BUSINESS RECORDS AND COMPUTER OUTPUT

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EVIDENCE LAW REFORM COMMITTEE

WORKING PAPER 2 : BUSINESS RECORDS AND COMPUTER OUTPUT

1. PREFACE

In 1982 the Minister of Justice established the Evidence Law Reform Committee to examine the desirability of codifying the laws of evidence and also to review specific areas of the law of evidence which are in need of reform.

This is the second consultative document prepared by the Evidence Law Reform Committee.

The views expressed are tentative only. The purpose of the Working Paper is to invite comment and criticism on the proposals put forward before firm recommendations are made and embodied in the Committee's final report to the Minister of Justice.

2. INTRODUCTION

This Working Paper will address the adequacy of the New Zealand business records legislation contained in the Evidence Amendment Act (No. 2) 1980 generally in the light of the ever increasing use being made of computers to store information.

We will also consider whether the admissibility of computer-generated evidence can be adequately provided for by amendment of the provisions of the Evidence Amendment Act (No. 2) 1980 which relate to the admissibility of documentary hearsay evidence or whether separate provisions dealing solely with the admissibility of computer generated evidence should be enacted.

3. THE NEW ZEALAND POSITION

(A) The common law principles

In Holt v Auckland City Council[1] the Court of Appeal made a plea for legislative consideration of the problem of the admissibility of computer output:

> "The evidentiary difficulty has arisen because the analysts in the Department of Scientific and Industrial Research have quite properly relied on developments in computer technology. In recent years there has been considerable discussion in other common law jurisdictions as to the proper evidential foundation for the admission of such computer based evidence and the United Kingdom and South Australia have enacted legislation to provide for the admissibility of computer output subject to appropriate safeguards. The various legislative approaches to the problem are discussed in Tapper, Computer Law (1978) pp 156-172. Consideration might well be given to the enactment of appropriate legislation in this field in New Zealand."

Holt involved a charge under the blood alcohol provisions of the Transport Act 1962.

The defendant required that the person who analysed his specimen of blood be called by the prosecutor as a witness at the hearing. A chemist designated the method of analysis she employed as head space gas chromatography. As part of the process of obtaining the blood alcohol level of a specimen the chromatograph was connected to an integrator which was used in conjunction with a computer as a data analyser. The chemist was an expert in gas chromatography but was not an expert in relation to the programming and maintenance of the computer and integrator.

It was held that there was a gap in the chain of proof of the validity of the blood alcohol reading in the computer print out relied on by the chemist. The chemist's evidence of blood alcohol levels was critically dependent on the functioning and accuracy of the integrator and computer, and was inadmissible as incorporating hearsay data outside the field of her proven competence. Accordingly, the appeal was allowed.

The provisions of the Evidence Amendment Act 1945 (the predecessor to the Evidence Amendment Act (No. 2) 1980) relating to the admissibility of documentary hearsay evidence, had no application to the situation with which the Court was faced.

In the absence of specific statutory provisions regulating the admissibility of computer output in evidence the Court had to rely on common law principles.

In delivering the judgment of the Court Richardson J adopted Wigmore's suggested requirements for admissibility at common law and also considered the presumption of reliability which applies to "notorious" scientific devices at p.126-128 of the report:

> "The computer print out of the blood alcohol analysis involved obvious hearsay. The role of the integrator and computer is not confined to the retrieval of information. The programming is by persons expert in that field and that is reflected in the computer print out. Miss Campbell had not programmed the computer and disclaimed any expertise in computer science. So there was no evidence from any expert in the field as to the functioning and reliability of integrators and computers in general and of the particular apparatus used in this case.
>
> "In his classic work, The Science of Judicial Proof, Professor Wigmore observes, at p.450, that the correctness of the data obtainable from the use of instruments constructed on knowledge of scientific laws must depend on the correctness of the instrument in construction and the ability of the technical witness to use it. He goes on to suggest that the following three propositions apply to testimony based on the use of all such instruments:
>
> "A. The type of apparatus purporting to be constructed on scientific principles must be accepted as dependable for the proposed purpose by the profession concerned in that branch of science or its related art. This can be evidenced by qualified expert testimony; or, if notorious, it will be judicially noticed by the judge without evidence.
>
> "B. The particular apparatus used by the witness must be one constructed according to an accepted type and must be in good condition for accurate work. This may be evidenced by a qualified expert.
>
> "C. The witness using the apparatus as the source of his testimony must be one qualified for its use by training and experience."
>
> "Miss Campbell was experienced in the use of the integrator and computer in association with the chromatograph. But she was not qualified in the computer field and she was reliant on computer programmers for the proper programming and maintenance of the apparatus. There was no qualified

evidence as to those matters before the Court. So there was a gap in the chain of proof of the validity of the blood alcohol reading recorded in the computer print out relied on by Miss Campbell.

"The remaining question is whether the evidence given by Miss Campbell falls within the evidentiary presumption as to the working accuracy of scientific or mechanical instruments. In a technology based society the user of scientific apparatus is not likely to have made the calculations on which the capability and accuracy of the machine depends. Indeed, he may lack any real understanding of the scientific principles on which it is based. But his experience of the machine may have satisfied him as to its reliability for his needs. It does not follow that his reliance on the machine will make it unnecessary to demonstrate its functioning and reliability before the results are admissible in evidence. The general principles applying in this field are shortly but comprehensively stated in the following passage from the judment of Jackson CJ in Zappia v. Webb [1979] WAR 15,17:

> "It is well established that the courts will take judicial notice of the use, nature and purpose of many mechanical or scientific instruments in common use, such as watches, thermometers, barometers, speedometers and the like.
>
> These instruments are of a class which by the general experience are known to be trustworthy, even if not infallible, so that there is a presumption of fact, in the absence of evidence to the contrary, that readings taken from such instruments are correct, and hence it is not necessary to show that at the relevant time the instrument had been tested and found to be working correctly. But the acceptance of a particular instrument without proof of its function, operation and accuracy depends upon the extent to which it is commonly used within the community, so that a mechanical or scientific device recently invented will usually require expert evidence to establish what it can measure or accomplish and whether it can be relied on. Later, as the device and its use becomes known, a stage may be reached where the courts will be sufficiently familiar with it not to require proof of what it is and what it does, but may still require evidence of its accuracy at the relevant time."

"The Courts have tended to be cautious in extending the presumption to newly developed scientific devices. Three examples illustrate the point. As late as 1938 it was held in England that the accuracy of a speedometer must be established (Melhuish v. Morris [1938] 4 All ER 98); in 1930 it was held in Victoria that there was no presumption of the accuracy of a loadometer (Crawley v. Laidlaw [1930] VLR 370); and in 1962 it was held, again in Victoria, that breathalysers

> did not fall within the class of notorious scientific and technical instruments, the accuracy of which is presumed at common law (Porter v. Kolodzeij [1962] VR 75). The presumption serves the important purpose of saving the time and expense of proving the obvious. At the same time, until it can be considered that the functioning and trustworthiness of a newly developed device is a matter of common knowledge, those who rely on the equipment must carry the responsibility of establishing its accuracy."

The Court in Holt's case acknowledged the assistance it had obtained from the judgment of Zelling J in Mehesz v Redman (No. 1)[2]. However in Mehesz v Redman (No. 2)[3] a Full Court concluded that on common law principles it was satisfied that the evidence based on the gas chromatograph was accurate and, accordingly, admissible even without the evidence of the programmer.

The previous common law exceptions to the hearsay rule have been modified and given statutory form in the Evidence Amendment Act (No. 2) 1980. There is no specific common law exception relating to computer output.[4]

(B) Statute

The Evidence Amendment Act (No. 2) 1980 contains provisions for the admissibility of documentary hearsay evidence in certain circumstances.

(i) The Business Records Exception

In the case of business records it has long been recognized that documentary records are often the best, if not the only evidence available and much injustice would be caused if their admissibility was prevented by the hearsay rule. Provided certain conditions are met they are therefore admissible in most jurisdictions under an exception to the hearsay rule. The character of the records as business records which are relied upon in business, their usual high degree of accuracy and the fact that they are customarily subject to certain checks for accuracy provide the circumstantial probability of trustworthiness.

In New Zealand s.3(1)(b) of the Evidence Amendment Act (No. 2) 1980 is a statutory exception to the hearsay rule providing for the admissibility of business records.

(ii) Problems associated with the admissibility of business records under section 3(1)(b) of the Evidence Amendment Act (No. 2) 1980

(a) Problems connected with the use of computers

What is sought to be admitted under s.3(1)(b) must be a statement made by a person in a document.
In traditional business record keeping systems based on written records maintained by people, this requirement created no problems. Today computer use for record keeping has become widespread in the business world. Computer systems are used because they are more efficient and less costly than conventional record keeping systems. These effects are achieved by increased automation in the fields of data collection, collation, calculation, storage and reproduction of records. More human functions are being taken over by machines with the result that contact between human beings and the information necessary to conduct a business is rapidly decreasing. Further, the form in which information is obtained and stored has changed. Where once people could be expected to remember transactions to which they had been a party, or could at least verify the accuracy of their own records, today with the use of computers they can generally do no more than secure the display of information which may have been initially expressed by the depression of keys on a keyboard, transmitted as pulses of electrical energy over a wire, manipulated as a series of electrical charges in ferrite core, and finally deposited as a pattern of magnetised particles on a plastic disk.

