21ST AUSTRALIAN LEGAL CONVENTION

HOBART, TASMANIA, 7 JULY 1981

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The Hon. Mr. Justice M. D. Kirby

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FROM GUTENBERG TO MICROCHIP

In his book, 'Civilisation', Kenneth Clark wrote that because we have no idea of where we are going, sweeping, confident articles on the future are 'intellectually the most disreputable of all forms of public utterance'. Chastened by this opinion, I have endeavoured to confine this essay to some of the problems posed for the individual and the law by current computing technology. It is difficult to limit a discussion about computers to the present. The future is hostage to them. But the penetration of Australian society by computers has already been extensive and rapid. It is in no way remarkable that such a pervasive new technology should present important and novel problems for the law and its institutions. Lawmaking tends to move slowly, in the hands of non-technologists. Computing technology has developed rapidly, beyond the understanding of all but a few laymen and most lawyers.

We have a precedent, the development by Gutenberg of the printing press. The spread of information which followed this technology promoted social and economic revolutions which have extended into our own age. It is already clear that the consequences of computing technology will be at least as profound as Gutenberg's handiwork. Just as the printing press released information from the near monopoly of a few educated members of the Church and nobility, so the new information technology has already begun dramatically to affect the lives of virtually every member of Australian society and indeed the shape of society itself. In 1973 Mr. Colin Tapper wrote an experimental text on 'Computers and the Law'.[1] In the preface, he declared that 'the invention of the computer is the greatest contribution to the quality of human life since the development of language'.[2] But whether it is the successor to the printing press or to the development of language itself, there is no doubt that this powerful new technology is profoundly influencing many aspects of life. Lawyers must address, more urgently than they have been doing, the implication of the computer for their discipline.

What is a computer? It has been described as an electronic device which can perform arithmetical and logical functions at extremely high speed under the control of a stored programme. From the lawyers' point of view, though it is helpful to understand something of the technology and to recognise some of the jargon of computing science, it is much more important to appreciate its rapid development and pervasive acceptance in Australia and to consider its implications for the law, legal practice and legal institutions. It is important to understand the extent and speed of the acceptance of the new technology to lay at rest the all-too-ready assumption that this is an exotic topic of little practical relevance to most lawyers. An appreciation of the variety and complexity of legal problems posed will convince most observers of the need for extensive law reform, to facilitate a 'comprehensive, systematic and timely response' to this 'widespread, important, complicated and rapidly developing' technology.[3]

COMPUTERS IN AUSTRALIA -

Any commentator, seeking to estimate or describe the change-over to computing technology in Australia, will soon come up against the absence of comprehensive and reliable statistical data on the subject.[4] A recently published report suggested that as in other developed economies, so in Australia, a fourth sector is developing rapidly, the 'information industry'. It has been estimated that in Australia computers are already part of an industry with an annual turnover of $1500 million a year. This sum comprises an estimated $400 million a year in imports and the salaries of approximately 77,000 employees, now estimated as employed in the computer and associated industries in Australia.[5] Over 11,000 computers are said to be in use in this country, most of them small and medium-scale systems imported and installed since 1970.

The Committee of Inquiry into Technological Change in Australia commissioned a comprehensive review concerning the extent of the computerisation of Australian society. The review was conducted by the Australian Bureau of Statistics. Its results are found in the 1980 report of the Committee. It found that more than three-quarters of large-type enterprises introduced a technological change of at least one type during the survey period. The majority of large-type enterprises (60%) introduced computer equipment for the first time or upgraded previous computer equipment. Adoption of computerisation in small enterprises was less significant, fewer than one in 20 small enterprises (4.6%) introduced new or different computer equipment over the three year period of the survey.[6] With respect to a special survey of local government authorities it was found that about half (48%) had introduced computers in the interval studied. The growth in this sector was described as 'rapid'.[7] Other sectors show comparable rapid absorption of automated information systems.

Apart from statistical data to measure the extent and pace of computerisation, every one of us can see the way in which computers are taking over routine jobs: handling reservations at the airline terminal, running accounts in the bank, taking care of records in the hospital and handling the cash flow in shops, to name but a few.[8] During the 1980s the most remarkable advances in information technology were in two areas. The first involved the rapid extension of miniature technology by the development of the so-called 'microchip': integrated circuits containing ever-expanding components reduced to a tiny wafer of crystal silicon by procedures of photo-reduction.[9] The second was the extensive linkage of computers by telecommunications, permitting vastly increased storage of information, ever-speedier retrieval, processing and management of data and transmission of messages over vast distances at ever-diminishing costs.[10] The exponential growth of the transmission of data over local and national boundaries has now captured the urgent attention of home governments and, more recently, of a number of international organisations, because of the legal, economic and political implications of what is happening.

The marriage of computers and telecommunications expands still further the social impact of the computer. The new information technology comprises the aggregation of computers, telecommunications and word processing developments. The great technological changes of the beginning of the 20th century were development of the automobile, aviation and energy industries. As the century closes, the pervasive industry is that of informatics. Its impact on the law will be no less, and in all probability far greater, than that of its forerunners, for the law is itself overwhelmingly dependent on information.

RECURRING ISSUES

The implications of the so-called 'informatisation' of society have been explored by major reports in a number of western countries.[11] Additionally, international conferences have been summoned to identify for the western countries which are rapidly accepting computerisation, the issues which policy-makers and lawmakers must address. In France, in September 1979, an international conference identified a number of implications of computerisation relevant for Australia. They included the effect of the new technology on employment; the greater vulnerability of computerised society to terrorism and crime; the impact of the new technology on national security and defence; the effect of the technology on national language and culture and the consequences of the technology for individual liberties, including privacy.[12]

More recently, in October 1980, a High Level Conference of the OECD examined the same issues and identified a number of others: the implications of new information technology for the survival of the State monopoly in telecommunications, and for international co-operation, including with developing countries, where computerisation has scarcely yet penetrated.[13] A suggestion is now under consideration for the establishment by the OECD of an expert study of the legal implications of information technology which is international, instantaneous and pervasive. Among topics to which such a study would address its attention are the identification of a conflict of laws regime to apply a given domestic law to transactions which involve two or more countries and are virtually instantaneous; the establishment of legal rules for computer crime having an international component; the establishment of data bases to supply relevant domestic law on chosen topics of likely international concern, and the development of new rules on intellectual property which will adequately compensate innovators, whilst facilitating the flow of information, particularly technological information, to other countries.

