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SCIENTIFIC COMMUNICATION AND SOCIETY

Hon Justice M D Kirby

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Hon. Mr. Justice M. D. Kirby  
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ABSTRACT

Contrary to received myths, lawyers and lawmakers are constantly looking to the future. But their work can only accommodate scientific change as the content and consequences of it are communicated to them. Inevitably, the law tends to trail behind. But scientists do not help by the relatively poor communication they have with society as a whole. The limits of scientific communication are recognised. They include the restricted audience, indifference and apathy, the plain fact that much scientific work is tedious and boring and that much is intimidatingly complex. Does the failure to communicate matter?

By reference to two projects before the Law Reform Commission, it is suggested that it does matter. Privacy is under threat in our society by the rapid development of computing. This has implications for the nature of the society we will live in. That is a question that cannot be left to scientists alone. But unless there is communication, *de facto* that is what will happen. What are the limits to "value neutral" science? Weizenbaum's question is posed for answer.

The work on human tissue transplants revealed developments that portend genetic engineering, human experimentation and the transplantation of life itself. Can these questions be left to scientists only? How can society answer this question unless scientists communicate to relevant people in society the full implications of scientific change.

Law reform bodies, working in an interdisciplinary way, provide governments with a new mechanism for coping with the challenges of science. But is this enough?

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LAW REFORM AND SCIENCE

We live in a time of great scientific advancement and technological change. Anyone with a rudimentary knowledge of history knows that this century has seen change at the gallop. The predictions of Jules Verne have come true. The wild imaginings of science fiction are scarcely dry on the page but they become scientific achievements.

Change at this pace and of this magnitude inevitably poses problems for the law. But it also poses problems for science. The purpose of this paper is to outline some of these problems and with special reference to a number of tasks before the Australian Law Reform Commission, to illustrate what can be done about them.

Let us start by getting a few shibboleths out of the way. Despite comfortable myths to the contrary, the law and lawyers do pay regard to futurology. Legal documents seek to foresee changes that may occur in the relationships between particular parties.<sup>1</sup> Parliaments and subordinate lawmakers seek, in drafting legislation and other rules, to envisage at least the major attributes of human conduct that

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1. J.S. Grafstein "Law and Technology - Emerging New Legal Environment : Trends Towards Technological Assessment", Paper 16, The Canadian Bar Association Programme on "Computers and the Law : Emerging Issues", 21 Oct. 1976, mimeo p.2. Cf. A.L. Diamond "Law Reform and the Legal Profession" (1977) 51 A.L.J. : "No sane person - certainly no lawyer - could have anticipated today's miracles 100 years ago when the English Supreme Court of Judicature was in its infancy. No wonder the law has had to change".

will need regulation. This involves looking into the future and so fashioning society's rules that they will relevantly govern human conduct, so far as this can be predicted. Even judge-made law, based on legal precedent, does not just blunder from case to case. Principles are applied, of varying generality. When courts fashion these principles, they do so at appropriate levels of sophistication. Judges attempt to keep an eye upon the future circumstances and conduct by which their principles may be called into operation. In short, it is facile for physical scientists to perceive the law as a kind of permanent lot's wife, always looking backwards. This is not the case. The law seeks to accommodate future conduct. It seeks to look forward, whether in agreement of the parties or in rules imposed by law-makers.

This said, it must be acknowledged that present times pose special problems. Rule-makers, whether in Parliament or in the courts, can only accommodate future developments, so far as they are known or can be understood.<sup>2</sup> It is in this respect that rapid scientific and technological change and the failure to communicate the content and consequence of change, pose special problems.

Even more important than the endeavour to cope with all the possibilities of future change, is the function of the law to provide a force for stability and predictability in society, so that we can live together in relative peace and harmony. This is the germ of the problem. Whether contained in the agreement between the parties or in the language of a statute or by-law or found in the verbiage of a judgment, it is of the nature of the law that it will be in a final form. It is committed to a discoverable state. Society, including society's science and technology, do not stand still. On the

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2. The gap between man's perception of a myriad of socio-economic problems and his ability to meet them through a system of laws drafted much earlier is referred to in L.R. Tribe "Technology Assessment and the Fourth Discontinuity: The Limits of Instrumental Rationality". 46 *Calif.L.Rev.* 617 (1973); see also "Electronic Funds Transfer in Iowa", 61 *Iowa L.Rev.* 1355 (1976).

