AUSTRALIAN ACADEMY OF TECHNOLOGICAL SCIENCES & ENGINEERING

2006 ATSE ORATION

SYDNEY, 19 NOVEMBER 2006

TECHNOLOGY & LAW - FASCINATING BEDFELLOWS

The Hon Justice Michael Kirby AC CMG[*]

THE ACADEMY'S CONTRIBUTION

I honour the Australian Academy of Technological Sciences and Engineering (ATSE). Its contribution to Australia and to knowledge and inquiry in the world is properly celebrated on an occasion such as this.

I am glad to have the opportunity to pay my tribute to Dr John W Zillman AO, President of ATSE since 2003, and a long-time Fellow and member of its Council. He and I have served together on the Australian National Commission for UNESCO. I was a member of the delegation that he led to the UNESCO World Conference on Science in Budapest. It was then that I came to know two features of the Academy that he exemplifies to a very high degree: deep knowledge about his discipline

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[*] Justice of the High Court of Australia. Honorary Fellow of the Academy of Social Sciences in Australia. Past President of the Australian Academy of Forensic Sciences.

and the contribution to it of technological sciences and engineering; and an outreach to the world with a determination to share the fruits of technology with all people, everywhere.

In the manner of a careful lawyer, I asked the President for a briefing on the activities of this Academy, so that I would understand better the focus of its interests to which this Oration, might be directed. He provided me with the Orations given at the last three annual meetings and with the excellent history of the origins and development of the Academy since its foundation in 1975[1].

The history of the first thirty years tells a remarkable story of how the Academy has grown from a small, select and distinguished band of leaders in Australian technology to a large, robust, progressive institution comprising more than 700 Fellows from all parts of the nation, with a select few Honorary Fellows from overseas. Amongst the names of those who have served as Presidents and as members of the Council in the past are many leading citizens, heavy with civil honours, who have contributed to inventiveness, industrial progress and civic debate about technology and its place in our society and the world. Because I have served in public life myself since 1975, I have come to know a number of those distinguished Australians. I honour them and I honour their work for the Academy.

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1 ATSE, *The First Thirty Years* (Melbourne, 2006).

I specially wish to acknowledge two past Presidents of the Academy who have been friends of mine over many years and are present on this occasion, namely Sir Rupert Myers KBE AO FAA FTSE and Mr Tim Besley AC FTSE. I respect each of them for their large contributions to our national life, and particularly in their leadership respectively of the University of New South Wales and Macquarie University.

The subjects that have engaged the Academy, as indicated by the list of the annual invitation symposia since 1977, comprise issues of the greatest importance to Australia and the world. They include:

- Water management;
- Climate change, oceans and the Greenhouse effect;
- Mineral resources and energy;
- Computing and computer applications;
- Engineering and space policy; and
- Infrastructural change.

However, there have also been introspective symposia that have asked the fundamental questions about what technology is for and how it can contribute to human progress and happiness:

- Living on the frontiers;
- Technology and the future;

- Innovation - a way of thinking;
- Longevity and how technology can contribute; and
- The purpose and goals of technology.

With these insights into the many highly topical and controversial subjects of concern to the Academy, I turned to read the last three Orations, into whose tradition this contribution of mine must now be made.

In 2003, Sir Arvi Parbo AC, a Fellow of the Academy, spoke of "Minerals and the Future". He addressed himself to the many prophets of doom who predicted the end of the world, either through natural or technological calamities. He explained the large increase in the population of the world so that it now, undoubtedly, demands scarce natural resources as never before. He portrayed the generally pessimistic approach concerning the use of resources, taught by the Club of Rome and the optimistic approach advocated by such thinkers as Herman Khan. So far as technology and resources were concerned, Sir Arvi Parbo concluded on an upbeat note. In his view, resources were finite, but "infinitely finite". Technology should contribute to their ongoing supply and to the quality of life of people everywhere.

In 2004 the Hon Dr Barry Jones AO, also a Fellow of the Academy (and remarkably of seven other learned Academies) addressed himself to "Malthus Revisited, Demographic Revolution, Transformation of Working Life and Rise of the Third Age".

As we have come to expect from this considerable national public intellectual, his Oration was a *tour-de-force*. Like Sir Arvi Parbo, he began with an analysis of the rapid growth of the world's population. It was, he said, now approximating 6.4 billion people. He predicted that it would rise to 8 billion people before levelling out at about 6 billion people by 2100.

In the context of this population growth, and the pressures it places upon the world's resources, stability and peace, Barry Jones urged us all to adopt a global orientation. He described himself as first and foremost an internationalist. He was a nationalist too; but well down the list. His attitude seemed in tune with the objects of this Academy. If anything in the world is international, it is technology and engineering. Retreating into our own antipodean self-satisfaction is out of tune with the focus and objects of this Academy.

