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INAUGURAL ISSUE

INFORMATICS AND LAW REFORM

The Hon. Mr. Justice M.D. Kirby *

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This paper commences with a short description of the speed and variety of technological change affecting information science. It indicates the rapid penetration of the new technology in most sectors of the Australian economy. It then lists a number of social implications identified by international studies and at international meetings. Four issues are specified as requiring urgent law reform attention. The first is the need for new laws on privacy (or data protection and data security). Reference is made to the international regimes proposed by the Council of Europe and the O.E.C.D. Secondly, comprehensive reform of the law of evidence is required to permit ready acceptance in court of computer-generated evidence but upon terms which preserve a fair trial and a realistic opportunity to scrutinise and challenge such evidence. Thirdly, computer crime is mentioned and the need for new laws and procedures to deal with anti-social conduct involving misuse of information technology. Finally, the paper refers to the impact of the new technology on the legal profession itself. Some positive advantages are listed. But the implications for routine land conveyancing (a great part of the legal profession's activity in Australia) may be more painful as land transfer and related information is gradually automated.

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BEGINNING THE DIALOGUE

The invention of the computer is the greatest contribution to the quality of human life since the development of language.¹ With these words Colin Tapper prefaced his 1973 book on the legal implications of the informatics revolution. The revolution is still going on about us. To the dynamic of the computer has been added a new factor: the linkage of computers by telecommunications. A French Minister, in an unkind moment of retaliation against technological Franglais, coined the new word 'computications'.² I prefer the Anglicised 'informatics' to describe the new information technology.

Computers, telecommunications and word processing have many implications for the law. Their aggregation will require significant reform and modernisation of many compartments of the law. Some endeavours at reform have already been essayed.³ Informatics will plainly have implications for the legal profession itself: what it does and how it goes about its work. We stand on the brink of radical developments. The technological changes are occurring very quickly. Lawmaking institutions tend to react rather slowly. The legal profession itself is often slow to change and to adapt. Nowhere is this more so than in relation to technology. With notable exceptions, lawyers, by training and inclination, tend to regard science and technology with distaste. The lawyers' skills tend to be verbal. Common lawyers in particular tend to be suspicious of grand theory, resting their faith rather in intuitive and pragmatic judgment which is ever mindful of the variety of human experience and the individualism of man. Scientists and technologists, whose skills tend to be mathematical, are also pragmatic and intuitive. But they are usually far more at home with theory, and the bold idea. They tend to deal in precision and things that are comfortably predictable rather than people who are unaccountably idiosyncratic. Because of their differing interests and inclinations, there is relatively little dialogue between scientists and technologists, on the one hand, and lawyers (and I

should say law makers) on the other. In this lack of dialogue lie many dangers, particularly in a time of rapid technological change. The establishment of a journal of law and information science is to be welcomed as a contribution to a dialogue which is overdue.

Quite apart from the personal disinclination of lawyers to accommodate their minds to rapid technological developments, the law's institutional arrangements are not well geared for coping with the informatics revolution. The languid pace of these institutions has already been mentioned. So far as judge-made reforms are concerned, in areas such as this, Tapper stated the problem thus:

Unfortunately the classical process of the common law has its defects. It depends far too much on the random selection of issues to be litigated and courts for them to be litigated in. It is too erratic and too insular to make a comprehensive, systematic and timely response to a widespread, important, complicated and rapidly developing area of business practice. In such cases legislative intervention is required.⁴

The pace of change, its complex and technical character, and its varied and comprehensive implications for the law, pose a challenge to our law making institutions. But it creates an opportunity for law reforming agencies to help legislators to digest and deal with the implications of change for the law. In this essay, I will catalogue a program for informatics law reform. As I will show, work has already begun.

PERVASIVE TECHNOLOGY

The worldwide revolution in information technology arises largely from remarkable developments in computing and telecommunications. Much of the explanation for the developments in computing must be attributable to the astonishing advances in micro-technology. By procedures of photo-reduction onto minute chips of silicon, circuitry of enormous complexity can store and transmit information of ever-increasing quantity. Furthermore, in telecommunications, advances in satellite and terrestrial technologies have increased dramatically the capacity to move information about at an ever-diminishing cost.⁵ A single optic fibre, one-fifth of the thickness of a human hair, can nowadays do the work which until recently required 10,000 ordinary telephone wires.⁶ As a result of the combined technologies, a new sector has now been identified to supplement the declining primary (agricultural), secondary (manufacturing), and tertiary (service) sectors of the economy. The fourth sector is the fastest developing in the economies of the advanced Western democracies. It is the new information sector. Illustrations of the growth of this sector abound. In Australia, it has been said that computers are part of an industry with an annual turnover of \$1,500 million a year.

This sum is made up of an estimated \$400 million in imports, together with salaries of 77,000 persons now estimated employed in the industry and associated industries.⁷ Over 11,000 computers are said to be in use in Australia. Most of these are small and medium-scale systems imported since 1970. A major concern of policy-makers is less the creation of new jobs in the fourth sector but rather the displacement of jobs in other sectors. A recent study has estimated the number of jobs displaced by computers in Australia as 244,000.⁸ Even when offset against the number of new jobs created, it is clear that loss of employment to smart machines, intelligent terminals, software-driven hardware and computers with high levels of logic, memory and control represent a profoundly important social problem. A lack of accurate and agreed indicia for measuring the rate of technological change and variations between technologies impede an accurate assessment of the general rate of technological absorption and specifically the penetration of information technology in Australia (and elsewhere).⁹