contrary, society advances at a dazzling pace. A tension is therefore created between a rule which states principles at a given time and social relationships which go on happening complicated by the input of new ideas, new social themes and new science and technology, which were simply not conceived when the legal principle was established.<sup>3</sup> Putting it broadly, the law seeks to preserve. It is inevitably a conservative force. It sometimes speaks to one generation, in terms of the values, knowledge and science of earlier generations. Its rules tend to favour an older culture and to support "those in possession".<sup>4</sup> Paul Tillich, one of the most renowned theologians of our time, described law as "the attempt to impose what belonged to a special time, on all times". It rests upon "the search for certainty". Of its nature it addresses its audience at one time in terms of values which are stated for all times.<sup>5</sup> Uncomfortably for the law, times change.

Judges can do only so much, by the principles of analogous reasoning, to adapt the law to scientific and technological changes.<sup>6</sup> Differences exist within the judicial profession as to the extent to which it is legitimate for judges, being unelected, to mould the law, adapting it to new circumstances. Since the 19th century the common law, made by the judges, is in retreat. Parliamentary democracies look increasingly to the legislature to update the law. This explains the great flood of legislation which emanates from Parliaments throughout Australia. In 1976, we passed for the first time 1,000 statutes produced by busy Parliaments, seeking to keep pace with changed circumstances and values.

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3. *Ibid*

4. M. Galanter, "Why the 'haves' come out ahead : speculations on the limits of legal change", 9 *Law & Soc.Rev.* 95 at p.116 (1974).

5. Cited by E.P. Hartt "Some Thoughts on the Criminal Law and the Future", Georg M. Duck Lecture, University of Windsor, Canada, *mimeo*, 5 April 1972, pp.5-6.

6. See e.g. Diamond *op cit*.

To assist them in keeping pace with scientific and other developments, Parliaments everywhere look to outsiders for help. The Departments of State, specialist committees, Royal Commissions and academic reports all play a part. In the last decade there has been a growth industry in law reform bodies. The Federal Commission was established in 1975. Its tasks under the *Law Reform Commission Act 1973* include the modernisation of the law.<sup>7</sup> The references given to it illustrate the problems and opportunities for scientific communication with Australian society.

#### PROBLEMS AND DANGERS

Without putting too fine a point on it, the communication between the scientific community and the rest of society is pretty poor. According to some, the participation of the scientist at the level of public communications (as distinct from his presence on committees of various degrees of secretiveness) was regarded as simply "not done".<sup>8</sup> Although this may have been apt at a time when support from government and industry was negligible, it is quite inapt for today's world when research funds are "immensely larger".<sup>9</sup>

Despite the increase in expenditure and rapid advances even beyond the understanding of ordinary men, there has been relatively little increase in communication with society, and this in an age when the very advances of science make communication easier. It has been shown, that the amount of science presented on B.B.C. radio has hardly varied over the past 50 years.<sup>10</sup> Periodical publications on science for non scientists appear actually to have diminished.<sup>11</sup> The news that reaches the public in the general media comes in waves, usually personalised, trivialised or sensationalised. The eminent scientists in the public eye are often middle-aged, brought up

7. *Law Reform Commission Act 1973* (Cth). s.6(1). Para (a)(i) is in terms "the modernisation of the law by bringing it into account with current conditions".

8. P. Farago *Science and the Media*, 1976, p.9.

9. *Loc cit.*

10. *Ibid* p.2

11. *Ibid*, p.2

in ideas current a generation ago. It is not only the law that has its "generation gap".<sup>12</sup> Peter Farago's conclusion is surely as true of Australia as of England :

"[N]ews about science reaches the general public in waves rather than in a steady stream : a topic might be described, discussed and argued editorially only to disappear suddenly from the pages of the newspapers. During the discussion period the public might be bombarded with conflicting information and advice; the fluoridation of water or the atomic power station debates are memorable examples of the information overkill. What is undoubtedly lacking is a sustained flow of information that would allow aspects of science to become part of the general consciousness".<sup>13</sup>

Of course, there are explanations for this and it is not exclusively a scientists' problem. In the first place, the relevant audience is more or less restricted. The extremely young or old cannot be included. Nor can those suffering from defective intelligence, exhaustion, malnutrition, chronic intoxication or mental illness.<sup>14</sup> It would be a mistake to assume that Australian society is populated entirely by individuals, with optimally functioning nervous systems, capable of receiving even an *overview* of scientific information. A Swedish report urges us not to forget "that perhaps only one quarter of the population can manage more involved information processing".<sup>15</sup> Without debating the estimate, the reality of a limited potential audience must be acknowledged.