Although all of these topics are worthy of study, it is not possible to survey them all in this paper. In order of importance and urgency, there must be included concern about the effect of computer technology on levels of employment and alienation of those in work. There must also be included the effect of informatics on vulnerability of society. These features require attention by Australian lawmakers. The introduction of a technology which reduces the need for routine labour clearly has important implications for the availability of employment. This may be especially so in Australia, because of our heavy dependence upon imported computing equipment and programs.[14] At least for a time, routine jobs will be destroyed more rapidly than new jobs are created. Moreover, the new jobs may arise in different places and require different skills, so that displaced workers may not be readily re-employed. These are not problems for economists and politicians only. A society in which there is a permanent, steady core of unemployed, dependent on social security payments, may produce social disruption that requires urgent legal attention. A recent Swedish Government report has pointed to the increased vulnerability of a computerised society, more susceptible to great damage as a result of terrorism, industrial action or simple accidents disrupting the inter-connections between data bases transmitting information vital to the economy and orderly life.[15] There is little doubt that this increased vulnerability gives rise to calls for new laws containing increased coercive powers for the protection of society against the risk of widespread damage. The special balance struck between law enforcement and individual liberty in Australia will undoubtedly come under challenge as a result of the perceived risks that will arise from the impact of computers on employment and the vulnerability of society.

However important these developments may prove to be in the future, it is intended to devote the balance of this paper to a number of areas of current or proposed law reform activities, where the introduction of the computer has already demonstrated the need for new laws or the modification of laws developed before computerisation. The paper will close with some cautionary observations concerning the possible implications of the new information technology for the independent legal profession, which has traditionally played a vital part in the defence and protection of the individual.

COMPUTERS AND PRIVACY

Computerisation of records and the new information technology in aggregate do not alone explain contemporary concerns about individual privacy. Related technologies are relevant, including the capacity of optical and listening devices to intrude, unsuspected, upon the conduct of the individual believed to be private[16] and the capacity of the publishing and broadcasting media to intrude unfairly into the private life of the individual.[17] As well, quite apart from technology, concern about privacy has been voiced as a result of the increasing powers of entry, search and seizure permitted to a proliferating number of government official and agencies. New business practices, such as direct marketing, door-to-door canvassing and the like, also diminish privacy in the more traditional, territorial sense of that word.[18]

The first inquiries, which looked at the notion of privacy as affected by the computerisation of personal data, did not consider that any new or special problems arose requiring immediate legal attention.[19] Clearly damaging personal data can be kept in a notebook or otherwise in non-computerised form. If used at a critical time, it can do great harm to the individual, possibly without justification. Conceding the dangers of old information practices, it is now generally recognised that the new technology itself has special features which pose dangers to individual privacy and therefore warrant legal responses to protect the individual. The concern about the diminution of individual privacy is the result of the perceived ability of computer and linked technology to reduce the control which the individual has over the way others are perceiving him on the basis of personal information about him. From a primitive interest to defend the individual's person, through the interest to protect the territory and property immediately surrounding him, the concern of the law to defend individual privacy today is addressed to the 'information penumbra' concerning the subject, on the basis of which he may be perceived by others and, relying upon which, decisions may be made vitally affecting him.[20]

The features of computerised personal records which attract concern have been listed in numerous studies of this topic. They include, in summary, at least the aggregate of the following:

. Amount. Computers can store vastly increased amounts of personal information and can do so virtually indefinitely, so that the protection of inaccessibility, which formerly arose because of the sheer bulk of records, disappears. On the contrary, the computer can retain indefinitely vast masses of information about every member of society.

. Speed. Recent technology has increased enormously the speed and ease of retrieval of information, so that material which was once virtually inaccessible because it would take too long or be too difficult to get to it, is now retrievable, virtually instantaneously.

. Cost. The substantial reduction in the cost of handling, storing and retrieving personal information has made it a perfectly viable proposition to keep vast amounts of personal information indefinitely. 'Living it down' becomes much more difficult. Updating accessible old records, and reviewing their current relevancy, becomes much more important.

. Linkages. The possibility of establishing cross-linkages between different information systems is perfectly feasible. The capacity of computers to 'search' for a particular name or particular personal features and to 'match' identified characteristics was generally not feasible in large-scale manual filing systems.

. Profiles. It is now readily possible, if access can be gained to numerous personal data bases, to build up a composite 'profile' which aggregates the information supplied by different sources. Yet, unless the data which is aggregated is uniformly up-to-date, fair and complete, the composite may be out of date, unfair and distorted. If decisions are made on such data, they may be erroneous or unfair.

. New Profession. The new information technology is very largely in the hands of a new employment group not subject to the traditional constraints applicable to the established professions nor yet subject to effective self regulation by an enforceable code of fair and honourable conduct.

. Accessibility. The very technology, and the language, codes and occasional encryption used makes unaided individual access to the data difficult if not impossible. In this sense, the new technology can actually protect security and confidentiality. But privacy depends on who may have access to personal information.

Centralisation. Although, technologically, computerisation linked with telecommunciations may facilitate decentralisation of information, it is prone, by linkages, to ultimate centralisation of control. This development has obvious political as well as legal implications. Technologically, there is little to prevent state authorities gaining access to intimate personal details about everyone in society. Our present defences against this happening are political and cultural. There are few legal inhibitions.

International. The advent of rapid progress in international telecommunications, including satellites, and the exponential growth of trans border flows of data, including personal data, make it relatively simple to store intimate personal information on the citizens of one country in another country: not readily susceptible to the enforcement of protective laws yet instantaneously accessible by reason of the new technology.

The recognition of these features of computer technology has led, during the past decade, to a series of laws designed to protect the individual and to facilitate his assertion of certain rights in respect of personal information about himself. The enactment of these laws began in Germany and Sweden. They spread to North America. They have now been adopted in a majority of West European countries.[21] In Australia, a number of the law reform agencies have been asked to consider the adoption of similar laws. The Australian Law Reform Commission has published discussion papers reviewing the need for new Commonwealth laws.[22] The Law Reform Commission of Western Australia and the Statute Law Revision Committee of the Victorian Parliament have current projects on privacy law. The Law Reform Committee of South Australia recently delivered a report on Data Protection. All of these inquiries are working in close contact with each other and with colleagues in most of the other Australian jurisdictions. The very technology being considered creates special inter-jurisdictional problems, necessitating close co-operation between neighbouring jurisdictions, if the proposed privacy laws are to be effective. The growth of trans border data flows and the capacity of the new technology to circumvent or frustrate domestic laws on data protection and data security led to moves after 1971 to establish an international regime which would at the one time ensure safeguards for individual privacy and would also limit undue interruptions to the free flow of data, including personal data, between nations.

In the Council of Europe a committee of experts was established in 1971 specifically to address the protection of privacy with respect to the use of computers. As a result of the report of that committee, two resolutions were adopted by the Committee of Ministers of the Council of Europe. The first, in September 1973, annexed certain principles relating to personal information stored in electronic data banks in the private sector. The second, adopted in September 1974, annexed like principles for the public sector.[23] These resolutions have greatly influenced the initiation and design of European laws on data protection and data security.

