ROYAL MELBOURNE INSTITUTE OF TECHNOLOGY

FACULTY OF HUMANITIES AND SOCIAL SCIENCES

INTERNATIONAL CONFERENCE ON TERTIARY EDUCATION FOR THE AGE OF COMMUNICATIONS

'THE EDUCATIONAL CHALLENGE, TECHNOLOGICAL REALITIES AND COMMUNICATIONS POLICY'

WEDNESDAY, 29 JUNE 1983

INFORMATICS, LAW AND EDUCATION

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The Hon Mr Justice M D Kirby CMG
Chairman of the Australian Law Reform Commission

AMATEURS AND PROFESSIONALS

I must come clean at the outset. I am not an educationalist in the strict sense of the word. I approach with difference the obligation of speaking to a conference of experts. However, one of the cleverest aspects of the English legal system, which we have inherited in Australia, is the interplay it offers between the specialist, the expert and the generalist amateur. Cases move up the appeal ladder from the decisions of specialist courts and tribunals to the ultimate assessment of the generalist courts of appeal. The law is there brought back to someone whose responsibility it is to see the mosaic in its totality.

In fact, this English fascination with the interplay between expert and generalist can be seen in so many fields of endeavour. The Parliament and the Minister illustrate the interaction between the lay representatives of the whole people and the person who, theoretically at least, can command all relevant expertise. As between the Minister and the bureaucrat, the scales have been lifted from our eyes by the revealing BBC program 'Yes, Minister'. If another BBC production, 'The Barchester Chronicles' is to be believed, the same interaction even penetrates that most English of institutions, the Church of England. Bishop Proudie is distinctly the well meaning amateur, stumbling fitfully amongst some rather tough professional players. In fact, I feel like Bishop Proudie tonight and only wish that I had the formidable Mrs Proudie here to rescue me and to keep all of you in check.

I shall start by establishing such credentials as I have to offer this opening address. That will be a brief section of my speech indeed. I shall then outline the work of the Australian Law Reform Commission as it affects informatics and communications technology. I shall identify some of the ways in which the informatics revolution affects my own discipline, the law. I shall then turn to some comments on education, which I will offer with diffidence for your consideration.

THE AUSTRALIAN LAW REFORM COMMISSION

The body which I head is a permanent national Commission. It was established in 1975, with the support of all parties in the Federal Parliament, to assist Parliament in the review, modernisation and simplification of Federal laws. The Commission is set up in Sydney. It has a small staff. At any time, there are 11 Commissioners, only four of whom are full-time. The research staff presently numbers 10. So it is a small efficiency unit for the legal system. But what it has lacked in numbers, it has made up in the quality of its members. Some of the finest legal minds of the country have been appointed by successive governments to be Commissioners. They include Sir Zelman Cowen, Sir Gerard Brennan (now a Justice of the High Court of Australia), Mr John Cain, the distinguished Premier of this State and Senator Gareth Evans, now my Minister and Federal Attorney-General. In a sense, the Commission once again illustrates the English technique. Top lawyers are plucked from the midst of busy practices and assigned to a permanent body to assist the lawmaking process. They offer a stream of advice, alternative to the Departments of State. Lawyerly skills are applied to bringing together a great mass of expert and community opinion : distilling the results into formulated proposals for the reform of old laws or the development of entirely new laws, to meet novel and unprecedented problems.

Many of the proposals of the Law Reform Commission have been translated into law, both at a Federal and State level in Australia. In that sense, we are part of the governmental machinery, not simply an academic institution. In the eight years of the existence of the Commission, a number of major thems have emerged as explaining the needs for law reform in Australia today. Undoubtedly, the most dynamic of these themes is the impact of science and technology on our community. Uncomfortably for lawyers, we live in the age of science and technology. Necessarily, the developments that occur present challenges and dilemmas to a legal system 800 years old.

One of the early tasks given to the Law Reform Commission was the study of the law on human tissue transplantation. The subsequent report, which is now the basis of the law in every State of Australia except Tasmania, tackled aspects of biological developments. Along with nuclear physics and informatics, bioethics present some of the most difficult questions that must be addressed by the legal order today. The marriage of computers and telecommunications, so-called 'informatics', presents many complex issues for the law and for society. But the prospective marriage of informatics and biotechnology suggest that even more acute dilemmas are just around the corner.