Even within the potential audience, research suggests that people usually avoid turning to programmes which offer information and opportunities for personal enrichment. Instead they turn to entertainment. Even those who watch or listen to the so-called information programmes frequently absorb them in no more than a very absent-minded way. They remember little of

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12. *Ibid*, p.8

13. *Ibid*, p.2

14. Swedish Cabinet Office, Secretariat for Future Studies, *Man in the Communications System of the Future*, 1974, p.22.

15. *Ibid*, p.43.

what they have seen or heard and what is absorbed is often misunderstood or coloured by prejudice. But the predictions of the 1930s and 1940s that the mass media would influence and educate people have, for good or ill, not come true.

Farago puts it pungently :

"[T]he brutish crowds of today [care] more for Coronation Street than chemistry". 16

The very complexity of today's science makes popularisation of it and communication of its implications a difficult and specialised art. It is an art requiring gifts that may not be given to scientists themselves.<sup>17</sup> Furthermore, the fact cannot be escaped that large areas of science are tedious, boring and quite uninteresting to the man in the street.<sup>18</sup> Images of scientists constantly shouting "Eureka" are as misleading as images of lawyers fashioned by Hogarth's sketches or Dickens' words.

These then are some of the problems for communicating to society, including the law-makers, the developments and implications of science and technology. The potential interested audience is small. Of this audience, most are uninterested and it would require a genius in communication to spark their interest. The developments occur in the midst of much tedium that could simply not be conveyed to the ordinary man because it has no bearing on his spiritual or material interests. Few scientists study the art of communication. Specialist advisers exist to inform governments and big business of the important developments and to interpret their significance. The content of much scientific work is intimidatingly complex. The result is a communication gap. But does it matter?

#### THE IMPORTANCE OF COMMUNICATION

For a number of reasons, communication between scientists

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16. Farago, p.17.

17. *Man in the Communications System*, p.22.

18. Farago, p.33.



and society and particularly between scientists and law-makers is important. I leave aside the fact that science is an enlargement of human consciousness.<sup>19</sup> That it is part of our contemporary culture and that to deny access to it is to deprive man of important attributes of human existence. After all, the days are gone when man could aspire to know all things.

The fact remains that the life of everyone today in modern society is pervaded by science and technology. The implications of scientific and technological developments for our society and its laws are not evaluated in any systematic way. The developments simply happen and we leave it to society and the law to catch up. Inevitably, the result, so far as the law is concerned, is that no relevant rules exist or rules previously developed for other circumstances hinder or obstruct (or fail to make use of) scientific advances.

Nobody much questions the principle of the pursuit of knowledge for its own sake.<sup>20</sup> We have become used to living with "value neutral" science.<sup>21</sup> In two of the references which are before the Law Reform Commission, the question is raised whether this is a safe course to maintain. It is not the purpose of this paper to answer that question. It is enough to state it and illustrate the implications.

The reference which the Commission has on Privacy protection in Australia requires it to look at the implications for our society of the development of computing. The reference which the Commission has on Human Tissue Transplants, requires it to re-examine the definition of death and the extent to which science should be permitted, without limitation of law, to experiment with the human species. Each of these references

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19. Farago, p.86.

20. J. Weizenbaum, *Computer Power and Human Reason*, 1976, p.265.

21. *Ibid*, p.263

raises questions that demonstrate to my mind the vital importance of securing communication between the scientific community and the wider body of concerned citizens making up Australian society.

#### THE SPEED AND SCOPE OF CHANGE

It is not necessary or appropriate in this paper to outline the enormous technological developments of our time. It is useful, however, to look at these two illustrations. First, computing. Since the rudimentary computer was invented in the 19th century there have been enormous developments that cannot but have implications for society and society's laws. In 1950 there were about 60 computers in use in the world. They were "an intellectual toy, something for academics to play with and scientific fiction writers to speculate about".<sup>22</sup> In 1954, there were about 5,000 computers in use in the United States. A mere decade later, 30,000 computers were fully operative. In 1975 conservative estimates suggested that there were 85,000 computers in use in the world. Many said that the figure was greater than 100,000. By 1980, it is predicted that there will be 200,000 computers in use in the United States alone, with an annual sales of \$18 billion. This will represent 14% of all the equipment and machinery manufactured in that country. It is predicted that between two and three million people will be directly engaged in the computing industry.<sup>23</sup> Change is not limited to the numbers of units operating. In the past 15 years, the speed with which average computer retrieval could be achieved has increased one thousand-fold. The cost, which is the key to the proliferation of computerised information, has dropped to one hundredth of the level it was at in the beginning of the 1960s.<sup>24</sup>