Barry Jones took the Academy to a re-examination of the Knowledge Nation policies which the Australian Labor Party had sought to promote in previous national elections. He suggested that our country was facing a stark choice. Would we go down the path of the United States in a profligate and selfish use of global resources per capita? Or would we follow the European lead, reflecting a concern to ensure an equitable use of resources in keeping with the needs of ecology and of the survival and security of the human and other species?

The 2005 Oration was given by the Right Hon Doug Anthony CH AC, also a Fellow of the Academy. He explained how he had met the President first when, in 1963, as a young man, he was appointed Federal Minister for the Interior by Mr Menzies - a post having responsibility for the Australian Bureau of Meteorology.

It is not unusual to see distinguished politicians admitted to the Fellowship of the Academy, particularly where they have served as Ministers with responsibility for the Academy's concerns. The Hon Tim Fischer AC is a Fellow and so, as I have said, is the Hon Barry Jones. We should have more members of Parliament involved in the learned Academies. It is a compliment to them but also an encouragement to the Academies themselves to reach out to, and include, the elected representatives of the people. Without their support, understanding and engagement, many topics of keen interest to the Academy will not be translated into informed policies and well targeted legislation, where that is appropriate.

Doug Anthony's Oration took the audience through the Prime Ministers he had known. It began with the Right Hon Billy Hughes, who sat in Federal Parliament for more than fifty years - itself an astonishing story of endurance and forbearance. He described the great Menzies and all the Prime Ministers in between the present time. It was an illuminating insight into the interface between policy and personality in the democratic arrangements that we follow under the Australian Constitution.

Now, as myself the holder of a constitutional office that protects the rule of law and maintains the Constitution, it is my turn. The past week has seen the delivery of an important decision of the High Court in the *Work Choices Case*[2]. The public controversies about the case are proper and natural for they place the issues decided in that case, where they should be, before the people who, in our society, always ultimately have the last say.

The successive choice of orators, that I have described, demonstrates that this Academy does not choose a speaker who will be preaching to the converted. It does not seek an orator who will tell the Fellows what they already know. As befits a learned society, it seeks those who will come at issues from a different angle and stimulate ways of thinking that may be fresh. Each of the orators has spoken from their own perspective. So that is what I intend to do.

LAW & TECHNOLOGY: A RARE ENCOUNTER

Most lawyers have comparatively little to do with the intricate details of technology. I have sometimes wondered whether this is because most of them have a different wiring of the brain. On the whole, lawyers tend to be those who, from kindergarten, have been good with

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[2] *State of New South Wales v Commonwealth of Australia* [2006] HCA 52.

words - with poetry, history and language. Technologists tend to have a different way of looking at the world. They were the children who were good at science and mathematics. Now, in this moment, we come together again. So what can I contribute, from a lawyer's perceptive, to your thinking?

At about the time this Academy was founded in 1975, I received my first judicial appointment, in the Australian Conciliation and Arbitration Commission. But for the hand of fate, I might have continued in that office and my life would have followed a different course, probably culminating with the impact of the *Work Choices* decision of this week. But it was not to be so. Within weeks of my appointment to the Arbitration Commission, I was seconded to chair the newly established Australian Law Reform Commission (ALRC). It was a marvellous opportunity to see the law from a different perspective. It was one that altered my perception of law and of the way it operates in society. Above all, it brought me into an encounter with many specialised groups, including those concerned with the impact that law has on science and technology. This has been a blessing in my life. It has made me alert to many issues of technology and the way in which they interface with law.

At quite an early stage in the work of the ALRC, the federal Attorney-General (the Hon Robert Ellicott QC) gave the Commission a reference to develop laws for the protection of privacy. At about this time, the OECD in Paris convened an Expert Group for the purpose of seeking common principles that could be accepted by the then 24

member countries of the OECD, for the protection of privacy in computerised systems. As part of the work of the Commission, I went to Paris. I was elected chairman of the Expert Group. Then, for the first time, I had to work with people from other cultures and other disciplines in the development of international guidelines. The focus of our attention was the new technology of informatics. No guidelines, and no legal principles, could be developed without a thorough understanding of the new technology; how it worked; how it affected the human right to privacy; and where the technology was going.

I quickly learnt three lessons. The first was that Australia, as a relatively minor player, was readily trusted to take a leadership role and to be a bridge between countries of different economic power and cultural disposition. The second was that the attitude of countries to issues such as privacy protection depended very much on their historical experience. The third was that national economic interests commonly affect the way in which countries tackle controversies at the international conference table.

