ADMISSIBILITY AND TECHNOLOGY

Anthony F. Sheppard
Professor of Law
University of British Columbia
Author of Evidence (Carswell, 1988)

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TECHNOLOGY AND ADMISSIBILITY

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I. INTRODUCTION: EFFECTS TECHNOLOGY ON THE LAW OF EVIDENCE

A. CREATION OF NEW FORMS OF EVIDENCE

Technology generates new types of evidence, such as a videotape or computer print out. The topic of this paper is to explain how a litigant can present such evidence so that the court will receive and act upon it. In a trial by judge and jury, the judge must decide whether or not to admit the evidence, and, if it is ruled admissible, the jury must decide its weight.

From the recent cases, we can identify the rules of evidence that help or hinder the admissibility of technological evidence. As advances in technology continue, litigants seek to present new types of information to the courts, which must apply the traditional concepts of relevance, admissibility, and weight.

B. OTHER APPLICATIONS

A glance through the "Draft Programme" for this conference reveals that technology may affect other aspects of the law of evidence, apart from generating new types of evidence. These aspects are peripheral to the topic of this paper, but may be briefly listed.

1. Computer-assisted Legal Instruction

In law schools, bar admission courses, and continuing legal education, computer-assisted legal instruction (CALI) can supplement classroom instruction with automated tutorials.[1] Computer programmes can simulate the courtroom experience by confronting the user with issues of admissibility and advocacy.[2]

2. Legal Research

The law of evidence consists of statutory provisions, rules of court and case law. Legal databases can be used to supplement the more traditional methods of legal research.[3]

3. Expert Systems

An expert system is a computer programme that can solve problems as well as, or better than a human expert. An experimental expert system on the hearsay rule, with emphasis on dying declarations, will be demonstrated at the conference.[4]

4. Litigation Support

Software programmes are currently being marketed to assist barristers in preparing and presenting cases.[5] These programmes cover such matters as detecting conflicts of interest, managing documents, and recording and retrieval of testimony.[6] Recent litigation in British Columbia illustrates that computers can reduce daunting voluminous records to more comprehensible demonstrative evidence.[7]

II. ADMISSIBILITY OF NEW FORMS OF EVIDENCE

A. THE JUDICIAL ATTITUDE

Recently, the Supreme Court of Canada was faced with the issue of whether or not to admit polygraph evidence, offered by the defence to bolster the accused's credibility. In deciding to exclude it, the majority made comments that would apply to other technological evidence:

> In conclusion, it is my opinion, based upon a consideration of rules of evidence long established and applied in our courts that the polygraph has no place in the judicial process where it is employed as a tool to determine or to test the credibility of witnesses. It is frequently argued that the polygraph represents an application of modern scientific knowledge and experience to the task of determining the veracity of human

> utterances. It is said that the courts should welcome this device and not cling to the imperfect methods of the past in such an important task. The argument has a superficial appeal but, in my view, it cannot prevail in the face of the realities of court procedures.
>
> I would say at once that this view is not based on a fear of the inaccuracies of the polygraph. On that question we were not supplied with sufficient evidence to reach a conclusion. However, it may be said that even the finding of a significant percentage of errors in its results would not, by itself, be sufficient grounds to exclude it as an instrument for use in the courts. Error is inherent in human affairs, scientific or unscientific. It exists within our established court procedures and must always be guarded against. The compelling reason, in my view, for the exclusion of the evidence of polygraph results in judicial proceedings is twofold. First, the admission of polygraph evidence would run counter to the well-established rules of evidence which have been referred to. Second, while there is no reason why the rules of evidence should not be modified where improvement will result, it is my view that the admission of polygraph evidence will serve no purpose that is not already served. It will disrupt proceedings, cause delays, and lead to numerous complications which will result in no greater degree of certainty in the process than that which already exists...It is this fear of turmoil in the courts which leads me to reject the polygraph...I would seek to preserve the principle that, in the resolution of disputes in litigation, issues of credibility will be decided by human triers of fact, using their experience of human affairs and basing judgment upon their assessment of the witness and on consideration of how an individual's evidence fits into the general picture revealed on a consideration of the whole of the case.[8]

