Human Cloning and International Human Rights Law

DEAN BELL*

> In a society that came to view its members as just so many cells or molecules to be manufactured or rearranged at will, one wonders how easy it would be to recall what all the shouting about "human rights" was supposed to mean.[1]

1. Introduction

On the 27th of February 1997, the world was introduced to Dolly the sheep – the first animal in history to be cloned from an adult mammal. Immediately, there was conjecture about the application of the technology to humans. Could the technology be applied in the context of human reproduction? If so, what were its implications, and should anything be done to control or prevent it? That cloning had been prohibited in many countries before Dolly[2] suggests that the breakthrough was not entirely unexpected. Indeed, at both national and international levels, advances in genetics and biomedical technologies have presented lawmakers with very difficult ethical and legal problems. The Human Genome Project, the systematic mapping of the human genome being carried out in many countries around the world, has the capacity to transform the role of genetic information in diagnosis and treatment of disease. Combined with the new reproductive technologies, especially in vitro fertilisation, genetic diagnosis of embryos and the possibilities of genetic manipulation of embryos arising from current research, the new genetics has the potential to affect not only the current but future generations in profound ways. These developments, and in particular their potential to violate fundamental human rights and freedoms, have not gone unnoticed by lawmakers.[3] This article focuses on the debates about the human rights implications of human cloning as a particularly problematic development

* BA (Hons), LLB (Hons), doctoral candidate in the Faculty of Law, University of Sydney. This article has benefited from the comments and criticism of a number of people, including Belinda Bennett, Isabel Karpin, Roger Magnusson, George Oppel, Colin Perrin, Jeremy Webber, Shelley Wright, and Tracey Young. Any errors or inaccuracies in the text remain, of course, my own.

1 Tribe LH, 'Technology Assessment and the Fourth Discontinuity: The Limits of Instrumental Rationality' (1973) 46 *Southern Cal LR* 617 at 648–9.

2 See nn26–35 and accompanying text.

3 See Murphy TF & Lappé M (eds), *Justice and the Human Genome Project* (1994); Annas G, 'Mapping the Human Genome and the Meaning of Monster Mythology' (1990) 39 *Emory LJ* 629; Frankel M & Teich A (eds), *The Genetic Frontier – Ethics, Law and Policy* (1994); Kevles D & Hood L (eds), *The Code of Codes: Scientific and Social Issues in the Human Genome Project* (1992); Wertz DC, 'Society and the Not-So-New Genetics: What Are We Afraid Of? Some Future Predictions From a Social Scientist' (1997) 13 *J of Contemp Health L and Pol* 299; and Iles AT, 'The Human Genome Project: A Challenge to the Human Rights Framework' (1996) 9 *Harvard Human Rights J* at 27.

in the rapidly emerging assembly of 'reprogenetic'[4] technologies confronted by modern Western societies. Cloning provides a quite specific instance of the interaction between genetic and reproductive technologies, and the difficulty they provide for the traditional concepts and understandings of human rights law.

While the United Nations General Assembly has been slow so far to react to the new genetics, two important recent transnational instruments have begun to adapt and develop human rights law to address these very unique problems. The first is the United Nations Educational, Scientific and Cultural Organisation's (UNESCO's) *Universal Declaration on the Human Genome and Human Rights*, which was adopted unanimously by the General Conference of UNESCO on 11 November 1997. While the Declaration is not a treaty, and so is not legally binding on any of the 185 members of UNESCO, it is the first international instrument to deal specifically with human rights and genetics. It is also anticipated that, much as the *Universal Declaration of Human Rights* 1948[5] was, within twenty years of its making, codified in treaty form,[6] so too the UNESCO Declaration will form the basis of a binding international treaty on human rights and the human genome. If this happens, it will undoubtedly be strongly influenced by the second international instrument, the Council of Europe's *Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine.*[7] The short title of the Convention, which I will use throughout the rest of the article, is the *Convention on Human Rights and Biomedicine.* The Council of Europe was established in 1949 with the purpose of promoting political, legal, and cultural cooperation among its member states. It is completely separate from (though often confused with) the 15-nation European Union, which focuses mainly on economic and political issues. The Council started with only twelve members, but today has forty-one. One of the most important contemporary functions of the Council is the protection of human rights. The Convention was adopted by the Council of Ministers of the Council of Europe on 19 November 1996, and was opened for signature on 4 April 1997. As at 28 October 1998 twenty-four countries had signed the Convention.[8]

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4 The word is taken from Silver LM, *Remaking Eden: Cloning and Beyond in a Brave New World* (1998).

5 GA Res 217A, 3 UN GAOR (183rd plen mtg), UN Doc A/Res/217A, 1948.

6 The *International Covenant on Civil and Political Rights* 1966 (opened for signature 19 December 1966, ATS 1980 No 23, entered into force generally 23 March 1976) and the *International Covenant on Economic, Social and Cultural Rights* 1966 (opened for signature 19 December 1966, ATS 1976 No 5, entered into force generally 3 March 1976).

7 See (1997) 4 *Eur J of Health L* 89 for the text of the Convention.

8 However, a number of major European powers, including Germany, Russia and the United Kingdom are yet to sign it: Chart of Signatures and Ratifications: <http://www.coe.fr/tablconv/164.htm> (30/10/98). See generally, Dommel FW & Alexander D, 'The Convention on Human Rights and Biomedicine of the Council of Europe' (1997) *Kennedy Institute of Ethics J* 259. Australia, along with the United States, Canada and Japan, is in the unique position of being a 'non-member state' of the Council of Europe. Non-member states are entitled to become parties to Council of Europe Conventions, though Australia is not a party to the Convention, nor are there any indications that the present Federal government is considering signing it.

Both of these instruments contain provisions dealing with human cloning[9] – in each case prohibiting cloning as an infringement of human dignity. This approach reflects that taken in many domestic legal contexts,[10] and the analysis of human rights violations allegedly involved in human cloning is the subject of the rest of this article. My position is highly critical of the analyses within international and national contexts (which are surprisingly similar). It is my contention that they rely on assumptions about the role of genes or the genome which are highly deterministic or essentialist – that is, the assertion that human cloning is harmful or offensive is premised on the understanding that human attributes (physical and mental) are principally determined by the genome or genetic code of every individual. This aspect of the analysis of the human rights issues relating to cloning, which is described and criticised in section 3 below, is closely related to another problem – the mobilisation of human dignity as the core value infringed by human cloning. Human dignity is, in the human rights instruments and policy reports looked at below, reduced to a biological model which arguably compromises many of the underlying values that human rights norms seek to advance – like individual freedom and self-determination.

The problem that I explore here is only part of a larger dilemma about how existing human rights norms and concepts should be adapted to confront the new genetics. A dominant strain in international human rights law – naturalism or natural law – has combined with the naturalism inherent in genetic determinism to produce an arguably emaciated and unsatisfactory human rights framework for the new genetics. I am certainly sympathetic to the difficulties that the prospect of cloning presents – it is hard to think of a precedent for such a radical technological breakthrough to which the world community has sought to respond by using an explicit human rights framework. But so far, that approach has done more harm than good. My contention is that human rights need to be seen not as a way for preserving the 'essence' or core of universal humanity – though this is how they are frequently understood, often with powerful political effect. Rather, human rights norms have arguably been a useful tool for accommodating difference and, importantly, changing and fluctuating conceptions of *who* is human, and of what defines the specifically *human* nature of the fundamental rights and freedoms protected in human rights instruments. While not unique to genetics and biomedicine, these qualities of human rights law are probably much clearer in this context than in perhaps any other area of contemporary human rights.

9 Although human cloning is dealt with in a separate Protocol to the *Convention on Human Rights and Biomedicine*. See section 5 c) below.

10 See nn26–35 and accompanying text.

2. *Background and Legal Status of Human Cloning*

Before discussing the history of the cloning of Dolly, an important distinction needs to be made between two very different procedures, each of which is often referred to loosely as 'human cloning'. The first, which is the subject of this article, is reproductive human cloning – the procedure by which an embryo is produced which is genetically identical to a living human individual, with the intention of bringing the embryo to term and so producing a child. This is the sense in which 'human cloning' is used in this article, unless otherwise specified.[11] The second meaning is what has been called 'therapeutic' cloning, which does not result in the production of a cloned individual at all. This procedure involves cloning a cell to produce an embryo, but instead of being brought to term, embryonic development is controlled in such a way as to cause it to differentiate into specific tissue types.[12] These tissues would make a ready supply of compatible replacement tissue for the source of the original cloned cell.

