is a one-to-one comparison and that Ms. Nyznyk testified that was a very rare occurrence. He suggested that when the quoted passage is considered in the context of the words that preceded it, it is clear that he was saying that, while the hair evidence in the Morin case is not the best, it is as good as it gets when there is no source. Mr. McGuigan also pointed to two later passages (dealing with fibre evidence) where he specifically stated that 'could have' is the strongest opinion possible when there is no known source. Ms. MacLean supported Mr. McGuigan's evidence in this regard.

The hair comparisons were admittedly weak. Mr. McGuigan intended, as an advocate, to frame the evidence in its most positive light. The following illustration makes the point. If a robbery victim blindfolded from behind says

that the accused could be the robber because the perpetrator is tall and the person who blindfolded her also was tall, one could state that this evidence is ‘the best that it gets’ from a witness blindfolded from behind who had no opportunity to see or hear the perpetrator. Such a statement would be accurate, but not terribly helpful.

In the context of a lengthy criminal case, involving complicated and conflicting evidence, the dangers are greater that such language could potentially mislead the triers of fact, yet remain within the bounds of ethical advocacy. I recognize that this problem arises in the context of an adversarial proceeding, and I will later comment on the important role that the trial judge should play in situations of this kind.

(iv) The Likelihood of a One-to-One Match

Mr. McGuigan referred in his jury address to Mr. Erickson’s opinion about the likelihood of finding one-to-one matches in hair comparisons. He stated: “[I]t is a reality to find a one-to-one match and it does happen from time to time although he could not say how often.” Ms. MacLean had written in her draft address a seemingly more exculpatory summary of the evidence: “[I]t is a reality to find a one-to-one match, and it does happen *quite often*, although he could not say how often” (emphasis added). Ms. MacLean testified before the Commission that Mr. McGuigan was responsible for the change. Mr. McGuigan did not recall whose idea it was. I accept Ms. MacLean’s evidence in this regard. Ms. MacLean’s draft more accurately reflected Mr. Erickson’s evidence.

(v) The Chart

In the course of his closing address to the jury, Mr. McGuigan made reference to a chart which contained pictures of Mr. Morin, Christine Jessop, the Morin Honda, the Morin home, and items from the body site. The various pictures were connected by a series of lines which were meant to relate to the hair and fibre findings in the case. The lines were actually drawn individually on a series of overlays, so that Mr. McGuigan could add each new hair or fibre to the chart, one at a time. Also typed on the bottom of the overlays were brief synopses of the findings with respect to each of the hairs and fibres. When all the overlays were in place, the chart effectively depicted all lines as connecting Christine Jessop to Guy Paul Morin (or to their related

possessions). An issue before the Commission was whether the chart fairly represented the evidence of Ms. Nyznyk and Mr. Erickson at the trial.

The chart was prepared in advance of the second trial by Sergeant Chapman at the instance of Mr. Scott. Ms. Nyznyk and Mr. Erickson were not involved in its preparation. Mr. Cook testified that he would expect the Crown to consult with their experts before using a visual aid at trial. Mr. Scott explained that he asked Sergeant Chapman to prepare the chart because Ms. Nyznyk had not prepared the demonstrative aids requested of her for the first trial. He acknowledged that he did not consult with anyone at the CFS about the chart.

The defence objected to the use of the chart at trial. The trial judge, however, ruled that it could be used by the Crown during its closing address. The Crown agreed to amend the chart should the evidence at trial differ from it.

Mr. Erickson testified that he is opposed to using demonstrative aids to illustrate hair and fibre findings. In particular, he thought that the chart in Mr. Morin's case might have had a prejudicial effect, because it did not accurately reflect his opinion or its limitations. He feared that it might have led a lay person to believe that Christine Jessop had been in Mr. Morin's car, whereas on his evidence there may actually have been no connection between Christine Jessop and Mr. Morin at all. The chart presupposed that all of the possible hair and fibre connections were facts.

Mr. Erickson said his concerns were appeased somewhat by the fact that the trial judge heard argument about the potential prejudice of the chart and ultimately limited its use to the Crown's jury address.¹⁵ He also accepted that, when referring to the chart in his address, Mr. McGuigan accurately outlined the hair and fibre findings. He further acknowledged that the chart's synopses accurately reflected the findings. He remained concerned, however, about the impact that the chart's visual presentation may have had on the jury.

Ms. MacLean acknowledged that all the lines on the chart could have pointed away from Mr. Morin and to someone or something else. But, she

¹⁵ The trial judge ruled that the Crown could not make the chart an exhibit or refer to it during the examination of witnesses.

said, the chart was meant to be a persuasive visual summary of the Crown's argument. It was open to the defence to prepare an alternative chart, or to argue in its jury address that the Crown's chart was somehow misleading. Mr. Erickson agreed that the defence could have prepared its own chart, and that a visual representation of evidence can be an effective element of advocacy.

Findings

It is clear that the prosecutors cannot be criticized for the introduction of the chart. It was provided to the defence in advance, and a ruling obtained from the trial judge permitting its use. It has been suggested that such charts are potentially misleading and should be banned in the future. It may be preferable that charts which address forensic evidence should be introduced through the experts to permit full exploration of the issues raised by those charts. However, the use of a chart to complement closing argument is a sound advocacy technique. A trial judge has the discretion to disallow its use. Further, the trial judge can outline for the jury the potential dangers associated with the chart — here, the accumulation of connecting lines could mislead the jury, given the tenuous connections established by the hair and fibre evidence. In my respectful view, the trial judge did not adequately warn the jury about the dangers associated with the chart. Ultimately, the problem identified with the chart may be more reflective of the problem associated with the evidence itself, than with any systemic concern about the use of charts generally.¹⁶

(vi) The Overall Significance of the Hair and Fibre Evidence

What was said in the jury address

Mr. McGuigan made a number of submissions in his address to the jury about the overall significance of the hair and fibre findings. Mr. Erickson was asked to comment on many of them. (Some of what follows has been alluded to earlier in this Report.)