In this passage, the majority of the Supreme Court held that polygraph evidence was inadmissible on general principles underlying the well-established rules of evidence and the adversary system of trial. According to the majority of the Court, polygraph evidence was inadmissible because of the rule against oath-helping, the rule against prior consistent statements, the character evidence rule, and the expert evidence rule. Such exclusionary rules are made up of general prohibitions against the admissibility of certain types of evidence. However, there are exceptions to every rule, even in the law of evidence. Each exception to an

exclusionary rule is supposed to serve some useful purpose in the resolution of disputed issues of fact. Polygraph evidence did not deserve to gain admission through a new exception to the exclusionary rules, because its reception would disrupt the fact-finding process at trial. Misgivings about the effect of polygraph evidence on the trier of fact (jury or judge in a trial without a jury) led the majority of the Supreme Court to reject it. According to the majority, the admission of polygraph evidence threatened to wreak havoc by causing delay, misleading the trier of fact, obscuring the main issues in the case, and usurping the function of the jury.

The lesson to be drawn from this case is that new technological evidence is admissible either if it is consistent with the exclusionary rules, or if it is sufficiently worthwhile in the interests of more accurate fact-finding for the judge to create a new exception to the rules for such evidence. However, on an issue such as the credibility of witnesses, courts will usually exclude technological evidence, to preserve the traditional autonomy of the trier of fact over the determination of the issue. The only lie detection device allowed in a court room is the jury. Similarly, issues of fact concerning normal human behaviour or common experience would not require the admission of technological evidence, because unskilled "human triers of fact" are competent to decide such issues of fact by applying their knowledge and experience of human nature.[9]

On the other hand, the majority of the Supreme Court acknowledged that error is inherent in human affairs, exists within established court procedures and must always be guarded against.[10] For example, the identification of an accused by an eye witness can appear convincing to the trier of fact, although the eye witness may be honestly mistaken.[11] The courts rely on the trial judge's charge to the jury

and the appellate courts' power of review to reduce the risk of an innocent person being convicted as a result of mistaken eye witness testimony. Technological evidence of identity is readily admissible, not only to confirm or discredit eye witness testimony, but also to prove or disprove identity. In a recent criminal case, a defense expert witness discredited the testimony of the eye witnesses and the prosecution's circumstantial evidence of identity, by establishing that the accused's DNA fingerprint did not match that of the alleged culprit.[12] The expert witness testified that the discovery of the premise of genetic identification, that each individual's DNA is unique and present in every cell of the body, was made in 1985.[13] The expert witness claimed virtual infallibility for the technique.[14] Moreover, the test can be successfully applied to minute traces of bodily substance, by making additional copies of the DNA from the available sample.[15] On the facts, the expert supplemented the minute sample by this process,[16] but the effect of replication on the test results (one might expect a decline in their accuracy), was not discussed. Thus, the novel technique of DNA fingerprinting as a means of determining identity has been accepted by a Canadian court, having previously been received by the courts in the U.K. and the U.S.A.[17]

In summary, the prevailing attitude of Canadian judges, as expressed by the majority of the Supreme Court, is that technological evidence is admissible if the traditional exclusionary rules of evidence do not prohibit it, or if the admission of the evidence is so likely to improve the accuracy of fact-finding at trials that a new exception to the traditional rules is warranted. However, evidence such as the results of a polygraph test should be excluded because it infringes the exclusionary rules and would be likely to throw the fact-finding process at a trial into disarray.

Is this judicial attitude unduly restrictive? Should technological evidence receive a

bigger welcome from the judges? The two dissenting judges in the Supreme Court thought so. They held that the results of a polygraph test were relevant to the accused's credibility, and did not violate the exclusionary rules of evidence.[18] The dissenting judges also opposed the introduction of the U.S. Frye test to control the admission of scientific or expert evidence.[19] According to the strictest version of the Frye test, novel technological evidence must be excluded unless it is based on the generally accepted theories of a generally accepted scientific field.[20] The dissenters felt that any variant of such a test was unduly restrictive. Controversy about whether polygraphy is a field of science or quackery was a matter of weight for the jury to decide, with a cautionary direction from the trial judge.[21]

However, the dissenting judges did not address the practical realities of weighing the probative value of new technological evidence. In the passage from the majority's reasons quoted previously, the majority said that the Court had insufficient evidence to reach a conclusion about the inaccuracies of the polygraph.[22] Thus, the majority avoided weighing the reliability of the polygraph. Yet the dissenters seem to feel that somehow a jury can decide what weight to accord new technological evidence, even though scientific opinion may be divided or lacking on its reliability.