Informatics became a source of study in the Law Reform Commission when the Commission received a reference from the government to develop new laws for the protection of privacy. The report on this subject will go to the printer next week. It should be tabled in Federal Parliament in the Budget Sittings. The report will deal with many aspects of the Federal laws on privacy protection, including powers of entry of Federal officials, Federal surveillance laws and telephonic interception laws. But a great part of the report is devoted to the need for better protection of personal information. And a significant part of that problem is attributable to the development of informatics. The capacity of the computer to store information, including personal information in ever-increasing quantity, to retrieve it at ever-increasing speed and diminishing costs, to aggregate information into profiles, to send it across the corridor or across the world, to utilise an entirely new, diverse professional group and to facilitate centralisation of control — all of these are well recognised dangers to privacy. They have led, in Europe and North America, to data protection and data security laws. They will lead, in due course of time, to similar laws in Australia.

The Law Reform Commission is also now also examining the laws of evidence in Federal and Territory courts in Australia. The English trial system, which we have inherited, puts great store upon oral testimony and on the right of people to confront witnesses giving evidence in cases affecting them. Yet with the development of computer and computer-generated evidence, the old requirement of oral evidence and the old rules against hearsay evidence, become inconvenient and even mischievious. New laws of evidence are needed to facilitate the proof of computer and computer-generated testimony. Otherwise, society will proceed to make its decisions on such evidence, but the courts will exclude it and insist, in every case, on the costly procedure of oral testimony to prove the printout.

In the course of my work on Australia's privacy protection laws, an inquiry was initiated by the Organisation for Economic Co-operation and Development (OECD) in Paris. That inquiry related to the development of 'basic rules' for privacy protection in the context of trans border data flows. I was sent as Australia's representative to the Expert Group established by the OECD for this purpose. I was elected as Chairman of that Group and worked with it between 1978 and 1980 in the development of guidelines which were later adopted by the Council of the OECD. At this time, only three member countries of the OECD have not subscribed to those guidelines : Ireland, Canada and Australia. I understand that some progress towards Australian endorsement may follow the presentation of the Law Reform Commission's report on privacy protection later in 1983. Certainly, the Commission's report has been profoundly influenced by the OECD guidelines. And that is as it ought to be. The objective of securing an international statement for the 24 member countries of the OECD was the hope of encouraging consistent and mutually compatible domestic laws. Where you have a new, universal and instantaneous technology, the luxury of 'going it alone' with domestic law making is, to say the least, diminished. The need for local laws which follow a basically agreed set of principles is manifest, if we are to avoid the inefficiencies of different or even incompatible legal obligations falling upon data as it moves silently and instantaneously between and across different legal jurisdictions. In a sense, the development of informatics has brought us, in the world legal order, to a kind of Runnymede. I suspect that the day of the overweaning, independent international baron-States are numbered. The new problems of our time : whether the problems of nuclear arsenals, the great human dilemmas of bioethics or the international issues of informatics : all of these will force the pace towards the development of a truly international legal system.

INFORMATICS LAW : THE NEW DIMENSION

In the land of the blind, the one-eyed man is king. Having chaired the OECD Expert Group on Privacy, I am now finding myself increasingly involved, both nationally and internationally, in consideration of the numerous other effects of information technology on the legal system. It is clear from even the most cursory examination of the technology, that it is going to affect very many areas of the laws. The debates about privacy protection are only one facet of the diamond. Further debates about data protection are only just beginning. Questions are now being raised as to:

* whether privacy protection should extend to legal as distinct from natural persons ie the extent to which it is apt to talk of the human rights of corporations, associations, clubs, small businesses and partnerships

* whether, and if so how, codes of ethics can be developed to supplement general legal rules and to control the workface operations of computerists
* whether, for the assurance of privacy rights, individual citizens ought to be entitled to handle terminals and other technical equipment or whether we should persist with providing them with hard copy, harkening always back again to the technology of Gutenberg.