Mr. McGuigan stated that the hair and fibre findings prove that there

¹⁶ In my view, the new Crown Policy on Scientific Evidence, referred to later in this Report, deals adequately with the issue of charts and other visual aids. It provides, *inter alia*, that “it could be dangerous to use a visual aid in court without first reviewing it with the scientist to ensure that it accurately conveys the true force and effect of the evidence.”

was contact between Mr. Morin and Christine Jessop at the time of her death. Mr. Erickson did not accept that his evidence proved that. Mr. McGuigan stated that the evidence established that the only way the fibres could have got onto Christine Jessop's clothing was through contact with Mr. Morin and his car at the time of her death. Mr. Erickson again disagreed, and pointed out that he had mentioned the possibilities of random occurrence and environmental contamination in his evidence. Mr. McGuigan further stated as follows:

Mr. Erickson and Miss Nyznyk both testified that in their expert scientific opinion the fact that there were several hair and fibre matches found in this case was significant. Miss Nyznyk testified that if just one or two matches had been found, she would have to consider the possibility that it was just a random or coincidental match.

Both Erickson and Nyznyk indicated, however, that the more matches found the less chance there is of having a random match. The chance of a random match diminishes with the more matches that are found and I submit to you that the trace evidence found in this case was not just a coincidence and is significant, probative evidence which assists you in arriving at the conclusion that the accused murdered Christine Jessop.

In addition, ladies and gentlemen, if you were to put all the science aside and look at the results just using good old common sense, I would submit that you would have to conclude that Christine Jessop was in that Honda motor vehicle on October 3rd, just prior to her death.

Mr. Erickson testified that his evidence, by itself, did not substantiate that conclusion. Overall, Mr. Erickson said he was shocked and troubled by Mr. McGuigan's jury address, since it suggested that primary contact was the only explanation for the findings, whereas he had testified to two other possible explanations. He also said that Mr. McGuigan placed more weight on the hair evidence than he should have.

Mr. McGuigan ended his address in relation to the hair and fibre evidence with the following comments:

Isn't it a coincidence that pink-red animal fibres that were found on Christine's running shoe and her blue trim socks matched a fibre from the police taping of the accused's car? Isn't it a coincidence that the purple-pink animal fibres that were found on Christine's blue corduroy pants, her pullover and sweatshirt matched two fibres from the accused's car; one, a taping from the passenger side rear floor; two, vacuuming of the floor behind the driver's seat; three, dark grey animal hair fibres were found on Christine's turtle neck sweater and the taping of the Morin livingroom rug; that the pink polyester fibre were found on the recorder pouch that matched a fibre found on a gold seat cover seized from the hatchback of the Honda and that three separate hairs that match Christine Jessop's hairs were found in the accused's Honda motor vehicle; one from the taping of the passenger side rear floor, vacuuming of the rear seat area and vacuuming of the left corner of the Honda trunk; that a dark brown hair found in the chain that was around Christine Jessop's neck that cannot be eliminated as coming from the accused due to the similarities found?

Mr. Cook's views have already been noted. He, and the other forensic experts who testified before me, did not believe that these findings defied coincidence, as suggested by Mr. McGuigan. Interestingly, Mr. Erickson said that he never expected Mr. McGuigan to present his evidence in such a powerful and compelling way.

Mr. McGuigan was not asked to comment on these passages from the jury address. Ms. MacLean, who wrote most of the passages,¹⁷ testified that in them the Crown was not trying to summarize what the experts said. They were acting as advocates, presenting the Crown's position to the jury. She also pointed out that evidence which potentially weakened the inferences to be drawn was also canvassed before the jury.

Mr. Erickson testified that he was never told what the prosecutors intended to do with his evidence, and that he would have been shocked to learn that it was one of the most significant pieces of evidence marshalled against Mr. Morin. Ms. Nyznyk's evidence on this issue changed throughout

¹⁷ She did not write the last sentence of the second last quoted passage.

the course of her testimony. She initially testified as follows:

Q. Now, were you aware when you were giving this evidence at the first and second trials, that the prosecution was relying upon this fibre evidence to support its conclusion that Christine Jessop had been in the Morin Honda shortly before her death?

A. That I'm not aware of.

She later stated:

Q. So that, all of your findings — and I'm going to try to avoid the terminology that we've been using: consistent, and inconsistent with, and could have, and so on, but as I understand your evidence, your findings that five fibres from the Morin Honda and residence, were similar to some fibres found at the body site, does not demonstrate as far as you're concerned, that Christine Jessop had indeed been in the Morin Honda?

A. That's correct.

Q. And I guess going back to one of my earlier questions, were you aware back during the time of the first or second trials, that the Crown was drawing upon this fibre evidence to support that very conclusion? That the fibre evidence demonstrated, together with other evidence in the case, that Miss Jessop had indeed been in the Morin Honda. Were you aware of that, or can you say?

A. I really can't say.

Commission counsel returned to this issue in re-examination of Ms. Nyznyk:

Q. Do you think, again, that it's possible that ... back when you gave the evidence, it may very well have been that you appreciated at that time what the Crown's theory was about the hair and fibre evidence, what use was intended to be made of the hair and fibre evidence, and how the Crowns appreciated your evidence bore upon that issue? Do you think that's possible?