The reasons of the majority and dissenting judges in the Supreme Court pose a difficult question. The majority seem to feel that the development of new types of scientific and technological evidence poses a threat to the present adversary system of trial and that the judiciary must be vigilant to prevent the system from breaking down under the strain. Is there a risk that the technological revolution will produce a profusion of evidence of limited probative value, raising collateral issues, causing delay, and increasing the cost of litigation to such an extent as to

be counter-productive? The dissenters are concerned that the courts must remain open to new forms of evidence to keep abreast with technological developments and emerging areas of science.

B. THE RULES OF EVIDENCE

In this section of the paper, we shall consider whether the Canadian courts are strict or lenient about the application of specific rules of evidence to the admissibility of technological evidence.

1. Relevance

Any item of evidence, including technology, must satisfy the requirement of relevance. The basic axiom of the law of evidence is that relevant evidence is admissible, unless excluded by a rule of evidence. Relevant evidence has logical probative value in relation to a fact in issue.[23] The law of evidence distinguishes between ultimate and collateral issues of fact. Technological evidence is more readily admissible if it is relevant to an ultimate issue of fact, such as the identity of an accused. But if the evidence is relevant only to a collateral issue, such as the credibility of a witness (even the accused), it will usually be excluded, because the courts wish to prevent the focus of the proceeding from shifting to an issue of secondary importance.[24]

Technological evidence is frequently admissible to prove or disprove the identity of an accused, because identity is an ultimate issue of fact. For example, we have previously discussed the admissibility of defense expert evidence of DNA identification to disprove identity.[25] Similarly, to prove or disprove the identity of an anonymous telephone caller, expert evidence of voice spectrography is admissible in Canada.[26] American courts exclude voice print evidence as too

unreliable to satisfy the Frye test. Canadian courts prefer to admit the evidence allowing the jury, with the opposing party's evidence of the technique's unreliability and the judge's direction in mind, to decide its weight.

On the other hand, the credibility of a witness is a collateral issue. The majority of the Supreme Court held that the results of a polygraph test were inadmissible to avoid blowing a collateral issue out of proportion.[28] Thus, the majority of the Court strictly applied the test of relevance to technological evidence. Judges must enforce the fundamental concept of relevance to keep legal proceedings focussed on the issues in dispute.

2. **Expert Evidence Rule**

Litigants often introduce technological evidence through the testimony of an expert witness. The law of evidence does not require a witness offered as an expert to meet a very high standard. In the law of evidence an expert is a skilled person, one who has by dint of training and practice acquired a good knowledge of the science or art concerning which his opinion is sought and the ability to use his judgment in that art or science.[29]

The American Frye test remains a potential but uncertain barrier to the admission of new technological evidence through an expert witness. There are conflicting cases about whether or not a Canadian judge may reject an expert witness testimony either because courts in the United States do not recognize his area of expertise, or because the theory underlying the opinion has not gained general acceptance.[30]

3. Judicial Notice

Under the doctrine of judicial notice, a court may receive information without requiring formal proof. One of the purposes of judicial notice is to keep the courts receptive to the expanding world of knowledge.[31] For example, a Canadian court may take judicial notice of the theory underlying the breathalyzer.[32]

Judicial notice offers distinct advantages over formal proof as a means of bringing new technology before a court. The procedure for taking judicial notice is informal. The effect of taking judicial notice is to render the fact incapable of dispute by the opposing party.[33]

4. Hearsay Rule

The hearsay rule presupposes that the usual method of presenting evidence to a court is through the testimony of witnesses having personal knowledge of the facts. However, this assumption is losing ground in the technological age, as machines and automated systems perform the functions of observing, recording, and communicating information. Only humans could accomplish these tasks, when the hearsay rule evolved.