The first lesson has been demonstrated by a number of tasks with which I have been entrusted in the years since the OECD Expert Group was formed in 1978. Many of these tasks have included issues relevant to science and technology. The early interest that I developed in this

interface of these realities has been stimulated by many later experiences[3].

The second lesson quickly emerged in the Paris meetings on privacy. The United States participants, true to the principles of free speech enshrined in the First Amendment to that country's Constitution, resisted heavy-handed restrictions and regulations. They favoured the generally unrestricted free-flow of data. The European participants, who had experienced the misuse of primitive paper filing systems to debase human privacy and dignity, urged the importance of rigorous protections. They knew, from bitter experience, the misuse that could be achieved with personal information about individuals. Thus, each group at the table was reflecting its own historical experience and perceptions of policy needs. But they also reflected economic interests that happened to coincide with these cultural inclinations.

During the OECD project, I attended a conference on privacy issues in Paris addressed by the then President of the French Republic, Giscard d'Estaing. When the President had spoken, a participant presented him with a question. Why, he asked, had the great majority of French Jews survived the terrible onslaught of the Nazis in Occupied

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[3] Including chairing the OECD Expert Group on Data Security (1991-92); Membership of the UNESCO International Bioethics Committee (1997-2005); and membership of the World Health Organisation Global Commission on AIDS (1988-1992) and the UNAIDS Global Panel on Human Rights (2003-).

France? Why, on the other hand, had more than 90% of the Jews of the Netherlands perished? The answer was offered by the questioner. In the Netherlands, in the late 1930s, technologists had produced an identity card with a metal strip which rendered it very difficult to forge. The French card was comparatively easy to duplicate. The questioner made the point that, sometimes, efficiency is not the only legitimate goal of society. Sometimes a degree of inefficiency is important for the protection of liberty. This was also a point that I sought to make in my reasons in the *Work Choices Case*, upholding the great merits in Australia of the federal system of government. True, that system may sometimes be inefficient and economically burdensome. However, by dividing up the great power of government, federation sometimes protects other values at risk from forces inimical to liberty[4].

In the end, in 1980, the OECD group agreed on its guidelines[5]. Those guidelines became the foundation of the report of the ALRC[6]. In turn, they became the basis of the federal *Privacy Act*[7]. That Act establishes the rules by which privacy is to be protected in the age of computers. But the rules are not immutable. One of the principles concerned the limitation on the use of personal data collected for *one*

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4 [2006] HCA 52 at [558], [612].

5 OECD, *Transborder Data Barriers and the Protection of Privacy, Guidelines*, OECD, Paris, 1980.

6 Australian Law Reform Commission, *Privacy* (Report No 22), 1983.

7 *Privacy Act* 1988 (Cth), Schedule 3 ("National Privacy Principles").

purpose which could not be later deployed for *another* purpose without authority of law or agreement of the data subject. With the advance of continuing technology and the progress achieved in search engines, this principle has effectively been rendered obsolete. It is therefore constantly necessary, in law, to update the principles with advances in technology. The two must march in step[8].

A second project assigned to the ALRC was an early inquiry into aspects of biotechnology. The Commission was asked to report on the laws on human tissue transplants[9]. In due course we produced a report which became the foundation for laws throughout Australia. They are still substantially in force. We quickly discovered the complexity of the ethical issues presented by biotechnology. What was the definition of death for the purpose of rendering particular organs available for transplantation? Should the law forbid commerce in human tissue? Should such a prohibition extend to commerce in blood products? Should donations be presumed or objectively required? Should the regime for transplanting particular tissues apply to transplantation of sperm and ova and embryos in the form of invitro fertilisation? This

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8 Another change is found in the *Privacy Legislation Amendment Act* 2006 (Cth) enacted in September 2006 designed to implement the Australian Law Reform Commission Report *Essentially Yours: The Protection of Human Genetic Information in Australia* (Report No 96) 2003: illustrating the interface of informatics and biotechnology.

9 Australian Law Reform Commission, *Human Tissue Transplants* (Report No 7, 1977).

indeed was a brave new world, with many complex new questions. And each decade produced new questions.

I well remember in the early stages of the debates the earnest controversies that raged over artificial insemination by husband (AIH). These debates soon gave way to new debates over artificial insemination by donor (AID). Subsequently in-vitro fertilisation became possible and the debates began again. Now, in the current age, Australia is facing a national debate over the use of embryonic stem cells.