Whether information contained in computer output which is sought to be admitted as a business record is a statement "made by a person" depends on the function for which the computer has been used in the record keeping process:

> If the computer output contains information which the computer has simply recorded or stored and which has first passed through a human mind then whether it is fed into the computer by a person, (for example by keying it in through a terminal) or whether it is input without the aid of a human being (for example by the computer reading a statement of fact from a piece of paper) then that information can reasonably be said to be a statement "made by a person", namely the person through whose mind that information has passed before being fed into the computer.
>
> If the computer output contains information which the computer has simply recorded or stored but which can never be said to have passed through a human mind then it is unlikely that that information could ever be said to be a statement "made by a person".

> It was on this basis that the English Court of Appeal, in R v Pettigrew,[5] held a computer printout, which identified the serial numbers of £5,000.00 worth of £5.00 notes, inadmissible under s.1(1) of the Criminal Evidence Act 1965 (U.K.). Because no person could be said to have had personal knowledge of the information contained in the printout no person could be said to have "made the statement".

If the computer output contains information which the computer has not simply recorded or stored but which the computer has instead processed by performing mathematical operations or comparing, sorting, analysing, editing or consolidating items of data so that the printout contains information different from that which was initially fed in, then it would appear that the processed information is not a statement "made by a person".

It would appear therefore that only if the computer output contains information which the computer has simply recorded or stored and which has first passed through a human mind will the requirement that the statement be "made by a person" be met. As noted earlier, the major reason why computers are used is to increase efficiency and decrease costs, which effects are largely achieved by increased automation in the fields of data collection, collation, calculation, storage and reproduction of records. It is hard to imagine a situation where a computer would be used only as a device to record or store information. Processing is likely to be a major function of most computers.

The requirement that the statement must have been "made by a person" will therefore prevent most computer output from being admissible under s.3(1)(b) of the Act.

Not only must the statement which is sought to be admitted have been "made by a person" but the person must have "made the statement in a document".

"Document" is widely defined in s.2 of the Act. Paragraph (b) of the document definition was clearly intended to cover computer output. It provides:

> "[document means a document in any form ... and includes]
>
> (b) Any information recorded or stored by means of any tape-recorder, computer, or other device; and any material subsequently derived from information so recorded or stored."

Although it could be argued that the effect of the first limb of paragraph (b) is to deem the intangible information recorded or stored by a computer to be a document, the better view may be that the opening general words of the document definition, namely "document means a document in any form ... and includes ..." imply that those things listed as included within the definition of document under paragraphs (a) - (e) must be documents within the ordinary meaning of the word.

It is not the intangible information which has been recorded or stored which is the document, but rather that information in its recorded or stored state. Thus, for example, if a computer stores information as a pattern of magnetised particles on a plastic disk the plastic disk will probably be regarded as a document under this limb.

Under the second limb of paragraph (b) it would appear that any subsequent presentation in another material form of information which is deemed to be a document in its recorded or stored state under the first limb of paragraph (b) is also deemed to be a document. If a computer stored information as a pattern of magnetised particles on a plastic disk that disk would be a document under the first limb of paragraph (b) and a subsequent printout of that information would be a document under the second limb of paragraph (b).

The effect of paragraph (b) of the definition of "document" would appear to be to allow for the admissibility of computer printouts or other tangible representations of information which the computer has simply recorded or stored and which has first passed though a human mind. If only the computer printout was a document then it is doubtful if the information recorded in the printout could ever be said to be a statement "made by a person in a document". The Western Australia Law Commission (WALRC) noted:[6]

> "This requirement appears to mean that a person must actually have recorded a statement in a document personally so it is not sufficient for the statement to be made by one person and recorded in a document by another"

Thus, for example, suppose an employee makes a credit sale of an item such as a spare part. The employee, or another employee on the instructions of the first, then feeds the details of the transaction into a computer where it is stored as a pattern of magnetised particles on a plastic disk. Then, suppose at some time in the future another operator instructs the computer to produce a printout of the sale transactions. If only the computer printout was a document, would the information contained in that printout be "a statement made by a person in a document" and if so by whom was it made?

The employee who activated the computer to record and store the information may never have seen the printout and it would seem odd to suggest that he made the statement in the printout. The operator who activated the computer to produce the printout is likely to have no knowledge of the information contained in the printout and it would also seem to be an abuse of language to say that he made the statement in the printout. The effect of the first limb of paragraph (b) appears to be to deem the disk in which the information was stored a document while the effect of the second limb appears to be to deem the computer printout which is a subsequent material presentation of that document also to be a document. If the disk is a document then it would seem reasonable to say that the statement was made in that document by the employee who fed the information into the computer. The second employee who activated the computer to produce the printout simply had the computer reproduce in the printout the statement which the first employee had made in a document, namely the disk.

(b) General Problems

In order for a document to be admissible under s.3(1)(b) it must be a "business record". "Business record" is defined in s.2(1) as:

"... A document made -

(a) Pursuant to a duty; or

(b) In the course of, and as a record or part of a record relating to any business,

- from information supplied directly or indirectly by any person who had, or who may reasonably be supposed by the Court to have had personal knowledge of the matters dealt with in the information he supplied".

There are therefore two limbs to the definition of business record.

Under limb (a) a document made "pursuant to a duty" may be a business record. "Duty" is widely defined in s.2(1) to include "any duty imposed by law or arising under any contract and any duty recognised in carrying on any business practice." Most documents sought to be admitted under the business records exception, whether made manually or by computer, would be made "pursuant to a duty" within this definition, probably by virtue of a duty owed by an employee to an employer under a contract of employment. It is doubtful however whether some records made by the owner of a small business could be said to be made pursuant to a "duty".

If a record cannot be shown to have been made pursuant to a duty imposed by law or arising under any contract it may be possible to prove that the entry was made pursuant to a "business practice" duty. The bounds of this concept are still uncertain and must be further defined by caselaw.

The advantage of qualifying a document as a "business record" under limb (a) is that there is no requirement that the document be a "record" of a "business".

Under limb (b) the document must be made "in the course of, and as a record or part of a record relating to, any business". "Business" is widely defined in Section 2(1). What is a "record" for the purposes of this provision is uncertain. In R v Lyall[7] Mahon J. was concerned with a similar requirement under the now repealed s.25A of the Evidence Act 1908 (as inserted by the Evidence Amendment Act 1966). He held that business records, in this context, are confined to books of accounts, stock delivery records, records identifying manufactured stock and collections of internal business data, and do not include correspondence or invoices or consignment notes. Subsequently in R v Jones[8] the English Court of Appeal, in considering whether bills of lading and cargo manifests were documents which were or formed part of a "record" relating to a trade or business within Section 1(1)(a) of the Criminal Evidence Act 1965 (UK) (the provision upon which s.25A above was modelled), held that:

> "'record' in this context means a history of events in some form which is not evanescent. How long the record is likely to be kept is immaterial; it may be something which will not survive the end of the transaction in question; it may be something which is indeed more lasting than bronze, but the degree of permanence does not seem to us to make or mar the fulfilment of the definition of the word "record". The record in each individual case will last as long as commercial necessity demands."

It is uncertain whether the approach in Jones will be followed in New Zealand in preference to that adopted by Mahon J in Lyall.

Both limbs of the "business record" definition also require that the document be made:

> "from information supplied directly or indirectly by any person, who had or may reasonably be supposed by the Court to have had, personal knowledge of the matters dealt with in the information he supplied."

It is arguable that the reference to 'information supplied directly or indirectly by any person' means that if the source of the information is the maker of the statement then the statement cannot be a "business record" under either limb, i.e. for a document to be a "business record" the supplier of the information and the maker of the statement must be two different persons. If this is correct then it would appear to be a rather arbitrary and unjustified limitation on the admissibility of business records. Is a business record necessarily less reliable if it is made by a person who was involved in the transaction? It is our view that it is not necessarily less reliable and in many cases would be more reliable as the chances of16ranscription and similar types of errors would be significantly reduced. This requirement has particular implications for small businesses which are not large enough to be able to separate the record keeping function from other business activities. In many cases the problem will be solved by the application of s.3(1)(a).

The "business record" definition also requires that:

> "the supplier of the information should have had, or the Court may reasonably suppose him to have had, personal knowledge of the matters dealt with in the information he supplied".

It is implied that the person who is referred to as the "supplier" is the person who supplied the information for the purpose of creating the business record. In order to ascertain whether the supplier of the information had personal knowledge, and, in most cases, in order for the court to reasonably infer that the supplier of the information had personal knowledge of the matters dealt with in the information he supplied, it would seem to be necessary to be able to identify the supplier of the information. Thus, as a general rule, if the identity of the supplier of the information for the record could not be ascertained, or if it would be too costly in terms of time and effort to warrant trying to ascertain the supplier's identity, the record could not be a "business record" and would therefore be inadmissible under section 3(1)(b).

> This is a significant limitation on the admissibility of business records. In manual record keeping systems it would often be impossible or too costly in terms of both time and effort to identify the supplier of the information. The problem is magnified in computer record keeping systems.
>
> We discuss this point further in Part 6(D) below.

In order for a business record to be admissible under section 3(1)(b) it is also required that:

> "The person who supplied the information for the composition of the record
>
> (a) Cannot with reasonable diligence be identified; or
>
> (b) Is unavailable to give evidence; or
>
> (c) Cannot reasonably be expected (having regard to the time that has elapsed since he supplied the information and to all the other circumstances of the case) to recollect the matters dealt with in the information he supplied."

Most business records which are sought to be admitted should meet one of these criteria.