A. Yes, I think it's possible.

What the Prosecutors Were Told

Ms. MacLean

Ms. MacLean gave fairly detailed evidence concerning what Ms. Nyznyk and Mr. Erickson told Crown counsel prior to the second trial. Her recollection was often supported by her notes.

She testified that both Ms. Nyznyk and Mr. Erickson said that the hair and fibre findings were significant. Ms. Nyznyk never warned the Crown attorneys not to build a case around her evidence because it was so weak. Mr. Erickson never said that the number of findings in Mr. Morin's case was not high enough to establish contact. Ms. MacLean thought he said the opposite, because when he was asked whether more matches would be better, he (and Ms. Nyznyk) responded in the negative, explaining that the numbers were already significant because animal hairs fibres are rare and the polyester fibres had some distinguishing features. Neither Ms. Nyznyk nor Mr. Erickson ever said that their findings did not support the conclusion that Christine Jessop had been in the Morin Honda. Ms. MacLean acknowledged that neither explicitly said that was the preferred conclusion; Ms. Nyznyk mentioned all three options (contact, environmental contamination and random transfer). However, Ms. Nyznyk did say that the evidence was sufficient to make a connection, which Ms. MacLean took to mean a connection with the car. (Ms. MacLean has a note of this comment.) Both Ms. Nyznyk and Mr. Erickson told Ms. MacLean that it was unlikely that all the hair and fibre findings were due to environmental contamination. Ms. Nyznyk also suggested that it was highly unlikely all the matches were due to secondary or tertiary transfer.

Ms. MacLean stated that both Ms. Nyznyk and Mr. Erickson told her that the likelihood of random matches decreases as the number of matches increases. Ms. Nyznyk did not say that was only a general rule. She mentioned it in the context of a discussion about the fibre findings in Mr. Morin's case. Ms. MacLean was told that coincidental matches are relatively rare. She was also told that random occurrence might explain one or two matches, but that findings became more significant as the number of matches increased. She had a note of Ms. Nyznyk stating that the number of matches strengthens her opinion. She acknowledged that Mr. Erickson never said that the number of matches in Mr. Morin's case was high enough to rebut the *possibility* of

random occurrence.

Ms. MacLean maintained that neither Ms. Nyznyk nor Mr. Erickson ever said the hair evidence as a whole was weak. Both experts stated that the evidence of the necklace hair was weak, but they also conveyed the impression that the car hairs had some degree of strength and scientific significance. They said that Christine Jessop's hair and one of the car hairs shared an unusual characteristic (a fragmented cortical fusi) and that one of Ms. Jessop's hairs and one of the car hairs had a broken part in the same spot. Ms. MacLean accepted that Ms. Nyznyk and Mr. Erickson only said that the car hairs could have come from Christine Jessop,¹⁸ and that neither said the hairs confirmed that Christine had been in the Honda. However, she pointed out that Mr. Erickson once told her the car hairs were a very good match. (This comment is also reflected in Ms. MacLean's notes.) Ms. MacLean said she believed both experts thought the car hairs were very good matches.

Ms. MacLean testified that the prosecutors were told that fibre type is a very important factor in an expert's opinion about how significant fibre findings are: the rarer the fibre type, the more significant the finding. Ms. Nyznyk and Mr. Erickson advised the prosecutors that dyed red animal hairs made up less than one percent of all the fibres in the world. Ms. MacLean explained that the unusual nature of the fibres in Mr. Morin's case was very important to the prosecutors.

Ms. MacLean stated that Ms. Nyznyk told Detective Fitzpatrick that a defence expert, Skip Palenik, thought the hair and fibre findings were 'good' and that the necklace hair was an excellent sample. Detective Fitzpatrick conveyed this information to Ms. MacLean on December 20, 1985 (when Ms. MacLean recorded it in a note).

Mr. McGuigan

Mr. McGuigan's evidence largely supported that of Ms. MacLean. He testified that he was never told that the hair and fibre evidence was weak, or that the Crown should not build a case around it. He recalled a meeting where Ms. Nyznyk and Mr. Erickson indicated that they had a scientifically

¹⁸ Ms. MacLean also accepted that Mr. Erickson told her the hairs could have come from three different people.

significant number of matches. The prosecutors had asked them to conduct further examinations, and they responded that they did not need to do more; they already had sufficient matches to draw the inference that Christine Jessop had been in the Honda. Mr. McGuigan did not recall whether Ms. Nyznyk and Mr. Erickson said that Christine had definitely been in the car.

Ms. Nyznyk

Ms. Nyznyk testified that she told the Crown attorneys that her evidence was weak and they should not build a case around it. She tried to convey the impression that her evidence did not assist one way or the other.

Ms. Nyznyk denied that she led the prosecutors to believe that her evidence placed Christine Jessop in the Honda. She mentioned all the potential explanations for her findings, only one of which was contact, and explained that they were all equally possible. She did not specifically tell Crown counsel that her evidence did not assist in proving that Christine Jessop had been in the car,¹⁹ but it would not have occurred to her to say that. A determination of that issue falls to the Court, and the Crown knew that her findings by themselves did not place Christine Jessop in the Honda.