Nevertheless, it is apparent that adoption of the new information technology in all sectors of Australia is proceeding rapidly. A comprehensive review done over a three year period by the Australian Bureau of Statistics for the Committee of Inquiry into Technological Change in Australia, 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 enterprises (60%) introduced A.D.P. equipment for the first time or A.D.P. equipment of a type different from that used previously. Penetration of small enterprises was less significant. Fewer than one in 20 small enterprises (4.6%) introduced new or different A.D.P. equipment over the three year period of the survey.¹⁰ The Committee of Inquiry commissioned two specific surveys of the extent and effect of computers in Australia. One related to local government and the other to small businesses. A secretariat study was made on the effects in some large Commonwealth Government authorities.¹¹ With respect to the local government authorities, it was found that about half (48%) had introduced computers. The growth was described as 'rapid'.¹² Despite lack of agreed measuring tools and uneven distribution of change, it requires little more than intelligent observation in offices, at airline terminals, in hospitals, in the use of telecommunications and in dealings with the bureaucracy, to perceive the rapid development of informatics in Australia and its speedy penetration of most sectors of the economy. Linkage of computers through advances in telecommunications has led to the exponential growth, still continuing, in the movement of information, including overseas. A meeting of the Organisation for Economic Co-operation and Development (O.E.C.D.) was recently told that new patterns are emerging in data traffic. Approximately 13 million data communication transactions take place each day in Western Europe. Of these, approximately 10% are international. This ratio contrasts with voice traffic, where only 1% of transactions are international.

Data communications have already overtaken telex in terms of total flow of traffic. The total number of data communications transactions in Western Europe was expected to increase at a compound annual rate of 25% in the period 1979-1987. The number of international data communications transactions was estimated to increase at an annual compound rate exceeding 30%.¹³ Similar developments can be expected in Australia. Indeed, we may go further, because of considerations of geographical isolation.

The implications of the 'informatisation' of society have been explored by reports in many countries.¹⁴ Obviously, the implications include the impact of the new technology on employment, on the greater vulnerability of the wired society to terrorism, accident and mistake¹⁵, the implications for the telecommunications monopoly and for tariff policies governing the movement of information as well as the implications for international relations, national security and defence and relations with non-computerised developing countries.¹⁶ These are not the subject of this essay. It surveys a different scene: the implications of the new technology for the law and for lawyers. Obviously, however, the wider implications must be watched. A society of diminishing numbers of privileged workers, with declining work of a routine character, may engender social tensions that require legal attention. A more vulnerable society may demand laws which require duplicate holdings of at least some vital national data, special security against terrorism and accident and, possibly, the licensing and policing of some computer systems, at least where society is specially dependent upon them. The standardisation of technology to provide better back-up facilities where things go wrong, self-sufficiency within areas of computer operation to prevent widespread haemorrhage of problems and, possibly, the limitation of dependence on some foreign sources, at least where specially vital or sensitive areas are involved, may require legislative guidance for the computerists of the future.¹⁷ For present purposes, it is enough to show that the technology is new, that its introduction is rapid and pervasive and that it brings in its train many problems which will not go away: including legal problems.

COMPUTERS AND PRIVACY

Informatics alone does not explain the contemporary challenge to individual privacy. Other considerations are relevant including the growth of the powers of entry, search and seizure afforded to ever-increasing numbers of government officials¹⁸ and new, intrusive business practices, such as direct marketing, door-to-door canvassing and the like.¹⁹ Related technologies are relevant, such as the technology of surveillance²⁰ and the special power of the modern media unfairly to intrude, without justification, into the individual's private life.²¹

But, overwhelmingly, the pressing international concern about the diminution of individual privacy is the result of the perceived potential of informatics to reduce the control and even the knowledge which the individual has of the way others are perceiving him. From a primitive interest to defend the individual's person, through the interest to protect the territory and property immediately surrounding him, the modern concern of the law to defend a zone of privacy, is addressed to the information penumbra concerning an individual, on the basis of which he may be perceived by others and relying upon which decisions may be made vitally affecting him.

The features of automated personal data systems which attract concern have been catalogued in numerous studies. The recent discussion paper of the Australian Law Reform Commission, Privacy and Personal Information²³, listed the following characteristics as those said to raise new dangers for individual privacy:

- . Amount. Greatly increased capacity for storage of personal information.
- . Speed. Significant improvements in the speed and ease of retrieval of information.
- . Cost. Substantial reduction in the cost of handling and retrieving personal information.
- . New Profession. Creation of a new group of technicians and professionals not subject to traditional constraints applicable to the established professions.
- . Linkages. The possibility of effective cross-linkage between different information systems.
- . Profiles. The possibility of constructing composite 'images' of individuals.
- . Accessibility. Reduction of the intelligibility of personal information and inhibition in access by individual subjects to that information.
- . Centralisation. Readier centralisation of control over information and ease of access to it by those with relevant power or specialised skills.
- . Trans Border Data Flows. Storage of personal information in overseas countries, with the exponential growth of trans border flows of data.²⁴

As a result of domestic recognition of these problems and of practical instances of perceived unfairness and oppression, actual and potential, in automated personal data systems, legislation has been enacted in a number of countries, directly or indirectly aimed at the protection, quality control and security of automated personal data.²⁵

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 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.²⁶ 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.²⁷ 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'. It was contemplated that the Convention would be open to adherence by non European countries. The final draft of the Council of Europe Convention was approved by the committee of experts in May 1979. Its adoption by the Council is expected in early 1981.²⁸

Meanwhile, in May 1979, the European Parliament adopted a resolution addressed to the EEC Commission and Council, recommending a 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 implications of informatics, including those for privacy.²⁹

So far as Australia is concerned, the international effort to define the framework for data protection and data security laws of liveliest concern is that of the OECD. Australia is a member of that organisation.³⁰ Concern about the social implications of computer development was expressed in the OECD as early as 1969. In 1971 a consultant's report was secured on Digital Information and the Privacy Problem.³¹