In our view it may be desirable also to provide for the situation where the time and expense necessary to identify and call as witnesses the persons concerned with the statement, or to prove that their testimony is not available because one of the criteria is met, is not justified by the likely value of their testimony or the nature of the proceedings.

Our tentative preference is to delete the requirement for the maker of the statement or the supplier of the information from which the record was made to give evidence entirely.

This point is further discussed in Part 6(E) below.

Section 4 of the Evidence Amendment Act (No. 2) 1980 provides that nothing in s.3(1)(b) shall render admissible a statement previously made by a person who is called as a witness in any proceeding and gives evidence relating to the matters contained in that statement, unless the court is of the opinion that its probative value outweighs or may outweigh the probative value of evidence given by the witness in relation to those matters (whether the statement is consistent or inconsistent with the evidence). It is submitted that this provision is unnecessarily narrow. The New South Wales Law Reform Commission (NSWLRC)[9] considered that business records should be admissible whether or not

the person who supplied the information from which they were made is called as a witness. The Commission considered that a statement in a business record will generally be a reliable contemporary record and a valuable addition to the evidence before the court. They took the view that if a witness is entitled to refresh his memory from the statement it is desirable that it be admitted in evidence. Accordingly, they concluded that where it is relevant to have in evidence the complete records concerning a matter, it is desirable that it should be made clear that calling a person who supplied information does not make inadmissible any statement in those records made from information supplied by him. In our tentative view s.4 may unreasonably restrict the admissibility of reliable evidence. It would be far better if the provision was phrased so that such a statement is prima facie admissible, with the court having a discretion to exclude it if there was some doubt as to its reliability.

See also the discussion in Part 6(F)(iii) below.

The current New Zealand legislation does not provide for the admissibility in evidence of the absence of an entry in business records to prove that an event, which would have been recorded if it happened, did not happen. The New South Wales Law Reform Commission doubted whether such evidence was hearsay but, in order to clarify the position, felt it prudent to make express provision for the admissibility of such evidence[10].

The same justifications apply to the admissibility of such evidence and the admissibility of business records themselves. Given that business records are usually accurate and are customarily subject to checks for accuracy, evidence of the non-existence of an entry which could be expected to have been made is likely to be of high probative value. If an event would have been recorded if it had happened then the absence of an entry in business records should be admissible to prove that it did not happen.

See Part 6(F)(ii) below.

(iii) Is it necessary for computer output to be admissible under an exception to the Hearsay Rule?

Under the Hearsay Rule former statements of any person, whether or not he is a witness in the proceedings, may not be given in evidence if the purpose is to tender them as evidence of the truth of the matters asserted in them.

If a computer printout contains information which the computer has recorded or stored and which has first passed through a human mind then that information can reasonably be said to be a statement "made by a person". Accordingly, if the maker of the statement is unavailable or unidentifiable and the computer printout is sought to be introduced as evidence of the truth of the information it contains, it will be hearsay and inadmissible unless it comes within an exception to the hearsay rule.

If, on the other hand, computer output contains information which the computer has simply recorded or stored but which can never be said to have passed through a human mind (as was the case in R. v Pettigrew) or if the computer output contains processed information, then it is arguable that that information could never be said to be a statement "made by a person". Accordingly such information may not be hearsay and the record made by the computer of that information may be admissible as direct evidence. Thus, for example, in the Statue of Liberty[11] a record made by purely mechanical means, and without human intervention, by a radar set at a shore radio station, in respect of the echos of two ships involved in a collision at sea, was held admissible to prove the movement of the ships and the place where the collision occurred. The defendants had sought to resist the admissibility of the record on the ground that it was a piece of evidence produced mechanically, without human intervention, and as such offended against the hearsay rule. Simon P. answered this contention by stating:[12]

> "In my view the evidence in question in the present case has nothing to do with the hearsay rule and does not depend on the Evidence Act 1938."

This would appear to be the correct view. The main rationales of the hearsay rule are based on the idea that hearsay evidence is a substitute for the oral testimony of the person who has made the hearsay statement. If a statement has not passed through a human mind it cannot be said to be hearsay because such a statement is not a substitute for the oral testimony of a person.

In R. v Pettigrew the English Court of Appeal held that a computer printout which identified the serial numbers of £5,000 worth of 5 pound notes inadmissible because no person could be said to have had personal knowledge of the information contained in the printout and it did not therefore meet the requirements of admissibility under s.1(1) of the Criminal Evidence Act 1965 (UK) which provides for the admissibility of certain documentary hearsay statements.

At first glance this case would appear authority for the proposition that if no person had personal knowledge of a statement then it is hearsay and inadmissible unless it comes within one of the exceptions to the hearsay rule. On a closer examination of the facts it appears that the prosecution sought to rely on s.1(1) of the Criminal Evidence Act 1965 (UK) for the admissibility of the printout. The court held that the personal knowledge requirement of that exception was not met and the printout was therefore inadmissible under that section.

The far more fundamental point of whether it was necessary to rely on an exception to the hearsay rule at all in order for the printout to be admissible does not appear to have been taken.[13]

Pettigrew involved a machine into which an operator fed a bundle of bank notes, each bearing a serial number. The machine then automatically did two things. First, it rejected any notes in the bundle fed into it which were defective in any way and recorded the serial numbers of those notes rejected. Secondly, it recorded the first and last serial numbers of each bundle of notes which may then be taken to run consecutively in series, save only for the rejected notes whose numbers it had recorded. The computer printout was then sought to be admitted as evidence to identify the numbers of the notes in the bundle.

In our view in such a case as this (where the information has never passed through a human mind, because only the computer knew which notes were rejected and hence which were in the bundle) no person can be said to have made the statement recording the numbers of the notes in the bundle. Accordingly, there is no question of hearsay involved.

The fact that the information contained in computer output is not itself hearsay does not mean that that output will necessarily be admissible. An evidential foundation for the reliability of the apparatus must be laid. If this foundation is not laid the evidence will be inadmissible. If the evidence is given by one not qualified to give it, the evidence will be rejected. (Holt[14])

In South Australia it has been held that the evidence need not be that of an expert but may be that of an operator who has used the particular apparatus for a long period (Mehesz v Redman (No. 2)[15]).

(iv) Other statutory exceptions, apart from the business records exception, under which computer output may be admissible

Section 3(1) of the Evidence Amendment Act (No. 2) 1980 contains two other exceptions for documentary material under which some computer output may be admissible. These exceptions however have the same limitations as the business records exception i.e. in order for a statement to be admissible under the exceptions they require the statement to have been "made by a person in a document".

In addition, they have the further limitation that the maker of the statement is required to have had "personal knowledge" of the matters dealt with in the statement. This requirement causes immediate problems with computer records because if the employee who was involved in the transaction is a different employee from the one who enters the transaction data into the computer (i.e. who makes the statement in the document) it cannot really be said that the employee who made the statement in the document ha[a] personal knowledge of the matters dealt with in the statement.

There will be very little computer evidence which can satisfy both requirements.

There are two specific statutory provisions under which computer output is admissible. These are s.239A of the Post Office Amendment Act 1980 and s.15 of the Banking Act 1982. These sections have very limited application.

4. THE NATURE OF COMPUTERISED RECORD-KEEPING SYSTEMS

Before considering whether computer output should be admissible under a general business records exception or whether there should be a specific statutory exception for computer output it is necessary to consider how a computer operates.

(A) How a computer works

There is no universally accepted definition of a computer. For the purposes of this working paper a computer may be defined as:

A device which is:

(1) capable of accepting information,
(2) storing and processing it in accordance with a predefined sequence of instructions and
(3) supplying the result.

Processing in the context in which it is used here, means performing mathematical operations, or comparing, sorting, analysing, editing or consolidating items of data in accordance with mathematical or logical rules.[16]

Computers consist of two components, hardware (which is the computer's mechanical apparatus) and software (which is any program written for the computer). A computer's software may be divided into two different types of programs: (1) systems programs, which operate the hardware, and (2) applications (or processing) programs which solve user's problems. A computer's hardware consists of four basic elements: input devices, a central processor, external or peripheral storage devices and output devices. Input devices translate information from human readable form into internal machine language. The central processor is comprised of three parts: (1) the computer's memory, which is used to store the applications program and also data or information while it is being processed, (2) the control unit, which interprets the instructions contained in the applications program stored in the memory and directs the operations of the other components, and (3) the arithmetical and logical unit, which performs the arithmetical and logical operations necessary for processing. External or peripheral storage devices are storage devices which are physically external to the central processor and are used to store information, most commonly in magnetic form. These devices are capable of storing information for an apparently unlimited time. Output devices put out information, which has been stored or processed by the computer, by translating it into readable form and displaying it.

(B) Differences between computerised and traditional record keeping systems

Although computers are not only used for record keeping it is the area of their greatest evidential impact because it is when they are so used that computer output will most often be sought to be admitted.

There are significant differences between computerised and traditional record keeping systems. These include:

(i) Many tasks formerly carried out by human beings are performed solely by machine with the result that the involvement of people in the record keeping process is substantially reduced in a computerised system. Further, in a computerised system, computations are generated and relayed by electrical impulse and the machine produces no written records as evidence of the process by which it derives its results.

(ii) In a manual record keeping system records are updated by a cumulative process involving the addition and subtraction of new and previous entries. In a computerised system, records are updated by combining new and old entries, sometimes destroying the latter. This results in the loss of intermediate records which could have been a valuable evidentiary aid to establish the reliability of the record which is sought to be admitted.