22. D. Wilson "Computerization of Welfare Recipients" 4 *Rutgers Jo. Computers and the Law*, 163 (1974).

23. D. Malamet "Privacy in the Computer Age : The Challenge of a New Technology to a Basic Right", unpublished thesis, *mimeo*, May 1976 pp.4-5; K. Karst, "The Files" : Legal Controls Over the Accuracy and Accessibility of Stored Personal Data", 31 *Law and Contemporary Problems* 342 (1966).

24. P. Sieghart, *Privacy and Computers*, 1976, p.41, Table 3, Cf. "The computer's private eye" *The Economist*, 30 October 1976, p.18.

In addition to these developments, there are radical advances in technology that can no longer be dismissed as fictional. Recent newspaper reports contained the prediction that future generations of humans would have computers embedded in their person to complement and supplement the capacities of the human brain. I have been told that at Stanford University, research is progressing satisfactorily upon a project to develop a computer that will respond to E.E.G. impulses. No longer will it be necessary manually to retrieve information; the merest thought of the desired information, and it will be supplied.

Now take surgical transplants. Modern techniques now enable transplantation of many types of tissue both regenerative and non-regenerative. These include skin, blood, bone marrow, kidneys, corneas, hearts, bones, part of the ear, glands, livers, lungs, cartilage, intestine and blood vessels. It is impossible to predict the future of transplantation. It is the problem of immunology that constitutes the major barrier to clinical transplantation. The human body has its own natural means of recognising "foreign tissue". Major advances in immunological research are expected within the next ten years. If the "immune response" can be overcome, the potential for transplantation of organs and tissues will be enormous.

In the course of its work on this subject, the Law Reform Commission became aware of major medical developments that are expected within the next two or three years. For example, the transplantation of a fertilised human egg cell, of Fallopian tubes and ovaries are regarded as distinct future possibilities. It transpires that tissue taken from an aborted foetus has particular utility in certain transplant operations because the human body does not, apparently, reject or attempt to reject transplanted foetal tissue with the automatic energy brought to bear in other transplanted tissue.

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These are only some of the issues raised before the Law Reform Commission. Others spell out the issues for the future : euthanasia, the "right to die", genetic engineering and human experimentation.

Our age confronts changes such as this. Who can doubt, then, that we are suffering from a kind of technological "jet lag"? The symptoms of physical, psychological and other dislocation that can be seen in individuals, may also be detected in social collections of individuals. I assert that it can be seen in Australia today.

#### THE IMPLICATIONS OF CHANGE

What have these changes got to do with the law and with communication between scientists and lawyers? A first answer is obvious. Laws which were developed with a given knowledge of human affairs become outmoded, irrelevant and even counterproductive when set beside scientific and technological developments of this order. The law can, however, accommodate these developments by change and reform.

Many writers, lawyers and scientists alike, see much more important issues at stake than mere modernisation of the law and adaptation of its rules to catch up with scientific developments. In the context of computing Joseph Weizenbaum in his *Computer Power and Human Reason*<sup>25</sup> asserts that there are limits upon the extent to which "value neutral" science should be undisciplined by society's rules. He instances certain applications of computing "that either ought not to be undertaken at all or, if they are contemplated, should be approached with utmost caution".<sup>26</sup>

"The first kind I would call simply obscene. These are ones whose very contemplation ought to give

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25. Weizenbaum, p.263.