In June 1974 an OECD seminar on Policy Issues and Data Protection and Privacy³² considered the problems that might arise from an attempt to enforce domestic privacy laws on trans border data flows. Between 1974 and 1977 the OECD Data Bank Panel sought to identify policy guidelines on privacy. Following a symposium in Vienna in 1977, the Panel was replaced by an Expert Group on Trans Border Data Barriers and the Protection of Privacy. I was elected Chairman. The priority mandate of this group required it to:

Develop guidelines on basic rules governing trans border flow and the protection of personal data and privacy in order to facilitate a harmonisation of national legislation, without precluding the establishment of an International Convention at a later date.³³

The Expert Group was instructed to carry out its activities 'in close co-operation and consultation' with the Council of Europe and the European Community.

The Expert Group reported in November 1979 with draft Guidelines and an Explanatory Memorandum. The report was transmitted by the OECD Committee for Scientific and Technological Policy to the Council of the Organisation. At its 523rd Meeting on 23 September 1980, the Council adopted recommendations commending the Guidelines to member countries to take them 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'.³⁴ Several countries abstained from the recommendations, including Australia.³⁵ The Australian reservation was to permit domestic consultations with State officers necessary because of the limited power of the Commonwealth to enact laws on privacy or data protection for the implementation of the OECD resolution.³⁶ One important difference between the OECD approach and that of its European counterpart is that, in terms, the OECD Guidelines are not limited to automated data. Whilst recognising 'the particular dangers to individual privacy raised by automation and computerised data banks, and increasing dominance of automated data processing methods, especially in trans border data flows'³⁷ the Guidelines apply to personal data posing a danger to privacy and individual liberties, whether 'because of the manner in which they are processed or because of their nature or the context in which they are used'.³⁸

The Guidelines had not been adopted by the OECD Council and were therefore not public when the Australian Law Reform Commission proposed its suggestions for Australian laws on privacy to deal with the problems of data protection, quality control and security in the area of personal information within Australia.³⁹

Nevertheless, the influence of the broad principles stated in the Guidelines can be seen both in the statement of general principles set out in the Commission's discussion paper⁴⁰ and in the particular recommendation on information privacy. Because of their importance as the framework of agreed general principles adopted by the OECD, and because of the very international nature of the technology involved, it is convenient to refer here the Guidelines containing the basic principles of national application. It should be pointed out that the Guidelines envisage differing protective measures for differing categories of personal data⁴¹, exclusion of personal data 'which obviously do not contain any risk to privacy and individual liberties'⁴², limitation by some countries of application of the Guidelines only to automatic processing of personal data⁴³, exceptions on the grounds of national sovereignty, security and the like⁴⁴, special application in countries with federal constitutions⁴⁵, and supplementation for the further protection of privacy and individual liberties.⁴⁶ The 'basic principles' are:

- . The Social Justification Principle
- . The Collection Limitation Principle
- . The Information Quality Principle
- . The Purpose Specification Principle
- . The Disclosure Limitation Principle
- . The Security Safeguards Principle
- . The Policy of Openness Principle
- . The Time Limitation Principle
- . The Accountability Principle
- . The Individual Participation Principle.

The Australian Law Reform Commission has concluded that Australian law does not provide adequate present protection for privacy. In particular, it has expressed the view that the protections for the privacy of personal information are piecemeal and inadequate.⁴⁷ The provision of new protections by the law is declared to be both necessary and urgent.⁴⁸ The Commission has concluded that the new protection should establish general principles to be observed in the collection, use, disclosure and storage of personal information. It has proposed that general legal machinery should be set in place which elaborates the general rules for application to particular information systems, provides for conciliation of differences, allows for the resolution of disputes and, in appropriate cases, the enforcement of decisions necessary to uphold individual privacy, permits community education, and develops law reform 'adequate to cope with the fast-moving information technology as it affects individual privacy and other liberties'.⁴⁹ Specifically, it is suggested that a Commonwealth Privacy Act be passed providing for the creation of a Privacy Council, a Privacy Commission, certain limited rights of civil action, enforceable in the courts, including for breach of standards laid down by the Privacy Act or otherwise established by law.⁵⁰

During November 1980, the Law Reform Commission conducted public hearings 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. A number of seminars were also conducted, organised by the legal profession, the Australian Computer Society and the Institute of Credit Management. At the time of writing, no final decisions have been made on the 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.⁵¹ 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.⁵² The design of the sanctions and remedies necessary to defend privacy also drew many submissions.⁵³ The central issue here is whether it is necessary to go beyond the advisory, conciliation model of the Privacy Committee of New South Wales.⁵⁴ Few submissions have doubted the need for legislation of some kind. One important submission⁵⁵ cautioned against an approach to privacy protection laws which is 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 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 trade reasons⁵⁶ 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.