(iii) A manual system involves documentary records in human readable form. In computer systems a record is retained as an electronic impulse in memory until it is either printed out or transferred to an external storage device where it is stored in magnetic form.

(iv) In traditional record keeping systems documents are generally kept in an order which facilitates searching for a particular document. Because of the tremendous sorting capacity of a computer it is not necessary for source documents, from which information is entered into the computer, to be arranged in any particular order. Source documents may be recorded in random order on tape or disk. Generally no document is produced which indicates the order in which the source documents were stored. In such cases it may be impracticable to search out the source documents.

(v) It is also usual in traditional record keeping systems to keep copies of documents sent to other parties, for example statements of account and invoices. In a computer system it would be unlikely that such documents would be printed out in duplicate.

There are therefore significant differences between computerised and traditional record keeping systems. These differences basically revolve around greater automation and hence less human involvement and documentation in the record keeping process when computers are used.

(C) Possible sources of computer error

Because of the differences between computerised and traditional methods of performing the same task a computer poses a new set of problems which do not exist where traditional methods are used.

It cannot be doubted that computers are substantially more accurate than traditional methods but mistakes do occur.

Computer errors may be divided into two main categories based on their source. These are mechanical errors and human errors. In addition, although not technically an error, it is necessary to consider the problem of deliberate falsification.

(i) Mechanical Errors

There are two kinds of mechanical errors - environmentally induced errors and hardware failures.

Environmentally induced errors - Both the computer and its input/output and data storage media are environmentally sensitive. Any excessive heat, humidity, dust, power source fluctuations or elector-magnetic or magnetic interference may cause the system to malfunction. A speck of dust could signficantly change a given record by concealing an impulse on a magnetic tape file. Environmentally induced errors are unlikely to occur because most computer systems are kept in rigidly controlled environments. Most manufacturers also provide their equipment with a variety of self-protection devices which can disable the computer before the hardware is seriously damaged. Technological developments are gradually overcoming the problems of environmental sensitivity. The modern computer is far less environmentally sensitive than its 1960's counterpart. Environmentally induced errors are likely to be increasingly rare.

Hardware failures - Hardware failures are very rare. Well designed error detecting circuits and a regular programme of preventative maintenance should minimise the likelihood of breakdown due to hardware failure.

(ii) Human Errors

As Sieghart states:[17]

> "Any information system, however much it is automated, must still rely on people to collect the data, prepare them for the computer, write and test programs, run the right programs on the right data, and so on. And even the best people will always make some mistakes."

Most so called "computer errors" are due to people. Mechanical errors are relatively rare. Human errors may be divided into systems design and programming errors, operating mistakes, and input errors.

System design and programming errors - Programs control the operations of the computer. A computer program is a sequence of instructions to be executed by the computer to solve a given problem or to carry out a desired procedure. Because of the degree of human involvement in programming some errors are inevitable and programming errors are relatively common. Programs are usually subjected to rigorous testing before they are relied on in processing. Such testing should detect most errors. It is

inevitable that some errors will slip through and they may go undetected for years until the unusual combination of circumstances not provided for occurs.

Operating mistakes - In a poorly controlled system a computer operator can cause some quite frightening errors. Such an operator could, for example, accidentally erase files of vital data, mistakenly update financial records twice with the same data, or use wrong tapes or programs in processing. Once such a mistake occurs, sorting out the trouble can be very difficult. With well-planned controls most operating errors can be avoided. A computer programm can be designed so that it will not read or update a file until it has checked the file's data file label to ensure it is working on the correct one. Similarly, a program can be designed so that it will not run until the operator has carried out certain checking actions.

Input errors - A commonly used phrase in the computer industry is "garbage in, garbage out". No matter how well a system is working its output can only be as accurate as the input from which it is derived. Incorrect input is by far the largest source of computer errors. As a result, in order to minimize the possibility of such errors occurring, computers are generally programmed to perform a number of checks on the accuracy of the information in the source document and on the accuracy of the transfer of that information to the computer. In addition there are often a number of checks performed prior to the entry of the data into the computer in order to ensure the data's accuracy. Some companies have separate departments whose function is to verify the accuracy of all inputs and outputs. With well designed controls the possibility of input errors occurring can be minimized.

(iii) Deliberate Falsification

This is a similar danger to that which is present in a traditional record-keeping system. However, whereas falsification in a manual system is time consuming, involving the physical alteration of documentary records by a person familiar with the record-keeping system, in a computerised system it is far easier for someone familiar with the operations of a computer to manipulate the processing program, data base or both. Computer output is therefore far more susceptible to deliberate falsification. Further, it is often difficult, if not

impossible, to detect such falsification. The computer system should incorporate a number of controls in order to minimize the possibility of such falsificiation. For example, the computer system can be physically protected so that only authorised people have access to it. The computer can also be programmed to require identification, verification and authorisation before a person can get access to information, or to a program stored in the computer. The computer can be programmed to produce a log of the names of people who have used the computer, when and how.

5. COMPARATIVE APPROACHES TO THE ADMISSIBILITY OF COMPUTER OUTPUT

(A) The General Business Records Exception Approach

(i) United States

From the 17th century business records have been admissible in the United States under common law exceptions to the Hearsay Rule. The present business records exceptions are the product of two historical exceptions, the Shop Books Rule and the Regular Entries Rule. Under the Shop Books Rule a tradesman's books were admissible. This exception was established during the period when a party himself was disqualified as a witness. Once parties were allowed to testify as witnesses, the need for the rule disappeared and it was superseded by the Regular Entries Rule. In the early part of the 20th century the common law exceptions proved to be deficient in a number of respects, the principal one being the burden of identifying the persons involved in the production of the record and showing them to be unavailable as witnesses.

As a result, several statutory modifications of the common law exceptions have been proposed. First, in 1927 the Commonwealth Fund of New York proposed a model Act for business records. This Act was adopted as a model for the Federal Business Records Act of 1936 and for statutes in some states. Then, in 1936, the National Conference of Commissioners on state laws, using the earlier Act as a model, formulated the Uniform Business Records as Evidence Act, the relevant provisions of which are:

> "1. Definition - The term "business" shall include every kind of business, profession, occupation, calling or operation of institutions whether carried on for profit or not.

2. Business Records - A record of an act, condition or event shall in so far as relevant, be competent evidence if the custodian or other qualified witness testifies to its identity and the mode of its preparation, and if it was made in the regular course of business, at or near the time of the act, condition or event, and if, in the opinion of the court, the sources of information, method and time of preparation were such as to justify its admission."

Several other model statutes have been proposed since this time. The last of these, which was adopted as the Federal Rules of Evidence for the United States District Courts and Magistrates Courts in 1975 was drafted in the computer age and makes specific provision for the admissibility of computer output. The Federal Rules of Evidence also contain specific provision for the admissibility of evidence of the absence of an entry as evidence that no transaction has occurred where an entry should have been made if the transaction had occurred:

"Rule 803

The following are not excluded by the hearsay rule, even though the declarant is available as a witness:

(6) Records of Regularly Conducted Activity. A memorandum, report, record, or data compilation, in any form, of acts, events, conditions, opinions, or diagnoses, made at or near the time by, or from information transmitted by, a person with knowledge, if kept in the course of a regularly conducted business activity, and if it was the regular practice of that business activity to make t e memorandum, report, record, or data compilation, all as shown by the testimony of the custodian or other qualified witness, unless the source of information or the method or circumstances of preparation indicate lack of trustworthiness. The term "business" as used in this paragraph includes business, institution, association, profession, occupation, and calling of every kind, whether or not conducted for profit.

(7) Absence of Entry in Records Kept in Accordance with the Provisions of Paragraph. Evidence that a matter is not included in the memoranda reports, or data compilations, in any form, kept in accordance with the provisions of paragraph (6), to prove the nonoccurrence or nonexistence of the matter, if the matter was of a kind of which a memorandum, report, record or data compilation was regularly made and preserved, unless the sources of information or other circumstances indicate lack of trustworthiness."

Although there are some variations in the language and requirements of these statutes, the basic effect of them all has been to relax the common law requirements by removing the requirement that the person who recorded the information in the record and the person(s) who supplied that information should testify if available. In order to ensure the trustworthiness of the record each of these models rely on:

(1) The transaction occurring in the regular course of business.

(2) The record being made in the regular course of business at or near the time of the occurrence of the transaction.

(3) The person making the record or the person supply the information for the record having person knowledge of the matters contained in the record.

Once these requirements have been shown by the testimony of the custodian of the record, or of some other suitable witness, the Court may admit the business record.[18]

The necessity for the admissibility of these records is seen as being simply the need for businesses to be able to introduce their records into evidence.

The most common form of business records legislation adopted by states for the admissibility of business records in states courts is one based on the Uniform Business Records as Evidence Act. By 1977 this Act had been adopted in 26 states and the Virgin Islands.

The Uniform Business Records as Evidence Act was drafted before the computer age. However, in Transport Indemnity Co. v Seib[19] the Supreme Court of Nebraska held computer records to be admissible under that State's version of the Act. The Court stated:[20]

> "The purpose of the Act is to permit admission of systematically entered records without the necessity of identifying, locating and producing as witnesses the individuals who made entries in the records in the regular course of business.
>
> "No particular mode or form of record is required. The statute was intended to bring the realities of business and professional practice into the Court room and the statute should not be interpreted narrowly to destroy its obvious usefulness."

Seib's case has since been approved and applied in a number of other states.