26. *Ibid*, p.268.

rise to feelings of disgust in every civilised person. The proposal I have mentioned, that an animal's visual system and brain be coupled to computers is an example. It represents an attack on life itself. One must wonder what must have happened to the proposers' perception of life, hence to their perceptions of themselves as part of the continuum of life, that they can even think of such a thing, let alone advocate it. On a much lesser level, one must wonder what conceivable need of man could be fulfilled by such a "device" at all, let alone by only such a device. I would put all projects that propose to substitute a computer system for a human function that involves interpersonal respect, understanding and love in the same category. I therefore reject ... proposal[s] that computers be installed as psychotherapists, not on the grounds that such a project might be technically infeasible, but on the grounds that it is immoral". 27

In Weizenbaum's judgment there are some human functions for which computers *ought* not to be substituted. It has nothing to do with science or technology. In his view "respect, understanding and love" are not technical problems. By implication they are moral and social problems and the proper business of legal regulation. There would no doubt be many, including many scientists, who would react in a similar way to the potential of genetic engineering, human experimentation and transplantation of life itself. Indeed, one of the categories which Weizenbaum specifically excludes is relevant here. It is

"That which can easily be seen to have irreversible and not entirely foreseeable side effects". 28

There are many who would see interference with the human species as falling within that class. In the past, it has been assumed that scientific progress and technological advancement are universally good things. Lately, our society has begun to do

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27. *Ibid*, p.269.

28. *Ibid*, p.270.

its social costing. The real cost of the disposable can, of the motor car, of the destruction of historic buildings and so on cannot, of course, be measured in simple terms. Scientific and technological change may promote greater efficiency but may not for that reason be acceptable to society, when measured against the values that are destroyed. That is why many, confronting the implications of change, say that the law must have an increasing role in reasserting against the scientist and technology, the standards which society counts as important.<sup>29</sup> The argument is not confined to bizarre scientific experiments. It arises when we ask the question : what kind of society do we want to live in? The Canadian Task Force on *Privacy and Computers* put it this way :

"The enormous technological capabilities of computerised information systems can ... raise certain threats to important human values ... like privacy ... which are integral to our very conception of what it is to be human".<sup>30</sup>

Although this statement was made in the context of computers and privacy, it could equally have general application. Substitute for the words "what it is to be human", the words "what it is to be an individual" or "what it is to live in a free society" and you have a statement of the problem posed for legal systems by the radical advances of science and technology in recent years.

#### RESPONSES TO SCIENCE

It is not surprising that our society reacts in varying ways to the velocity of change. Charles Reich in *The Greening of America* described the response of many of the young generation to the pace of change.<sup>31</sup> Many simply "opt out" or "drop out". They seek an easier, slower, simpler lifestyle : one radically different from the work ethics that until now has been fairly universally accepted in our society. A more typical but similar

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29. N. Griswold "The right to be Let Alone", 55 *North Western Univ. L. Rev.* 216 a p.226 (1960).

30. Canadian Privacy and Computers Task Force, *Privacy and Computers*, 1972, p.1

31. C.A. Reich, *The Greening of America*, 1970.

response is that of indifference about ignorance. Once again, Farago puts it bluntly :

"It is unlikely that a cabinet minister, a judge or the managing director of a large company - or indeed a milkman or a dustman - will be greatly troubled by his inability to reel off the names of two dozen green gases". 32

Because it is more universal, this is a species of opting out that is of greater potential consequence.

Another response is to attack the products of technology and science with an aim of destroying them. The concentration of databases within collected computer systems may present vulnerable targets : vulnerable not only to internal abuse but also to external attack. In Montreal, computers have actually been destroyed by people who objected to their implications both for individuals and for society as a whole. 33 I am sure that we will see more of this Luddite response. Ignorance breeds fear and suspicion and may prove the ultimate weapon against failure of scientific communication. I fear we will see more of the spirit of "self help" rather than less.

There are some who resist technological and scientific developments either for reasons of principle or because it is more comfortable and familiar to do things in the time honoured way. Into this category I would put the school of Anti-Technologists : the growing band whose influence is already felt in the law and in society and will be felt increasingly in the future. The movement for environmental protection, the preservation of historical buildings, the prevention of mining and other developments demonstrate that the forces of resistance to change have muscle. It would be wrong to think that resistance is always grounded in high principle and deeply felt conviction. Sometimes it is sheer cussedness. Sometimes

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32. Farago, p.15.