In November 1973 the Commission of the European Communities delivered a report to the EEC Council proposing a Community policy on data processing. Although the focus of this report was the need to develop a viable European information technology industry, it concluded that the linkage of data banks, nationally and supra-nationally, would require the establishment of common measures throughout the Communities for the protection of its citizens.[24] By 1977 a committee of experts of the Council of Europe had been instructed to prepare a draft International Convention for the Protection of Individuals with Regard to Automated Data Files. The final draft of this Convention was approved by a Committee of Ministers in September 1980. It was opened for signature in January 1981. The Convention envisages the adherence of non-European countries.[25]

Whilst these developments were proceeding in the Council of Europe, in May 1979, the European Parliament, the legislative body of the European Communities, adopted a resolution addressed to the EEC Commission and Council, recommending a binding Directive requiring strict observance to certain 'basic rules' of data protection in Member countries. Other international organisations, including the Nordic Council, the International Federation for Information Processing, the International Council of Automatic Data Processing and the United Nations itself, have been involved in consideration of the social and legal implications of informatics, including those for privacy.[26]

The international effort to provide a framework for local laws on data protection and data security of greatest immediate concern to Australia is that of the Organisation for Economic Co-operation and Development (OECD). Australia is a member of the OECD. Between 1978 and 1979 an Expert Group was established with a mandate to 'develop guidelines on basic rules governing trans border flows and the protection of personal data and privacy, in order to facilitate a harmonisation of national legislation, without precluding the establishment of an International Covention at a later date'.[27] In September 1980, the OECD Council adopted a recommendation commending to member countries the Guidelines developed by the Expert Group.[28]

Member countries were urged to take the Guidelines into account 'in their domestic legislation', to 'endeavour to remove or avoid creating unjustifiable obstacles to trans border flows of personal data' and to 'co-operate in the implementation of the Guidelines'. Nineteen of the 24 countries of the OECD have adhered to the recommendations, although Australia has reserved its position to permit consultation between the Commonwealth and the States. In terms, the OECD Guidelines are not limited to the privacy implications of computerised data. They acknowledge that personal data may pose a danger to privacy and individual liberties 'because of the manner in which they are processed or because of their nature or the context in which they are used'.[29]

The principal value of the Guidelines to the Australian consideration of privacy legislation is that they contain a statement of internationally agreed general principles which, it is hoped, will promote the harmonisation of domestic privacy laws. Finding principles for harmonisation is more important in this case than the mere hope of international comity. The technology of information today is so inter-connected that domestic laws about the incidents of that technology are bound to have an effect on the efficient operation of the technology and the free flow of information, unless those laws are generally compatible. The Guidelines envisage the possibility of differing protective measures for differing categories of personal data[30], the exclusion of personal data 'which obviously do not contain any risk to privacy and individual liberties'[31], limitation by some countries of application of the operation of the Guidelines solely to automatic processing of personal data[32], exceptions on the grounds of national sovereignty and security[33], special application in countries, such as Australia, with federal constitutions[34] and supplementation for further protection of privacy and individual liberties.[35]

These limitations and qualifications are significant. The language of the Guidelines is admittedly very broad and general. Nevertheless, it is helpful to have an internationally agreed statement of 'basic rules'. They provide an intellectual framework for local laws. As technology makes different legal jurisdictions more interdependent, it is inevitable that closer attention will be needed in the future to practical international efforts at harmonisation of laws.

The OECD 'basic rules' of privacy protection for domestic application are as follows:

Basic Principles of National Application

Collection Limitation Principle

There should be limits to the collection of personal data and any such data should be obtained by lawful and fair means and, where appropriate, with the knowledge or consent of the data subject.

Data Quality Principle

Personal data should be relevant to the purposes for which they are to be used, and, to the extent necessary for those purposes, should be accurate, complete and kept up-to-date.

Purpose Specification Principle

The purposes for which personal data are collected should be specified not later than at the time of data collection and the subsequent use limited to the fulfilment of those purposes or such others as are not incompatible with those purposes and as are specified on each occasion of change of purpose.

Use Limitation Principle

Personal data should not be disclosed, made available or otherwise used for purposes other than those specified in accordance with [the Purpose Specification Principle] except:

(a) with the consent of the data subject; or

(b) by the authority of law.

Security Safeguards Principle

Personal data should be protected by reasonable security safeguards against such risks as loss or unauthorised access, destruction, use, modification or disclosure of data.

Openness Principle

There should be a general policy of openness about developments, practices and policies with respect to personal data. Means should be readily available of establishing the existence and nature of personal data, and the main purposes of their use, as well as the identity and usual residence of the data controller.

Individual Participation Principle

An individual should have the right:

(a) to obtain from a data controller, or otherwise, confirmation of whether or not the data controller has data relating to him;

(b) to have communicated to him, data relating to him

(i) within a reasonable time;

(ii) at a charge, if any, that is not excessive;

(iii) in a reasonable manner; and

(iv) in a form that is readily intelligible to him;

(c) to be given reasons if a request made under sub-paragraphs (a) and (b) is denied, and to be able to challenge such denial; and

(d) to challenge data relating to him and, if the challenge is successful, to have the data erased, rectified, completed or amended.

Accountability Principle

A data controller should be accountable for complying with measures which give effect to the principles stated above.

The most notable of the provisions is undoubtedly the so-called 'individual participation principle'.[36] The explanatory memorandum accompanying the Guidelines acknowledges that this principle 'is generally regarded as perhaps the most important privacy protection safeguard'.[37] It is the safeguard reflected in the legislation of all those countries which have so far enacted laws for data protection (as it has come to be called in Europe) or information privacy protection (as it is usually described in English-speaking countries).[38] It is a principle embraced in the Australian Law Reform Commission discussion paper on privacy protection.[39] In its report on the Freedom of Information Bill, the Senate Committee on Constitutional and Legal Affairs expressed itself in favour of a Right of Privacy Act and the power to have correction of personal files in the possession of Government or its agencies found, on access, to be inaccurate or misleading.[40]

The proposals in the Australian Law Reform Commission discussion papers for privacy protection draw on overseas and local experience. They start by establishing the proposition that present Australian laws do not provide adequate protection for privacy and specifically do not address the new problems posed by computerisation of personal records. Such protections for the privacy of personal information as exists are piecemeal

and inadequate. The discussion paper, Privacy and Personal Information[41] sets for itself the tasks of establishing certain general principles which should be observed in the collection, use, disclosure and storage of personal information, and proposing the enactment of Commonwealth laws which will elaborate those general rules, provide for conciliation and mediation in particular cases, promote the development of community awareness about the importance of privacy, facilitate ongoing law reform and provide for the just resolution of disputes and the enforcement of fair information practices. It is suggested that any Commonwealth law on privacy should not be confined to computerised information systems, should not be restricted solely to the federal public sector (as is still substantially the case of federal laws in Canada and the United States) and should not be limited in its application to citizens and permanent residents. It is proposed that all persons in Australia should have the protection of these laws.