If we put privacy debates to one side, there are many others. Freedom of information is an important development, both of Federal and Victorian legislation. But new questions are now being raised:

* whether the right of access should now, or in the future, include a right to use the equipment to secure access
* whether people should be deemed to 'own' data about themselves, wherever it is held
* whether the principle of freedom of information should be spread from the public sector to the private sector, to make the latter more accountable to the general community
* whether we can contain the haemorrhage of information once it begins.

There is a well known illustration of the lastmentioned case. A Norwegian social researcher who published certain findings on NATO defence arrangements was convicted of espionage in Norway. In that country, the arrangements were contained in documents restricted under Norwegian law. However, the document had been retrieved on-line pursuant to the United States Freedom of Information Act. The moral appears to be that the new information technology is likely to hasten the influences of openness of administration, for the simple reason that it is so much more difficult to contain the haemorrhage of freely available information once its disclosure has been permitted in one place. The Norwegian case has lessons for the Australian federation.

Just as Sweden led the way in privacy and freedom of information laws, it is instructive to reflect on the current concerns in Sweden. They include the vulnerability of the wired society, the impact of prolonged and growing unemployment (generated by technological change) on legal and social stability and the proper response to computer crime and fraud.

From a legal point of view, informatics presents special problems for the criminal law. Typically, crime is strictly defined. Because people's liberty may be at stake, it is usual to give a narrow construction to legislation defining criminal acts. Because such legislation was usually drawn long before the invention of informatics, its language may, all too often, be inapt for the ephemoral media of today. Moreover, crime is normally local. Domestic courts are normally confined to punishing criminal offences which have occurred within their own territorial borders. When crimes are constituted of a number of elements, some of which have taken place outside domestic jurisdiction (eg by reason of access to international data communications) law reform may be necessary to ensure that the legitimate jurisdiction of local courts is not frustrated. Otherwise, computer criminals may slip through the net of the law, simply because their conduct has elements involving many jurisdictions.

This consideration leads also to the problem of private international law or conflicts of laws. When an electronic message is generated in country A, switched in countries B and C, transits countries D, E, F and G, is processed in countries H and I, stored in country K and involved entities residing in yet other countries, a distinct problem arises as to which legal regime should attach when something goes wrong. Furthermore, the question of sovereignty can be raised. The recent freezing of the Iranian and Argentinian assets during conflicts involving those countries has demonstrated the potential for widespread disruption that could arise if a country had effective control over or access to the storage, processing or transit of data vital to an enemy.

Intellectual property law, business law and the law of liability and insurance, are also in need of close re-examination. Intellectual property law (copyright, patents etc) developed around protection for the medium of information. It is not possible in law to patent or copyright an abstract idea. But in our time, data and therefore information, have been 'liberated' from physical objects representing the data. Accordingly there is a need for a significant rethink of the whole basis of this area of the law. The widespread dependence of society today on the new information technology makes the potential impact of errors far greater and more potentially catastrophic. Errors can arise from human factors, defects in the hardware or loss of interference during transmission. With trans border data flows, whose law will govern the liability? Whose courts will be empowered to track down the cause and assign the blame?

Some of my colleagues in the law think that the mighty micro will somehow leave them studiously alone. The impact of informatics is, for them, something for car workers on the assembly line or steel works operatives. Of course, it is not so. Already the effects of the word processor are being felt in most solicitors' offices. Contracts are being let for a national legal data base. Statutes are already 'on-line'. In the business of reform, the Law Reform Commission utilises the computer to identify the Acts of Parliament that need reform attention. For example, we recently received a reference to inquire into the law of contempt. The reference followed the gaoling of Mr Norman Gallagher. It required us to examine the law of contempt in all Federal courts, tribunals and commissions. Once, the identification of the legislation on this subject would have been a painstaking effort to scrutinise the whole Statute Book of the Commonwealth. Now, it is a relatively simple matter to punch in 'contempt' and to secure every reference to that subject throughout Federal legislation. Even in the law, routine work is being diminished.