(ii) New South Wales

Another example of the general business record statute approach is contained in Part IIC of the New South Wales Evidence Act 1898. Part IIC is a new business records provision enacted by the Evidence Amendment Act 1976 on the recommendation of the New South Wales Law Reform Commission. Although it referred to the American statutory exceptions, the Commission recommended that the language of the American rule should be avoided. The Commission felt that while the American exceptions are expressed in attractively simple terms, to adopt the same language would invite continuous references to American case law - which they considered undesirable because of its volume and relative unavailability. They pointed to the experience in Tasmania where, in 1966, a business records exception was adopted in very much the same terms as that in the United States Uniform Rules of Evidence. Accordingly, the New South Wales business records exception in respect of civil proceedings, while based on the same principles as the United States exceptions, is expressed in entirely different language.

(B) The Specific Computer Output Exception Approach

(i) England

Specific statutory exceptions have been enacted to deal with computer output in England and a number of Australian states. The earliest of these provisions is s.5 of the Civil Evidence Act 1968 (UK) which applies to all civil proceedings except those in courts inferior to county courts. The section provides that a statement contained in a document produced by a computer is admissible as evidence of any fact stated therein of which direct oral evidence would be admissible if it is shown that the following conditions are satisfied in relation to the statement and computer in question:

(1) That the document containing the statement was produced by the computer during a period over which the computer was regularly used to store or process information for the purposes of any activity regularly carried on over that period, whether for profit or not, by any body, whether corporate or not, or by any individual.

(2) That over that period there was regularly supplied to the computer in the ordinary course of those activities information of the kind contained in the statement or of the kind from which the information so contained is derived.

(3) That throughout the material part of that period the computer was operating properly or, if not, that any respect in which it was not operating properly or was out of operation during that part of that period was not such as to effect the production of the document or the accuracy of its contents.

(4) That the information contained in the statement reproduces or is derived from information supplied to the computer in the ordinary course of those activities.

A certificate dealing with any of the above matters and purporting to be signed by a person ocupying a responsible position in relation to the operation of the relevant device or the management of the relevant activities (whichever is appropriate) is evidence of the matter stated in the certificate.

(ii) South Australia

The specific provisions enacted in a number of Australian states have all been based on the English provision. Most Australian states have been content virtually to copy the English provision The only major differences between s.55B of Victoria's Evidence Act 1958 and the English provision are that s.55B is not limited to civil proceedings, but applies to any legal proceedings, and under s.55B the Court has a discretion to reject any statement notwithstanding that the requirements of the section have been fulfilled if it appears to be inexpedient in the interests of justice to admit it. There is no corresponding discretion in the English provision.

Part VIA of South Australia's Evidence Act 1929 (which was enacted by s.14 of the Evidence Amendment Act 1972 (S.A.)) is markedly different from its English counterpart. Under Part VIA computer output is admissible in both civil and criminal proceedings if the following seven conditions are fulfilled:

(1) That the computer is correctly programmed and regularly used to produce output of the same kind as that tendered in evidence pursuant to the section.

(2) That the data from which the output is produced by the computer is systematically prepared upon the basis of information that would normally be acceptable in a Court of law as evidence of the statements or representations contained in or constituted by the output.

(3) That, in the case of the output tendered in evidence, there is, upon the evidence before the Court, no reasonable cause to suspect any departure from the system, or any error in the preparation of the data.

(4) That the computer has not, during a period extending from the time of the introduction of the data to that of the production of the output been subject to a malfunction that might reasonably be expected to affect the accuracy of the output.

(5) That during that period there have been no alterations to the mechanism or processes of the computer that might reasonably be expected adversely to affect the accuracy of the output.

(6) That records have been kept by a responsible person in charge of the computer of alterations to the mechanism and processes of the computer during that period.

(7) That there is no reasonable cause to believe that the accuracy or validity of the output has been adversely affected by the use of any improper process or procedure or by inadequate safeguards in the use of the computer.

A certificate by a person having prescribed qualifications in computer system analysis and operation or a person responsible for the management or operation of the computer system as to all or any of the above matters will be accepted as proof of the matters certified in the absence of contrary evidence. This is subject to the proviso that the Court may, if it thinks fit, require that oral evidence be given of any of the matters comprised in a certificate or that a person by whom such a certificate has been given attend for examination or cross-examination upon any of the matters comprised in the certificate.

None of these specific computer provisions have been subjected to any real test in court so their effectiveness has yet to be determined.

6. WHICH APPROACH SHOULD BE ADOPTED?

(A) Guiding principles

In deciding what solution should be advanced for the evidentiary problems created by computers consideration must be given to:

- the hurdles, if any, that should be placed in the path of the party tendering the evidence, in order to secure the public policies upheld by the law of evidence;

- the safeguards that should be built into the trial system to ensure a fair hearing for the party against whom technology evidence is offered, and;

- the weight to be given in the decision-making process to any computer output which is admitted in evidence.

In resolving these questions, and in devising legislation to overcome the evidentiary problems created by computers, a number of policy objectives can be identified:

(i) Aid to Fact-finding: All relevant evidence should normally be admissible, unless a clear ground of policy justifies its exclusion. Barriers should not be erected to admissibility except for good cause.

(ii) Fairness: Testing the Evidence: The other party should be given an adequate opportunity to test the evidence. To achieve this, the party against whom computer evidence is led might need enhanced rights of discovery e.g. to examine a computer program and advance notice that computer evidence is to be used. An alternative approach is to impose procedural restrictions in the nature of safeguards which must be complied with before computer evidence will be admitted at all.

(iii) Cost Saving and Efficiency: To enable governments and business to adopt technological advances without prejudicing admissibility, and not to impose unnecessary costs or impositions.

(B) Approach

Initially we favoured the enactment of a provision tailored specifically to computer evidence - along the lines of Part VlA of the South Australian Evidence Amendment Act 1972 and s.5 of the Civil Evidence Act 1968 (UK).

However, upon further consideration we think that what is required is a widely drafted business records/documentary records provision. Such provisions are found in Rule 803 of the U.S. Federal Rules of Evidence.

To cover evidence produced by other devices such as the breathalizer, where the device includes both mechanical and computerized components, we favour the common law approach as applied in the cases of Mehesz v Redman (No. 2)[21] and The Queen v Weatherall.[22]

We fully endorse the comments of the Australian Law Reform Commission (ALRC):[23]

> "11. Public and Private Records - Computer Records. Although computers can be used for a variety of purposes, it is as record keeping devices that they must be considered in relation to the hearsay rule. Computer records are records which are kept by electronic means with less human involvement than used to be the case. It is suggested that the safeguards of the document being part of a record of a business and of the statement being recorded in the course of or for the purposes of the business are sufficient threshold requirements to apply at the stage of admissibility of records kept by computer. The NSWLRC in its Report commented that the fact that the statements were to be used by the business provided a strong incentive for accuracy. The same sort of threshold requirements has been used in Victoria and in Queensland in the provisions dealing with books of account of a business (general financial records and records of goods produced and stock records).
>
> The business record approach has also been recommended by Tapper, although he refers to the English Criminal Evidence Act 1965. The Tasmanian Law Reform Commission recommended adoption of the New South Wales business records approach.
>
> 12. [Our] proposal follows, with some modification, the Commonwealth and New South Wales business records approach. It must be borne in mind, however, that Queensland, Victoria, the A.C.T., and South Australia have not followed this approach to computer records. Their legislation contains provisions specifically designed for computer produced evidence. Arguments for this approach (though not for its detail) were recently advanced in a paper by Judge J.M. Didcott.
>
> (a) A conventional record is kept by persons whereas a computerised record is not. The human contribution is limited to the entries and a program of instruction.
> Comment:
> This comparison, while valid, simply points to there being different possible sources of error but does not necessarily mean that there is a greater potential for error in one system or the other.
>
> (b) Conventional records can be vouched for by an individual who can speak from his own personal knowledge. With computerised records there is no-one who, from his own knowledge, can vouch for its reliability. It is argued that in most cases not even the entry can be confirmed because different operators functioning independently of one another, may have been involved.

Comment:
These comments apply equally to many non-computer records. The inability to vouch for the original entry in non-computer records is advanced, in fact, by the NSWLRC as a reason for adopting the approach to records that it did.

(c) Conventional records are usually available for inspection before undergoing litigation and can be exhibited in court. In the case of computers, only printouts can be seen or produced. The actual record cannot be examined in the way a conventional record can.
Comment:
This simply means that it is more difficult to test and weigh the evidence. It is not in itself a justification for stringent conditions for admissibility. It points to the need to modernise rules of discovery.

(d) Conventional records are thought generally trustworthy because they are the usual records of the concern in question and are compiled in the ordinary course of the business. While this is true, in the case of computers for the original input to the computers, it does not necessarily apply to output.
Comment:
This may be true, but the critical point is that legislation like that of the Commonwealth and New South Wales requires that the original record which is the result of the input is a business record. The accuracy of any output is something that can be tested although, of course, it will not be as simple as an examination of a conventional record. This is a problem related to discovery and inspection and the weighing and testing of evidence and should not affect admissibility.

(e) Conventional records are usually in the custody of those whose transactions they reflect. Computerised records are less likely to be. With on line access to computers, a business's records are being kept in the custody of a stranger.
Comment:
The fact remains that whoever keeps it, the record is one that is relied on by the business on a continuing basis. In addition, the service company maintaining the computer record has a strong business incentive to keep accurate and secure records.