For the best part of the twentieth century, producing a genetic 'twin' or clone of an adult mammal proved elusive. Indeed, until the birth of Dolly the sheep in 1996, most scientists thought that cloning would forever be confined to the realm of science fiction. Deep-seated caution about the technical possibility of cloning was partly the result of a number of notorious incidents – in particular, the highly lauded but fraudulent claim by writer David Norvick in 1978 that an eccentric millionaire had cloned himself. One year later, in 1979, a highly respected German scientist, Karl Illmensee, claimed that he had cloned three mice – an experiment which could not be reproduced by Illmensee or any other scientist.[13]

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11 Moreover, even prior to Dolly research had been conducted which established that it would be possible to produce clones of human *embryos*. Firstly, a technique called embryo splitting involves separating the cells of a 2 to 4 cell human embryo, and inducing each of the cells to begin separating and so form two or more genetically identical (cloned) embryos. This technique has in fact already been performed on human embryos by two American researchers in 1993, although none of the resulting embryos was brought to term: National Consultative Ethics Committee for Health and Life Sciences Opinion No. 054 *Reply to the President of the French Republic on the subject of reproductive cloning*, 22 April 1997: <http://62.160.32.15/ccne_ang/avis/a_054p02.htm> (22/10/98), at 11. A second technique is embryonic nuclear transfer, which involves the transfer of the nuclei of cells from an early embryo into an enucleated egg. While each of these procedures enables the production of cloned embryos which could either be implanted simultaneously or at different points in time (id at 10–11), the novelty of the 'Dolly technique' or somatic cell nuclear transfer (explained at text accompanying nn16–18 below) is the capacity to produce a clone of an *adult* organism.

12 The possibilities of this technique have been expanded with the recent discovery of so-called 'embryonic stem' cells. See n39.

13 See generally Kolata G, *Clone: The Road to Dolly and the Path Ahead* (1997), ch 6.

As recently as 1984 the highly respected journal *Science* published an article which concluded that the cloning of mammals was biologically impossible.[14] When the United States of America's President's Commission released its 1982 report on genetic engineering, *Splicing Life*, human cloning was seen to be such a remote possibility that it was dismissed as a topic of serious consideration.[15] But where science faltered, cultural fantasising flourished, producing such works of fiction as Ira Levin's *The Boys from Brazil* (1976) and Michael Crichton's *Jurassic Park* (1991), in which Adolf Hitler and a Tyrannosaurus Rex, respectively, are cloned. In the modern imagination, cloning could lead *only* to disaster.

The unexpected scientific breakthrough occurred in 1996, when scientists at the Roslin Institute in Scotland successfully cloned Dolly from a cell of a 6-year old Finn Dorset ewe.[16] The theory behind the world's first clone of an adult organism had been known for some time, but had never been successfully put into practice. That method – somatic cell nuclear transfer – involved the removal of the nucleus of a somatic cell,[17] and the transfer of that nucleus into an unfertilised egg which had had *its* nucleus removed. The vast majority of somatic cells in the body of an animal, while they all share precisely the same genetic code or genome, are highly differentiated into cell types that perform very specific functions – blood cells, brain cells, skin cells, liver cells, and so on. It was considered by many to be impossible to 'reprogram' the nucleus of such cells so as to return it to a state of so-called 'totipotency' – the capacity of a single cell to produce life by way of embryonic development.[18]

14 Id at 125.

15 'The technology to clone a human does not and may never exist': President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioural Research, *Splicing Life: The Social and Ethical Issues of Genetic Engineering with Human Beings* (1982) US Government Printing Office, Washington DC, at 10.

16 Wilmut I, et al, 'Viable Offspring Derived from Fetal and Adult Mammalian Cells' in Nussbaum MC & Sunstein CR (eds), *Clones and Clones. Facts and Fantasies about Human Cloning* (1998) at 25–6.

17 A somatic cell is an ordinary body cell which is not a germ cell (a sperm or egg cell). In humans, a somatic cell contains 46 chromosomes in its nucleus. Germ cells, which are used in normal sexual reproduction, each carry one half of the genetic material of the resulting embryo. In other words, each sperm and each egg carries 23 chromosomes, giving rise to an embryo with a full complement of 46 chromosomes.

18 The breakthrough achieved by the Scottish scientists involved utilising cycles through which cells pass in the process of cell division. They hypothesised that a nucleus would only 'take' to a new cell environment and begin reproducing itself if it was inserted during a phase known as 'G0' phase – a passive phase through which the nucleus passes immediately prior to the replication of its chromosomes which occurs in cell division: Wilmut I, et al, n16 at 23–4.

The cell taken from Dolly's parent[19] was a mammary gland cell. At the time of the announcement of Dolly's birth, there was some speculation that the cell may not have been a fully differentiated cell, or that the technique would not be successful with species other than sheep.[20] However, since the cloning of Dolly, attempts have been made, with varying degrees of success, to clone several other species, including mice,[21] rats, pigs, cows, and, most provokingly, rhesus monkeys – a member of the same primate family as human beings.[22] These developments indicate that there is probably no real technical barrier to the reproductive cloning of human beings. The reasons for, or circumstances in which, a human clone might be created are varied. The most obvious is the situation in which one or both members of a couple is infertile, and the couple does not want to use donated gametes.[23] The couple could produce a clone of either partner who would be genetically identical to that partner. However, a host of other situations have been presented in the literature, including cloning a dying child, either to replace that child, or to produce a compatible tissue or organ donor.[24] The possibility of the technology being applied to human life has given rise to widespread concern. In January 1998, the obscure but aptly named American scientist, Richard Seed, announced that he was 90 per cent ready to clone the first human being. It provoked a response from the leaders of some of the world's most powerful nations, with both United States President Bill Clinton and French President Jacques Chirac publicly condemning his plans.[25]

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19 The ewe from whom Dolly was cloned is probably more accurately referred to as Dolly's 'twin' than her parent – but the word parent will be used throughout to distinguish a clone (a *delayed* genetic twin) from naturally occurring genetic twins. See generally Andrews LB, 'Is his clone Bill Gates or Bill Gates Jr?' (1997) 19(30) *The National LJ* A23, col 1.

20 National Bioethics Advisory Commission, Report and Recommendations, *Cloning Human Beings* (1997): <http://bioethics.gov/pubs/cloning.pdf> (22/10/98), at 22–24.

21 'Mice Cloning a Breakthrough' *Sydney Morning Herald* 23 July 1998.

22 See Dayton L, 'Alive and Cloning' *Sydney Morning Herald* 21 January 1998. Although it was not made clear in some media reports, the rhesus monkeys were produced by nuclear transfer of undifferentiated *embryo* cells, not differentiated adult cells: Robertson JA, 'Liberty, Identity, and Human Cloning' (1998) 76 *Texas LR* 1371 at 1375.

23 See Robertson, n22 at 1379–80.

24 Again, see Robertson, id at 1380–82; Newman SA, 'Human Cloning and the Family: Reflections on Cloning Existing Children' (1997) *New York L Sch J of Human Rights* 523 at 529–530. There have been reported instances of couples producing a child by traditional procreation in an attempt to produce a compatible donor for an existing child: see for example the story of the Ayala family recounted in Robertson, id at 1420.

25 See Weiss R & Delvecchio J, 'Scientist "90% Ready" to Clone First Human' *Sydney Morning Herald* 8 January 1998; Hickman B, 'Clone Plan Threatens to Create Human Monsters: Scientists' *The Australian* 9 January 1998; 'Congress Backs Clinton on Cloning But Seed Threatens to Sidestep Ban' *The Australian* 14 January 1998; Editorial, 'Cloning Around' *Sydney Morning Herald* 21 January 1998.