Of course, this revolution is only just beginning. Around the corner is its impact on land title conveyancing. When land title is digitalised and on-line and when this data is married to the date of land use authorities, the prospect of automation of land conveyancing looms in sight. Yet this is presently the source of 50% of the fee income of the legal profession of Australia. The implications of this development for a very large number of lawyers and for the spread of lawyers throughout our country — particularly in suburban and rural areas — is most significant. It is, in fact, a worrying problem.

Barristers and judges are not immune. Already in the Supreme Court of Quebec, judges and barristers have at their fingertips in court a video display unit with the Criminal and Civil Codes of Quebec and associated laws. Some writers even suggest that relatively simple matters of legal decision-making may be turned over to computer assessment. The sentencing of offenders, for example, could be significantly reduced, at least in first instance, to a computer assessment of relevant factors. Certainly this would secure a great degree of consistency. Perhaps it would unduly diminish the qualities of mercy and human judgment that are an important part of sentencing today. Within the next fortnight, a conference is being organised in Canberra by the Australian Institute of Criminology to look at the use of computers in aid of the courts. A major subject of that seminar will be the use of computers to reduce sentencing disparities.

But quite apart from this facility, as an adjunct to normal judicial decision-making, some are now looking further ahead. Laws in the future will be written against the background of the growing potential of informatics to scrutinise data and to assess and analyse it. Discretionary factors may well be reduced, in the hope of streamlining the legal system. Aggregate justice and the ideal of getting people's rights determined quickly and efficiently may require redefinition of those rights. Thus, I can well envisage changes to compensation laws from the global, evaluative assessments offered by juries, peering into the future (and not easily reduced to computer assessment) to the universal, social security approach which is much more easily processed through computer technology. In other words, the technology will, in future generations, affect the way in which legal rules are stated and legal procedures are designed.

As computer technology develops, it may achieve a potential of analysis and assessment not presently available. It may, for example, be able to examine legal data with a view to reaching conclusions. It may be able to examine judgments with a view to developing new legal principles. In anything so human as perceptions of justice, it is unlikely in the foreseeable future that the computer will put the judiciary out of business. The exercise of a merciful and understanding discretion by a highly trained and civilised person will not be replaced by computer control in my lifetime. But the interaction between the professional and the amateur of the future may well involve a dialogue between the electronic information technology and the mercifully human judicial officer.

INTERDISCIPLINARY STUDIES

At unconscionable length, I have now laid the grounds for one or two comments on the subject of your conference : tertiary education for the age of communications. I repeat that I do so with some diffidence as I am not, in the formal sense, an educator, though I have been associated with a number of tertiary education institutions and do some work as a community educator in the law.

The moral of the analysis I have just offered is that the law and science and technology must be engaged in a more fruitful dialogue than has existed until now. Lawyers must learn that science is not just a collection of fascinating tricks : that it is the great engine of our time. They must learn that technology is increasingly going to influence the shape of human society and hence will make many demands upon the laws and institutions of that society. But there is also a moral for scientists and technologists. It was presented recently, in a vivid way, in this State. The government's moratorium on certain experiments involving in vitro fertilisation demonstrated the importance

for scientists and technologists of working within the framework of acceptable social rules. Unless we can find better mechanisms for harmonising the advance of science and technology with the expectations and perceptions of society, we are likely to see more such science moratoria. It is self-evident that in the generations ahead, lawyers must learn to communicate with scientists. Equally, scientists must learn to communicate with lawyers and law makers.

As in so many other things, the communication must start early. Once you get to my age, it is generally too late. It must begin in early education. The streaming of the Australian education system — by which some bright students tended to pursue mathematics and science courses and others history and English courses -- widened the gulf between lawyers and technologists in the past. Lawyers were those at school who were good with poetry, language, words. They were generally rather weak in mathematics. In my day, the two streams began to divide at about the age of 15 : generally never, educationally speaking, to meet again. Separate classes in the High Schools. Separate faculties at the Universities. Separate professions. Separate professional associations. Separate journals. Separate social groups. Little dialogue.

And here is the irony. Whereas the political power base of society (reflecting times past) is still overwhelmingly in the possession of people of letters, the commercial, industrial and economic power base will increasingly shift to the scientists and technologists. So far, there is little evidence that the political is catching up with the economic.