33. Grafstein, p.9. The reference is to the destruction of computers at Sir George Williams in Montreal.

it is nothing more than a natural human objection to changing well settled modes of behaviour. The "usual" way of doing things becomes the "best" way. Attitudes of this kind can frequently hold up advantages that could otherwise be secured in the law from scientific and technological advances. By way of illustration, I mention the use of telephones to permit judicial officers to superintend certain police decisions, the use of tape recording to preserve the actual evidence of confessional statements and the use of photographs or film to lay at rest disputes about the fairness of the conduct of an identification parade.<sup>34</sup> This, then, is the problem for society. Most of us are ignorant of the developments of science and technology. There is an inbuilt resistance to change within the law and its practitioners. Scientists do relatively little, and that ineptly, to communicate and explain their developments to the interested audience of the community. Blinkered by apathy and bridled by ignorance, the community, and its lawyers, all too often fail to see the problems and opportunities thrown up by science. Often they are perceived in an ill-focused way, with a consequence that is not necessarily good for science, the law or the community. What can be done about this?

#### THE LAW REFORM COMMISSION

The statutory function of the Law Reform Commission is to review, modernise and simplify the law, to eliminate defects in it and to systematically develop it with a view to the adoption of new or more effective methods for administering the law and dispensing justice.<sup>35</sup> The methods and techniques adopted by the Australian Commission are referred to in the *Annual Reports* of the Commission and need not be recounted here.<sup>36</sup> It is sufficient to say that the Commission has taken its stand in favour of public and expert involvement in the framing of laws

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34. All recommended in the second report of the Australian Law Reform Commission *Criminal Investigation*, 1975. See below.

35. fn.7

36. The Law Reform Commission *Annual Report 1975* (A.L.R.C.3) pp.40ff; *Annual Report 1976* (A.L.R.C.5) pp.47ff).



that would be inappropriate, impossible or at least extremely difficult in the more orthodox sources of legal change : the Departments of State and Parliamentary Counsel's Office.

In all of the Commission's references attempts have been made to gather representative experts in a range of disciplines relevant to the matters referred to the Commission.<sup>37</sup> Thus, in the report on *Complaints Against Police* the consultants appointed to assist the Commissioners included a Chief Superintendent of Police, two academic writers and a federal judge. Many more like consultants were appointed for the report on *Criminal Investigation*. The report *Alcohol, Drugs & Driving* was prepared with the assistance of a large number of correspondents overseas and a wide range of experts from all parts of this country. They ranged from a professor of inorganic and physical chemistry to an instrument scientist, an expert on road safety, a Reader in Forensic Medicine, a professor of analytical chemistry, experts in the treatment and rehabilitation of drug dependent persons, medical officers working closely with police as well as academic and professional lawyers.<sup>38</sup>

#### THE LAW CATCHING UP WITH SCIENCE

Many of the tasks committed to law reform bodies represent efforts to ensure that the law faces up to the implications for society of scientific and technological change. Whatever the precise content of the concept of privacy, there can be little doubt that technological developments pose distinct threats to privacy. The development of surveillance devices, the miniaturisation of listening devices, the growth and proliferation of computers already referred to plainly have implications for the "right to be let alone".<sup>39</sup> Less anonymity,

37. On the importance attached to the use of consultants and experts, see A.L.R.C.5 p.48.

38. The Law Reform Commission, *Alcohol, Drugs & Driving*, 1976 (A.L.R.C.4), p.xiii.

39. This definition of privacy originated with Judge Cooley's text on the *Law of Torts*, second ed 1888.

less reserve, less solitude and less intimacy are possible in a society which would tolerate unrestricted use of these wonders of science.<sup>40</sup> But if the law is silent there will be no relevant regulation. Self-discipline based upon principles of "fair play" and "decent standards" will amount to a puny shield against a determined intruder with unlimited access to computerised data or the most modern instruments of optical and other surveillance.

One strength of the common law has been its adaptability its capacity to mould rules for the regulation of human conduct, by deducting and analogy, for other general principles. But this is not always possible. In the area of privacy protection, the decision of the High Court of Australia in *Victoria Racing and Recreation Grounds Co. Ltd. v. Taylor*<sup>41</sup> would appear to hold that "however desirable some limitation upon invasions of privacy might be, no authority was cited which shows that any general right of privacy exists".<sup>42</sup> Although a general residuum of privacy might exist in the theory of British constitutional freedoms, when it comes to the test, there is no mechanism available generally (to initiate redress for intrusions into privacy) from the traditional quarter, namely the courts. The Commonwealth Attorney-General, Mr. Ellicott, has rightly said that in its initial dynamic the common law expressed the true spirit of law reform : law and lawyers responding to new situations demanding just solutions.<sup>43</sup> Although inventiveness does survive today, for privacy protection, at least, this avenue of redress was stillborn. Therefore, if remedies, sanctions and social standards are to be found, they must be fashioned elsewhere than in the courts.