Some judges resolutely defend the hearsay rule against the substitution of machines for human witnesses. In a leading case, the Supreme Court of Canada excluded polygraph evidence on the ground that the defense was attempting to evade the hearsay rule.[34] The defense called a polygraph operator as an expert witness to describe the results of a lie detector test showing that the accused's confession was a lie. The defense did not call the accused, shielding him from cross-examination on his confession. The majority of the Court regarded the evidence of the results of the polygraph test taken by the accused as a violation of the hearsay rule,

saying:

> The admission of such evidence would mean that any accused person who had made a confession would elect not to deny its truth under oath and substitute for his own evidence the results produced by a mechanical device in the hands of a skilled operator relying exclusively on its efficacy as a test of veracity.[35]

In other cases, courts have admitted technological evidence even though it violated the hearsay rule. A recent decision of the British Columbia Court of Appeal concerned the appeal of a break, enter and theft conviction.[36] The investigating police officers discovered a broken window in a liquor store and found the accused two blocks from the store with three bottle of liquor. The store manager testified as a prosecution witness. He physically examined the shelves and found three gaps in the stock corresponding to the bottles found on the accused. The store's practice was to fill any gaps at closing time, suggesting that removal must have occurred thereafter. The manager physically counted the stock of the three products and compared the totals with the numbers displayed on a computer terminal in the store. The computer system kept track of all purchases and sales of inventory. The manager's comparison of the results of the physical count and the automated system revealed a shortage of one bottle in each of the three products. The manager made a note of the numbers displayed on the video display terminal, but did not obtain a print out of the entire inventory because seven to eight hours were required to run it.

At the trial, the defense counsel objected to the admissibility of the manager's note on the ground that it did not satisfy the requirements for admissibility as a business record, but the judge received it as a business record. The accused appealed the conviction and the appellate court dismissed the appeal on the ground

that although the trial judge erred in admitting the note as a business record, it was admissible as either non-hearsay or to refresh the manager's memory. The appellate court said that the note was non-hearsay for the following reasons:

> In my opinion, dealing with his evidence as to what he read on the computer screen, that evidence was admissible. A similar problem arose in this court in the case of R. v. Vanlerberghe[37]...There, the objection was to the admissibility of a computer print out. Bull, J.A. delivering the judgment of the court, held that the computer print out was admissible in evidence but he went on... :
>
> > In any event, even without those print outs, the evidence of Allison, supported as it was by Ryan, constituted definitive evidence of the result of his own searching of records, however kept, and he swore that he concluded that the telegraphic transfers had not been made in fact but were obviously fake messages.
>
> It seems to me that equally, here, the manager was entitled to testify as to his search of the records with respect to inventory.[38]

On the other hand, the manager's note of what appeared on the computer monitor would seem to fit the standard definition of hearsay,[39] and to be admissible as non-hearsay only by relaxing the definition. The hearsay rule applies to an out of court statement that is offered to prove the truth of what is expressed in the statement. If the statement is offered for some other purpose, it is non-hearsay. In the West case, the manager's note was offered to prove the truth of the statement that appeared on the computer screen, namely the number of bottles that should have been found on the shelves. But in the Vanlerberghe case, the testimony was offered to prove that if the telegraphic transfers had been sent in the ordinary course of business, the records would have contained entries to that effect. The absence of such entries indicated that the transfers had not been made and were fake messages. The inference that an event did not happen because there is no record of its occurrence is a circumstantial use of the record. The record is not

being used to prove the truth of any statement contained in it, and does not violate the hearsay rule. The appellate court erred in applying the principle of the Vanlerberghe case to the facts of the West case.

In addition, the reception of the note raises issues of principle. Should the courts bend the rules of evidence for a witness such as the store manager who could have produced better evidence (a print out), but did not, offering the excuse that the print out took some time? To prevent unfair surprise, the Canada Evidence Act requires a party intending to introduce a business record to give advance notice to the opposite party.[40] By admitting the manager's note, the appellant court allowed the defense to be taken by surprise, and to be deprived of any opportunity before the trial to investigate the reliability of the computer system in the liquor store. In the passage quoted previously, the court said that "any question as to its accuracy would go to weight rather than admissibility," yet the defense was not given a full opportunity to test the evidentiary weight of the note, either before trial or during the cross-examination of the manager, because of the element of surprise.