More to the present point, there remains a deep gulf between the scientific stream of education and the humanities stream. Nowhere is this gulf more evident than in my own discipline, the law. If we look at our law schools in Australia, many are the experts on contract law as it affects carriers and the sale of goods. But where are the experts who can draw a contract involving computer software? A recent seminar in Sydney was told that they are scarce as hens' teeth. Many are the academics who will debate the intricacies of tax law or the law of wills. But where are the experts who are devoting their specialist legal skills to the legal implications of informatics, the law and bioethics or nuclear energy law? There are, of course, a few. At the NSW Institute of Technology, Dr Roger Brown is so interested in the interface of law and informatics that he has commenced a journal on the subject. At the Melbourne Law School, Dr A Bradbrook is pursuing his most interesting study of the law and energy sciences : solar energy and wind energy and their implications for the law. At the ANU Law School, Dr Colin Thomson has for some years been examining the law on bioethical issues. But, by and large, the law teachers of today, like the laws of today, harken to the past. There are few who have involved themselves in the interdisciplinary studies that are necessary to prepare the next generations of lawyers for the age of science and technology, and its explosive impact on the legal discipline.

The special curse of tertiary education in Australia today, as it seems to me, is the generally rigid disciplines into which knowledge is squeezed. The notion of universities as places of a universe of knowledge, shared by many talented people, has been shamefully replaced by universities and other tertiary institutions where we all go into our private worlds, with very little communication between the disciplines. I acknowledge a few brave exception. . The Centre for Human Bioethics at Monash University seeks to bring together genetecists, philosophers, theologians, lawyers and others. I understand that an interdisciplinary Institute of Computers and the Law is planned for the NSW Institute of Technology. There may be others. They are few. And they are the exceptions. At a tertiary level, as in school, we are all too frequently locked into the neat boxes designed by forgotten curriculum 'experts' of earlir times. Streaming remains remorseless for most of Australian education. Inconveniently, knowledge defies such artificial divisions. Whilst some specialisation and organisation of material is clearly necessary, more thought should be given to bringing the disciplines together — if only sometimes; if only, for some. In its own modest way, the Law Reform Commission contributes to interdisciplinary dialogue and interdisciplinary community education. When we deal with human tissue transplants law, we bring together philosophers, theologians, medical practitioners and lawyers. When we deal with the laws governing computer privacy, we bring together computer technologists, experts in surveillance technology, police experts, civil liberties representatives, legal scholars and philosophers.

But in the tertiary educational domain, there is a clear and urgent need for more institutional arrangements that will bring the disciplines together. We need more institutes of bioethics; more institutes of law and social welfare; more schools of computers and the law; more programs of energy law, engineering law. When the Law Reform Commision examined transplants, we found that, far from being on the increase, the numbers of medical schools teaching ethics in Australia were actually dropping. And this in the age of in vitro fertilisation, genetic engineering and the problems of deformed neonates and potential problems of human cloning! I recently saw the program to celebrate the centenary of the Sydney Medical School. With every due respect, it was filled with items of an introspective and specialised kind — but little or no examination of the great modern debates of medical ethics. Unhappily, this simply reflects the somewhat isolated world of the modern tertiary education speciality. We are streamed from school. We go into our own special milieu. There should be a renewed effort of thoughtful educationalists in Australia to promote dialogue between the disciplines. This applies in tertiary education. It applies, as I hope I have shown, to informatics and communication sciences and the law.

TI. . CHALLENGE OF INFORMATICS *

I am conscious of the fact that this appeal for interdisciplinary studies touches only one theme of the needs of tertiary education for the age of communications. In your conference you will examine the challenges to institutions, the challenges to teaching and the changes in the methodology of education -- just as I have mentioned the changes in the methodology of the law.

Within tertiary institutions the new technology has grown unevenly, often reflecting the special interests of particular members of the staff. The penetration of informatics in our tertiary institutions has largely been accidental, unplanned. I hope that some consideration will be given to the need, throughout tertiary institutions, to introduce the new information technology in a more consistent and coherent way. People who have reached the top of their discipline may be fearful of informatics. They may be resistance to technological change. Given the pace of the changing technology of communications, how do we inculcate change itself into the curriculum in order to make students, and teachers, flexible enough to adapt to the developing technology? As you can imagine, this is a major quandary in the law and in law making. The hare of technology leaps ahead. The tortoise of the law comes slowly and ponderously along, never approaching let alone catching up.