The legislation which specifically deals with computer records reveals an anxiety about the accuracy of evidence produced from computers and a suspicion of computers. The legislation sets out conditions of admissibility which are concerned with the reliability and accuracy of the equipment and systems. The English legislation (upon which much of the Australian legislation is based), was described by Tapper as being of 'turgid complexity'. A combination of the two approaches is to be found in the American Business Records approach which treats computer based evidence as coming within their business records exceptions. Under that approach evidence is required that:-

- The record was made in the regular course of business, at or near the time of the act, condition or event which it evidences;

- A qualified witness must testify to the identity and mode of preparation of the record;

- The sources of information and method and time of preparation of the record must be such as to indicate its trustworthiness.

Satisfying these (threshold admissibility] requirements, however, can involve a vast amount of extremely difficult technical evidence.

13. While it is true that errors, accidental and deliberate, occur and can occur at every stage of the record keeping process, the fact is that they are the exception rather than the rule, they tend to occur at the stage when the information is fed into the system, and there are techniques available which can be, are are, employed at each stage of the record keeping process to eliminate error. The approach taken in the Commonwealth and New South Wales business records legislation is to leave the party against whom the evidence is led to challenge the evidence. There are also provisions enabling the court to order production of related documents and further printouts. This is the only practical approach to receiving this sort of evidence - although the latter matters might be better dealt with by rules. To require extensive proof, on each occasion, of the reliability of the computer records is to place a costly burden on the party seeking to tender the evidence, to give the opposing party a substantial tactical weapon, and to add to the work of the courts. In many cases there will be no bona fide issue as to the accuracy of the record. It is more efficient to leave the party against whom the evidence is led to raise any queries and make any challenges it may have."

The NSWLRC comments[24]:

> "4. Special provision is made in the English Civil Evidence Act 1968 for statements in documents produced by computers. Similar provision is made in the Victorian Evidence Act 1958 and n the Evidence Ordinance 1971 of the Australian Capital Territory. We thought initially that we might recommend the adoption of a like provision in this State, but we are now satisfied that this is not the best course to follow. It would have the effect of making a document admissible if it was produced by a computer, but inadmissible if it was produced by other reliable means. There is, we think, no justification for that result. We were led, therefore, to consider the admissibility of statements in business records, whether the records are kept or produced by computers or by other reliable means." (Emphasis added).

In Appendix F of their Report the NSWLRC comments on comparable business records legislation in other Australian states.

Commenting on s.55B of the Victorian Evidence Act 1958, which was introduced by the Evidence (Documents) Act 1971, and which provides for the admissibility in civil and criminal proceedings of statements in documents produced by computers, the Commission stated[25]:

> "4. A number of criticisms may be made of this provision. The first criticism is that, although there is a discretion to reject, there is no condition of admissibility which requires the information supplied to the computer to have any particular standard of reliability as is the case with statements in business records not produced by a computer which are admissible under section 55. There is no practical reason for not specifying a standard of reliability for the source material whether or not the record in question was produced by a computer. We think that, in failing to specify such a standard of reliability, section 55B goes further than is either necessary or desirable to meet the practical necessity for the admission of statements in documents produced by computers.
>
> ...
>
> "6. The third criticism of section 55B involves a comparison with section 55. It depends upon the fact that any system of records may be kept or produced either by the use of computers or by other means. The different standards of reliability imposed by sections 55 and 55B produce anomalous results. Take for example hospital records. These are now kept by use of computers in some hospitals in circumstances which would satisfy all the requirements of admissibility imposed by

section 55B. A statement in a print-out of such a record would be admissible as evidence of the facts asserted. If the records were kept in the usual written form and the same statement appeared in them, the statement would not be admissible under section 55 unless there was evidence that the person who made the entry or supplied the information from which it was made had personal knowledge and was not available as a witness, or pursuant to an exercise of the court's discretion. Another example is provided by credit bureau operations.

"A print-out from the records of a credit bureau if kept by use of a computer would be admissible under section 55B as evidence of the facts asserted. But if the records were kept in a written form, a statement in the records would not be admissible under section 55 without proof of knowledge and unavailability of the person who supplied the information, or in the discretion of the court as mentioned above. A print-out of the closing price of shares on the New York Stock Exchange made by the Sydney Stock Exchange computer would be admissible evidence under section 55B of that fact, a similar statement in the New Zealand Times would not. The law of evidence requires reform, but not by providing that a statement in a document produced by a computer should be admissible when the same statement in a document produced by equally reliable means is not."

Section 55B is based on s.5 of the Civil Evidence Act 1968 (U.K.).

The NSWLRC concluded in paragraph 5 of its Report:

"5. In the result, we recommend that the Evidence Act, 1898, be amended to provide a statutory exception to the rule against hearsay evidence: an exception which will facilitate the admission in legal proceedings of reliable statements in business records, however kept or produced, as evidence of the matters recorded." (Emphasis added).

Colin Tapper comments[26] in relation to the specific computer statute approach:

"So far neither set of provisions (viz s.5 Civil Evidence Act 1968 U.K., Part VIA of the South Australian Evidence Act seems to have been subjected to judicial scrutiny. It will be interesting to discover what the reaction will be. It is quite possible that such specific pieces of legislation will be exposed to a more more hostile reception than has been accorded the general statutory exceptions. This is partly because such detailed provisions provoke such a response. If a subject is dissected in minute detail every one of which has to be given some meaning, and if each different form of words has to be given a different meaning then it is likely

> that gaps will begin to appear. In short in those jurisdictions where the common law is not felt to be beyond the age of child-bearing and where there is already a shopbook exception, it would seem better not to legislate at all. If legislation is required, then a business record statute, preferably on the model of the English Criminal Evidence Act 1965, seems best. If a special computer statute is felt to be unavoidable then the legislature in question would be well advised to start from the provisions of the South Australian Evidence Act."

We find the above reasoning highly persuasive and tentatively conclude that a widely drafted business records exception, supplemented by the common law rules relating to evidence produced by mechanical or mechanical and computerised devices, as applied in Mehesz v Redman (No. 2) and The Queen v Weatherall (rather than that taken in Mehesz v Redman (No. 1) and by our own Court of Appeal in Holt's case) is the best approach to take.

We will now turn to consider the specifics of such an exception.

(C) Scope and structure of the business records exception

In most jurisdictions a distinction is drawn between the records of a business and other records not kept in the course of business. It is in the business records area that the need to reform the common law is most clearly demonstrated.

The NSWLRC stated:[27]

> "Statements in business records of the kind we recommend should be admissible are likely to be inherently reliable. They originate in the personal knowledge of the person engaged in the business or in an expression of his expert opinion which, in the course of business, he recorded or passed on to others in the business to record. The purpose of such statements is to provide a reliable record for future use. There is, therefore, in general, a strong incentive for accuracy."

The WALRC however has recommended that any distinctions between records produced by computers and other business records, and between business records and other documentary statements should be abandoned:[28]

> "BUSINESS RECORDS
>
> 3.5 In the Working Paper, the Commission suggested that the existing law should be revised by making separate provision for the admissibility of business records on the one hand and other documentary statements on the other. The Commission discussed two possible

approaches. Under the first, specific provision would be made for the admissibility of records produced by computers (as has been done in England, South Australia, Victoria and Queensland), leaving business records and other documentary statements to be dealt with separately. Under the second approach provision would be made for the admissibility of business records as a whole, whether produced by a computer or other means (as has been done in the New South Wales and Commonwealth legislation), leaving other documentary statements to be dealt with separately.

3.6 After giving the matter further consideration, the Commission has concluded that it would be undesirable to adopt either approach because to do so would make the law of evidence more complicated and technical than it is at present. The Commission considers it important that the law as to the admissibility of documentary statements be as simple as possible.

3.7 The first approach is complicated by the necessity to distinguish records produced by computers from other records. In the Commission's view this distinction is unnecessary.

Footnote:

The legislation in those jurisdictions which make the distinction seems to place undue emphasis on the reliability of the computer's operation whilst ignoring the need to verify the information supplied to it.

3.8 The second approach is complicated by the need to distinguish business records from other documentary statements. In the jurisdictions which have adopted this approach this distinction has been made by providing a definition of "business". However, "business" has been defined so widely in an attempt to include all bodies which have regular systems of record keeping that it has ceased to be a significant distinction. For example, in Victoria business is defined as including:[7]

> "... public administration and any business profession occupation calling trade or undertaking whether engaged in or carried on by the Crown, or by a statutory authority, or by any other person, whether or not it is engaged in or carried on for profit."

Notwithstanding such a wide definition, the business records approach can lead to anomalies because the definition may not include, for example, local government authorities, intergovernmental or international organisations."

Tapper[29] also comments that:

> "The best solution may well be that originally envisaged by the Law Reform Committee (13th Report: hearsay in Civil Proceedings, (cmnd 2964) namely to provide a liberal regime within which no distinction is made either between manual and computer records or between business and private documents."

At this stage we favour retaining the distinction between records made in the course of a business and other records. For the reasons stated earlier, we believe that business records provide a circumstantial guarantee of reliability which is lacking in the case of other documentary records. Accordingly, we tentatively recommend that the distinction between records made in the course of a business and other records be maintained. We would, however, welcome submissions on this point.

(D) Which business records should be admitted?

The term "business" should be defined widely enough to cover all of those regularly conducted activities which by their nature provide a circumstantial guarantee of reliability because their accuracy is relied upon in the day to day operation of the activity. The definition currently found in s.2 of the Evidence Amendment Act (No. 2) 1980 should be adequate, with the addition of the words "whether or not carried on for profit". The addition of these words should remove any possibility of an argument based on the common usage, or natural and ordinary meaning of the word "business" that a necessary condition is the desire to make a profit. A similar formulation appears in Rule 803(6) of the American Federal Rules of Evidence.