Although the court said that the manager's note was admissible as an exhibit under the doctrine of refreshing memory, the prosecutor had offered it as a business record at the trial. The conditions precedent to the admissibility of the note under the rubric of refreshing the manager's memory were not established at the trial. Because the manager had made the note in the course of assisting a police investigation rather than in the ordinary course of business, it did not qualify as a business record. The note should have been excluded from the evidence according to a strict application of the hearsay rule. Is the pressure of modern technology causing some courts to become more lenient about enforcing the hearsay rule?

5. Best Evidence Rule

The best evidence rule requires a party to produce the original of a document (called "primary evidence") for the purpose of proving its contents. However, if the primary evidence is unavailable for an acceptable reason, oral testimony or a copy (secondary evidence) may be tendered instead. Because of the absence of paper, automated systems of information processing present a challenge to the very existence of the best evidence rule. The best evidence rule must be modified or abolished, to accommodate modern technology.

Some courts have modified the rule to include both a print out and a disc, or other medium of storing information, as primary evidence of the contents of a computerized record system.[41] But in the previously discussed case, R. v. West,[42] the appellate court appears to have exempted the liquor store's computer system from the rule. Even though the manager could have produced primary evidence in the form of a print out, the court received his hand-written note of the contents of the computer system as displayed on a monitor, accepting the manager's excuse that the print out took too much time to be worth the effort. Such an approach amounts to ignoring the best evidence rule, and increases the risk of fabricated or honestly mistaken evidence, because anyone affected by the rule can complain bitterly about the inconvenience. Enforcement of the best evidence rule would have required the manager to spend seven or eight hours of computer time to produce a print out of thousands of entries merely to establish that three bottles were missing from the stock. Is this an unreasonable imposition and a waste of the store's time and money? Is the print out really any more reliable than the manager's note? In R. v. West, the appellate court permitted a conviction to be based on secondary evidence without mentioning the best evidence rule or the risk

of erroneous conviction, which the enforcement of the rule is supposed to reduce.

6. Presumptions

The admissibility and probative value of some technological evidence benefits from the application of the presumption of accuracy. According to this presumption, an instrument or device whose purpose is to make measurements is assumed to operate accurately. A court may admit and act upon evidence of the measurements made by such a machine without further evidence of its accuracy. The presumption of accuracy applies to speedometers and stopwatches,[43] and could be extended to many other products of modern technology.

7. Real Evidence

The police are beginning to use consumer electronics products such as video and tape recorders to record their interrogation of a suspect. In so doing, the police run the risk of recording their own violations of the confession rule and the Charter, rendering the evidence inadmissible and bringing about an acquittal. In a recent murder investigation, the interrogating officers disregarded the accused's request to see a lawyer, persuaded him to take a polygraph test, which he failed, and obtained an involuntary confession, all of which was carefully recorded but ruled inadmissible. Then, in further violation of the accused's right to counsel, the police videotaped his demonstration of the commission of the murder at the scene, which was also ruled inadmissible. In the absence of other evidence of guilt, the appellate court set aside the accused's conviction of murder, and entered an acquittal. The appellate court was not beguiled by the electronic gadgetry from strictly enforcing the confession rule and the Charter.[44]

Civil litigants should also be aware that the surreptitious recording of telephone

Civil litigants should also be aware that the surreptitious recording of telephone conversations makes an unfavourable impression on the court. Even though the recordings may be admissible, the litigant's flagrant disregard of others' privacy may reduce the amount of costs awarded by the court.[45]

The increasing availability of recording equipment favours a suspect who is about to be interviewed at least as much as it assists the police. In the immediate future, the well-prepared suspect may insist upon the right of making his or her own recording of a police interview.

8. The Charter

A judge must exclude evidence obtained in breach of the Charter if admission of the evidence would bring the administration of justice into disrepute.[46] This rule can render technological evidence inadmissible. For example, a video or tape recorded confession obtained in violation of the accused's right to counsel is inadmissible.[47] Similarly, the results of testing a sample of breath or blood taken from the accused in violation of the Charter is also inadmissible if its admission would bring the administration of justice into disrepute.[48] To decide whether or not admission of the evidence would bring the administration of justice into disrepute, the judge must weigh various factors in the balance.[49] The burden is on the defence to persuade the judge that on the balance of probabilities, the balance of factors favours exclusion.[50] The reason for excluding evidence obtained in breach of the Charter is the preservation of public respect for the administration of justice by the courts.[51] With this objective in mind, a judge should strictly enforce the Charter against technological evidence obtained in breach of its provisions. The reliability of such evidence may be a relevant consideration, but

the manner in which the prosecution obtained the evidence should be a more important factor in deciding whether or not to exclude it.