Even before Dolly, the reproductive cloning of a human being had been prohibited under law in many countries, including in some Australian States – by legislation in Victoria[26] and Western Australia,[27] and by a Code of Practice made under legislation in South Australia.[28] In New South Wales, the Department of Health issued a Discussion Paper on Assisted Reproductive Technologies in October 1997, in which it indicated the government's intention to ban human cloning.[29] The Commonwealth government does not have a constitutional power under section 51 of the Constitution to pass laws with respect to human reproduction or biological research.[30] In 1996, the National Health and Medical Research Council (NHMRC) issued guidelines which stated that human cloning is ethically unacceptable and should be prohibited.[31] Since then, human cloning has been the subject of a detailed report by the Australian Health Ethics Committee (AHEC) of the NHMRC.[32] The Committee's report concluded that reproductive cloning is inconsistent with the law in all Australian States in which relevant legislation exists, and with the NHMRC guidelines.[33] Human cloning is also banned in the United Kingdom,[34] and is prohibited under a Bill currently before the national parliament in Canada.[35]

It can be seen that at present there is considerable variation in domestic law regarding human cloning: some jurisdictions are without applicable statute law altogether;[36] other jurisdictions prohibit reproductive but not therapeutic cloning;[37] and in still other jurisdictions the application of the law to somatic cell nuclear transfer is uncertain because the law was drafted without that particular procedure in mind.[38] The development of somatic cell nuclear transfer has

26 'A person must not carry out or attempt to carry out cloning': *Infertility Treatment Act* 1995 (Vic), s47. The Act defines 'clone' as 'to form, outside the human body, a human embryo that is genetically identical to another human embryo or person': s3.

27 'A person ... who causes or permits ... any procedure to be carried out directed at ... human cloning, commits an offence': *Human Reproductive Technology Act* 1991 (WA), s7(1)(d)(i). 'Cloning' is defined to mean 'the use of reproductive technology for the purpose of producing, from one original, a duplicate or descendant that is, or duplicates or descendants that are, genetically identical, live born and viable': s3. Unlike the definition in the Victorian statute, this definition appears to be aimed at allowing therapeutic cloning.

28 The Reproductive Technology Code of Ethical Research Practice 1995 (contained in the *Reproductive Technology (Code of Ethical Research Practice) Regulations* 1995) is made pursuant to the *Reproductive Technology Act* 1988 (SA), s10(1)(a). The Code prohibits cloning: 'A licensee must not carry out, or cause, suffer or permit to be carried out, the procedure of cloning', cl 6. 'Cloning' is defined as 'any procedure directed at producing two or more genetically identical embryos from the division of one embryo', cl 2. Because the section refers to 'division' of an embryo, it would appear not to cover somatic cell nuclear transfer – only embryo splitting.

29 New South Wales Health, *Review of the Human Tissue Act 1983, Discussion Paper – Assisted Reproductive Technologies* (October 1997) at 3, 33–34.

30 Though it does have the power to pass anti-discrimination and privacy laws. For example, the Genetic Privacy and Non-Discrimination Bill 1998 (Cth) was introduced into the Senate by the Australian Democrats in 1998.

certainly created a legal vacuum in many countries, which governments are struggling to fill. As a result of recent research on embryonic stem cells,[39] the potential benefits of therapeutic cloning research are being enthusiastically promoted by researchers, and in some countries a regulatory distinction has been advocated between reproductive human cloning and therapeutic cloning research.[40]

This article, however, addresses the specific issue of *reproductive* human cloning by way of somatic cell nuclear transfer, and the ethical and legal debates to which it has given rise. While the focus is on the attempt to lay down standards at regional and international levels, inquiries into the possibility of reproductive human cloning which have been conducted by specialist organisations in several countries have produced a more detailed and sophisticated account of the human rights implications of human cloning. Accordingly, the reports and recommendations of three national inquiries – specifically in France, Germany and the United States – are examined in some detail sections 3 and 4 below, and provide considerable insight into many of the debates that are occurring at regional and international levels. In France, the National Consultative Ethics Committee for Health and Life Sciences investigated human cloning and on 22 April 1997 issued an opinion entitled *Reply to the President of the French Republic on the subject of reproductive cloning*.[41] In the same month, the German Council of Research, Technology and Innovation released a report called *Cloning of Humans. Biological Foundations and Ethico-Legal Assessment*, which was prepared by a

31 The guidelines defined the proscribed practice as follows: 'Experimentation with the intent to produce two or more genetically identical individuals, including development of human embryonal stem cells with the aim of producing a clone of individuals': National Health and Medical Research Council, *Ethical Guidelines on Assisted Reproductive Technology* 1996, at 15. Like the Western Australian provision in n27, this appears to have been drafted so as not to prevent research which involves cloning human DNA but which is not intended to bring about the birth of a cloned individual (that is, therapeutic cloning as defined in the text accompanying n12).

32 National Health and Medical Research Council, Australian Health Ethics Committee *Scientific, Ethical and Regulatory Considerations Relevant to Cloning of Human Beings* (1998): <www.health.gov.au/nhmrc/ethics/clonelnk.htm> (18/12/98).

33 Importantly, it also concluded that reproductive cloning is inconsistent with international law. The report referred to article 11 of the UNESCO *Universal Declaration on the Human Genome and Human Rights* – which is discussed in section 5 d) below.

34 The *Human Fertilisation and Embryology Act* 1990 (UK) provides that a licence issued by the Human Fertilisation and Embryology Authority under the Act cannot authorise certain activities, including 'replacing a nucleus of a cell of an embryo with a nucleus taken from a cell of any person, embryo or subsequent development of an embryo', s3(3)(d). It is an offence to create or use an embryo otherwise than in accordance with a licence, s3(1). It is questionable, however, whether this provision would apply to somatic cell nuclear transfer, which involves the transfer of a nucleus not into an embryo, but into an unfertilised ovum.

35 Bill C–247, An Act to amend the Criminal Code (genetic manipulation), First Session, Thirty-sixth Parliament, 46 Elizabeth II, 1997, The House of Commons of Canada.

36 For example, several Australian States, including New South Wales.

37 The apparent effect of the law in Victoria.

38 For example, in South Australia or the United Kingdom.

panel of experts on behalf of the Council.[42] The French and German inquiries were held, and released their findings, in the immediate aftermath of the announcement of Dolly. The report of the United States National Bioethics Advisory Commission, *Cloning Human Beings*, which is a more substantial document than either the French or German investigations produced, was not released until September 1997.[43]

All three reports ultimately recommend the prohibition of human cloning and human cloning research.[44] The procedures and processes of reasoning of the inquiries varied in important ways from country to country,[45] as did the factors that influenced the findings in each report.[46] However, in all of the reports, an assumption underlying the recommendation to criminalise human cloning was that determining or controlling the genome of human being is a violation of that person's fundamental human rights. The precise articulation of the rights infringed varied, but a common element runs through all three reports: the idea that human identity (including physical characteristics and traits, but also behaviour and mental or psychological attributes) is *genetically* determined. While this notion is not expressly acknowledged in the reports, we shall see that it is nonetheless implicitly present.

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39 See Thomson JA, Itskovitz-Eldor J, Shapiro SS, Waknitz MA, Swiergiel JJ, Marshall VS, & Jones JM, 'Embryonic Stem Cell Lines Derived from Human Blastocysts' (1998) 282 *Science* 1145. Embryonic stem cells are derived from pre-implantation or periimplantation human embryos. They are characterised by two unique features: a capacity for prolonged undifferentiated cell division; and the potential to form derivatives of all three embryonic germ layers (or tissue types necessary for cell differentiation). See n32 at 10–11.

40 For example, a recent joint report of the Human Genetics Advisory Commission and the Human Fertilisation and Embryology Authority in the United Kingdom recommended against allowing human reproductive cloning, but advised that therapeutic cloning should be allowed to proceed: Human Genetics Advisory Commission and Human Fertilisation and Embryology Authority, *Cloning Issues in Reproduction, Science and Medicine* (1998): <http://www.dti.gov.uk/hgac/papers/papers_d.htm> (16/12/98).

41 The Committee is an independent advisory body, the mission of which is to 'give opinions on ethical problems raised by progress in the fields of biology, medicine, and health, and to publish recommendations on this subject'. Its members are drawn from a variety of disciplines. (For further information on the Committee, see <http://62.160.32.15/ccne_ang/> (22/10/98)). The Committee's report on cloning is Opinion No. 054 *Reply to the President of the French Republic on the subject of reproductive cloning*, 22 April 1997: <http://62.160.32.15/ccne_ang/ avis/a_054.htm> (22/10/98).