In addition to accepting the principle that the individual should normally be entitled to find out what information is held about him and, in appropriate circumstances, to be able to challenge it, much of the discussion paper is devoted to spelling out the incidence of this right and the exceptions. In addition to these general rules, a number of specific topics are dealt with, including 'black-listing', 'computer matching', the 'logging' of access to personal information in some circumstances, 'culling' out-of-date personal information in some cases, and defining the classes of information where destruction, de-identification or archiving are appropriate in order to protect the privacy of the subject of the information. On protective machinery, the discussion paper proposes a Privacy Council to develop detailed standards of particular information systems and a Privacy Commissioner to handle complaints and conciliate grievances about invasions of privacy in the Commonwealth sphere. A Ministerial Council to promote harmony between Commonwealth and State laws is also suggested.[42] Certain limited rights of civil action, enforceable in the courts, are proposed, including for breach of standards laid down by the Privacy Act or otherwise established by law.[43]

At the close of 1980, public hearings on these proposals were conducted in all parts of Australia. In Western Australia, the public hearing was conducted jointly with the Law Reform Commission of that State, which has parallel terms of reference on privacy protection. These joint hearings were the first conducted by law reform agencies in Australia. They were successful and will be the forerunner of further co-operation of this kind. A number of seminars were conducted, organised by the legal profession, the Australian Computer Society and the Institute of Credit Management. No decisions have yet been made on the final shape of Australia's data privacy laws. However, in the course of the public hearings and seminars, a number of themes recurred, identifying the special

concerns about information privacy held by Australians. These included concern about criminal records, child welfare records, credit and banking records, employment and referees' reports, the privacy of social security claimants and medical records. One issue provoked heated submissions by community groups and individuals, namely the extent to which legally enforceable protection should be given to claims to privacy by children and young persons.[44] The design of the sanctions and remedies necessary to defend privacy also drew many submissions. The central issue here is whether it is necessary to go beyond the advisory, conciliation model of the Privacy Committee of New South Wales.[45]

Few submissions have doubted the need for legislation of some kind. It is important that the approach to privacy protection laws should not be exclusively technological. Privacy protection is not a simple matter of locks, keys, encryption and other safeguards on computers. Ultimately it is not a mere question of efficiency. Respect for individual integrity is a recurring feature of laws which trace their origin to the common law of England. The problems of privacy today are new and overwhelmingly technological. But the values which the law should seek to protect in the face of the new problems are not new. Efficiency and even commercial reasons for adopting modern privacy and data protection laws are no substitute for a clear-sighted recognition of the important individual liberties which are at stake. These include the claim of the individual normally to have control over (or at least knowledge of) the way others are perceiving him and making decisions about him, on the basis of his computer generated data profile. Without new laws — after the models of Western Europe and North America, his privacy, in this new sense, will be steadily eroded as computerisation of society advances.

COMPUTERS AND EVIDENCE

The development of the computer poses many other problems for the law. Amongst these none is so urgent of resolution and frequent in manifestation as the need to modify the law of evidence to permit more readily the admissibility in court of computer output. The basic problem is the hearsay rule in its present form which forbids the admission at a trial of evidence, oral or documentary, which cannot be deposed to, from his own knowledge, by the person giving evidence before the court. This rule is itself an outgrowth of the continuous oral adversary trial of the common law. It has been influenced in its development, and in the exceptions which have grown up, by the system of jury trial. But it is also grounded in principles of fairness to the individual: that litigants should be able to face and test by cross-examination their accusers, that courts should base their decisions only on reliable and, where necessary, tested and scrutinised information, and that in the solemn business of judicial determination, particularly where liberty is at stake, the means should be available to check and verify material before the

court accepts and acts upon it. The advent of computing, photocopying and electronic communication and their widespread use throughout the community, render the maintenance of the hearsay rule in its present form unreasonable and indeed impossible. It would be intolerable to require that every person who has contributed to a computer record should be available to prove his contribution to a computer record. That was difficult enough and already unreasonable in the case of business records before computerisation. It becomes even more unreasonable when computerisation is adopted:

> Computers are used because they increase efficiency and decrease costs. These effects are partly achieved by decreasing the contact between human beings and the information needed to conduct a business. More and more human functions in the fields of collection, collation and calculation have been assumed by the machines. Where human beings are employed, they commonly have to deal faster and with more information than used to be the case. Most importantly of all, the storage and reproduction of records is often a completely automated process. The forms in which this information is found also diverge from the old patterns. Once upon a time individual human beings could be expected to remember transactions to which they have been party, or could at least verify the accuracy of their own records. Now they can 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 a ferrite core and finally deposited as a pattern of magnetised particles on a plastic disc.[46]

Yet mistakes do occur. It is simply not appropriate to accept, without any precaution or reservation, the print-out of any computer as if the technology itself were a guarantee of accuracy and, in some mystical way, provided protection against false, negligent or even maliciously misleading information.

> Computers are the object of deep public suspicion. At one time or another most of us have expressed our alarm at an income tax assessment, or a bill for rates, electricity, water or the telephone, by instinctively blaming the machine from which it came for some mysterious error, and we think no better of the device when we discover there was none. An American judge undoubtedly spoke for a large constituency when he complained in a judgment 'As one of the many who have received computerised bills and ... letters for accounts long since paid, I am not prepared to accept the product of a computer as the equivalent of holy writ'. I mention all this because the resistance of the man in the street to what strikes him as domination by computers, amounting sometimes to mild paranoia over them, is a reality which cannot be ignored altogether.[47]

The 'mild paranoia' about computers referred to is not placated by protestations of the low overall incidence of error. Nor does the design of a program to detect error or the implementation of audit and checking procedures deflect the feeling of individual helplessness against the machine. Though it may be true that errors are few in relation to the ever-expanding operations of computers, obviously as the use of computers penetrates society even more universally than it already has, the numbers of mistakes will grow. Some of them will not be innocent. For that reason statutory conditions must be established for the reception in court of computer-generated evidence. Consideration must not only be given to the issue of admissibility. It must also be given to the issue of weight:

> With traditionally prepared records a trier of fact can recognise potential sources of error. ... A judge is usually able properly to evaluate a set of records if he is told how they were prepared. There is little need for a proponent of the evidence to go in to a lengthy discourse on the possibility of error and the precautions taken. There is a serious risk with computers that the judge ... will be overly impressed by the computer's mystique and will unnecessarily accept its output as reliable.[48]

Legislative attempts have been made to provide for the admission of computer-generated evidence. In the United States, the most common form of such legislation is an elaboration of an exception to the hearsay rule adopted earlier to cope with business records of large and impersonal corporations. The adoption of this exception made it easier for State[49] and Federal[50] efforts at uniform law reform to provide a regime for computerised material, most of it being business records. In England, an amendment to the Civil Evidence Act in 1968 provides for the admission, under given circumstances, of a 'statement contained in a document produced by a computer'.[51] In the majority decision in Myers v. The Director of Public Prosecutions[52] it was held that certain microfilmed records of production-line cards were not admissible as proof of the numbers of the component parts of particular motor vehicles. Lord Reid appealed for legislation 'on a wide survey of the whole field' and declared that such a survey was 'overdue'.[53] An amendment to the Criminal Evidence Act 1965 sought to deal with this problem, although not in terms specific to computer generated evidence.