To remove the doubts about what constitutes a 'record' we also think that it would be desirable to define this term widely to reflect the approach adopted by the English Court of Appeal in R v Jones.

The current definition of 'document' in the Evidence Amendment Act (No. 2) 1980 appears to be adequate.

We have noted earlier the problems associated with the current wording of the documentary hearsay provisions contained in the Evidence Amendment Act (No. 2) 1980 as they relate to the admissibility of computer generated evidence. Many of the difficulties relate to the use of the phrase "a statement made by a person in a document".

We have already noted our preference for the approach adopted in R.803(6) of the U.S. Federal Rules of Evidence.

This approach would avoid the difficulties associated with the phrase "a statment made by a person in a document" and also has the advantage of dispensing with the uncertain 'duty' concept by relying solely on:

(i) the compilation of the record at or near the time of the transaction;

(ii) by, or from, information transmitted by a person with knowledge;

(iii) in the regular course of the business.

Earlier in this paper we noted a possible difficulty with condition (ii) above being the necessity to identify the supplier of the information upon which the record is based before the Court would be prepared to assume personal knowledge.

We do not think that this would provide any real difficulty in the vast majority of cases. It should not be necessary in all cases to identify any particular individual under the provision. It should be sufficient if evidence is given by the custodian of the records or some other qualified person that in the ordinary course of business the information would have been supplied by one of a class of persons who may reasonably be assumed to have had personal knowledge.

If this common sense interpretation was not adopted then in those cases where the person supplying the information could not be identified or (even more rarely) could not be identified with a sufficient degree of particularity as one of a class of person likely to have personal knowledge then the potential benefits of the section would be substantially reduced.

The alternative approach would be to make a statement in a document which is a business record admissible and to leave the second condition, relating to the personal knowledge of the supplier of the information, to be a matter to be considered only when the weight to be attributed to the evidence is assessed.

Though this approach is, at first sight, very attractive in its simplicity we note that even the relatively liberal regime provided by Rule 803(6) of the American Federal Rules of Evidence requires the document forming the record to be made by a "person with knowledge" or from information supplied by a "person with knowledge".

Section 45a of the Evidence Act, 1929-79 (South Australia) contains the broadest business records provision we have encountered. The section provides:

> "45a (1) An apparently genuine document purporting to be a business record-
>
> (a) shall be admissible in evidence without further proof; and
>
> (b) shall be evidence of any fact stated in the record, or any fact that may be inferred from the record (whether the inference arises wholly from the matter contained in the record, or from that matter in conjunction with other evidence).

(2) A document shall not be admitted in evidence under this section if the court is of the opinion -

(a) that the person by, or at whose direction, the document was prepared can and should be called by the party tendering the document to give evidence of the matters contained in the document;

(b) that the evidentiary weight of the document is slight and is out-weighed by the prejudice that might result to any of the parties from the admission of the document in evidence; or

(c) that it would be otherwise contrary to the interests of justice to admit the document in evidence.

(3) For the purpose of determining the evidentiary weight, if any, of a document admitted in evidence under this section, consideration shall be given to the source from which the document is produced, the safeguards (if any) that have been taken to ensure its accuracy, and any other relevant matters."

In relation to s.45b of the same act, which relates to statements made in documents, (i.e. which are not the business records) the section is drafted in similarly broad terms but requires the additional safeguard of personal knowledge in the supplier of the information before the statement is admissible. Section 45a omits the requirement of personal knowledge presumably because the necessary circumstantial indication of reliability is to be found in the fact that the statement occurs in a business record the accuracy of which will be relied upon by that business.

The ALRC comments in relation to s.45b that:

"We have been advised by some practitioner's and judges that the provision is rarely relied upon because of its uncertainty" (emphasis added)

Since the wide discretions contained in s.45a(2) are also found in s.45b one can reasonably conclude that the same uncertainty of operation would also apply to s.45a, perhaps more so, since even the threshold requirement of personal knowledge is omitted from the conditions for admissibility in that section.

If the Court is prepared to draw reasonable inferences in cases where it is not possible to identify the person who supplied the information or if that person is identified and available but can no longer specifically recall the circumstances surrounding the event in question then the possible difficulties which we have identified with this formulation should not eventuate.

In the recent case of R v Ewing[32] the English Court of Appeal, in considering s.1(1)(a) of the Criminal Evidence Act 1965, were quite prepared to adopt a wide, common-sense approach:

> "It will be seen that the provisions of the subsection are disjunctive and, on the evidence of [the witness who produced the computer print-out], the judge was quite entitled to hold that the person who fed this information into the computer, whoever he was, could not reasonably be expected to have any recollection of it. There was no need for a search to be made for this person, even though a diligent search might have identified the person or persons who [supplied the information]" (Emphasis added)

The Court in Ewing noted that the fact which the Crown was trying to establish was that a sum of money was paid into a certain account. The person who could give direct oral evidence of that fact was the operator who put it into the account in the computer so that (by chance in the present case) the record was made or compiled by the person who also supplied the information.[33]

(E) Should the maker or supplier be called?

Civil Proceedings

The maker or supplier is not required to be called under the provisions of the New South Wales and Australian Commonwealth legislation or under the United States Uniform Business Records as Evidence Act or Rule 803(6) of the Federal Rules of Evidence.

The WALRC however takes the opposite view:[34]

> "3.9 In the New South Wales and Commonwealth legislation which adopts this approach, a business record may be produced in civil proceedings without calling the person who made the statement in the record or supplied the information recorded in it provided that the statement was made by a qualified person [i.e. an owner, servant or person retained for the purpose of the business or a person associated with the business in the course of another business] It is the Commission's view that it is important that the person who made the statement or supplied the information contained in the statement should be available for cross-examination wherever possible rather than allowing the document to be admitted merely because it comes within a defined category."

Even if the supplier of the information can be identified and is available, it is our tentative view that this person should not have to be called before the evidence is admissible. It should be enough for a suitably qualified custodian of the records to be called and to give evidence that to the best of his knowledge and belief the information contained in the record would have been supplied by a person with knowledge or that the record itself was made by such a person.

Criminal Proceedings

In the Australian Commonwealth business records legislation the following provision (s.7D(2) Evidence Amendment Act 1978) applies:

"(2) If a party to the proceeding, being a party opposed to the party tendering the statement, requires the tendering party to call a person concerned in the making of the statement as a witness in the proceeding, the statement is not admissible under section 7B unless-

(a) the tendering party calls the person as a witness in the proceedings; or

(b) it appears to the court-

(i) that the person is dead or is unfit, by reason of any physical or mental incapacity, to attend as a witness;
(ii) that the person is outside Australia and it is not reasonably practicable to secure his attendance;
(iii) that all reasonable steps have been taken to identify the person and he cannot be identified;
(iv) that the identity of the person is known and all reasonable steps have been taken to find him but he cannot be found;
(v) that, having regard to the time that has elapsed since the person supplied the information and to all the other circumstances, the person cannot reasonably be expected to have any recollection of the matters dealt with in the statement; or
(vi) that, having regard to all the circumstances of the case, undue delay or expense would be caused by calling the person as a witness.

(3) A statement made in connexion with, or in connexion with any investigation relating or leading to, a criminal proceeding is not admissible under section 7B."

Similar provisions were inserted in the Evidence Act 1898 of New south Wales by the Evidence (Amendment) Act of 1976.

It should particularly be noted that ground (vi), which relates to undue delay or expense, is applied to criminal proceedings. In the Evidence Amendment Act (No. 2) 1980, s.3(1)(c) provides that this exception is only to apply in civil proceedings.

Finally, the ALRC comments:[35]

". Grounds for not calling maker or supplier. It is arguable that the grounds for excusing a party from calling the maker of the statement or supplier of the information are too lax for criminal proceedings. Reference should be made to the grounds:

.. that the maker is beyond the seas or outside the State and it is not reasonably practicable to secure his attendance;

.. that all reasonable efforts to find the maker have been made with success;
.. that undue delay or expense would be caused;
.. that it cannot reasonably be supposed that the maker or supplier would have any recollection of the matters recorded.

While these grounds may be satisfactory for civil proceedings it is questionable whether they are satisfactory for criminal proceedings."

Our tentative view is that in both civil and criminal proceedings, it should be sufficient to call a suitably qualified custodian of the record.

Comment would be appreciated on:

(i) whether the requirement to call the maker or supplier of the information should be dispensed with in (a) civil and (b) criminal proceedings; and

(ii) if the requirement should be retained, whether the exceptions provided by s.3(1)(b) and (c) are still considered appropriate in respect of both civil and criminal proceedings.

(F) Ancillary matters

(i) Weight

Section 17 of the Evidence Amendment Act (No. 2) 1980 sets out certain matters which the Court is directed to consider when deciding what weight should be attached to hearsay evidence which is admissible under one of the exceptions in the Act.

A similar approach is taken in many other jurisdictions.