III CONCLUSION

In this paper, we have briefly reviewed the attitudes of the judges and the application of specific rules of evidence to new forms of evidence produced by the technological revolution. The rules of evidence and the values expressed in the Charter precede the modern age of technology. The pressure of technology may produce major changes in the law of evidence. The best evidence rule may be heading for extinction. The hearsay rule is also on my list of endangered species. The preservation of these rules depends on the judges. In my opinion, the judges should resolutely withstand the pressures of modern technology and preserve the rules of evidence from erosion or extinction. If the courts falter or discard the rules of evidence, the legislature should intervene to rationalize and modernize the rules. A great deal of work has been done by law reform agencies in Canada and elsewhere, to guide the courts and legislatures in dealing with technological evidence.

FOOTNOTES

1. E.g., Professor Mary Ann Waldron, "Four Lessons in Computer-aided Instruction: Statutory Interpretation, Time of the Essence in Real Property, Conflicts: A Professional Responsibility Lesson, and Family Law," demonstration on Thursday, August 24, 1989, from 3:45 to 5:30 p.m.

2. E.g., Professor Donald Egleston, "Objections Exercise" (software programme developed at the Faculty of Law, U.B.C.).

3. E.g., Dr. John Hogarth, "Sentencing Database System;' see also The CLIC Guide to Computer-assisted Legal Research (M. Clermont, ed.) (Ottawa: Canadian Law Information Council, 1988).

4. Professor Marilyn MacCrimmon, "Hearsay Advisor," demonstration on Thursday, August 24, 1989, from 3:45 to 5:30 p.m.

5. Professor Robert Franson, "Computerized Transcript Retrieval in Long and/or Complex Trials," demonstration on Thursday, August 24, 1989, from 3:45 to 5:30 p.m.

6. M.L. Erskine, H. Shapray and L.C. Webber, "Litigation Support Systems," in Computers & Law Institute - 1988 (ch. 7) (Vancouver: The Continuing Legal Education Society of British Columbia, 1988).

7. United Services Funds v. Lazzell (1988), 28 B.C.L.R. (2d) 26, supplementary reasons [1989] 1 W.W.R. 445, 30 B.C.L.R. (2d) 103 (S.C.) (graphs and charts produced by computer illustrating patterns in stock market transactions).

8. R. v. Beland, [1987] 2 S.C.R. 398 at 416-18 (per McIntyre J. Dickson C.J., Beetz and LeDain JJ. concurring; La Forest J., concurring in part,; Lamer and Wilson, JJ.

dissenting); see also R. v. Thorne (1988), 41 C.C.C. (2d) 344 (N.S.C.A.) (evidence that accused failed polygraph test inadmissible on behalf of prosecution); R. v. Nugent (1988) 213 A.P.R. 191 at 212-13 (N.S.C.A.) (confession obtained from accused after he failed polygraph test inadmissible).

9. Ibid., 415-16; 429-30 (Wilson J., diss.).

10. Ibid., 417.

11. Mezzo v. R., [1986] 1 S.C.R. 802.

12. R. v. Parent (1988), 91 A.R. 307, 65 Alta. L.R. (2d) 18 (Q.B.).

13. Ibid., 309 (A.R.).

14. Ibid., (98% accuracy of inclusion and 100% accuracy of exclusion on the issue of paternity). However, even an infallible technique can suffer at the hands of a fallible human operator: R. v. Beland, supra, note 8, 417-18.

15. R. v. Parent, ibid., 309-10.

16. Ibid.

17. Ibid., 309.

18. R. v. Beland, supra, note 8, 419-34 (Lamer and Wilson JJ., diss.).

19. Ibid., 432-33.

20. Ibid; Frye v. U.S., 293 F. 1013 at 1014 (D.C.Cir. 1923) (polygraph inadmissible; scientific evidence must be sufficiently established to have gained general acceptance in the particular field in which it belongs).