In Australia, a number of law reform reports[54] and a series of statutory provisions[55] have sought to provide for the admission, under specified conditions, of computer-generated data. Because it was an early entry into the field, the South Australian legislation has been the subject of considerable overseas scrutiny and even adaptation.[56]

In federal courts in Australia, the general rule governing the admissibility of evidence is that they apply the laws of evidence of the State or Territory in which they sit.[57] In 1977 the Standing Committee on Constitutional and Legal Affairs of the Australian Senate, in a report on the Evidence (Australian Capital Territory) Bill 1972, recommended that a comprehensive review of the law of evidence be undertaken by the Australian Law Reform Commission 'with a view to producing a code of evidence appropriate to the present day'.[58] In July 1979 the Commonwealth Attorney-General referred the law of evidence applicable in federal courts and the courts of the Territories to the Australian Law Reform Commission for examination and report.[59] Among the stated considerations taken into account was 'the need for modernisation of the law of evidence'. Among the aims of the review was declared to be the production of 'a wholly comprehensive law of evidence based on concepts appropriate to current conditions and anticipated requirements'. These phrases obviously refer, amongst other things, to the advent of information science.

The Commission has commenced its review. To determine the scope and direction of reform, it has distributed widely a discussion paper[60] and an issues paper[61]. It is pointed out that despite the interim measures adopted in the Commonwealth Evidence Act concerning business documents and computer-produced evidence, the State and Territory provisions may nonetheless operate in particular cases before federal courts. These provisions contain differences both of detail and approach.[62] The discussion paper poses a number of questions:

> Technology ... continues to develop at a rapid rate and the question arises whether current law is adequate for new information media and whether problems are in fact being experienced in tendering evidence which consists of material stored in computers, processed by computers and produced by computers. Do the laws of evidence need modification to facilitate proof of telex, satellite and other modern forms of communication? Are there problems in the use of evidence produced by modern equipment such as satellite photographs? Do the laws of evidence prevent the use of video-taped evidence and should this be allowed? It might be of great convenience and less expensive to allow oral evidence to be recorded and given in this way. The disparity between the community's use and the law's use of survey evidence has already been noted.[63]

A review of the legislation relevant to computer-generated evidence, already enacted in Australia, discloses a number of recurring issues. First, should legislation be enacted dealing specifically with computer-generated evidence[64] or is it appropriate to subsume this topic, as in the United States, into laws governing the admission of general business records?[65] Secondly, should evidence about a range of factors affecting the operation of a computer be given before computer-generated evidence is admissible or should evidence about such factors go to weight only, leaving such factors as affecting the weight to be given to the evidence?[66] Thirdly, should advance notice of the intention to use computer-produced evidence be required, so that parties affected can be alerted to the possible needs of discovery of documents, expert evidence and testing cross examination? It has been suggested that notice should be required, at least where there is an inequality between the resources of the litigant, for example, a case involving a financial institution and an 'ordinary man in the street'.[67] The New South Wales[68] and Commonwealth[69] legislation enables regulations to be made with respect to the giving of notice by a party proposing to tender computer-produced evidence and by the other party if he intends to dispute the evidence. Fourthly, there is the question of applicability of the reforms. Should they be limited to proceedings other than criminal proceedings[70] or should they be available in criminal proceedings too and if so, with what safeguards? There are many other issues of definition, precondition for use and sanctions for abuse which cannot be explored here.

One of the major aims of the Law Reform Commission's inquiry into the law of evidence in federal and territory courts must be the reduction of the disparity between the community's use of information and the availability of that information for authoritative decision-making when a dispute arises. The existence of unacceptable differences between the material accepted as reliable and relevant in everyday life, on the one hand, and the evidence admitted when an issue has to be resolved in court, on the other, tends to bring the procedures of the courts into disrepute among laymen participating as litigants, jurors or merely observing. The need for adjustment is clear if the courts are not to be regarded as unnecessarily obstructive, resistant to changing realities and unrealistic and unhelpful in their approach to resolving the issues in dispute. By the same token, respect for the individual requires the facility of scrutinising computer-generated data. Despite the sometimes awesome intervening technology, the ability of humans, as data givers, data receivers and interpreters, has not altered. They are as subject to error as ever they were. There is an almost irresistable temptation to believe that the interpolation of technology has somehow removed error.

The Law Reform Commission's inquiry into the law of evidence in federal courts may provide the occasion for a close scrutiny in Australia of the modifications to the law of evidence necessary to secure at the one time a realistic acceptance of evidence generated by computer, and protection against the risks to the individual that could arise from erroneous decision-making based upon a blind faith in computers.

COMPUTERS AND THE INDEPENDENT LEGAL PROFESSION

There are many other areas where law reform will be necessary to deal with the consequences of computerisation. The most obvious is in the area of computer crime, where substantive law[71], police procedures and trial methods[72] may require close attention. The English Law Commission has concluded that in England, following the Theft Act 1968, the manipulation of a computer to steal money from a bank or property from an owner would be punishable within the present definition of 'theft'.[73] The same may not be true of those Australian jurisdictions which have not adopted the Theft Act. United States decisions have held that theft of a programme contained in a computer's memory could not be regarded as theft of an 'article' within the scope of the definition of the crime.[74] Offences designed before the advent of computers may not, in terms, apply to conduct which, though admittedly antisocial and harmful, does not attract current penal characterisations. The Standing Committee of Commonwealth and State Attorneys-General in Australia is examining some of the issues related to computer crime. A national examination of the topic appears overdue. Other areas identified by Tapper as requiring urgent revision of the law because of computerisation include the law of contract, torts, discovery of documents and intellectual property.[75]

If computers present problems to the law, its institutions and practitioners, there is little doubt that they will also provide many benefits. The right of access which is the crucial provision in most privacy and freedom of information statutes is only made feasible, at least on a large scale, by the very technology of computerisation. Some of the benefits for the legal profession are being studied elsewhere in this Convention. The electronic law office is already with us. Word processors, many of them with a limited computing capacity, are now a commonplace in Australian legal offices. They are less commonly used by the judiciary and the Bar, although they are obviously useful for the refinement of opinions and for reproduction of documents with recurring 'core' details, such as certain charges to the jury, pleadings and advices on evidence. The computerisation of legal data, although still in its infancy, has already been commenced in Australia. The Commonwealth statutes are computerised and the start has been made to

computerise decisions of the High Court. The Australian Law Reform Commission has already used the computerisation of Commonwealth Statutes to retrieve and analyse the inconsistent provisions in statutes concerning the punishment of Commonwealth offenders.[76] With the aid of the computer, it was possible, quite quickly, to scrutinise and illustrate the inconsistencies in statutory punishments, in a way that would not have been possible manually, within the resources and time available. The computer is also being used to identify statutory provisions containing 'key words' relevant to the privacy, standing and evidence inquiries of the Commission. Computer analysis is being employed in the conduct of various surveys — including a survey of debt recovery process in New South Wales courts and a series of questionnaires completed by judges, prosecutors and prisoners relevant to the inquiry into sentencing of federal offenders. In Britain, a National Law Library has been established, with computer information retrieval to supply legal materials to the judiciary and the profession. Terminals have been established in London and provincial centres of Britain. Seminars have been held all over the country to explain the composition of the data base and procedures for access.[77]