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 trials of computer output. The basic problem is the hearsay rule 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: 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. The advent of photocopying, data processing and electronic communication and their widespread use throughout the community, render the maintenance of these rules in their present state 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 or her 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.⁵⁷

Unhappily, for the solution of this problem, there remains the abiding difficulty that mistakes do occur. It is simply not appropriate to accept, without any precaution or reservation, the printout of any computer as if the technology were a guarantee of accuracy and, in some magical way, provided protection against false, negligent or even maliciously misleading information. A recent South African report addressing legislation regulating the admissibility of computer-generated evidence put the problem this way:

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.⁵⁸

The 'mild paranoia' referred to is not deflected by protestations of the low incidence of error. Nor does the design of a program to detect error or the implementation of audit and checking procedures reduce the feeling of 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. Not all of them will be innocent. It is for that reason that 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.⁵⁹

Attempts have been made, by legislation, 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 State⁶⁰ and Federal⁶¹ 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'.⁶² In the majority decision in Myers v. The Director of Public Prosecutions⁶³ 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'.⁶⁴ 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 reports⁶⁵ and a series of statutory provisions⁶⁶ 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.⁶⁷

In Australia, subject to occasional, specific rules in Commonwealth legislation⁶⁸, the general rule governing the admissibility of evidence in federal courts is that they apply the laws of evidence of the State or Territory in which they sit.⁶⁹ 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'.⁷⁰ 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.⁷¹ 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 paper⁷² and an issues paper⁷³. 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.⁷⁴ The discussion paper poses the question:

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.⁷⁵

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, should not be allowed to persist. Otherwise, the courts will be regarded as unnecessarily obstructive, resistant to changing realities and unrealistic and unhelpful in their approach to resolving issues in dispute.

The initiation of the Australian Law Reform Commission's inquiry into the law of evidence may provide the occasion for a close national scrutiny in Australia of the modifications to the trial system necessary to secure at the one time a realistic approach to data generated by or through the new technology and a security against erroneous decision-making that would result from a blind faith in machines.

COMPUTERS AND CRIME

Towards the end of 1980 officers of the Australian Federal Police were reported as urging yet another task for the Law Reform Commission, relevant to the 'informatisation' of Australian society. Within the administration, and now publicly, the need for a national and comprehensive inquiry into the implications of computerisation for the criminal law has been discussed.

Some antisocial conduct involving computers will fall within the terms of current criminal offences. In Europe and North America concern about the perceived dangers to employment and liberty have already led to attacks upon computer centres and the destruction of computer equipment.⁷⁶ Such conduct may be liable to be prosecuted under current crimes relating to malicious damage to property, arson and the like. The problem of computer crime in this context is likely to be less the adaptation of the language of present criminal offences than the inadequacy of current maximum penalties. As has already been stated, the capacity of the computer to centralise vital and often unduplicated data can result in unprecedented dislocation, when the data base is destroyed or significantly interrupted.

It is when one turns to the fraudulent misuse or manipulation of computerised data, that even greater problems arise. Here, not only must the difficulties of proof confronted in the Myers decision be addressed.⁷⁷ Even if the law of evidence is amended and if penalties are increased to reflect the huge financial losses to the victims that may be involved, other problems remain. One of these, rather intangible in character, is the difficulty which police have in tracking down and prosecuting cases of computer fraud, extortion and manipulation. The victims of such crimes are very often large, impersonal corporations, sometimes even capable of absorbing substantial losses. Society often finds it difficult to understand, and then to appreciate the antisocial quality of, computer fraud. Moreover, police are not always equipped, by training to have a sufficiently thorough understanding of computer technology, successfully to track down and prosecute offenders. Sometimes, the amount at stake is so great that corporations may be tempted not to involve the police. Often the personnel involved have been hitherto trusted members of staff. The embarrassment of detection and the disclosure of weak internal procedures may provide a motive for 'internal' resolution of the problem. Furthermore, more than one commentator has pointed to an additional problem, namely that computer criminals are typically young, highly intelligent and often likeable characters with no difficulty of rationalising and defending their actions.⁷⁸

An addition problem, bound up with the need for reform of the law of evidence, is the difficulty of prosecuting complex computer frauds before a lay jury. The South Australian Commissioner for Corporate Affairs explained this difficulty thus:

If the computer remains an unknown, 'orwellian' device to all but a few trained experts, how can we expect a lay jury to properly comprehend the way in which a computer was used to effect a fraud possibly running into millions of dollars? ... Courts, juries and witnesses spend a vast amount of time engaged in the hearing of [matters of 'formal proof'].⁷⁹

Solutions to this procedural difficulty include simplification and reform of the law of evidence, procedural changes to require pre-trial conferences to settle the 'real' issues for trial and provision, either compulsory or on election, for trial by judge sitting alone.⁸⁰

Transcending all of these difficulties is the problem of characterising antisocial activities involving computers by reference to currently existing and appropriate criminal offences. Theft is traditionally defined as carrying away the property belonging to another with the intention of permanently depriving the owner of the possession of it. But in the case of a computer, the true loss may occur without any asportation of the computer

hardware or even the software. Access at a terminal to vital information may suffice. Copying or transferring that information may involve no carrying away of identifiable property. Though in England, following the Theft Act 1968, the English Law Commission has concluded that the misuse of a computer to steal money from a bank or property from an owner would be punishable within the present definition of 'theft', the same may not be true in those Australian jurisdictions which have not followed the Theft Act.⁸¹ The problem is not an academic one. In Ward v. The Superior Court of California⁸² an employee of a computer firm secured the transmission of programs of a rival firm into his own computer's stored memory. He then made a copy of the programs. Charges were laid under the Californian Penal Code relating to provisions governing theft and trade secrets. In that code 'articles' for the purpose of theft is very broadly defined. Nevertheless, it was held that the electronic representation of the program contained in the computer memory could not be regarded as an 'article' within the scope of the definition. The criminal law is traditionally interpreted with strictness. Offences designed before the advent of informatics may not, in terms, apply to conduct which, admittedly 'wrong' and harmful in a moral sense, is nevertheless not caught up by current penal characterisations.⁸³

Tapper has, rightly in my view, stressed the utility of stigmatising certain acts, involved the misuse of computers, as criminal. To do so 'fortifies the social pressures against [their] commission and has a salutary effect upon business practice'.⁸⁴ Numerous offences have been created in the United States to deal with computer crimes.⁸⁵ In Australia, the Standing Committee of Attorneys-General is already examining some of the issues relating to computer crime, particularly in relation to investigation and prosecution of such crimes. The need for a national examination of the relevant substantive law seems overdue.