Ms. Nyznyk did not recall telling Ms. MacLean that her findings were significant enough to make a connection, and that more findings were not necessary. She acknowledged, however, that she may have told the Crown attorneys that once an analyst finds significant results, she stops, satisfied that she has significant findings. *Ms. Nyznyk wrote that comment in her own notes. She also wrote in her notes that she did not need to find more matches because she already had a scientifically valid result. Ms. Nyznyk testified that she did not know whether she or someone else said that. She could not recall why she wrote it down.*

Ms. Nyznyk accepted that she would have told the Crown that the chances of random association decrease as the number of matches increases. She may have implied that more matches increase the likelihood of contact. She may also have related that principle to the *Morin* case. She wrote in her

¹⁹ Although Ms. Nyznyk repeated this evidence more than once, she also once testified that she told Mr. McGuigan that her findings did not support the conclusion one way or the other.

notes of January 23, 1991, that coincidental matches are rare. Ms. Nyznyk acknowledged that she gave Crown counsel the impression that the number of matches in Mr. Morin's case made it highly unlikely that they were all due to environmental contamination.

Ms. Nyznyk testified that she never told the authorities that the car hairs confirmed that Christine Jessop had been in the Honda. She accepted that she might have told them it was significant that some of the fibre findings involved an unusual type of fibre (dyed animal hair). She agreed that she once told Crown counsel and the police that one of the defence experts agreed with her findings. She explained to them that his opinion supported the correctness of her results.

Ms. Nyznyk ultimately conceded that she could not recall exactly what she said at her meetings with the Crown attorneys. She did not know if she had filled in gaps in her memory with information about what she would have liked to have said. She accepted that her opinions were not expressed or understood as they should have been.

Mr. Erickson

Mr. Erickson testified that he told Crown counsel that the findings made by Ms. Nyznyk had scientific validity and could support the contention that Christine Jessop had been in the Morin Honda. He did not recall Ms. MacLean asking him if there were enough matches to take to a jury. (Ms. MacLean has a note of this.) He did not know if he told the prosecutors that the number of fibre findings in the *Morin* case was not high; he did not recall a conversation about numbers. He understood that the Crown attorneys believed the evidence against Mr. Morin became stronger as the number of matches increased. He never advised them there was anything wrong with that belief.

Mr. Erickson sent a letter to Mr. Scott on March 28, 1990, explaining the limitations of the necklace hair finding and indicating that its probative value was extremely limited. He told Ms. MacLean that the car hairs only 'could have' come from Christine Jessop. At the same time, Mr. Erickson conceded that he may have said that Christine Jessop's hair had a distinctive characteristic which provided a basis for comparison with the three car hairs. He accepted that he once told Ms. MacLean that the car hairs were good comparisons, and that he and Mr. Palenik (an expert engaged by the defence)

agreed that there were no problems with their comparison to Christine Jessop's hair.

Mr. Erickson once told Ms. MacLean that all the fibre matches in Mr. Morin's case were good ones. He also told the Crown that the animal hair fibres were unique, and that the polyester fibres had distinctive shapes and markings.

Findings

I accept Ms. MacLean's evidence (supported by Mr. McGuigan) as to the thrust of the opinions communicated by Ms. Nyznyk and Mr. Erickson to them. In regard to the fibre comparisons, I find that the thrust of the experts' opinions, as communicated to the prosecutors, was that the findings were significant, that they favoured the inference that Christine Jessop had been in the Morin Honda, and that the number and nature of the fibre similarities did not eliminate the possibility of environmental contamination or random occurrence, but made each an unlikely explanation. Environmental contamination also raises additional issues, and this is addressed immediately below.

(vi) Environmental Contamination

What was Said at Trial

Ms. Nyznyk testified at the second trial that it was highly unlikely that all the matches were due to environmental contamination. Mr. Erickson testified that he could not rule out the possibility that the findings could have been affected by environmental contamination; he was not asked to state how likely an explanation that was.

Mr. McGuigan made submissions to the jury on the issue of environmental contamination, arguing that it was an unlikely explanation. Some excerpts follow:

You have heard the evidence that Christine Jessop had never been in the Morin house and that she had never been in the Honda motor vehicle up to October 3rd, 1984, and it was Miss Nyznyk's expert scientific opinion that given the number of hair and fibre

matches in this case it was highly unlikely that they can all be due to contamination.

.....

Ladies and gentlemen, the defence has suggested to you that you should not place any weight on the evidence of hairs and fibres in this case because of the possibility of contamination. As you heard contamination is possible in many circumstances, and is always a factor that must be considered in cases that involves this type of evidence. And yet, it is still a type of evidence and a forensic science about which experts testify in our courts all the time.

Do you really think that all the hair and fibre matches in this case can be explained away by contamination? Now I ask you to look at this hair and fibre chart that is the demonstrative exhibit. I ask you how so many different matching fibres types and colours found on so many different articles of clothing all worn by Christine Jessop on October the 3rd could all be due to contamination, including the recorder pouch, which was received on that very day. I ask you to remember the scientific studies about how few fibres are found simply at random.

Mr. McGuigan followed this by detailing the evidence which purportedly demonstrated how limited the contact was between the Jessop and the Morin families.

The Possibility of Environmental Contamination Explained

Mr. Cook was a most impressive witness before me. He demonstrated objectivity and precision in his scientific opinions. I accept without hesitation his opinion that the fibre similarities here could be equally explained by environmental contamination as by direct contact between Christine Jessop and Guy Paul Morin.

During his testimony before the Commission, 11 pieces of evidence from the second trial were put to Mr. Cook as possible indications of a shared environment between the Morins and the Jessops. They were:

1. the two families lived about 50 feet from each other;

2. the two families often used the same laundromat;
3. Guy Paul Morin went into the Jessops' home in September, 1984, to light the pilot light for the Jessops' hot water tank;
4. in November or December, 1984, Guy Paul Morin took the Jessops' dog into the Jessops' residence and visited with Robert Jessop for half an hour;
5. the Jessops had been on the Morin property several times;
6. Mr. Morin's parents were inside the Jessops' home after Christine Jessop's funeral on January 10, 1985, at which time Alphonse Morin may have been taken up to Christine Jessop's room;
7. in September, 1984, Robert Jessop rode with Mr. Morin's brother in the brother's truck;
8. on October 4, 1984, Janet Jessop, Robert Jessop and Alphonse Morin drove in the Jessop car to search for Christine Jessop;
9. the families, including Mr. Morin and Christine Jessop, used to chat outside their houses;
10. some time after Christine Jessop disappeared, Robert Jessop once went to the back door of the Morins' house;
11. Christine Jessop once came onto the Morin property to show off her puppy.