The Canadian Task Force on Computers and Privacy proposed the creation of a Federal Board to lay down regulations

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40. These are the multiple facets of privacy detected by Professor A.F. Westin *Privacy and Freedom*, 1968.

41. (1937) 58 C.L.R. 479.

42. *Ibid.*, Latham C.J., p.496.

43. R.J. Ellicott, opening address of the Third Law Reform Conference, Canberra 1975, cited A.L.R.C.5, p.39.

and administer legislation, including the licensing of all data banks, the classification of information, the control of links between data banks, the control of output of information and the provision of an individual right to verify or seek amendment to computerised data.<sup>44</sup> A Bill introduced in the Canadian Parliament proposes the establishment of a Privacy Commissioner within the Canadian Human Rights Commission.<sup>45</sup> He would have power to receive, investigate and report on complaints from individuals concerning information about them recorded in Federal Government data banks.<sup>46</sup> A New Zealand Bill, envisages a role in privacy protection for the proposed New Zealand Human Rights Commission.<sup>47</sup> Legislation in four States of Australia already governs the use of surveillance devices such as listening devices. Certain Commonwealth laws control telephone tapping.<sup>48</sup> The picture that emerges is one of piece-meal legislation which especially lacks effectiveness in a large federation with the additional problems of trans-border movement of information.

Now, of course, it is essential that the costs of providing protection to privacy must be weighed against the benefits. But the benefits include the implication of diminished privacy for the nature of the society we live in. Privacy is not an overriding, universal principle. It is not an absolute. A society in which there was total lack of privacy would be quite intolerable. A society in which there was total privacy would be no society at all. It is therefore nothing more than a conditional "right" which has to be balanced against other needs and demands which will sometimes override it.<sup>49</sup> These will include the need and demand for information. When it comes to designing legal machinery for evaluating competing claims, a number of points are clear. First, we cannot allow the scope of one person's privacy to depend entirely upon his own

44. Canadian Task Force, *Privacy and Computers*, pp.183ff.

45. Bill C-25 *Canadian Human Rights Bill*, 1976, in clause 57.

46. *Ibid*, clause 58.

47. *Human Rights Commission Bill 1976* (New Zealand).

48. *Listening Devices Act*, 1969 (Victoria); *Listening Devices Act 1969* (N.S.W.); *Invasion of Privacy Act*, 1971 (Queensland); *Listening Devices Act 1972* (South Australia).

49. *Computers and Privacy*, Home Office, London, 1975, Cmnd. 6353; *Computers : Safeguards for Privacy*, 1975, Cmnd. 6354. See also D. Firnberg, *Computers and Privacy*, Cantor Lectures, 1977, lec. I, 21 Mar 1977, mimeo.

judgment, however keenly he feels about the matter. It would be perfectly unacceptable to frame legislation to protect privacy to suit the paranoid or schizoid in our society. Nor is it appropriate for the law to deal with every trivial intrusion into privacy. Legal machinery should be reserved to remedy substantial misconduct. The limits of the law should also be recognised. It will never be possible for the law to provide redress for every vague feeling of dissatisfaction about the collection of data or for irrational fears about computers and the potential threats which they pose. Social mores, including "good manners" and "self discipline" will always play a vital extra-legal role in the front line of protecting privacy.

Although there has been a great deal of loose talk about the so-called perils of computing, it is indisputable that a number of features of computers can be identified as posing potential threats to individual privacy. Put shortly, these features are :

- \* The scale of information storage capacity which becomes possible with computing.
- \* The rapid speed of retrieval of information.
- \* The markedly diminishing cost of collecting and retrieving information, proportionate to this scale and speed.
- \* The capability of computing to transfer, combine and multiply information supplied for many different purposes.
- \* The susceptibility of computing to centralisation of control, in the name of efficiency and economy.
- \* The unintelligibility of data in raw form and the need for special training to secure access to and control of it.

Now, I know that many, including many scientists, will wring their hands and say that it is all too difficult. Certainly, the Constitution imposes limits upon what the Commonwealth acting alone, can do. If the experience of recent developments teaches us anything, it is that it is impossible to foresee the extent, let alone the nature, of future scientific achievements. Allowing for these difficulties, are we simply to abandon all forms of social control? Surely not. The law should seek to answer the questions raised by Weizenbaum. It

should seek to articulate the civilising standards of our society. It must come to grips with new problems as best it can : stating standards, providing machinery of supervision and the means of enforcing those standards. Jacques Ellul, a French sociologist, put it this way :

"That it is to be a dictatorship of dossiers and databanks rather than of hobnailed boots<sup>50</sup> will not make it any less a dictatorship".