42 The report was written by a panel of experts (Drs Eser, Frühwald, Honnefelder, Markl, Reiter, Tanner, and Winnacker) for the Council. The report was funded by the Deutsche Forschungsgemeinschaft ('DFG'), the central public funding organisation for academic research in Germany. The report, *Cloning of Humans. Biological Foundations and Ethico-Legal Assessment*, April 1997, can be found at <http://www.dfg.de/aktuell/Clonierung.html> (22/10/98).

3. *Genetic Determinism and Human Rights*

A. Collapsing Science and Law

What is clear from the reports of the national inquiries is that the assumptions of genetic determinism are pervasive in their influence on thinking about the implications of cloning, and are at the heart of many of the human rights infringements (especially the violation of human dignity) which it is alleged would be perpetrated by attempts to clone human life. Interestingly though, quite early in each of the reports there is an express *denial* of the scientific validity of genetic determinism. The report of the French Council, for example, says the notion that genetic identity equates with personal identity 'is devoid of any scientific foundation'.[47] The United States National Bioethics Commission's report also distances itself from any mechanistic identification between the human genome and the human psyche. It dedicates several pages to a scientific debunking of genetic determinism, explaining the difference between genetic and personal identity.[48] And the German report asserts that it 'cannot be the fact per se of the resulting human having the same genome as another human being that prohibits cloning of humans'.[49]

There is a scientific consensus, therefore, recognised in the reports, that while genes contribute to traits, behaviours and conditions,[50] they always do so in interaction with environmental and social influences. Even the genetic identity of naturally occurring identical twins is offset by many cultural and environmental factors, including:

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43 The Commission is a permanent federal body which was created by President Bill Clinton in 1995 to advise the government on human biological and behavioural research, ethical treatment of human research subjects, human genetics research, and other significant bioethical issues. The Commission's members come from a variety of disciplines, including medical science, law, and bioethics, and it also comprises business and community representatives. For information about the Commission, see <http://bioethics.gov/cgi-bin/bioeth_counter.pl> (21/10/98). The Commission's report and recommendations, *Cloning Human Beings*, were released on the 2nd of September 1997. See n20.

44 National Consultative Ethics Committee for Health and Life Sciences Opinion No. 054 *Reply to the President of the French Republic on the subject of reproductive cloning*, 22 April 1997: <http://62.160.32.15/ccne_ang/avis/a_054p04.htm> (22/10/98), at 1–4 (the Committee found that human cloning and embryo research for the purpose of developing human cloning would violate existing provisions of French law – and unable to agree on whether human cloning should be specifically prohibited, the Committee left this question for Parliament: id at 4–5); National Bioethics Advisory Commission, n20 at 109 (the Commission recommended that the legislation prohibiting cloning include a sunset clause of 3–5 years to ensure that the legislation is reviewed to ascertain if the prohibition continues to be needed); Council of Research, Technology, and Innovation, n42 at 9–10 (cloning is already prohibited by the German *Embryo Protection Act* 1990).

45 In particular, the National Bioethics Advisory Commission heard public testimony from invited experts and community representatives.

46 For example, the current primitive state of cloning technology and attendant risks to the health and physical integrity of participants was probably a more important contributing factor in the National Bioethics Advisory Commission's findings.

47 Note 44 at 2.

48 Note 20 at 32–3.

49 Note 42 at 7.

> the interaction of the genes in their cells, the temporal sequence of environments through which the organisms pass, and random cellular processes that determine the life, death, and transformation of cells. As a result, even the fingerprints of identical twins are not identical. Their temperaments, mental processes, abilities, life choices, disease histories, and deaths certainly differ despite the determined efforts of many parents to enforce as great a similarity as possible.[51]

Despite their protestations to the contrary, however, all three of the national reports proceed to base their findings on arguments that are predicated, in large part, on precisely the deterministic assumptions which they disavow. They do it rather surreptitiously – expressing so-called 'biological' or 'natural' conclusions as legal principles rather than as scientific claims. It is a strategy of interchanging, and so confusing, words or concepts which have quite different meanings in the realm of ethics or law on the one hand, and science or medicine on the other. The report of the German Council is probably the worst perpetrator of this fallacy. The Council argues that human dignity is ineluctably linked to normal sexual reproduction.

> Obviously free development of an individual is linked in a holistic sense so closely to the respect of the structure of natural reproduction that, for the sake of dignity and freedom of the individual, one must also respect the dignity of natural reproduction innate to the human species.[52]

It is perhaps easy to be beguiled by the claim that human dignity and freedom resides, in part, in natural, 'free' conditions of reproduction. But it is in precisely this slide from a biological concept to a political and legal claim about human dignity and reproduction that the Council's logic becomes untenable. It asserts that a violation of human dignity occurs where a clone is created because 'it is an instrumentalisation touching at the very *core* of the person'.[53] This statement contains a confused equation of the individual human genome – which *is* controlled, and so arguably instrumentalised, through cloning – with what the Council calls the human 'core' – a *social* and *legal* construct which is not (except proceeding from determinist assumptions) the equivalent of the genome. The quotation is symptomatic of the way in which the report systematically *passes off* biological phenomena *as* legal conclusions. For example, it makes the following assertion about human sexual reproduction:

> Evidently the effect of chance which governed fusion of haploid germ line cells to a novel individual genome during the process of reproduction is to *protect* the individual from becoming an object of biological predetermination by third parties. Thus it *guards* the *freedom* of human beings from being the subject of genetic determination by third parties.[54]

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50 Although there is rarely a direct correlation between a *single* gene and any condition or trait. More often, many genes act in concert to produce certain effects – what are known as 'multifactorial' genetic conditions.

51 Lewontin RC, 'The Confusion over Cloning' (1997) *The New York Review of Books* 23 October, at 18. For a more developed account of the influence of determinism, and a critique of its premises, see Lewontin RC, *The Doctrine of DNA: Biology as Ideology* (1993).

52 Note 42 at 8.

53 Id at 7 [Emphasis added].

54 Id at 7–8 [Emphasis added].

This statement ascribes legal meaning and *agency* to what are biological phenomena. The 'facts' of sexual reproduction are invested with an implied juridical purpose – to 'protect' and 'safeguard' fundamental human values like freedom and autonomy.[55] Because the ethical and legal status of the human genome is internally, or 'naturally', generated ('it is necessary on ethical and legal grounds to draw lines where this had not been necessary before, *because nature herself draws these lines*'),[56] the Council can disclaim the need to justify the policy conclusions it reaches.[57] The report of the French Council also uses this kind of reasoning when it says that cloning violates a 'fundamental trait of the human condition: what will become an individual's genetic idiosyncrasy is and must remain out of reach of anyone's decision'.[58] While the report of the United States National Bioethics Advisory Commission does not contain any choice passages such as those quoted from the German report above, its overall effect is nicely summed up by Richard Lewontin: 'It is impossible to understand the incoherent and unpersuasive document produced by the [Commission] except as an attempt to rationalize a deep cultural prejudice, but it is also impossible to understand it without taking account of the pervasive error that confuses the genetic state of the organism with its total physical and physic nature as a human being'.[59]

This process of reasoning, and the injunctions it purports to lay down, give rise to several related problems. Arguably, the proscription of 'unnatural' practices would rule out many existing but nonetheless unnatural human reproductive technologies – including those which facilitate reproduction (like in vitro fertilisation), which are adjuncts to it (like prenatal diagnosis), or which avoid it (like contraception and abortion). More importantly, instead of accepting that limits will always be social, and not inherent in the technology itself,[60] and so taking responsibility for the sources and character of such limits, the reports

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55 To the same effect, in another passage, the report claims that 'the heteronomy of the natural genesis of an individual genome ... *safeguards against despotism and license*, the freedom of development that corresponds with the dignity of a person' (id at 8, emphasis added). From this it follows, though the Council provides no explanation of this quantum conceptual leap, 'that there exists some *right* of a person to be born of two biological parents and not to have been manipulated in one's genetic identity'; ibid [emphasis added].

56 Id at 9 [Emphasis added].

57 The report goes on to say that an inquiry into human cloning must do two things: 'take our bearings from accepted ethico-legal principles' (with which I cannot disagree), and 'focus our attention on physical, psychical, and social conditions, without which, according to his nature, man cannot succeed' (ibid). There is a very devious logic at work here. After raising the 'physical, psychical and social' factors which are relevant to human dignity and other human rights the report, for no apparent reason, collapses their meaning – which could otherwise open out and proliferate the meaning and significance of human cloning – back into the reductive concept of 'nature'.