THINKING POSITIVELY

Other areas for law reform initiative exist. They include the study of instantaneous and international informatics technology for the present rules governing conflicts of laws. Particularly in a federation, there may be a need for urgent attention to this problem. Tapper calls to notice the urgency of revision of the law of contracts⁸⁶, the law of torts⁸⁷ and procedural practices, such as discovery of documents.⁸⁸ An important area for comprehensive re-examination is one relevant to the Commonwealth's constitutional powers. I refer to the implications of computers for intellectual property law (patents, copyright, trade secrets and confidentiality).⁸⁹ The recent report on Information Technology issued by the Advisory Council for Applied Research and Development in Britain⁹⁰ concluded that the copyright laws 'need to be modified to cover information held in forms other than writing on paper':

Developments in [information technology] mean that information will in future be held in electronic, magnetic or optical forms and so the lack of appropriate copyright law will constitute a hazard for the users of [information technology] and could remove incentives to develop innovative concepts. ... The risks to [information technology] users of inadequate copyright protection will be enhanced by the ease with which copies of documents (whether paper or electronic) will be sent to distant locations. ... We recommend that the Government should put in hand urgently a review of the legal reforms required to aid and expedite the use of [information technology] in the U.K. and should then legislate to bring about such reforms as fast as possible.⁹¹

There are many other problems to be addressed by the law, including regulations that will ensure compatibility and consistency in information technology standards⁹², review of the laws governing telecommunications⁹³ and revision of other current laws overtaken by the penetration of computers.⁹⁴

So far, this essay has been a catalogue of woe: presenting a long list of the problems which law reformers and lawmakers must address quickly if the law is to service efficiently the computerised society. Such an unrelieved, pessimistic approach to the new technology is not warranted. There is little doubt that informatics will penetrate the lawyer's office in Australia as the century closes and alter fundamentally many lawyerly tasks and the ways we go about them. The change has already begun with the quite rapid introduction of word processors into legal offices. The labour-saving potential of these machines, their capacity to store precedents susceptible to variable use and to take over much routine correspondence and documentation has already been perceived by the solicitors' profession. The judiciary and the Bar have proved less adaptive so far, though word processors are a most sensible device for the painstaking task of opinion writing. Routine work including some pleading and, to an extent, advices on evidence, are susceptible to this new technology, with the additional merit that a basic form can ensure that slips of the mind and oversight are reduced. Despite the very high incomes reputedly earned by many barristers, so far as is known no individual barrister and no set of chambers in Australia have yet gone over to the new technology. Statute law is well adapted to computer retrieval, particularly where, as in Australia, a textual mode of amendment has generally been adopted. In fact, the Commonwealth has already implemented a scheme for the computerisation of the Commonwealth statutes. It is possible to retrieve Acts of the Commonwealth Parliament and to conduct computer searches of those Acts either for the limited specific needs of a case or for more detailed analysis. An example of the latter is to be found in the Law Reform Commission's interim

report, Sentencing of Federal Offenders.⁹⁵ In that report, inconsistent provision for punishment in Commonwealth statutes passed over the years since federation could be analysed and illustrated by the aid of computer techniques. The same procedure done manually would simply not have been possible within the resources and time available to the Commission.⁹⁶ The result of the computer-aided analysis of the statute book was a conclusion that:

judicial officers obtain confusing, inconsistent and sometimes manifestly unfair direction from this legislative source about the punishment that they should impose on persons convicted of Commonwealth offences.⁹⁷

The Commission proposed a major overhaul and reform of the Commonwealth statutes providing for criminal penalties. The utility of the computer-generated search for such a review is obvious. Other empirical work included in the sentencing report illustrates the usefulness of the analytical capacity and speed of performance of computers for the process of law reform in Australia.⁹⁸ Computers are also being used in other tasks of the Commission, including the analysis of federal legislation relevant to privacy and the examination of New South Wales debt recovery process, for the purpose of testing proposals for the reform of debt recovery laws and procedures in Australia.⁹⁹

A start has already been made in the computerisation of legal data other than statutes. This process is already well advanced in the United States and was recently given a fillip in Britain by the inauguration of a National Law Library with computer information retrieval systems for the supply of legal material to the judiciary and the profession. Terminals have been provided in various centres of Britain and seminars held all over the country to explain the composition of the data base and the procedures for access.¹⁰⁰

Some observers have voiced scepticism and even fears concerning the proliferation of legal data banks.¹⁰¹ The danger of drowning in a mass of computer-generated precedents and of failing, even more than we already do, to search for principles rather than precedent, is a real one. However, legal data continues to amass at an alarming rate. In the field of statute law alone, Parliaments in Australia now enact more than a thousand Acts annually at a Commonwealth and State level. This says nothing of subordinate legislation. It says nothing of case law, including judicial elaborations upon statutory language. The lawyers' data base in Australia continues to expand. The federal system itself contributes to the proliferation. But at the same time, there is little doubt that we do not maximise the use of relevant, valuable, interstate authority. A conscientious New South Wales lawyer is more likely to be aware of English than of

Tasmanian or Western Australian authority. Properly programed, computers can instil a high degree of specificity. They can relieve lawyers of the drudgery of tracking down relevant statutes and case law. Moreover, they can provide an assurance against the greater danger of entirely overlooking relevant, recent legislation or a critical, authoritative court decision. Though there are problems¹⁰², there must be little doubt that computers have arrived on the scene just in time to rescue lawyers from the exponential growth of legal data. Indeed, it has even been suggested that, just as computer analysis can help law reformers to analyse material in search for new principles, so they may be able to assist in the development of the common law and in the prediction of judicial decisions, based on the extension and application of existing authority.¹⁰³