Although some observers express fear about the dangers of undigested computerised legal information, there is little doubt that, properly programmed, it will be a great aid to the legal profession. It can readily ensure that relevant statutes and cases are not overlooked, as can so easily happen with manual systems. It can help lawyers to cope with the proliferation of legal material. In Australia, it may increase the use of relevant interstate legal decisions and analogies. Tapper has even suggested that it may be adapted to the development and extension of common law principles.[78]

These facilities are already with us in embryo. But there is an incident of computerisation which may be of greater concern to the Australian legal profession. At the risk of offending against Kenneth Clark's dictum, I believe that this Convention is a useful occasion to call to attention the possible implications of computerisation for the viability of the independent legal profession in Australia, as presently organised. Anyone concerned about the individual in Australia will be concerned about the survival of an effective and relatively prosperous legal profession practising in sufficient number in all parts of the country. The features of computers outlined in this paper suggest that there will be a need in the future, even more than in the past, for courageous and able lawyers to defend the individual against some of the impersonal, oppressive and centripetal forces of the computerised society. Developments which threaten or endanger the independent legal profession of Australia must be viewed with concern by those who value the individual, as has the law, traditionally.

Having regard to the remarkable advance of computerisation during the past decade, there now seems little doubt that computers will come, in a relatively short time, to assume a very large part of registered land conveyancing in Australia. This prediction is not new. Tapper put it forward in England in 1973.[79] Chief Justice Warren Burger made a similar suggestion in his address to the National Conference on Administration of Justice in the United States in 1976.[80] The system of Torrens Title, so overwhelmingly adopted in Australia, and the specially rapid computerisation of the records of local and other land use authorities, makes the penetration of land title conveyancing by computers inevitable. The controversy is one about timing. The importance of such a conclusion for the legal profession of Australia is obvious. Surveys suggest that about half of the current time of lawyers in Australia is devoted to land conveyancing and associated work.[81] Half the fee income of lawyers in Australia is said to derive from this field of activity. Yet if much of this work, particularly domestic land transfers, were susceptible in whole or part to automation and computerised procedures in an administrative rather than an adverserial mode, the justification for a lawyers' monopoly of paid service in this area would be significantly diminished.[82]

In 1980, when the proposal was made to a Conference of Surveyors that planning should commence at once for a national land use data base, not only for land conveyancing but also for the use of Commonwealth, State and Local Government authorities as well as private concerns involved in land use, the notion was declared a 'misty-eyed dream' by the past President of the Law Society of New South Wales.[83] However, the move towards computerisation of land titles in Australia has already begun. In Victoria in November 1980, the Attorney-General announced the introduction of a computer system to facilitate the processing and searching of dealings in land at the Titles Office. In South Australia, the first stage of a new computerised land information system was launched in December 1980. The South Australian Minister for Lands opened the Land Ownership and Tenure System (LOTS). For a small charge, members of the public with an interest in land can make an inquiry and examine documents of an unlimited variety of government recording systems, without the need of a trained intermediary. More than 30 terminals are already in operation in Adelaide and its suburbs. The prospect of a national computerised land and title data base must be squarely faced. Clearly, in the foreseeable future, the computer will not entirely replace the need for the participation of lawyers in land transfers. Large, complicated old system and commercial dealings will continue to require skilled legal advice. Problems and disputes will arise which will require legal resolution. The fact remains that a great deal of land conveyancing will shortly be

susceptible to automation. Realisation of this likelihood will prompt the legal profession and its representatives to seek out appropriate, modern and adequately remunerated work, worthy of the profession and available to replace the remunerative land conveyancing when much of it falls victim to automated procedures.

This is not a criticism of the Australian legal profession, although the concentration of such a high proportion of its activity in routine land conveyancing is probably unhealthy. It is a statement of concern for the survival of a resourceful, well distributed private legal profession, when a major source of remunerative work may be eroded by computers. There is still time for Australia's lawyers to prepare for the effects of this change. It is those who are aware of the importance of the legal profession for the defence of the individual who will call attention to the writing on the wall.

CONCLUSIONS

This paper set out to do three things. First, to establish the speed and pervasiveness with which computing technology is being adopted in Australian society. Although statistics are poor, those that are available, allied with common experience and observation, will convince the observer that computing and allied technology is penetrating all sections of the Australian community. It is necessary to realise this to dispel the myth that the legal consequences of computerisation are an exotic far-away subject that can be left to other people, other times. This is not an issue of futurology. The problems are with us now.

Secondly, the paper has sought to identify some of the social and legal implications of computerisation. Fortunately, we are aided in this search by a common, universal quality of the technology and the similarity of its impact, at least upon those countries of the advanced western economies, of which we are one. National reports and international inquiries outline the problems that must be faced. Many of them are political and social and go beyond the immediate concerns of lawyers, even if they will also have legal consequences. There is little doubt that computerisation will have implications for international dependence, national security and cultural integrity. Of these I have said nothing. Computerisation also has implications for employment: replacing many routine tasks, displacing employees, and creating social tensions. These consequences will undoubtedly have legal implications. So too the vulnerability of the computerised society stimulates calls for new powers for the authorities of the state to guard the community against the added dangers which terrorism, industrial disruption or accident cause for a society of inter-connected data bases. It will be the special role of lawyers constantly to remind lawmakers and the community of the particular balance we have struck between the needs of law enforcement and the respect for individual liberty.

Two projects before the Australian Law Reform Commission illustrate the endeavour of the law to adjust to computerisation. The first, relating to the protection of the privacy of personal information, is an area where there is an absence of law adequate to cope with the capacity of the new technology to collect, store, manipulate, aggregate and retrieve information in new ways. The second, relating to the acceptance of computer-generated evidence in courts, is a case where laws devised for earlier times are unduly obstructive of the admission of evidence generated by computers. The law must not obdurately reject such evidence, for the rest of society is using it as a commonplace. At the same time, fairness to the individual will require an appropriate opportunity of challenge and scrutiny. Blind faith in machines may be as unsafe as unquestioning, uncritical acceptance of any other evidence.