21. Ibid.

22. Ibid., 416-17.

23. Morris v. R., [1983] 2 S.C.R. 190.

24. R. v. Beland, supra, note 8, 417-18.

25. R. v. Parent, supra, note 12.

26. R. v. Medvedew, [1978] 6 W.W.R. 208 (Man. C.A.).

27. Ibid., 218-22 (O'Sullivan, J.A., diss.).

28. R. v. Beland, supra, note 8, 417-18.

29. R. v. Bunniss (1965), 50 W.W.R. 422 at 425 (B.C.Co.Ct.) (breathalyzer technician with extra studies could testify on effect of blood alcohol level).

30. Phillion v. R., [1978] 1 S.C.R. 18 at 26-27 (U.S. courts reject polygraph evidence; evidence inadmissible); R. v. Nielsen (1984), 16 C.C.C. (3d) 39 (opinion inadmissible because based on unrecognized scientific theory that each footprint is unique); leave to appeal to S.C.C. refused 16 C.C.C. (3d) 39n (Man.); see also R. v. Medvedew, supra, note 26, (voiceprint evidence admissible in Canada despite inadmissibility in U.S.); R. v. Beland, supra, note 28, (per Lamer and Wilson JJ. diss., Frye test disapproved).

31. Commonwealth Shipping Representative v. P.&O. Branch Service, [1923] A.C. 191 at 211 (H.L.) (to require judge to affect cloistered aloofness from facts known to everyone could easily become pedantic and futile).

32. Batley v. R. (1985), 32 M.V.R. 257 at 259 (Sask. C.A.).

33. R. v. Zundel (1987), 56 C.R. (3d) 1 at 55-56; leave to appeal to S.C.C. refused 56 C.R. (3d) xxviii (Ont.).

34. Phillion v. R., [1978] 1 S.C.R. 18.

35. Ibid., 25 (per Ritchie, J.).

36. R. v. West (B.C.C.A., Victoria Registry No. V00766; February 8, 1989).

37. R. v. Vanlerberghe (1976), 6 C.R. (3d) 222 (B.C.C.A.).

38. R. v. West, supra note 36, (per Hinkson, J.A.).

39. R. v. O'Brien, [1978] 1 S.C.R. 591 at 593.

40. Canada Evidence, R.S.C. 1985, c. C-5, s. 30(7).

41. R. v. Bell (1982), 35 O.R. (2d) 164 aff'd [1985] 2 S.C.R. 287. (subnom. Bruce v. R.); see also Reichmann v. Toronto Life Publishing Co. (Ont. H.C.), [1989] C.C.L. 2220 (computer disk is a document for purposes of discovery); R. v. Bicknell (1988), 41 C.C.C. (3d) 545 at 551 (B.C.C.A.) (print out is not merely a copy of what is contained in the computer).

42. Supra, note 36.

43. R. v. Bland (1974), 6 O.R. (2d) 54 (C.A.) (speedometer); R. v. King (1977), 35 C.C.C. (2d) 424 (Ont. Div. Ct.) (presumption inapplicable to measurements obtained by use of a length of chain); R. v. Taitt, [1965] 1 C.C.C. 16 (N.B. Co. Ct.) (speedometer); R. v. Amyot, [1968] 2 O.R. 626 (Co. Ct.) (stop watch).

44. R. v. Nugent, supra, note 8; see also Vickery v. Prothonotary (1988), 222 A.P.R. 29 (NSSC) (public access to the video and tape recordings).

45. Mastalerz v. Garland (1988), 62 Alta. L.R. (2d) 129 (Q.B.).

46 Canadian Charter of Rights and Freedoms, s. 24(2).

47 R. v. Nugent, supra, note 8.

48 R. v. Therens, [1985] 1 S.C.R. 613 (certificate of analysis of accused's breath inadmissible; denial of right to retain and instruct counsel upon detention); R. v. Pohoretsky, [1987] 1 S.C.R. 945 (analysis of blood sample taken from the accused without consent pursuant to provincial statute inadmissible; wilful and deliberate violation of the sanctity of accused's body); R. v. Dyment, [1988] 2 S.C.R. 417 (analysis of sample of blood taken without accused's consent for medical purposes but handed over to police inadmissible; flagrant breach of privacy).

49 R. v. Collins, [1987] 1 S.C.R. 265.

50 Ibid., 280.

51 Ibid., 280-81.