58 National Consultative Ethics Committee for Health and Life Sciences Opinion No. 054 *Reply to the President of the French Republic on the subject of reproductive cloning*, 22 April 1997: <http://62.160.32.15/ccne_ang/avis/a_054p03.htm> (22/10/98), at 3.

59 Note 51 at 18. See also Robertson, n22 at 1411–15.

60 For this argument see Strathern M, 'Regulation, Substitution and Possibility', in Edwards J, Franklin S, Hirsh E, Price F & Strathern M (eds), *Technologies of Procreation: Kinship in the Age of Assisted Conception* (1993) at 135–37.

perpetuate the fallacy of deducing values directly from facts: that the freedom of a person's genome from external intervention is a necessary condition of that person's identity and dignity as a human being. Without more, this assertion relies on the assumption that the value or worth of an individual human life is, in large part, *genetically* determined. This is, I argue, a highly unsatisfactory basis for the protection of human rights in relation to genetic technology – caricaturing the idea of the human which it sets out to protect. I will return to this theme, and suggest an alternative basis for biomedical human rights, in sections 5 and 6 below.

B. Determinism as a Form of Social Knowledge

An altogether different articulation of genetic determinism in the legal and policy debates deserves a much more serious response. Instead of fallaciously translating scientific into legal conclusions, this argument claims that, however questionable its biological basis, genetic determinism is a dominant *cultural* and *social* presence,[61] which will inevitably lead to the stigmatisation of, and discrimination against, cloned individuals. This argument, made most forcefully in the report of the French Committee, is that while genetic determinism may be scientifically wrong, it is a cultural and social fact and so should be taken into account in formulating a legal response to cloning.

The Committee argues that while genetic identity does not equal personal or psychic identity, nevertheless certain things which flow from genetic uniqueness (for example, distinctive 'appearance of body and countenance')[62] are culturally valued. Accordingly, says the report, clones 'would be *seen* in both the literal and the figurative senses of the word, as identical copies of each other'.[63] In addition, cloned individuals 'would know they are clones and would know that others see them as clones. One cannot be blind to the intolerable lowering of a person to the status of an object that would ensue'.[64] Hence, says the report, cloning will lead to the risk of new forms of discrimination.[65]

My response to this claim is that it would be highly unusual for a practice to be prohibited, not because it inherently discriminates (either directly or indirectly) against individuals or a class of individuals, but because it gives rise to a characteristic which, because of ignorance or misunderstanding, may be stigmatised and so lead to discriminatory practices. The risk of discrimination should never be a barrier to social experimentation. It could also ground arguments against, for example, multiculturalism, or more relevantly against in vitro fertilisation or adoption, if it was feared that such practices would be socially stigmatised.[66]

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61 See Strathern M, 'Nostalgia and the New Genetics', in Battaglia D (ed), *Rhetorics of Self-Making* (1995) especially at 113–4.

62 Note 58 at 3.

63 Ibid [Emphasis added].

64 Ibid.

65 Id at 4.

The report of the National Bioethics Advisory Commission also acknowledges that the potential harm to an individual's sense of uniqueness does not have its source in scientific discourse (which emphatically rejects genetic determinism) but in popular understanding of individuality and identity.[67] The question is whether or not *law* should respect this culturally produced form of knowledge, even if it is based on dubious science. An example of the problem is provided by Michael Freeman, writing in the context of new reproductive technologies and children's rights, where he argues that denying children access to information about their genetic parents (for example, in the case of donated sperm or eggs) is 'in effect denying children access to their *own personal map*'.[68] In saying this, Freeman appears to equate knowledge of genetic inheritance *with* identity. He goes on to describe identity as follows:

> Identity as what we know and what we feel is an organising framework for holding together our past and our present and it provides some anticipated shape to future life. It is an inner personal landscape, a 'feeling of being at home in one's own body'.... [A sense of] well-being.[69]

While this is a useful definition of identity, it reveals how profoundly cultural and social is one's sense of identity.[70] It has little to do with scientific knowledge about the role of genes in human physiology and behaviour, except as this knowledge is assimilated into cultural understandings. The problematic nature of this triangular relationship between science, culture and law is explored in the following section.

4. *Law and Cultural Reproductions of Science*

Genetic determinism or genetic essentialism, however it manifests itself, has deep cultural roots in Western society.[71] And as we shall see in the discussion of human rights below, it is an ideology which has apparently contradictory consequences. On the one hand, it propels the desire in our society to have biologically related children. The fetishistic 'preoccupation with blood as the carrier of an individual's essence and as the mark of legitimacy' is, Lewontin has argued, *the very belief*

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66 Ironically, *criminalising* human cloning presents a much greater danger of stigmatisation of persons. As Laurence Tribe has argued, criminal prohibitions almost invariably entail imperfect (sometimes grossly imperfect) enforceability – leading to a blackmarket in the contraband product. This is one thing if the subject matter of criminalisation is, say, narcotic drugs; but it gives rise to altogether different considerations where it is '*a method for making human babies*' Tribe L, 'On Not Banning Cloning for the Wrong Reasons', in Nussbaum and Sunstein, n16 at 228. Individuals born in this way would be social outcasts – 'an entire category of persons, while perhaps not labelled untouchable, is marginalized as not fully human', id at 230.

67 Note 20 at 66–67. See also Lewontin, n51 at 20.

68 Freeman M, 'The New Birth Right? Identity and the Child of the Reproductive Revolution' (1996) 4 *Int'l J of Children's Rights* 273 at 287 [Emphasis added].

69 Id at 290, footnotes omitted.

70 The National Bioethics Advisory Commission report acknowledges that concerns about psychological harm occasioned by a loss of a sense of uniqueness 'are not only quite speculative, but directly related to certain specific cultural values', n20 at 68.

71 See Nelkin D, & Lindee MS, *The DNA Mystique: The Gene as a Cultural Icon* (1995) at 2–6.

which produces the desire for genetically related children through in vitro fertilisation, surrogacy and other new reproductive technologies.[72] This cultural desire reaches its (il)logical conclusion in cloning – the production of genetically *identical* offspring. But on the other hand, the notion that a person is defined by their genome gives rise to a fear: that the status of a person as free, and as vested with rights and dignity, depends upon the inviolability, integrity and uniqueness of their genome.

The effect of this contradiction has been described as a 'black hole'[73] – an evocative metaphor for the effect of these influences on the public policy debates around the human rights implications of cloning. The sanctity of genetic or biological relation has been used, especially in the United States, to argue that human cloning would be protected as an exercise of procreational liberty.[74] In Europe, and under international law, the approach to reproductive desire has been much more censorious, and arguably, hypocritical. A rather stunning passage occurs in the report of the French Committee, which asserts that the replication of oneself through cloning is actuated by an illegitimate desire to defer or even avoid death. A lengthy passage from the report warrants reproduction in full:

> In some cases, the argument of parents wishing to reproduce by cloning a child whose impending early death is unavoidable, has been put forward .... Requests for cloning a dying spouse or other loved ones are also formulated. Some individuals, both male and female, have applied to be cloned themselves. In all the fantastic representations which underpin such yearnings, there is the notion that the genome of an individual is endowed with the properties traditionally attributed to the soul, so that its identical reproduction is confusedly thought to be a reincarnation of the person concerned, to whom imagination promises a new life whilst remaining the same person.
>
> Obviously, no one can appoint themselves to rule over the beliefs of others. But in this matter, if the nonsensical identification between a deceased person and his clone were to lead to the birth of a being produced in this fashion, we are no longer in the realm of respecting the belief of others. The issue here is manifest instrumentalisation of a person, and ethics demand that this should be prevented because although very superficially desired as a person in his own right, the clone would be a substitute for a phantasmagorical yearning to which he would be totally alien. In no circumstances should biomedical competence be put at the service of such ravings; that way lies scientific and ethical perversion, support given to dreams of magical practices and constructions which outrage human dignity.[75]

Apparently, it is the *irrational* nature of these reproductive desires ('dreams of magical practices', 'phantasmagorical yearning') which the Committee finds so

72 Note 51 at 20. Nelkin and Lindee have also observed that in replacing blood as the hereditary essence of human life, DNA 'gained new status without losing older connotations', n71 at 194.