Mr. Cook commented as follows:

A. I think the important thing with regard to those facts is that they all point to the possibility of a shared fibres population between the two families. Some more so than others; I think if people are just standing talking to one another across a fence, for example, then the chances of transfer of fibres there are very small; negligible, to be honest. But where someone is

going into another house and sitting down and chatting for half an hour, or sharing a car with someone, then there's a very strong possibility that fibres from one family are going to be deposited in the other family's home, and vice versa. So it just points to the shared fibre population between the two families. So in my view, what that points to is the fact that the fibres findings in this case can be explained by the fact that there is a shared environment between the two families.

.....

A. I think that those findings are explained as well by the shared environment as they are by her being in the car. So I think that evidentially, that the fibres findings are neutral.

Mr. Cook felt that the fact of a shared environment was so important that it should have been brought out in evidence and possibly even mentioned in the original CFS reports.

In his evidence before the Commission, Mr. Crocker agreed with Mr. Cook's conclusion that the shared environment in the *Morin* case essentially negated the significance of the fibre findings. He did not recall if he ever communicated his opinion to the Crown. Mr. Lucas testified that the experts should have advised Crown counsel and the police that the possibility that environmental contamination decreased the significance of the fibre findings.

Mr. Cook was also asked about evidence that some of the investigating officers in the case had contact with several of the persons, places and things sought to be linked through the hair and fibre evidence: the body site, the Morin Honda, the Morin residence, the Jessop property, Christine Jessop's remains and Mr. Morin himself. He thought such contact raised the danger that the police will inadvertently transfer their own (similar) fibres to objects associated with both the accused and the victim, thereby contaminating future findings of similar extraneous fibres. But while the risk of such contamination existed, it was low, given that the contact with the various persons, places and things was generally quite far apart in time.

Mr. Cook testified that in England police officers are advised not to attend scenes sought to be connected through forensic evidence. Mr. Lucas

did not think the CFS 'Lab Guide for the Investigator' included such a suggestion.

What the Prosecutors and Scientists Discussed

Mr. Erickson

At the Inquiry, Mr. Erickson accepted that environmental contamination could have played a factor in Mr. Morin's case. He explained that he had thought otherwise at the time of the trial because he had been advised, by either the police or the Crown, that Christine Jessop had never been in the Morin Honda, that she had had no contact with Mr. Morin, and that there had been virtually no social contact between the two families. Mr. Erickson testified that experts operate on the basis of the facts given to them, and their opinions are only as good as the information they receive.

He accepted that he may have discussed the issue of environmental contamination with the Crown attorneys before he testified (although he did not recall it), but stated that he had not been advised of many of the 11 possible indications of contact between the families listed above.²⁰ He had also not been told that, during the first trial, the police had conducted a test at the laundromat used by both families which determined that fibres could be transferred through successive washings. He agreed that such evidence was relevant to a determination of whether environmental contamination could explain the fibre findings in Mr. Morin's case.

Ms. Nyznyk

At the Inquiry, Ms. Nyznyk stated that the evidence of a shared environment between the Jessops and Morins, as well as the evidence of potential police contamination, could explain her fibre findings in the case. *She further testified that this explanation was as likely as any other.* Ms. Nyznyk thought she had expressed this view at the second trial, and she had not intended to imply at the second trial that her fibre findings could not be explained by environmental contamination.

²⁰ Specifically, Mr. Erickson testified that he was not advised of the information referred to above in points 2, 3, 6, 7, 8 and 9.

Ms. Nyznyk was advised at the first trial of the evidence which suggested a shared environment and possible police contamination (leading to the inference that she was aware of it at the second trial). She testified before the Commission, however, that she had never been told about the laundromat test conducted by the police.

The Crown Attorneys

Mr. McGuigan testified that the experts did not tell the Crown attorneys that environmental contamination was a serious problem in the case. He did not recall discussing the issue with Mr. Erickson and Ms. Nyznyk, but he was not present for all the meetings and such a discussion may have occurred when he was not there. He added that the issue was a live one at the first trial, and he hoped that Ms. Nyznyk would have advised Mr. Erickson of the significant issues in the case.

Ms. MacLean testified that, since the issue had arisen at the first trial, she discussed with Mr. Erickson and Ms. Nyznyk in advance of the second trial whether the fibre findings could be explained by the fact that the Jessops and Morins were neighbours. Both Ms. Nyznyk and Mr. Erickson told her that, given the number of hair and fibres matches in the case, it was unlikely that they could all be due to environmental contamination.

Ms. MacLean denied that Mr. Erickson had not been told about the indications of a shared environment between the Morins and Jessops. She testified that she discussed them with Mr. Erickson to some extent. She also pointed out that Mr. Erickson had requested a copy of Ms. Nyznyk's evidence at the first trial, which referred to much of the relevant evidence. Mr. Erickson initially acknowledged reading the transcript of Ms. Nyznyk's evidence, but later stated that he only read portions of it, and that he did not recall readings the portions about the evidence of a shared environment. He read all of the preliminary inquiry transcript. He was cross-examined on this point:

Q. And this, sir, in spite of the fact that you claim that from reading her evidence, you came to the conclusion that she went too far in her conclusions. Your concern about her going too far in her conclusions didn't lead you to even bother to read all of her evidence? Pretty extraordinary, isn't it, sir?