Finally, there seems little doubt that computers will come to play a large part in registered land conveyancing in Australia. This is not a new idea. Tapper predicted the development in England in 1973.¹⁰⁴ In the United States, Chief Justice Burger in an address to the National Conference on Administration of Justice in 1976, said that 'ways must be found to simplify and reduce the cost of land title searches and related expenses of home purchasing and financing'. 'Modern computer technology', he said, 'could greatly reduce costs in this area'.¹⁰⁵

All of this seems obvious. Yet when the present writer suggested to a Conference of Surveyors that planning should commence at once to establish a national land use data base, not only for land conveyancing but for the use of the hundred and more authorities — Commonwealth, State and Local Government — with concerns in land use, the notion was denounced as a 'misty-eyed dream' by a Past President of the Law Society of New South Wales.¹⁰⁶ Likewise, when the proposal was made that computers would, in a relatively short space of time, replace the need for lawyers in much of the work associated with land conveyancing, warranting the entry of other responsible persons to the work, this suggestion was denounced as a betrayal of the legal profession's justifiable monopoly, in most parts of Australia, in paid land conveyancing.¹⁰⁷

The process of the computerisation of land titles has already begun. Recent announcements in Australia give hints of the things to come. In Victoria, during November 1980, the Attorney-General, Mr. Haddon Storey QC, 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, Mr. Peter Arnold, 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.¹⁰⁸ The prospect of a national computerised land and title data base must be squarely faced.

The implications of these developments for the legal profession of Australia are profound. Surveys suggest that about half of 'lawyers' time in Australia is devoted to land conveyancing and associated work.¹⁰⁹ Half the fee income of lawyers in Australia is said to derive from this field of activity. Yet if much of the routine work of land conveyancing (especially domestic land transfers) is susceptible, in whole or part, to computer treatment in an administrative rather than an adversarial mode¹¹⁰, the justification for a lawyers' monopoly of this work will fast disappear. The implications of such a change, affecting so many of the members and such a great proportion of the income of the legal profession of Australia, must be carefully and urgently considered by those who appreciate the importance of a busy, prosperous and independent legal profession for the effective maintenance of the rule of law. The Law Council of Australia and its constituent bodies must, as it seems to me, promote, in earnest, the search for appropriate, modern and adequately remunerated work, worthy of the legal profession and available to replace the remunerative land conveyancing, much of which falls victim to routine, automated procedures. Obviously, the computer will not in the foreseeable future replace entirely the need for the lawyer's assistance in land transfers. Large, complicated and commercial dealings will continue to require skilled legal advice. Problems and disputes will arise which will require legal resolution. But the fact remains that a great deal of land conveyancing will be susceptible to automation. A realisation of this likelihood will promote a search by lawyers for diversification and for appropriate, and currently unmet, needs for legal services.

CONCLUSIONS

This piece could do no more than to sketch, with a broad brush, the implications of computerisation for some of the compartments of the law and for law reform. The penetration of informatics into all sectors of the Australian community is beyond doubt. The absorption of technological change is rapid and pervasive. The technology itself is dynamic. No plateau has been reached in its inventive development.

The law can be an instrument to advance social well-being and economic development. It can foster and take advantage of technological change. The growth of the limited liability company occurred first in England in the middle of the 19th century. It was a legal breakthrough which coincided with the first industrial revolution.¹¹¹ It fostered inventiveness and risk-taking. It was developed by adapting the Charter Company, a legal model developed for colonial adventures.¹¹²

All too often, however, the law, far from encouraging and facilitating technological change, is either left flat-footed, bemused, with nothing relevant to say, or is positively obstructive (as can be the case in the admission of computer evidence) or dangerously silent (as can be the case with computer crime and privacy).

The work of adjusting the law to the informatics revolution has begun. But lawmaking institutions are slow. Parliament is not generally well-g geared to cope, unaided, with complex, technical and wide-ranging changes. The Executive Government, distracted by recurring elections, tends often to take a short-term view. The judiciary, as illustrated in the Myers case, has tended lately to retreat from innovation. Whether for want of appropriate procedures or because of the intermittent and unpredictable course of litigation, the common law in this century has not proved especially apt for the law reform necessary to adjust to technological change. The pressures for change and the disinclination of other institutions is the opportunity of the law reform agency.

Many law reform reports have already been produced on aspects of computer law. The Australian Law Reform Commission has before it projects relevant to protection of privacy and the development of a modern law of evidence. Other fields have been identified which, so far, remain unconquered. Of these computer crime and the adaptation of intellectual property law must surely have priority.

The story is not, however, a wholly depressing one. Lawmakers and law reformers are already using computer technology to assist them in their tasks. The statute book and case law are already partly 'on line' in Australia. Information technology will undoubtedly assist in many fields of lawyers' work. The effective implementation of freedom of information laws and of access to data will undoubtedly be facilitated by the growing automation of that data. At the same time, both for advocate and attorney, much routine work will be taken over by the computer. The challenge before the legal profession in Australia today is overwhelmingly one of relevance: finding new tasks appropriate to the history and training of the lawyer. It is to be hoped that there will be an adequate dialogue between lawyer and computerist. Out of such a dialogue should grow a greater appreciation by technologists of the values in society which the law seeks to uphold. But there is also needed an appreciation by lawyers of the implications for their discipline and work of the remarkable technology of informatics. Perhaps lawyers may in the process even catch something of the infectious, dynamic spirit of inventiveness that so profoundly marks the contemporary technology of information.