I have dwelt on privacy, but there are many other projects of law reform which illustrate the endeavour of the law to accommodate itself to science and technology. Our work on Human Tissue Transplants likewise illustrates the need of the law to face up to developments of medical science and surgical techniques that make legal rules, as they presently stand, irrelevant or positively obstructive. Ignoring entirely the developments which are just around the corner, and to which I have referred, present techniques already pose problems for the law. Before the development of modern means of artificial respiration, a person was regarded as dead when his heart stopped beating and blood circulation ceased. This was because the other processes of death, including irreversible cessation of brain function, automatically followed within a very short time.<sup>51</sup> Nowadays, as recent celebrated cases in Australia and overseas demonstrate, irreversible cessation of brain functions can occur but blood circulation may, by artificial means, be maintained. Is such a person to be regarded as "dead" or "alive" for the purposes of the law? Is a decision to remove artificial respiratory aid from such a person, a decision to "murder" him or the only humane and dignified thing to be done in the circumstances? Who ought to make such decisions? In the context of transplants, and the urgent need for suitable donors of organs and tissue, what protections ought the law to provide, to ensure that conflicts of interest and duty do not

50. Cited in A. Miller "The Dossier Society", *Univ. of Illinois Law Rev.* 154 at p.158 (1971).

51. A recent article on the problem for the law in these scientific developments is "The Tragic Choice; Termination of Care for Patients in a Permanent Vegetative State", 51 *N.York Uni.L.Rev.* 285 (1976).

arise between those attending to the donor and those whose first duty is to the potential recipient? Should questions such as this be left to the narrow group of scientists and experts who, with all good will, may be blinded by the technical advances they are engaged in from seeing the human and social implications of what they are doing?<sup>52</sup> This essentially is the question which Weizenbaum has posed for us. But unless there is communication at an adequate level and on a regular basis between scientific community and the rest of society, developments will occur that quite by-pass the ordinary processes of government and outstrip the capacity of the legal and governmental machinery to respond to them. The peril here is not that of the evil genius working away in solitude to destroy society. Rather, it is the danger that our somewhat languid and inadequate machinery for reforming and modernising the law will not keep pace with the developments of science and technology as they occur.

#### CONCLUSION

Law is of necessity a force for stability and certainty in the world. Part of the crisis in the law is the world's growing uncertainty and instability. Processes of social change are fed by remarkable advances in science and technology. A great number of them have occurred in our own time. The pace of change escalates. The law states society's standards. So dazzling have been the changes and with such speed have they occurred that the law has in many areas fallen far behind.

This paper has identified two only of the problems posed by scientific developments for the legal system. The legal scrutiny, in each case, has begun 15 years after it should. Given the speed and universality of scientific developments, the general ignorance, apathy and indifference of society to them and the cumbersome nature of achieving reform of the law, real doubts must exist concerning the ability of the Parliamentary process in our democracy to cope with the accommodating changes to the

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52. Grafstein p.19, Weeramantry p.249.

law that are and will be necessary. This, and the amount our society is prepared to spend on the legal science, is a separate subject for separate debate.

For present purposes, the point that has to be made is only this. One of the mechanisms that has been developed by the Parliament, in a self-preservation instinct, as it were, is the Law Reform Commission. Its function, in matters that are referred to it, is to assist Parliament to review, modernise and simplify the law. It has a special function to accommodate the law to scientific and technological changes because of its statutory duties and the way in which it has gone about its work. In every one of its references, it has sought out relevant scientific expertise. It therefore provides a much needed vehicle of communicating scientific information to the machinery of government. It amounts to one model that could be adapted generally by governments anxious to cope with (not to say to take advantage of) the developments of science.

The current programme of the Commission requires it to face squarely many and varied scientific developments. These in turn raise fundamental questions about the nature of the society we want to live in and the interests and values we want to preserve and protect. These are not, I emphasise, questions for scientists only. Yet unless they are communicated to society, de facto that is what they become. New encouragement is needed from government to ensure that the implications of scientific developments here and overseas are adequately communicated to the law makers so that the law can be accommodated to change and change accommodated to the law.