73 Hartouni V, 'Replicating the Singular Self; Some Thoughts on Cloning and Cultural Identity', in Hartouni V, *Cultural Conceptions: On Reproductive Technologies and the Remaking of Life* (1997) at 120.

74 See Robertson, n22.

75 Note 58 at 5.

deplorable. But the notion of human life 'defeating' death by reproducing itself is *not* peculiar to the application of cloning technology to human reproduction.[76] Right through the history of Western culture, the notion of renewal, indeed specifically of *rebirth*, through marriage and procreation, has been an enduring theme. The reasons for which people reproduce undoubtedly include the desire symbolically to 'avoid' death, to 'leave a legacy', or to 'replace' a child who has died.[77] In addition, in modern Western society there is evidence of the increasing importance of the role of biological or genetic relation in family and kinship structures.[78] As the French report laments: 'It seems that today's society is ever more demanding in its urge for biological descent'.[79] In the case of cloning, there *is* a danger that because parents have chosen a particular genome, 'they will view the child primarily as a means to fulfill the goals that motivate the choice of that genome, thus rendering the child's life full of expectations and consequent suffering that make it preferable that it not be born at all'.[80] However, the motives for which people ordinarily have children are varied, and often (perhaps invariably) mix love with self-interest.[81] We need seriously to ask the question: what makes cloning any different?

The flipside of the 'desire' generated by genetics – its iconic, even sacred, status in modern society[82] – is the horror or fear generated by the prospect of the manipulation of, or interference with, the human genome to produce a clone. This response to cloning has, during the twentieth century, been influentially articulated in the imaginary realm of popular culture.[83] These forms of cultural knowledge

76 See Robertson JA, *Children of Choice. Freedom and the New Reproductive Technologies* (1994) at 24.

77 See Lewontin, n51 at 21; Rhodes R, 'Clones, Harms and Rights' (1995) 4 *Cambridge Quarterly of Healthcare Ethics* 285 at 288. Interestingly, what opponents of cloning apparently find so offensive is that people who want to clone might mistake these *symbolic* dimensions of human reproduction for a *literal* capacity to reproduce the *same* human life – a poignant mistake, but perhaps understandable (given cloning's radical novelty as a reproductive technology) and arguably temporary.

78 Dreyfuss RC & Nelkin D, 'The Jurisprudence of Genetics' (1992) 45 *Vanderbilt LR* 313 at 319–20.

79 Note 44 at 13.

80 Robertson, n22 at 1419.

81 Ibid.

82 See Nelkin & Lindee, n71, ch 3.

83 See, for example, Ira Levin's *The Boys from Brazil* (1976) and Michael Crichton's *Jurassic Park* (1991), and generally Doniger W, 'Sex and the Mythological Clone', in Nussbaum & Sunstein, n16 at 127–135. On the role of Aldous Huxley's *Brave New World* (1932), in particular, in framing cultural discourse on reproductive technologies and cloning, see Hartouni V, '*Brave New World* in the Discourses of Reproductive and Genetic Technologies', in Bennett J & Chaloupka W (eds), *In the Nature of Things* (1993), and Hopkins PD, 'Bad Copies: How Popular Media Represent Cloning as an Ethical Problem' (1998) 28 *Hastings Center Report* 6. The status of cloning for most of this century as a trope for the fantastic possibilities of human scientific endeavour has not been completely displaced by the fact of its scientific realisation. The presence of the imaginary in social understanding of all new reproductive technologies, including cloning, is ineradicable. Accordingly, cloning is still an idea 'raised by people both as an indication that there are no intrinsic limits to what is possible, and as a scare word that everyone will recognise as indicating the need for some outer limit' (Strathern, n60 at 141).

have leaked into the formal policy and legal debates in quite important ways.[84] Firstly, they have provided a symbolic reference to 'intuitive' hostility to human cloning. Associated with this claim is the notion that cloning violates a 'natural' order or 'natural' law. Secondly, they have supplied a backdrop to many of the rights and interests which, it has been argued, are infringed by human cloning: including claims that cloning violates human dignity, and that cloning violates the rights of children.[85]

5. *International Human Rights Law and Human Cloning*

I want to examine in some detail now the development of human rights law in relation to human cloning, in four different contexts: the status of cloning under general international human rights law, especially its consistency with human dignity; the status of cloning under the Council of Europe's *Convention on Human Rights and Biomedicine*; the treatment of cloning in UNESCO's *Universal Declaration on the Human Genome and Human Rights*; and finally, the question of children's rights and interests and how they might be affected by the prospect of human cloning.

A. Human Dignity Under International Law

The reports of the national inquiries discussed above, as well as emerging regional and international human rights frameworks, rely on the assertion that cloning involves an infringement of human dignity.[86] Human dignity is arguably one of the foundational concepts of post-World War II international human rights law – occurring rather incidentally in the Charter of the United Nations of 1945,[87] but assuming a central conceptual position in the *Universal Declaration of Human Rights* of 1948.[88] The centrality of human dignity was retained and consolidated in the *International Covenant on Economic, Social and Cultural Rights* 1966[89] and the *International Covenant on Civil and Political Rights* 1966[90] – the basic international human rights treaties which sought to enact and elaborate in legally binding form the principles contained in the *Universal Declaration*. Both

84 A good example is the Canadian parliamentary debate over an earlier version of Bill C–247, n35, which prohibits human cloning. Speaker after anxious speaker invoked the purported lessons contained in Aldous Huxley's *Brave New World* (1932), HG Wells' *The Island of Dr Moreau* (1896), and Mary Shelley's *Frankenstein* (1818) as justification for criminalising cloning and the other 'science fiction procedures' identified by the Bill (Canadian Parliament, Hansard, Grant Hill: <http://www.parl.gc.ca/ha ... 94_96-10-31/094GO3E.html> (30/5/97), at 5966).

85 These claims are examined in more detail in section 5 below.

86 Council of Research, Technology and Innovation, n42 at 7; National Consultative Ethics Committee for Health and Life Sciences, n41 at 2. The American report is more cautious: 'Whether creating a human being through cloning necessarily or only under certain circumstances violates human dignity depends on the conception of rights and duties that specify human dignity' n20 at 51. See generally Knoppers BM, *Human Dignity and Genetic Heritage* (1991) at 1–4, 23–24.

87 The Preamble refers to the 'dignity and worth of the human person'.

88 Note 5.

89 Note 6.

90 Ibid.

Covenants recognised in their preambles that *all* of the rights enumerated 'derive from the inherent dignity of the human person'. In this way human dignity has become, in international human rights law, the 'sine qua non for the elaboration and construction of all other fundamental rights'.[91]

In debates around human rights and cloning, human dignity is used to describe that essentially human quality which cloning is seen to violate. But what *is* human dignity? Surprisingly, for such a central concept in international human rights law, there has been virtually no commentary on human dignity – its source, content, or boundaries. Traditionally, this has not been of great importance because international human rights law has not relied on violations of human dignity per se, but rather on the breach of a specific right which itself derives from the duty to respect human dignity. Human dignity has been retained as the conceptual keystone in international instruments dealing specifically with biomedicine and genetics, and its application in the most significant of these instruments, the Council of Europe's *Convention on Human Rights and Biomedicine* and the UNESCO *Universal Declaration on the Human Genome and Human Rights*, is evaluated in the discussion that follows. However, as in the human rights analysis of the national reports above, we see that rather than violate any specific right, human dignity is itself being relied on as a legal standard. Instead of attempting to define this standard, we witness the deployment of the scientific and cultural arguments referred to above – in particular, the insidious but powerful presence of genetic determinism and its cultural and social correlates. That is, human cloning is seen to violate a geneticised and essentialised conception of human dignity.

B. Council of Europe Convention on Human Rights and Biomedicine

Consistent with the genealogy of modern international human rights law described above, human dignity has been retained as the central legal and moral concept in the *Convention on Human Rights and Biomedicine*. The preamble to the Convention refers at numerous points to the protection of human dignity as the primary objective of the Convention.

> Convinced of the need to respect the human being both as an individual and as a member of the human species and recognising the importance of ensuring the dignity of the human being;
>
> Conscious that the misuse of biology and medicine may lead to acts endangering human dignity;
>
> Resolving to take such measures as are necessary to safeguard human dignity and the fundamental rights and freedoms of the individual with regard to the application of biology and medicine...[92]

The first article of the Convention also contains human dignity as one of its central principles. It provides:

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91 Knoppers, n86 at 24.