However, the ALRC[36] argues:

> "Weight. The Commonwealth and New South Wales business records legislation contains sections setting out the matters to be taken into account in deciding what weight to attach to the documents. The matters listed are reasonably obvious and do not mention other matters going to the weight of the documents, such as that their accuracy is relied upon by the business and whether the persons involved in making the records are available but not called. They create the risk of the courts not considering any other matters in deciding what weight to attach to the statement. The section also raises the difficulty for the party tendering the evidence that if it doesn't lead evidence going to these matters at the time of tendering the documents it can be argued that the court cannot determine what weight to attach to them. If evidence is to be led, further problems arise in relation to computer records. The section

> makes relevant to weight the 'reliability of the device' and the 'reliability of the means of reproduction or of derivation'. On one view the court will need a course in electronics and programming.
>
> It may be better to approach the matter on the basis that the documents as records are received in evidence and the proper access and rights of inspection be given to the party whom the records are lead so that the tactical onus is then placed on it to point to any weaknesses in the system. The approach of all of the legislation appears to be to regard such evidence with the gravest of suspicion. It is arguable that the approach should be the opposite - business records should be regarded as prima facie reliable and accurate unless the party against whom they are led can point to some deficiency. This should apply in both civil and criminal proceedings ..."

The Canadian Federal Provision Task Force on Uniform Rules of Evidence unanimously opposed the legislative treatment of the question of weight.[37] In their view assigning weight to evidence comprises a part of judicial reasoning.

Our tentative view is that s.17 should be repealed. The complex process of assessing the weight to attribute to evidence should be left entirely to the Judge. The danger of specifying certain factors to be taken into account outweights any benefits that may result from this approach.

We have also considered the question of reliability in the situation where two or more computers are used together as part of a business system. However, because of our preference for a general business records statute which makes no distinction between evidence produced by a computer and other types of evidence, a specific provision dealing with this type of situation is unnecessary.

(ii) Absence of a record

As noted earlier, we favour the inclusion of a provision along the lines of Federal Rule of Evidence 803(7) dealing with the absence of a record in circumstances where if an event had occurred it would appear on the record.

A similar provision, permitting proof of a negative fact, appears in the legislation of many jurisdictions and is included in the ALRC hearsay proposal in clause 8(2):

"(2) Where, in a trial-
(a) the happening of an event of any description is in question; and
(b) in the course of a business, a system has been followed to make and keep a record of the happening of all events of that description,
[section 2] does not prevent a party to a trial from tendering oral or other evidence tending to establish that there is no record of the happening of the event in question to prove that the event did not happen." (Bracket added).

(iii) Admissibility of previous statement by witness

Section 4 of the Evidence Amendment Act (No. 2) 1980 is based on a similar provision in the Civil Evidence Act 1968 (UK). This approach has not been followed universally. Section 7B(2)(1) of the Commonwealth Evidence Amendment Act 1978 provides that a statement is admissible "notwithstanding that any person concerned in the making of the statement is a witness in the proceeding, whether or not he gives testimony consistent or inconsistent with the statement."

As we have earlier noted in Part 2, our tentative view is that this may be the better approach. Comment would be appreciated.

(iv) Corroboration

The approach taken to corroboration in s.5. of the Evidence Amendment Act (No. 2) 1980 is generally followed in the other jurisdictions and it is our tentative view that this provision should be retained.

(v) Consent, Inferences, rejection of unduly prejudicial evidence, power of court hearing appeal, savings

In our tentative view ss. 15, 16, 18, 19, 20, of the Evidence Amendment Act (No. 2) 1980 should be retained.

(G) Additional Matters

(i) Credibility of the maker of a statement

Our tentative view is that provision should be made along the lines of s.7G of the Commonwealth Evidence Amendment Act 1978 (which is in practically identical terms to s.14 CK of the New South Wales Evidence (Amendment) Act 1976) which provides:

"7G (1) Where -
(a) a person makes a statement;
(b) that statement, or a statement wholly or in part reproducing or derived from information in that statement, is tendered for admission, or is admitted, under section 7B in a proceeding; and
(c) that person is not called as a witness in the proceeding,
evidence is admissible in the proceeding as provided by this section.

"(2) Evidence is admissible where, if the person had been called as a witness, the evidence would have been admissible for the purpose of destroying or supporting his credibility.

"(3) Evidence is admissible to show that a statement made by the person is consistent with another statement made at any time by him.

"(4) Notwithstanding sub-sections (2) and (3), evidence is not admissible of any matter of which, if the person had been called as a witness and denied the matter in cross-examination, evidence would not be admissible if it had been adduced by the cross-examining party."

(ii) Notice/Discovery procedures

The ALRC provides an admirable summary of the issues involved.[38]

Many jurisdictions have made detailed provision for a notice procedure and many law reform bodies and commentators have proposed the implementation of a notice procedure and extended rights of discovery.

We acknowledge that there will be cases when the nature of the computer evidence is such that it would call for scrutiny of the computer hardware and software which was involved in producing the evidence and where notice of intention to call the evidence would be desirable. However, we believe that in the majority of cases there are unlikely to be substantial grounds for challenge to the reliability of the computer hardware or software.

We are reluctant to complicate proceedings by recommending a detailed statutory scheme for the giving of notice.

When no notice is given and the nature of the evidence makes it reasonable to expect some probing the matter can be taken care of by an adjournment. Prudent counsel calling such evidence will always give advance notice to avoid the possibility of an adjournment. This is an area where ordinary common-sense should be left to prevail.

We do recommend that the rules of discovery in civil proceedings should be extended, where necessary, to ensure that changes which have occurred through computer technology are provided for.

(iii) Information that has not passed through the mind of a person

To remove any doubts created by the Pettigrew[39] decision a provision similar to s.7B(c)(ii) of the Commonwealth Evidence Amendment Act 1978 may be desirable. The relevant part of the section provides for the admission of a statement which reproduces or is derived from "information from one or more devices designed for, and used for the purposes of the business in or for, recording, measuring, counting or identifying information, not being information based on information supplied by any person".

(iv) The relationship between the common-law rules of admissibility and specific statutory provisions

In Mehesz v. Redman (No.2)[40] both King CJ and White J considered that the specific provisions of Part VI A of the South Australian Evidence Act did not exclude the common law rules relating to the admissibility of scientific instruments and other mechanical or electronic devices in appropriate circumstances.

In order to overcome the problems created by Holt's case (where it was held that the evidence of a computer expert was necessary to prove the reliability of that part of the device which comprised a pre-programmed computerised component) it may be necessary to enact a specific statutory provision since there is no guarantee that the Court of Appeal will depart from its reasoning in Holt's case in preference to the approach adopted in Mehesz v Redman (No. 2) and The Queen v Weatherall.[41]

We would like to emphasise that the views expressed in this Working Paper are only tentative and are put forward for comment and discussion.

We have discussed problems which we have identified at this stage of our considerations and would welcome comment not only on the problems identified but also on any others which we have not discussed.

We would like to acknowledge the assistance of Mr J.D. Patton who prepared a comprehensive Background Paper for the Committee on this topic, Mr Gordon Hogg (Managing Director, Databank Systems Ltd) and Dr Peter Williams (of the Chemistry Division D.S.I.R.) who have made their time and expertise available to us. We would also like to thank Mr Colin Tapper, who sent us a copy of the manuscript of his draft chapter for the new edition of Cross on Evidence.

FOOTNOTES

1. [1980] 2 NZLR 124, at 129.

2. (1979) 21 S.A.S.R. 569

3. (1980 26 S.A.S.R. 244

4. See C. Tapper, Computer Law (London, Longman 2nd Edition, 1982) at pp 151-154.

5. [1980] 71 Cr App. R 39; see also Narlis v south African Bank of Athens [1976] 2 S.A.L.R. 120.

6. WALRC Report on the admissibility in evidence of computer records and other documentary statements (1980, Project No. 27), para 2.5.

7. Supreme Court, unreported judgment 21 March 1974; discussed in Cross on Evidence (3rd N.Z. ed; 1979) p.569.

8. [1978] 2 All ER 718 at 721; see also R v Tirado (1975). CR App. R. 80.

9. NSWLRC Report on Evidence (Business Records) (1973, LRC 17) p.87.

10. Ibid at p.46

11. [1968] 2 All ER 195.

12. Ibid at 196.

13. See Professor J.C. Smith "The Admissibility of statements by computers" [1981] Crim. L.R. 387.

14. Supra, n.1

15. Supra, n.3

16. Supra, n.9, at p.62

17. Seighart, Privacy and Computers (1976), at p.81.

18. See "Appropriate foundation requirements for admitting computer printouts into evidence" (1977) Wash. U.L.Q. 59; at 66 and "A reconsideration of the admissibility of computer generated evidence" (1977) 126 U.Pa.L.R. 425; at 429.

19. 132 N.W. snd 871 (Neb, 1965)

20. Ibid at 875.

21. Supra, n.3

22. (1981) 27 S.A.S.R. 238.

23. Australian Law Reform Commission, Evidence Reference, Research Paper No. 3, Hearsay Evidence Proposal at pp.125-28.

24. Supra, n.9, at para 4.

25. Ibid, Appendix F, p.90, paras 4 and 6.

26. Supra, n.4, at page 172.

27. Supra, n.9, at para 48.

28. Supra, n.6, at pages 16-18.

29. Letter to the Committee

30. Supra, n.6, at page 13.

31. Supra, n.23, p.54

32. [1983] 2 All ER 645.

33. See also the case commentary by Professor J.C. Smith in [1983] Crim. L.R., p.473.

34. Supra, n.6, p.17.

35. Supra, n.23, p.56

36. Supra, n.23, p.64.

37. Federal/Provincial Task Force on Uniform Rules of Evidence: Report on Evidence, Ca well 1982, at p.142.

38. Supra, n.23, at p.113-114, and at p128-130.

39. Supra, n.5

40. Supra, n.3

41. Supra, n.22