A. I was relying on the preliminary hearing in which

she testified.

.....

Q. Do you think, sir, as a supervisor of Ms. Nyznyk, if you'd really been concerned about her evidence at the preliminary hearing, you might have said to yourself, well, maybe I'd better see what she said to the jury at the trial? You'd done that?

A. Well, Mr. Sandler was much more specific in terms of what was said. Did I know this, did I know this point, did I know that point, as opposed as what is in the transcript. And I did not know those points that Mr. Sandler raised.

Ms. MacLean was specifically asked whether Crown counsel advised the experts of the laundromat test conducted by the police. She was initially unsure whether they had done so.²¹ She was certain that she and the experts discussed the issue of a common laundromat, and believed that they also discussed the test, since the issues were related. However, she did not have a specific recollection of doing so. Ms. MacLean later felt certain she had discussed the test with Mr. Erickson and Ms. Nyznyk. She had called evidence about the test at the second trial in advance of the expert testimony (thereby making the test an issue at the trial), and she discussed with Mr. Erickson and Ms. Nyznyk issues on which they might be cross-examined.

Ms. MacLean acknowledged that the results of the test were a problem for the Crown (given that they supported the possibility of innocent transfer), but stated that the Crown attorneys did not think that transference through the laundromat was a likely explanation. First of all, Ms. Nyznyk did not think so, an opinion Ms. MacLean said she would prefer over that of the police. Second, Crown counsel did not think it likely that someone would wash an angora or animal hair sweater (as was done in the test) in a washing machine. Finally, there were about 20 washing machines at the laundromat, and it seemed unlikely that the families would end up using the same one. (The laundromat test is revisited later in the context of disclosure.)

²¹ Mr. Scott testified that he did not think he ever disclosed the test to either expert.

Findings

I find that environmental contamination was discussed between police, prosecutors and scientists. The scientists did communicate the opinion that environmental contamination was an unlikely explanation for the fibre findings. The difficulty here is that the non-expert evidence bearing upon environmental contamination was contested at trial; for example, the Jessops and the Morins differed as to the extent of contact between the parties, *i.e.* how extensive was the opportunity for environmental contamination? It therefore became important for the scientists to be clearly told the assumptions upon which their opinions would be based. It also became important for the scientists to clearly understand what assumptions they were being asked to make. A written record prepared by the scientists of their opinions on this issue, together with the evidentiary assumptions upon which those opinions were based, was essential. It would have prevented any misunderstandings between the police, prosecutors and scientists and provided an appropriate way for the defence to understand the scientists' precise position and the underlying assumptions. I find that there was a two-way failure of communication between the prosecutors and scientists on this issue and that the absence of a record prepared by the scientists contributed to this failure.

Having said that, Mr. Cook's opinion, which I accept, is that even taking the contested evidence most favourable to the prosecution, environmental contamination was a sufficient concern so as to negate any ability to draw an inference that the findings demonstrated direct contact between Christine Jessop and Guy Paul Morin at the material time. Mr. Erickson and Ms. Nyznyk should have appreciated that the number and nature of the few fibres found, together with the background circumstances, did not make direct contact more likely than environmental contamination. Their present views were not articulated back then. Mr. Erickson and Ms. Nyznyk demonstrated a lack of scientific rigour or care in the expressions of their opinions about environmental contamination.

M. Alleged Pressure from the Authorities

(i) Alleged Pressure to Influence Opinions

Some evidence was heard by the Commission of attempts by the authorities, primarily Mr. Scott, to influence the findings of Ms. Nyznyk. Most significantly, Ms. Nyznyk alleged that Mr. Scott had pressured her to strengthen her results. Ms. Nyznyk denied that her evidence had been affected by the pressure. Ultimately, she retracted any allegation of wrongdoing by Mr. Scott. Given the public attention directed to this allegation, I intend to address it here.

During Ms. Nyznyk's early evidence at this Inquiry, she described a meeting she had with Mr. Scott, Ms. MacLean, Detective Fitzpatrick and Inspector Shephard, which she believed was prior to the first trial:

A. It was a very — as far as I recall, a very pressureous meeting for myself. The Crown attorneys didn't seem to be very happy with my assessment, or my conclusions, as to the strength I would place on my evidence.

.....

Q. What was the sense that you got as to why pressure was being exerted?

A. That my evidence was not strong enough. My conclusions were not of the kind that would be strong enough. That he expected them to be stronger ... I refused to alter my opinions.

.....

Q. All right. Now, let me ask you this. I take it that by 1985, 1986, you had met in other cases with Crown counsel? Is that right?

A. That's correct.

Q. And had you ever experienced this kind of a pressurized atmosphere before?

A. No, I hadn't.

Q. Had Crown counsel ever asked you to go further than you felt the evidence would bear?

A. No.

Q. Did you feel that was what was being suggested here?

A. I felt that was what was being suggested, yes.

Ms. Nyznyk later intimated that Mr. Scott applied similar pressure at other times. She testified that he was “pressuring and calling all the time.”

Ms. Nyznyk said that in her experience, Crown attorneys had generally acted professionally and had not asked her to change her opinions. This was the first case where she felt that the police or the Crown did not understand her role as an independent analyst.