Within tertiary institutions, organisations will merge with the development of new technology. Preparations should already be in train for the convergance. Libraries, printing services, mail services and computing services are still seen as separate activities. Yet it is clear that the new technology will bring them together -- with implications for staff, industrial relations, retraining. To some extent the advances in technology will come to the aid of tertiary institutions, facing a 'no growth' period. But the hard facts will have to be faced that not every mail sorter is adapted for or would find congenial or possible work at the VDU. Not every worker in the university print shop will welcome the prospect of typesetting effectively done by the tutor's stenographer, sitting at the word processor.

* I acknowledge the use made in this section of a paper by Mr John Winship, The Challenge of the Information Revolution to Australian Higher Education in CAE Computer Conference, Sydney, 18 May 1983. Mr Winship lectures at the Western Australian Institute of Technology in Perth. Views expressed are the personal views of the author.

Due to the lack of appropriate funding and staff resources and the quota system, many Australian tertiary institutions are presently forced to restrict the intake of students into computing courses. Yet there is no decrease in the demand for such graduates and indeed, quite the reverse. Uncomfortable as it may be, there is almost certainly a need to review the institutional priorities and claims upon scarce funds. The old disciplines : languages, history, general economics and so on will resist the flow of funds to the study of the new information sciences. Yet the tertiary institutions of Australia must follow the market and the rapid increase in the information sector if they are to remain relevant to society as it is developing. I am the first to acknowledge the pain of institutional change. It is not easy in institutions which have long since followed the system of tenure. But change is upon us and tertiary educational institutions will not be immune. There are also the obligations of Australian institutions to lend their expertise to developing countries, particularly in South East Asia and the Pacific. In the past, we offered training in engineering and medicine. We must step up our resources to offer training in communications and informatics technology.

There is also a need for discussion of computer-assisted learning for the utilisation of the new information technology to enhance the access to education of people who, through distance, chance or early lack of opportunity failed to secure tertiary education. With increasing facility, we will be able to bring education to the student instead of requiring the student to come to the educators. Interactive technology will facilitate distance education. Although some high quality computer-based learning courses are now becoming available overseas, little developmental work is being done in this area in Australia. And what there is is being done in isolation and in an unco-ordinated fashion.

LET THE DISCIPLINES BE RECONCILED

I see from your agenda that all of these matters, and many more, will be discusssed by you. You are at the cutting face of the most vigorous and dynamic technology that is penetrating our society and the world we live in. I applaud this conference and I am glad to have been invited to take a part in it.

I have told you of how it is that a judge became associated with informatics. No profession is exempt, certainly not the judiciary and not the lawyers. Information technology in the age of communications is penetrating every facet of society. It should be thought of as electricity was at the beginning of this century. Its implications for every

as ..t of life will be just as profound. The Australian Law Reform Commission, in an interdisciplinary way, is addressing some of the issues that are raised for Australian society by the new technology. Much more remains to be done. Indeed, the agenda is an international one and not confined to our country. Happily, prospects of international co-operation are there and we in Australia have taken a part in that co-operation.

So far as education is concerned, there is a need for institutions, educators and a methodology of teaching to adjust in a more coherent and even way to the impact of the new technology. But there is also an urgent need for better dialogue between the disciplines. The very universality of information technology puts it in the vanguard of this interdisciplinary movement. For it will have implications for every discipline and every discipline will, to some extent or other, have to accept and adopt the new technology.

I hope that the universality of communications technology will result in an acceptance by communications scientists and technologists of their obligation of dialogue. We must break down the barriers between the Faculties. We must remove the walls between the Departments and the Schools. The new information and communication technology will facilitate a return to the universe of knowledge. And in doing this, it may provide an explosion of lateral thinking and interdisciplinary creativity, muted by more than a century of living separately and apart under the same roof. In the age of reconciliation, let the disciplines be reconciled.