Numerous other areas of law reform remain for the future. Some of them have been identified. They include modifications to the criminal law and to intellectual property law. The examination of computerisation is not an unrelieved tale of woe. On the contrary, computerisation of legal data is already changing the nature of legal practice. Word processors and legal data bases will relieve busy lawyers of the future of many tedious, routine tasks. In this potential, however, lies a danger. It is one which must be of concern because of the heavy concentration of the activities of the legal profession of Australia in land title conveyancing. The steps towards computerisation of this activity have already begun. Their continuance will have important implications for the future areas of activity of the Australian legal profession. A confident, prosperous and courageous private legal profession is essential for the defence of the individual. This will be even more so in the technological, impersonal, centripetal society of the future. Computers pose many pressing, current challenges to the law and its practitioners. For the sake of the individual, it is to be hoped that we are equal to them.

FOOTNOTES

* Chairman of the Australian Law Reform Commission. Between 1978 and 1980, Mr. Justice Kirby was Chairman of an Expert Group of the Organisation for Economic Co-operation and Development (O.E.C.D.) on Trans Border Data Barriers and the Protection of Privacy.

1. C. Tapper, Computers and the Law, (1973).

2. ibid, p.xv.

3. C. Tapper, Computer Law, (1978) 151.

4. Study Group on Structural Adjustment (Crawford Committee), Report, 1979, para. 15.11; Committee of Inquiry into Technological Change in Australia (Myers Committee), (1980), Vol. I, p.25.

5. NSW Institute of Technology, School of Mathematical Sciences, Computers in Australia — Part II, Extracted in Communique (Journal of the NSW Institute of Technology), 1980, No. 2, p.5.

6. Committee of Inquiry into Technological Change in Australia, Vol. I, p.57.

7. ibid, Vol. I, p.59.

8. A. Moyes, The Impact of Society on Information Technology, in Information Technology Council, 'Technological Change — Impact of Information Technology 1980' (1980), p.83.

9. D.G. Beanland, 'The New Technology', in ibid, pp.3-4.

10. J.H. Curtis, 'Information Technology and Communications', in ibid, p.17.

11. Notably the report of S. Nora and A. Minc, 'L'Informatisation de la Societe (Report on the Computerisation of Society), Paris, 1978 (France), and Report of the Consultative Committee on the Implications of Telecommunications for Canadian Society (Clyne report), Ottawa, 1979 (Canada). There are many other notable reports, particularly in Scandinavia. See, generally, Privacy Protection Study Commission Personal Privacy in an Information Society, Washington, 1977 (United States) and Report of the Committee on Data Protection (Sir Norman Lindop, Chairman), Cmnd. 7341, London, 1978 (United Kingdom).

12. France, Ministere de l'Industrie, Actes du Colloque International Informatique et Societe (1980).

13. P. Juneau, Concluding Statement, High Level Conference on Information, Computer and Communications Policies for the 1980s, OECD, 8 October 1980, mimeo.

14. W.J. Caelli, 'Arguments for an Australian Information Technology Industry', in Technological Change — Impact of Information Technology 1980, op cit, p.7.

15. Report by a Swedish Government Committee (SARK), 'The Vulnerability of the Computerised Society: Considerations and Proposals', 1979 (Official English translation by John Hogg), Stockholm, 1979.

16. Australian Law Reform Commission, Discussion Paper No. 13, Privacy and Intrusions, (1980) (ALRC DP 13), p.32.

17. ibid, Unfair Publication: Defamation and Privacy (1979), ALRC 11.

18. ALRC DP 13, p.32.

19. This concept of privacy relevant to computerised personal information systems is discussed in many texts. See A.F. Westin, Privacy and Freedom (1967), esp. p.7; A.J. Miller, The Assault on Privacy (1971), esp. p.40; A.F. Westin and M.A. Baker, Databanks in a Free Society: Computers, Record Keeping and Privacy (1972); B.C. Rowe (Ed), Privacy, Computers and You (1972); P. Sieghard, Privacy and Computers (1976). See also Wacks, 'The Poverty of Privacy', (1980) 96 LQR 73.20.

20. Report of the Committee on Privacy (Younger Committee) (1972), Cmnd. 5012.

21. Relevant laws are: Federal Act of 18th October 1978 on the Protection of Personal Data (Data Protection Act), Bundesgestzblatt No. 565/1968 (Austria); Canadian Human Rights Act [1976-77], Can. Stat. 887 (Canada); Public Authorities' Registers Act No. 294, 1978, and Private Registers etc. Act No. 293, 1978 (Denmark); Act 78-17 of 6 January 1978 on Data Processing, Data Files and Individual Liberties [1978] J.O. 227 (France); Federal Data Protection Act [1977] B.G.B.l I 201 (Federal Republic of Germany); Wanganui Computer Centre Act, No. 19 [1976] Stat. N.Z. 168 (N.Z.); Act of 9th June 1978 Relating to Personal Data Registers (Norway); Data Act of 11th May 1973 (as amended 19th January 1977) (Sweden); Privacy Act of 1974, 5 U.S.C. 552a (1976) (United States). Legislation has also been enacted in Luxembourg and is under active consideration in Belgium, Iceland and The Netherlands. Moreover, the new constitutions of Portugal and Spain contain relevant provisions.

22. ALRC DP 13 and Australian Law Reform Commission, Discussion Paper No. 14, Privacy and Personal Information (1980), (ALRC DP 14).

23. Council of Europe, Committee of Ministers, Resolution (74)29 on the Protection of Privacy of Individuals vis-a-vis Electronic Data Banks in the Public Sector (1974); Committee of Ministers, Resolution (73)22 on the Protection of Privacy of Individuals vis-a-vis Electronic Data Banks in the Private Sector (1973). The Resolutions are set out in F. Hondius, Emerging Data Protection in Europe, 1975, pp.265-269.

24. Council of Europe, Committee of Experts on Data Protection, Draft Convention for the Protection of Individuals with Regard to Automatic Processing of Personal Data, Provisional Edition, January 1981.

25. Transnational Data Report, Vol. 3, No. 6 (October 1980), p.1. The Convention will enter into force when ratified by five Member countries.

26. F. Hondius, p.69.

27. OECD document ref. No. DSTI/ICCP/78.6 (1978).

28. Recommendation of the Council concerning Guidelines Governing the Protection of Privacy in Transborder Flows of Personal Data, C(80)58(Final). The adoption of the Guidelines is reported in News From the OECD, No. 63 (October/November 1980), Paris. The Guidelines are reproduced in Transnational Data Report, Vol. 4, No. 1 (January 1981). p.45.

29. Guidelines annexed to the Council Recommendation, above, n.28, 4 (para. 2) (hereafter 'Guidelines').

30. Guidelines, para. 3(a).

31. ibid, para. 3(b). The reference is to, for example, telephone books and publicly available electoral roles. See Memorandum, 22.