FOOTNOTES

- Chairman of the Australian Law Reform Commission 1975—. Chairman of the Expert Group of the Organisation for Economic Co-operation and Development (OECD) on Trans Border Data Barriers and the Protection of Privacy 1978-1980.
1. C. Tapper, Computers and the Law, London, 1973, xv.
 2. N. Segar, French Minister for Telecommunications, Opening Address, Conference on Information Technology and Society, Paris, 24 September 1979.
 3. The most notable have been in the areas of privacy (data protection and data security) and evidence law reform detailed below. But see also Law Reform Commission of Canada, Canadian Payments System and the Computer, 1975, and Law Reform Commission of Manitoba, Report on a Review of the Jury System, 1975 (choice of juries by computer, 15).
 4. C. Tapper, Computer Law, London, 1978, 151.
 5. Australian Law Reform Commission, Discussion Paper No. 14, 21. The cost per function of a chip was said to have been reduced by more than ten thousand-fold in something like 15 years.
 6. Irwin, U.S. Telecommunications Policy: Beyond Regulation, mimeo, Max-Planck-Institut, Bonn, 1980, 14.
 7. 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, 5.
 8. *ibid.*
 9. Committee of Inquiry into Technological Change in Australia, Technological Change in Australia, Canberra, 1980, Vol. I, 25 (para. 2.9.4).
 10. *ibid.*, I, 57 (para. 3.176f).
 11. *id.*, I, 59 (para. 3.184).
 12. *loc cit.*

13. Statement made on behalf of Logica Limited, United Kingdom, to an ad hoc meeting on trans border data flows and data communication policies, OECD, document ref. DSTI/ICCP/80.27, 1.
14. Notably the report 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).
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. These and other issues were considered at a recent high level conference on Information, Computer and Communications Policies for the 1980s, sponsored by the OECD and held in Paris, 6-8 October 1980. See Transnational Data Report, Vol. 3, No. 8, December 1980, 1. The author attended the conference and was rapporteur of the session on 'Informatisation and the Public Interest'.
17. Swedish report, n.15.
18. Australian Law Reform Commission, Discussion Paper No. 13, Privacy and Intrusions, Sydney, 1980, 36f (para. 60f).
19. *ibid*, 32f (para. 53f).
20. *ibid*, 44f (para. 74f).
21. Australian Law Reform Commission, Unfair Publication: Defamation and Privacy (ALRC 11), Canberra, 1979.
22. For a discussion of this wider notion of 'privacy' see ALRC DP 14, 19 (para. 22). See also South Australian Law Reform Committee, Regarding Data Protection, 15th report, 1980, 3.
23. ALRC DP 14.

24. *ibid*, 20 (para. 23).
25. Privacy laws relating to personal information have been enacted in Austria, Canada, Denmark, France, the Federal Republic of Germany, Luxembourg, Norway, Sweden and the United States of America. Such laws are under active consideration in many other countries.
26. 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, 265-269.
27. 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.
28. Transnational Data Report, Vol. 3, No. 6 (October 1980), 1. The Convention will enter into force when ratified by five Member countries.
29. F. Hondius, 69.
30. The OECD comprises 19 countries of Europe, the United States, Canada, Japan, Australia and New Zealand. Yugoslavia has a special associate status. Australia joined the OECD in 1971.
31. G. Niblett, Digital Information and the Privacy Problem (OECD Informatics Studies No. 2), Paris, 1971.
32. Organisation for Economic Co-operation and Development, Policy Issues in Data Protection and Privacy (OECD Informatics Studies No. 10), Paris, 1976.
33. OECD document ref. No. DSTI/ICCP/78.6 (1978).
34. 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.

35. The governments of Australia, Canada, Iceland, Ireland, Turkey and the United Kingdom abstained. The Icelandic abstention was subsequently lifted when Iceland adhered to the Recommendation.
36. At the time of writing (January 1981) consultations between Commonwealth and State officers in Australia are continuing.
37. Explanatory Memorandum, annexed to the Council Recommendation, above, n.34, 20.
38. Guidelines annexed to the Council Recommendation, above, n.34, 4 (para. 2) (hereafter 'the Guidelines').
39. The Australian Law Reform Commission Discussion Papers 13 and 14 were issued in July 1980.
40. See ALRC DP 14, 25 (para. 31). See also M.D. Kirby, 'Trans Border Data Flows and the "Basic Rules" of Data Privacy', 16 Stanford Journal of International Law 27 (1980).
41. The Guidelines, para. 3(a).
42. *ibid*, para. 3(b). The reference is to, for example, telephone books and publicly available electoral rolls. See Memorandum, 22.
43. The Guidelines, para. 3(c).
44. *ibid*, para. 4.
45. *id*, para. 5. 'In the particular case of Federal countries, the observance of these Guidelines may be affected by the division of powers in the Federation'.
46. *id*, para. 6.
47. ALRC DP 14, 18 (para. 21).
48. *ibid*, 95 (para. 165).
49. *ibid*, 1 (para. 2).
50. *ibid*, 118 (para. 210).