Although Ms. Nyznyk often referred to pressure from ‘the Crowns,’ she clarified that it was mostly Mr. Scott who exerted the pressure. She said that Ms. MacLean never did anything untoward, and she was not even certain that Ms. MacLean was present at the meeting referred to above. Ms. Nyznyk also testified that neither Detective Fitzpatrick nor Inspector Shephard ever pressured her to strengthen her results.

In cross-examination, Ms. Nyznyk’s evidence began to change:

Q. Do you think, as the impartial scientist, the way you presented yourself in your evidence, that at a minimum, you should have told the defence of an improper attempt to influence your evidence?

A. [Y]es, I guess that would be proper to say, but at that point, it wasn’t really an attempt to influence my evidence. It was trying to find ways to make it firmer. So I don’t know whether I would have imparted that information.

Q. Well, that raises the question — I’m not sure what your evidence is here. Is your evidence that Mr. Scott was trying to get you to express things more strongly than you were prepared to, or is your evidence that Mr. Scott was interested in finding out from you whether opinions could be expressed more strongly by other

people? Which is it?

A. I think it was both.

.....

Q. So Mr. Scott, was he trying to persuade you that you should make stronger opinions, or express stronger opinions?

A. Yes.

In re-examination by Commission counsel, Ms. Nyznyk abandoned any allegation that Mr. Scott improperly pressured her to strengthen her opinions. She testified:

Q. ... Mr. Armstrong was putting certain suggestions to you that in the course of trial advocacy, counsel, whether they be defence counsel or Crown counsel, not surprisingly want to question these witnesses to see the limits of their expert evidence. And this is done every day of the week, Mr. Armstrong was suggesting to you, that counsel obviously want to gauge exactly where the witness is at in his or her expert evidence. Do you remember being asked about that?

A. Yes.

Q. And I heard you respond to Mr. Armstrong by saying that you felt that the probing by Mr. Scott in this case was a little stronger than you'd experienced before; you said that, right?

A. That's correct.

Q. But what I'm asking you is that would you be prepared to acknowledge what I think Mr. Armstrong was effectively putting to you, and that is that even though Mr. Scott may have been pursuing it in a little bit more probing way than you'd experienced before, that he was doing so in a way that was consistent with his professional responsibilities? In other words, he wasn't doing so in an improper way? Do you think that's an accurate way of looking at all of this?

A. Yes, I think so.

Q. So that when you told me way back when, and it kind of seems like light years ago, and when you told some of the other counsel about this pressure that had been exerted by Mr. Scott upon you to make the evidence stronger than it was, is it your evidence that you did not intend to suggest in any way that Mr. Scott was acting improperly in speaking to you in that way?

A. Yes.

Q. All right. Well, now, I expect that Mr. Armstrong and Mr. Scott would be very relieved to hear that now. I guess I have to ask you, were you not aware that the thrust or the tenor of your evidence, when you gave it in response to my questions, seemed to suggest that you regarded this as somewhat improper?

A. No, I wasn't aware of that.

Q. You weren't?

A. No.

Q. When did it first dawn on you that people were regarding your evidence having to do with Mr. Scott as suggesting some impropriety on his part?

A. Actually, this morning.

Q. Is that your evidence, that the very first time that that dawned on you was this morning?

A. Yes, I didn't realize that they're thinking it was inappropriate. That's correct.

Ms. Nyznyk testified that she spoke to Mr. Erickson about the pressure being applied on her. She purportedly called him into the meeting with Mr. Scott and others, earlier described. She stated that Mr. Erickson told the Crown and police that there were limits on the strength of the opinions the CFS could express, and that Ms. Nyznyk could not make her evidence any stronger. Mr. Erickson testified that he did not recall such a meeting, nor did he recall Ms. Nyznyk ever speaking to him about pressure from Mr. Scott. It is something, he said, he would expect to recall had it occurred.

Ms. Nyznyk could not recall telling anyone other than Mr. Erickson

about the pressure until she told her counsel a few days before testifying before the Inquiry.

Ms. Nyznyk was asked whether her untimely complaint about pressure from Mr. Scott was motivated by a letter he wrote in February 1987 to Mr. Erickson. The letter stated, in part:

Dear Norm:

In response to your request of February 18, 1987, I have enclosed a copy of Ms. Nyznyk's evidence at the preliminary inquiry and trial of Mr. Morin. I have also enclosed copies of 3 forensic reports that she provided. Any items provided by the police after May 9, 1985 were done for the purpose of elimination, many at her request. Other items were taken to her for elimination often at her suggestion but could not be analysed because of a variety of expressed pressures of work. Inspector Brown, Det/Sgt. Shephard and Det. Fitzpatrick would be happy to confidentially discuss a number of such instances with you.

Mr. Morin was arrested on April 22, 1985. On May 3, the date that the preliminary inquiry was set, I spoke to you about how long the examination of the hairs and fibres would take. As a result of what I was told it appeared there would be no problem having the work done by the preliminary date of June 24, 25 and 26. Some work was done, but much remained undone.

During the summer of 1985 the police or I spoke often with Ms. Nyznyk expressing concerns about an impending trial for a man in custody. The case was set for the Assizes of September 9 and October 7 but did not proceed. Ultimately the case did proceed on January 7, 1986. I have included a letter dated October 8, 1985 and the attached affidavit relating to problems caused by the failure to complete the examinations. In fact the defence expert, Skip Palenik, came up and viewed what Ms. Nyznyk had found in the fall of 1985. The Crown had to pay for a return visit by the defence expert as a result of additional findings made during the trial.

Needless to say this was a fairly frustrating time period for the police and myself. The officers chased

down any number of leads to try to assist Ms. Nyznyk. We had asked for some demonstrative aids for the trial and were told they could be done. They were not. I opened to the jury with only part of the evidence. To be frank, we were concerned that if we continued to pressure Ms. Nyznyk, the evidence that might be found, would be lost. Some of the vacuumings from the car of the accused have still not been compared to the hair and fibres found at the murder scene.