32. Guidelines, para. 3(c).

33. ibid, para. 4.

34. id, para. 5. The federal clause reads : 'In the particular case of federal countries the observance of these Guidelines may be affected by the division of powers in the Federation'..

35. id, para. 6.

36. id, para. 13.

37. Explanatory Memorandum, para. 58.

38. For an analysis, see M.D. Kirby 'Trans Border Data Flows and the "Basic Rules" of Data Privacy', 16 Stanford Journal of International Law, 27 at p.62f (1980).

39. ALRC DP 14, p.37.

40. Report of the Australian Senate Standing Committee on Constitutional and Legal Affairs, Freedom of Information (1979), p.265.

41. ALRC DP 14, above, n.22.

42. ibid, pp.103ff.

43. ibid, p.118.

44. ibid, p.64.

45. Established by the Privacy Committee Act 1975 (NSW).

46. Tapper, Computer Law, pp.150-1.

47. Mr. Justice J.M. Didcott, Legislation Regulating the Admissibility of Computer-Generated Evidence, a report to the Clearing Bankers' Association of South Africa and to the South African Law Commission, Pretoria, 1980, mimeo, pp.13-14.

48. 'A Reconsideration of the Admissibility of Computer-Generated Evidence' in 126 Uni. of Penn. L.Rev. 425, 438 (1977).

49. In 1936 the Conference of Commissioners on Uniform State Laws approved a Uniform Act on Business Records which was widely adopted by the States. The Uniform Rules of Evidence adopted in 1953 contained further provisions. See Tapper, Computer Law, p.161.

50. ibid. Federal legislation for an exception to the hearsay rule concerning business records was adopted in 28 USC Sect. 1732. In July 1975 the Federal Rules of Evidence for the United States came into effect. Rule 803(6) includes in the list of documents a 'memorandum, report, record or data compilation in any form', See also Rule 803(7).

51. Section 5. For discussion, see Tapper, Computer Law, p.168.

52. [1965] AC 1001.

53. ibid, 1022.

54. For example, see South Australian Law Reform Committee, Evidence Act — Part VIA: Computer Evidence, Report No. 10, 1969; New South Wales Law Reform Commission, Evidence (Business Records), Report No. 17, 1973; Queensland Law Reform Commission, Evidence, Report No. 19, 1975 (Statements in documents in civil and criminal proceedings and computer records, para. 48-62); Tasmanian Law Reform Commission, Admissibility of Computer Data in Evidence, Report No. 17, 1978; Law Reform Commission of Western Australia, Project 27, Report on the Admissibility of Evidence in Computer Records and other Documentary Statements, Part I, 1980.

55. Evidence Act 1905 (Cwlth), Pt. IIIA; Evidence Act 1898 (NSW), ss.14A-14C, 14CD-CV, 43C; Evidence Act 1958 (Vic), ss.55-56; Evidence Act 1977-1979 (Qld), ss.92-103; Evidence Act 1919-1979 (SA), ss.59a-59c, 45-45b, 34c-34d; Evidence Act 1906-1979 (WA), ss.79B-79E; Evidence Act 1919 (Tas), ss.40A, 81A-81Q; Evidence Act 1980 (NT), ss.42B; Evidence Ordinance 1971 (ACT), ss.28-45.

56. Tapper, Computer Law, op cit; Didcott, op cit.

57. Judiciary Act 1903 (Cwlth), ss.79, 80.

58. Standing Committee on Constitutional and Legal Affairs of the Australian Senate, Report on the Reference: the Evidence (Australian Capital Territory) Bill 1972, Nov. 1977.

59. The terms of reference are set out in Australian Law Reform Commission, Discussion Paper No. 16, Reform of Evidence Law, Sydney, 1980; (ALRC DP 16), p.2.

60. ibid.

61. Australian Law Reform Commission, Issues Paper No. 3, Reform of Evidence Law (1980).

62. ALRC DP 16, 6.

63. ibid, 10. As to the admissibility of satellite photographs, see id, fn. 27.

64. Evidence Act 1977-79 (Qld), ss.95-101; Evidence Act 1958 (Vic), ss.55B-56; Evidence Ordinance 1971 (ACT), ss.39-45; Evidence Act 1929-1979 (SA), ss.59a-59c.

65. Evidence Act 1898 (NSW), ss.14CD-14CV and Evidence Act 1905 (Cwlth), ss.7A-7S.

66. As to admissibility see fn. 64; as to weight see fn. 65.

67. South Africa, General Bar Council, Memorandum of the Laws and Administration Sub-Committee, 19 May 1980, p.4.

68. Evidence Act 1898 (NSW), ss.14CU, 14CV. No regulations have been made.

69. Evidence Act 1905 (Cwlth), s.75. See also Evidence Act 1929-1979 (SA), s.59C.

70. Evidence Ordinance 1971 (ACT), s.42.

71. S.H. Nycum, 'The Criminal Law Aspects of Computer Abuse', 5 Rutgers Journal of Computers and the Law, 297 (1976).

72. J.R. Sulan, 'Legal Aspects of Computer Crime: Is the Law Adequate?', Forum, Vol. 3, No. 4 (1980), p.37, and 'Computer Abuse: A Fact of Life in Australia'; Transnational Data Report, Vol. 4, No. 1 (January 1981), p.27.

73. The Law Commission (Eng), Working Paper No. 56, 'Conspiracy to Defraud', London, 1974.

74. Ward v. The Superior Court of California, 3 CLSR 206 (Cal.) 1972.

75. See Tapper, Computer Law, op cit. Cf. Advisory Council for Applied Research and Development (UK), Information Technology (1980), p.39.

76. ALRC 15 (1980). See (1980) 54 ALJ 732.

77. (1980) 77 Guardian Gazette, p.81; [1980] Reform 57.

78. Tapper, Computers and the Law, op cit, p.233.

79. ibid, p.299.

80. Chief Justice Burger, cited in 44 USLW 2488 (1966).

81. J. Disney & Ors, 'Lawyers' (1977), pp.106-7. See also the report of the study by Dr. K. Tomasic in The Sydney Morning Herald, 10 October 1980, p.3. Tomasic, after a study of the New South Wales legal profession of 6,000 solicitors, estimated that about 40% of them worked mainly in the conveyancing and probate fields.

82. Cf. Victorian Committee of Inquiry into Conveyancing, Interim Report, 1980 (Chairman D. Dawson QC), p.19 and the critique by J. Nieuwenhuysen and M. Williams-Wynn, 'Conveyancing: The Pitfalls of Monopoly Regulation Pricing', in The Australian Economic Review, 3, 1980, p. 30.

83. M.D. Kirby, 'Surveying and Law Reform', Address to the 22nd Australian Survey Congress, Hobart, February 1980, mimeo, 11. See also the report of the Institution of Surveyors (NSW Division), Information Needs of Surveyors in the 80s, Second Major Report, May 1977.