Perhaps because of my work in the ALRC on these topics, I was nominated by the Australian Government to serve on the International Bioethics Committee (IBC) of UNESCO. This is a body of 44 persons, from different disciplines, charged with the obligation of advising the United Nations and member countries concerning bioethical developments and the laws and policies that should be adopted to respond.

Time does not permit a review of the varied and interesting subjects that have been examined by the IBC. It has already produced three international instruments that have been adopted by the General Conference of UNESCO and recommended to member countries[10]. The

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[10] UNESCO, *Universal Declaration on the Human Genome and Human Rights*, 1997; *International Declaration on Human Genetic*

Footnote continues

most recent of these was the *Universal Declaration on Bioethics and Human Rights* which was adopted by the General Conference of UNESCO in October 2005. It constitutes the first attempt to express general principles of bioethics for the whole world.

Just as computers are indifferent to national borders, so the developments of biotechnology are universal and species-focussed. It is therefore imperative for humanity to develop means of addressing the large ethical questions that emerge. The principal instrument for doing so is the IBC of UNESCO. I had the privilege of chairing the Working Group of the IBC that drafted the new *Universal Declaration on Bioethics and Human Rights*. It was a major achievement, given the differing viewpoints generally held in member countries.

Some of those differences are now being reflected in debates in Australia concerning the use of embryonic stem-cells[11]. Those debates have been enlivened by Parliamentary consideration of the *Lockhart Report*[12], which recommended the lifting of the temporary ban which had been adopted in federal legislation before the inquiry of Justice Lockhart's committee.

Data (2003) and *Universal Declaration on Bioethics and Human Rights* (2005).

[11] 'Anti stem-cell lobby gathers pace', *Australian Financial Review*, 12 October 2006, p 14.

[12] Australian Government, Legislation Review: *Prohibition of Human Cloning Act 2002 and the Research Involving Human Embryos Act 2002*, Reports, December 2005.

In the work of the IBC, I soon discovered the differing viewpoints of distinct cultures on the use of embryonic technology. Thus, some Christian churches teach that, because human life begins at the moment of conception, no use of embryos for any instrumental purpose can be permitted. But when the IBC investigated this subject, we found a vast range of opinions reflected in the religious and ethical principles of the world. Thus some Christian theologians accept that human life does not begin until the primitive streak appears within about ten days of conception. Judaism teaches that human life begins after about 28 days. Islam commonly teaches that ensoulment of the human embryo begins after the first trimester. Hinduism does not accept that human life begins for moral purposes until birth. A stillborn child is buried and denied the full funereal respects accorded to a child that lives but an hour[13].

In the face of these strongly held and differing perceptions of the availability of embryonic cells for therapeutic purposes, it is difficult to secure consensus in an international organisation like UNESCO about such issues. As we address such issues in Australia, we must acknowledge the differing views that are held by different cultures. As a

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[13] UNESCO, IBC, Working Group on Embryonic Stem Cells, *Report*, 2001. Available: http://portal.unesco.org/shs/es/file_download.php/64b74abda57372bdc22570b42c1718f1StemCells_en.pdf

multicultural society ourselves, we must accept, and be respectful of, the differing viewpoints that exist in the world and in our own country.

Not to address these issues is to make a decision. Obviously, the best way to address them is to secure expert advice and thorough consultation by a national body, such as the Australian Law Reform Commission, and an international body, such as the International Bioethics Committee of UNESCO. The problems presented by biotechnology, and indeed all technology, will not go away simply because we ignore them. The capacity of our democratic law-making institutions to address the complex moral dilemmas presented by modern technology is an important feature for the survival of democratic institutions in the dynamic age in which we now live.

DILEMMAS IN THE COURTS

In a society such as Australia, if we do not make decisions in Parliament, with or without expert assistance of the kind I have mentioned, the problems do not evaporate. Often, such problems find their way to the courts. Ultimately, then, it is for people like me to endeavour to provide solutions, calling upon the general principles of the common law. The common law is the body of legal doctrine that has been laid down by the judges over eight hundred years. In default of legislation, that is the law that governs us.

Within the last few years, a number of cases have come before the High Court of Australia addressing issues that would not have arisen in earlier decades, simply because they are a product of modern medical technology. The point is well illustrated by the so-called "wrongful birth" and "wrongful life" cases.

In *Cattanach v Melchoir*[14], the High Court of Australia had to consider a case of an unintended birth following a failed operation of tubal ligation designed to ensure that the patient would not again conceive. The surgeon could only find one fallopian tube and he clamped it. What he had failed to explore, and carefully to investigate, was the existence of another disguised fallopian tube which later resulted in a pregnancy. The tests and checks that could have been taken were thoroughly explained in the evidence. Carelessness on the part of the surgeon was demonstrated to the trial judge and the appellate court.