92 *Convention on Human Rights and Biomedicine*, Preamble.

> Parties to this Convention shall protect the dignity and identity of all human beings and guarantee everyone, without discrimination, respect for their integrity and other rights and fundamental freedoms with regard to the application of biology and medicine.[93]

Because it was written before the announcement of Dolly the sheep, the Convention in its original form contained no direct reference to human cloning whatsoever. Following confusion about whether or not cloning was indirectly prohibited by these principles, a Protocol was drafted dealing specifically with human cloning.[94] It is not clear whether human cloning potentially violates any provision or provisions of the original Convention. This question will be of particular interest for those countries which accede to the Convention, but not to the Protocol. There are at least three ways in which human cloning potentially infringes the Convention. Firstly, human cloning might infringe the requirement laid down in article 1 that the 'identity', 'integrity' and 'dignity' of all individuals is protected. Both individual identity and individual integrity are relatively novel concepts in international human rights law. They are not specifically protected under any pre-existing international human rights instruments.[95] Accordingly, there is little or no commentary on the meaning of these terms. It is possible that they were drafted in such broad and general terms in response to the rapid development of genetics and biomedicine, and in anticipation of precisely such a novel application as human cloning. The right to identity laid down by the Convention is arguably an attempt to protect an interest in *unique* identity, the 'sense of identity ... that constitutes the special uniqueness of each individual'.[96] However, the argument that the protection of this interest is conditional upon having a unique genome has been strongly criticised in section 3 above.[97]

Even if cloning does not infringe individual rights, the second way in which it potentially contravenes the Council of Europe Convention is by violating the integrity of the *human species*. There is no specific protection afforded to the human species in the Convention. However, the relationship between the rights afforded to individuals, and the rights of individuals as members of the human species, is recognised in the Preamble to the Convention.[98] A possible precedent

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93 Article 1 is titled a 'Purpose and Object' clause, although it appears to be a substantive provision.

94 National Consultative Ethics Committee for Health and Life Sciences, n44 at 5. See section 5 c) below for discussion of the Protocol.

95 The requirement that the parties to the *Convention on the Rights of the Child* (opened for signature 20 November 1989, ATS No 4; entered into force generally 2 September 1990) 'respect the right of the child to preserve his or her identity' (article 8) appears to be directed at quite a different context.

96 Brock D, 'Cloning Human Beings: An Assessment of the Ethical Issues Pro and Con', in Nussbaum and Sunstein, n16 at 152.

97 The report of the National Bioethics Advisory Commission was skeptical of the claim that cloning violated the right to a unique identity: n20 at 67–68. See also Harris J, '"Goodbye Dolly?" The Ethics of Human Cloning' (1997) 23 *J of Medical Ethics* 353 at 356.

98 The Preamble provides, in part: 'Convinced of the need to respect the human being both as an individual and as a member of the human species ...'.

is provided by French domestic law, which contains the following provision: 'No one may cause prejudice to the integrity of the human species'.[99] The report of the French Committee asserted that human cloning would constitute a breach of this provision. Unfortunately, the report provided no justification for this claim, merely asserting (without explanation) that: 'Since the human species was established by sexual reproduction, to so fundamentally modify the mode of transmission of the genome would mar the integrity of the species'.[100]

The third possible violation of the Convention arises out of the prohibition of changes to the human germline[101] in Article 13 of the Convention.[102] Though none of the national reports considers the question of whether human cloning would constitute germline genetic modification under the Convention, a useful analysis has been undertaken by the French Committee in considering whether human cloning potentially infringes the prohibition on germline genetic therapy under French domestic law.[103] The Committee argued that the prohibition would be violated by cloning research. It thought that the enucleation of the female egg, the separation of the nucleus of the donor cell and its transfer into the egg, would be acts 'undertaken with the aim of modifying the descent of a person'.[104] The Committee explained this claim in rather vague terms – somatic cell nuclear transfer would entail the removal of 'the nucleus of the recipient cell, whose genetic nature has been modified so that it can be used and with the result that it can no longer transmit its genetic heritage'.[105] However, it also arguable that cloning results in no 'alteration' being made to 'genetic traits' where the genomic material – the DNA of the donor – remains unchanged.[106]

C. *Additional Protocol on the Prohibition of Cloning Human Beings*

For those members of the Council of Europe who signed *the Additional Protocol on the Prohibition of Cloning Human Beings*,[107] the proscribed status of human cloning is now clear. The main provision of the Protocol is article 1, which simply provides:

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99 Article, 16–4, Law No. 94–653 of 29 July on respect for the human body, in (1994) 45(4) *Int'l Digest of Health Leg'n* at 498.

100 Note 44 at 2.

101 That is, modifications to human 'germ' or reproductive cells (also known as sperm or egg cells), so that, unlike genetic changes to other cells in the human body (for example, genetic treatment of cancerous bone marrow cells), the alterations will be passed on to subsequent generations.

102 'Any intervention seeking to modify the human genome may only be undertaken ... if its aim is not to introduce any modification in the genome of any descendents': Article 13.

103 Article 16–4 of the French Civil Code provides, inter alia: 'Without prejudice to research for the prevention and treatment of genetic diseases, no modification can be made to genetic traits with the purpose of modifying the descent of a person.'

104 Note 44 at 2.

105 Ibid. This analysis is given tacit support by United States legal scholar John Robertson, who discusses human cloning as a species of nontherapeutic genetic intervention, n76 at 167–170.

106 Subject to the exception of a small amount of mitochondrial DNA which subsists not in the nucleus, but in the cell superstructure, and so will be provided by the host egg rather than the implanted nucleus.

107 The Protocol was opened for signature on the 12th of January 1998. See <http:www.coe.fr/eng/legaltxt/168e.htm#debut> (20/1/98).

> Any intervention seeking to create a human being genetically identical to another human being, whether living or dead, is prohibited.

The preamble to the Protocol provides some insight into the reasons for the implementation of the Protocol. It invokes article 1 of the Convention[108] by claiming that 'the instrumentalization of human beings through the deliberate creation of genetically identical human beings is contrary to human dignity' – though it provides no reason or explanation for this legal conclusion. There is an Explanatory Report to the Protocol, which does provide some background to the prohibition.

> As naturally occurring genetic recombination is likely to create more freedom for the human being than a predetermined genetic make up, it is in the interest of all persons to keep the essentially random nature of the composition of their own genes.[109]

Yet again, we witness in this passage the disturbing conflation of the randomness of sexual reproduction (a biological concept) with 'freedom' (a political and legal concept). While I am not suggesting that biology does not have legal significance, that significance needs to be elaborated and explained more thoroughly. For the reasons outlined in section 3 above, it should be clear that I do not consider the deployment of these ideas in their current form to be a satisfactory basis for norms of international human rights law.

D. UNESCO Universal Declaration on the Human Genome and Human Rights

Since 1992, the International Bioethics Committee of UNESCO has been working on a *Universal Declaration on the Human Genome and Human Rights*. The Declaration was endorsed in November 1997. Like the Council of Europe Convention, the Declaration makes human dignity the central principle defining and regulating the human genome. Indeed, the first part of the declaration is called 'Human Dignity and the Human Genome'. The first article of the Declaration goes some way towards avoiding the blatant essentialism of the discourse around genetics we have witnessed in other contexts. It says:

> The human genome underlies the fundamental unity of all members of the human family, as well as the recognition of their inherent dignity and diversity. In a symbolic sense, it is the heritage of humanity (Article 1).

The language of article 1 is interesting. It makes clear that the role of genes in determining the dignity of human life through time is 'symbolic' rather than 'literal' or biological. It also gives the genome *social*, and not just individual, value

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108 See n93. Article 1 requires, inter alia, the protection of human dignity.

109 *Explanatory report to the Additional Protocol to the Convention on Human Rights and Biomedicine on the Prohibition of cloning human beings*: <http://www.coe.fr/oviedo/protrapexpl-e.htm> (20/1/98), at para 3.

through the concepts of 'diversity' and 'heritage'. Article 2 b) makes clearer the step away from determinism, proclaiming that human dignity 'makes it imperative not to reduce individuals to their genetic characteristics and to respect their uniqueness and diversity'.

The Declaration, in Article 10, proceeds to apply the corpus of international human rights law to technologies which may impact upon the human genome.