51. M.D. Kirby, Towards Effective Data Protection Laws in Australia: An Interim Report of the Privacy Inquiry, Address to the Annual Seminar of the Australian Computer Society, November 1980, mimeo, 6f.
52. ALRC DP 14, 64 (para. 107-8)...
53. Kirby, n.51, 17ff.
54. Established by the Privacy Committee Act 1975 (NSW).
55. Professor A.J. Wearing and Ms. J.R. Wolfram (University of Melbourne, Department of Psychology), Submission, December 1980.
56. See e.g. 'When Privacy Laws Hurt Trade', Business Week, 14 April 1980, 104D; 'Privacy: We don't worry, we're British', in The Economist, 25 October 1980. See also Advisory Council for Applied Research and Development, Information Technology, London, 1980.
57. Tapper, Computer Law, 150-1.
58. Mr. Justice J.M. Didcott, Legislation Regulating the Admissibility of Computers-Generated Evidence, a report to the Clearing Bankers' Association of South Africa and to the South African Law Commission, Pretoria, 1980, mimeo, 13-14.
59. 'A. Reconsideration of the Admissibility of Computer-Generated Evidence' in 126 Uni. of Penn. L.Rev. 425, 438 (1977).
60. 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, 161.
61. *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).
62. Section 5. For discussion, see Tapper, Computer Law, 168.
63. [1965] AC 1001.

64. *ibid*, 1022.
65. 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, paras. 48-62); Tasmanian Law Reform Commission, Admissibility of Computer Data in Evidence, Report No. 17, 1978.
66. 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 1929-1979 (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.
67. Tapper, Computer Law, 168f; Didecott, 19.
68. For example, specific provision is made in respect of the Family Court in the Family Court Act 1975 and in respect of the Federal Court of Australia in the Trade Practices Act 1974 (Cwlth). See Australian Law Reform Commission, Issues Paper No. 3, Reform of Evidence Law, Sydney, 1980, 10f.
69. Judiciary Act 1903 (Cwlth), s.79.
70. Standing Committee on Constitutional and Legal Affairs of the Australian Senate, Report on the Reference: The Evidence (Australian Capital Territory) Bill 1972, Nov. 1977.
71. The terms of reference are set out in Australian Law Reform Commission, Discussion Paper No. 16, Reform of Evidence Law, Sydney, 1980 (1980), 2.
72. *ibid*.
73. Issues Paper, above, n.68.
74. ALRC DP 16, 6.
75. *ibid*, 10. As to the admissibility of satellite photographs, see *id*, fn. 27.

76. Evidence of D. Parker, Sub-committee on Criminal Law and Procedures, regarding S.1766, the Federal Computer Systems Protection Act of 1977, Senate of the United States Congress.
77. [1965] AC 1001, 1022.
78. D. Parker, Crime by Computer, 1976. See also R. Raysman, 'Developments in Computer Crime Legislation', in New York Law Journal, 5 September 1979, and Dycum, 'The Criminal Law Aspects of Computer Abuse', 5 Rutgers Journal of Computers and the Law, 297 (1976).
79. J.R. Sulan, 'Legal Aspects of Computer Crime: Is the Law Adequate?', Paper delivered to the Jubilee ANZAAS Conference, Adelaide, 1980, reprinted in Australian Crime Prevention Council, Forum, Vol. 3, No. 4 (1980), 37, 44.
80. *ibid*, 45. See also the comments of Mr. Justice Beach concerning a complex fraud case before a jury which occupied 91 sitting days, reported in The Melbourne Herald (24 September 1980), 3. Mr. Justice Beach suggested that had the trial been before a judge sitting alone (or assisted by one or more assessors with accounting experience) the time spent would have been at least halved. See [1981] Reform 5.
81. The Law Commission, Working Paper No. 56, 'Conspiracy to Defraud', London, 1974.
82. 3 CLSR 206 (Cal) 1972. See also the other cases cited in Raysman.
83. Sulan, 43.
84. Tapper, Computer Law, 99.
85. A. Bequai, Computer Crime, 1978.
86. Tapper, Computer Law, 42.
87. *ibid*, 75f.
88. *id*, 172.
89. *id*, 1.

90. Report of the Advisory Council, above, n.56.
91. *ibid*, 39.
92. *id*, 37.
93. *id*, 52.
94. See, for example, the law relating to the conduct of the census. Cf. Australian Law Reform Commission, Privacy and the Census (ALRC 12), Canberra, 1979, with proposed amendments to the Census and Statistics Act 1905 (Cwlt), *id*, 55f.
95. ALRC 15, Canberra, 1980.
96. *ibid*, 250f (para. 409f).
97. *id*, 257.
98. For example, in the analysis of the results of various surveys, including the survey of the opinions of judicial officers concerning sentencing reform. See *id*, Appendix B, 342f.
99. Australian Law Reform Commission, Annual Report 1980 (ALRC 17), 36 (para. 80).
100. (1980) 77 Guardian Gazette 81; [1980] Reform 57.
101. For example, the comments of Sir Garfield Barwick to the Sixth Commonwealth Law Conference, Lagos, Nigeria, August 1980, noted (1980) 54 ALJ 700; [1980] Reform 109, 110.
102. See, for example, Tapper, Computers and the Law, 106.
103. *ibid*, 233.
104. *id*, 299.
105. Chief Justice Warren Burger, cited in 44 LW 2488 (1976).

106. 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.
107. M.D. Kirby, 'Building Societies, Conveyancing and Reform of the Legal Profession', Address to the Association of Co-operative Building Societies of New South Wales, December 1980, mimeo (See 82/80). Cf. Victorian Committee of Inquiry into Conveyancing, Interim Report, 1980 (Chairman D. Dawson QC), 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, 30.
108. Printout, 10 January 1981 (No. 139), 1.
109. J. Disney & Ors, 'Lawyers', Sydney, 1977, 106-7. See also the report of the study by Dr. R. Tomasic in The Sydney Morning Herald, 10 October 1980, 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.
110. J.C. Payne, 'What Needs to be Done About Conveyancing?', an Address to the British Legal Association, October 1977, mimeo, 6.
111. Lord Wilberforce, Law and Economics, in B.W. Harvey (ed), The Lawyer and Justice, London, 1978, 73.
112. ibid, 76f.