However, the ethical question that was presented was then whether, in the stated circumstances, the patient was entitled to recover compensation from the surgeon for the costs of rearing a healthy child. Three of the Justices of the High Court of Australia held that she was not. However, four, including myself, held that she was entitled to damages by the application of ordinary negligence principles. The

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[14] (2003) 215 CLR 1.

reasons given by all of the judges explored the nuances of the technology and the complex dilemmas which it presented to the courts and citizens in today's society.

Subsequently, earlier this year, in *Harriton v Stephens*[15], the High Court of Australia had to consider a so-called "wrongful life" case. Here, a mother had consulted medical practitioners when she fell pregnant, expressing concern about a rash and asking about her possible exposure to rubella. Contrary to careful procedures, the mother was repeatedly reassured that she faced no risk. As it was later discovered, she had been exposed to rubella. Her baby was born blind, profoundly and catastrophically disabled, mentally handicapped and in need of constant medical care for the rest of her life.

A majority of six Justices rejected the mother's claim, holding that the hypothesis on which it rested depended upon a conclusion that the foetus could and should have been aborted and thus would have had no existence. The majority held that this was not a conclusion that the law could, or should, reach. I dissented. I regarded the case as concerned with who should pay for the demonstrated carelessness of the medical procedures. The baby being born, her existence was not denied. No one suggested that her life should now be terminated. On the contrary her parents displayed loving and heroic support. The question was the

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15 (2006) 80 ALJR 791.

recovery of financial assistance for the hugely expensive medical care that was required in the circumstances that had unfolded.

It can be seen from these two cases that very difficult, and controversial, issues are presented to courts where parliamentary law is silent on the consequences of technological developments. Problems do not go away. In default of any other solution, they have to be solved by judges - ultimately the Justices of the High Court. Obviously, a preferable way to solve the dilemmas presented by science and technology is through expert bodies assisted by Academies such as this and consulting widely with academicians and also with the public.

I am sure that there are as many significant policy dilemmas in the fields of engineering and in the other subjects addressed by this Academy over the years. Water management[16], climate change, energy resources and infrastructure issues are now quite frequently topics of vigorous public debate, often informed by conflicting expert advice. This Academy has an important role to contribute to lifting the qualify of such debates. Amongst its members there will sometimes be consensus. But often there will be different points of view. It is important that those differing viewpoints should be shared with the community so that

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16 Legal issues arising from water management are increasingly arising in the courts: eg *Puntoriero v Water Administration Ministerial Corporation* (1999) 199 CLR 575; W L Andreen, "The evolving contours of Water Law in the United States (2006) 23 *Environmental and Planning Law Journal* 5.

national and local decisions are made with expert assistance and do not rest solely on the basis of hunch, guesswork and untutored intuition.

Because this is the age we live in, the role of the learned Academies is likely to increase. They must find innovative ways of communicating their debates and conclusions to the general public and to the media and political leaders. No longer is it sufficient for an Academy to engage in club-like discussion amongst the experts. An Academy such as this, in the modern age, must reach out to, inform and serve, the public in the community from which it is drawn.

FROM SATURN TO THE ATOM & DNA

I honour the Australian Academy of Technological Sciences and Engineering for its achievements over the past thirty-one years. The demands upon it, and the achievements it will make, will increase in the future. I particularly hope that the Academy will reach out to lawyers who play a significant part in policy development and decision-making. Somehow we must bridge the educational differences that tend to mark the lives of lawyers and technologists. Technologists must learn the poetry of life. Lawyers must face the precise reality of the age of technology. The link between the disciplines is there - and to a large extent it has been provided by technologists themselves. But the question remains, will we cross that bridge and speak to each other's disciplines?

Most clearly, this is a remarkable time in the history of humanity. The intelligence of the human species has reached out into space so that the Cassini space station is weaving its way through the rings that circle the planet Saturn. Back here on earth, our intelligence has taken our species down into the potential of the atom and into new knowledge about DNA and the human genome. The progress in technology that has brought these miracles to pass is the abiding feature of the present time. All of us are caught up in the exhilarating sweep of these changes. We need this Academy to ask the fundamental questions: what does it mean for the future? How can we live in freedom in an age of such innovation? How can we ensure not only longevity but safety, peace and human dignity? What is the purpose of technology if it is not to contribute to human happiness and to the preservation of our planet and the biosphere?

It is in the confidence that this Academy will continue to address these issues, and provide useful answers, that I am proud to have been asked to deliver the 2006 Oration and to have enjoyed the singular company of the Fellows of the Australian Academy of Technological Sciences and Engineering.

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