Ms. Nyznyk admitted that she only learned about the letter a week or so before she began her testimony at the Inquiry. She was initially confident that she advised her counsel about the pressure before she learned about Mr. Scott's letter, but she later conceded that she may not have advised her counsel about the issue until around or after the time she became aware of the letter.

Mr. Erickson testified that there was nothing unprofessional about his dealings with Mr. Scott, and that Mr. Scott never pressured him to change his views. Mr. Erickson further testified that Crown attorneys (and police and defence counsel) sometimes inquire whether a scientist can say more about his or her findings, but he felt that such inquiries were understandable, given the attorneys' limited knowledge. Mr. Lucas concurred that clients of the CFS sometimes ask whether experts can say more about their findings, but he did not interpret that as pressure to overstate an opinion.

Mr. Scott testified that he never tried to influence Ms. Nyznyk's results or pressure her in any way except to get her work done. Ms. MacLean testified that there was no pressure exerted on Ms. Nyznyk or Mr. Erickson, subtle or otherwise, to support the position that Christine Jessop had been in the Morin Honda.

I accept completely Mr. Scott's evidence in this regard. It may well be (as suggested by some of the witnesses) that Mr. Scott and the investigators considered, or took steps, to retain an outside expert who could possibly render a stronger opinion. This involved no impropriety. There was no improper pressure exerted by Mr. Scott on Ms. Nyznyk to overstate her evidence. Her allegation (and her later recantation) reflected adversely on her credibility at this Inquiry.

Having said that, I must add that the evidence disclosed that the

investigators repeatedly telephoned or dropped in on Ms. Nyznyk at the CFS and once attended unexpectedly at her home. The investigators were undoubtedly concerned about Ms. Nyznyk's ability to complete her examinations within the required time frame. They also saw her evidence as important to the prosecution. I also have no doubt that Ms. Nyznyk felt the pressure from Mr. Scott and the investigators to complete her work in time for trial. I do not find that any improper pressure was exerted in this regard. However, the significant time constraints imposed on Ms. Nyznyk were endemic to the CFS and appear to remain a significant problem today. The pressures on Ms. Nyznyk to produce timely findings are discussed later in this chapter in the context of the CFS' workload.

The number and duration of meetings which Ms. Nyznyk and Mr. Erickson attended with prosecutors and investigators prior to the second trial were also explored at the Inquiry.

Mr. Erickson was asked about meeting with Crown counsel and police on eight different occasions prior to giving his evidence in Mr. Morin's case (with some of the meetings lasting several hours). He testified that he did not know whether an unusually large amount of time was devoted to preparation for the case, but denied that it was part of a system wherein the CFS and the authorities were trying to improve the case against Mr. Morin. Mr. Cook testified that it appeared that a lot of time was spent in meetings in the case, when the evidence was relatively simple. Mr. Lucas said he was somewhat troubled by the length of the meetings held in Mr. Morin's case. He pointed out that there was a large volume of material involved, but agreed that it does not take long to tell the Crown that most of the examinations did not show any matches. Ms. MacLean testified that the meetings were held in order to teach her about the hair and fibre evidence so she could lead it in Court. She listed a number of issues which had to be discussed: for example, the general science of hair and fibre examinations, the instruments used in the examinations, the continuity of the hair and fibre specimens, the locations where the specimens were found, and the demonstrative exhibits that could be used.

Mr. Erickson was also asked about the fact that several Crown attorneys and police officers were often present at the meetings. He said that he had never had meetings with three police officers and four Crown counsel before, and did not know why so many people met with him in Mr. Morin's case. Mr. Crocker testified that it was not unusual to meet with so many

people, but it was not the norm. Mr. Lucas stated that he had been involved in meetings with large numbers of people before. Detective Fitzpatrick testified that it did not occur to him that someone might be intimidated to meet with so many authorities at the same time.

There is no evidence that Crown counsel or the investigators acted in any improper way during these meetings. However, numerous, sometimes lengthy, meetings, often involving at least five or six prosecutors and officers, tested the independence and impartiality of the experts. Unfortunately, in some respects, Ms. Nyznyk and Mr. Erickson failed the test.

The relationship between the CFS and the police and prosecutors generally has been raised as a systemic issue at this Inquiry. The overwhelming percentage of work done by the CFS is done at the instance of the authorities. This, and the evidence heard at this Inquiry, compels the creation of measures which enhance the independence and impartiality of the CFS and its employees and protect against bias. These recommended measures are addressed at the conclusion of this chapter.

N. Continuing Involvement of the CFS

(i) Overview

Mr. Crocker was a forensic biologist at the CFS who took part in the latter stages of the second trial and in Mr. Morin's appeal against conviction. He became involved in the trial when he attended in Court, at Mr. Erickson's request, to listen to the testimony given by the experts for the defence. He became involved in the appeal when he was asked to assist the Crown with respect to the application by the defence to introduce fresh evidence. Appeals are normally decided on the basis of the evidence presented at trial. However, in certain exceptional circumstances, reflected in the case law, a party to an appeal may be granted the right to introduce new ('fresh') evidence for consideration by the Court of Appeal.

The defence in Mr. Morin's case sought to have Mr. Cook's evidence admitted as fresh evidence. Mr. Cook swore an affidavit reflecting his views as to the misuse of his study and the insignificance of the fibre findings. The Crown exercised its right to cross-examine him on the affidavit. Mr. Crocker was asked to assist in the cross-examination conducted by the prosecution and