> No research or its applications concerning the human genome, in particular in the fields of biology, genetics and medicine, should prevail over the respect for the human rights, fundamental freedoms and human dignity of individuals or, where applicable, of groups of people (Article 10).

The next article goes on to provide that: 'Practices which are contrary to human dignity, such as reproductive cloning of human beings, shall not be permitted' (Article 11). This article was a late addition to the Declaration, and both its form and substance give rise to several concerns. Firstly, the provision adds nothing to the requirement of article 10 that respect for human dignity overrides genetic research or applications, and so arguably is superfluous. Article 11 appears to have more rhetorical than technical utility, and detracts from the carefully worded formulation of article 10 – with its implication that certain technological applications may be not only consistent with human rights and freedoms, but may indeed be prerequisites for the fulfilment of those rights and freedoms (for example, reproductive or health rights). Secondly, it disregards the fact that in other articles the Convention expressly protects individuals from discrimination, abuse or harm on the basis of their genetic characteristics. For example, article 2 a) provides that: 'Everyone has a right to respect for their dignity and for their human rights regardless of their genetic characteristics'; and article 6 bans 'discrimination based on genetic characteristics' where the discrimination is 'intended to infringe or has the effect of infringing human rights, fundamental freedoms and human dignity'. These provisions would make it illegal to discriminate against an individual on the basis of their genetic heritage, including the fact that an individual's genome was identical to another person's – in other words they would ensure protection of the human dignity of cloned individuals. And thirdly, the ban on cloning is arguably anomalous in terms of both the drafting style of the declaration, and the drafting practices of international human rights instruments generally. The problem is that, as an instance of a practice which is contrary to the principle of human dignity, it is an entirely arbitrary selection which does little to help give substance to the injunction against practices which contravene that principle. It does not clarify the status of other 'notorious' practices like germline genetic therapy, combining human and non-human genetic material, or research on human embryos.

E. Cloning and Children's Rights and Interests

Many of the alleged human rights infringements associated with cloning focus on *children's* rights and interests. In addition to human dignity, the preamble of the Council of Europe's Protocol on Cloning claims that cloning would give rise to

'serious difficulties of a medical, psychological and social nature ... for all the individuals involved'. Setting aside the question of 'medical' issues, what are the psychological or social harms that cloning might occasion, especially to children? It is often argued that cloning departs so radically from all existing familial, parental and kinship structures as to deprive children of their rights and violate their best interests.

The *International Covenant on Civil and Political Rights* provides, in Article 23, that: 'The family is the natural and fundamental group unit of society and is entitled to protection by society and the State'. The preamble to the *Convention on the Rights of the Child*[110] refers to the family as the 'fundamental group of society'. It has been argued that cloning breaches the 'fundamental' interest of a child in having a family. The American report quotes Catholic moral theologian Lisa Cahill, who argues that a child who is the genetic progeny of *one* parent only is an affront to the 'essential' reality of an individual's sense of identity within a family (including having two genetic parents), and a claim to 'the dual-lineage origin that characterises every other human being'.[111] Currently available practices (for example, adoption, artificial insemination and assisted reproductive technologies like in vitro fertilisation, gamete donation and surrogacy) already 'threaten' this tradition.[112] It is claimed, however, that they do not jeopardise it as profoundly as cloning does.

This raises the question of whether our social conceptions of family and kinship can accommodate the radical difference introduced by cloning. Cahill asserts that the irreducible difference introduced by a cloned human being[113] would lead to the destruction of important values and institutions, such as the family and even human relationships.[114] On the other hand, available evidence suggests that understandings of the role of biology in forming individual identity is highly variable throughout cultures. How flexible and adaptable are these conceptions? The response to Cahill is that persons born by way of cloning will not lack 'biological' kin, they will just have a *different* kind of biological kin. As Cahill herself says, having two genetic parents is only '*a* foundation of important human relationships',[115] not the only one. And there is no reason to assume that

110 Note 95.

111 Note 20 at 53. Of course, this misses the point that in a society where cloning is legal, some individuals are likely to be cloned, and so not *every* human being can claim to have their genetic origin in two parents.

112 By allowing the separation of genetic, gestational and social parenting roles. See also Lewontin, n51 at 20.

113 As the Commission says, 'the child who is truly the child of a single parent is a genuine revolution in human history': n20 at 53.

114 'At the extreme, cloning humans would not only free human reproduction from marital and male-female relationships, but would "allow for the emancipation of human reproduction from any relationship"', Mohler RA, 'The Brave New World of Cloning: A Christian Worldview Perspective', unpublished manuscript 1997, quoted in the National Bioethics Advisory Commission report, n20 at 53. However, not all theologians support this argument. See comments of Nancy Duff in id at 54.

115 Note 20 at 53.

having 'one' genetically identical 'parent' could not also form *a* foundation for human relations.

In addition, claims about these harms are purely speculative at present. Michael Freeman makes this point about debates concerning the new reproductive technologies. He says that a central aim of the children's rights movement is to see children as complete human persons and not as the property of anyone. But while concerns about the commodification of children in the era of these technologies are legitimate, they are, mostly, 'speculative and alarmist'.[116] While there is a danger of psychological harm being occasioned to children by, for example, surrogacy, more substantive evidence is required.

One reason the report of the French Committee concludes that cloning is unacceptable is that cloning would transcend all known systems of filiation. 'Asexual by its very nature, reproductive cloning would *therefore* inaugurate a mode of filiation highly charged with problems'.[117] Unfortunately, the report does not justify its use of the word 'therefore'. It does not explain *why* asexual human reproduction is inherently problematic. The report goes on to note that because a human clone 'would be both a descendent and a twin of an adult', the 'very concept of filiation could become meaningless'.[118] On the other hand, as social anthropologist Sarah Franklin argues about other reproductive technologies,[119] cloning could be seen to give rise to merely a *different* form of filiation – one which is enabled in novel ways, but which is nonetheless still a form of filiation. Our society and legal system recognises forms of filiation even where there is no genetic relationship between individuals (adoption is the obvious example).

It should be obvious that I think these questions must be viewed in the context of the new reproductive technologies of the 1980s and 1990s, of which human cloning is really only the latest instalment, and the challenge they pose to concepts of 'nature', especially as they influence our notions of family. It is important to remember that despite the fact that the first in vitro fertilisation baby, Louise Brown, was born only twenty-one years ago in 1978, the resulting forms of kinship and family to which in vitro fertilisation has given rise have been largely *assimilated* by our culture.[120] Cultural theorist Valerie Hartouni has the following to say.

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116 Freeman, n68 at 297. See also Amer MS, 'Breaking the Mold: Human Embryo Cloning and its Implications for a Right to Individuality' (1996) 43 *UCLA LR* 1659 at 1683–4; and Ruth Macklin's submission to the National Bioethics Advisory Commission that '[e]vidence, not mere surmise, is required to conclude that the psychological burdens of knowing that one was cloned would be of such magnitude that they would outweigh the benefits of life itself', in Kolata, n13 at 19.

117 National Consultative Ethics Committee for Health and Life Sciences, n58 at 4 [Emphasis added]. See also Robertson, n22 at 1422–1430.

118 Note 58 at 4.

119 Franklin S, 'Making representations: the parliamentary debate on the Human Fertilisation and Embryology Act', in Edwards, et al, n60. See further n136 below.

120 Accepting for the moment that many of the specific legal consequences are still being, or are yet to be, worked out.

> As in the telling of most genealogical tales, then, where the monstrous was once spied roaming, mothers, fathers, and families now comfortably reside. Notwithstanding the often destabilizing effects of new reproductive practices, these new practices have been domesticated over the course of the past twenty-five years.[121]

6. *Re-thinking Human Rights and the Law/Science Relationship*

My goal in this article has been to critique a number of important policy analyses and legal responses to the prospect of reproductive human cloning which have explicitly adopted a human rights framework – and to suggest that the wrong questions are being asked about how human rights are implicated in this issue. The pervasive reliance on genetic determinism – on the random determination of, and therefore uniqueness of, the individual's genome as the source of human dignity – ironically turns out to provide for a highly stunted, biologically-bound concept of humanity.

> What is curious about the argument from genetics... is that it appears to secure 'individual identity' at the expense of 'autonomy' and 'agency' and, thus, to displace what it aims primarily to rescue. While rendering us genetically distinct individuals, in other words, it also, in the end and rather ironically, renders us genetically determined.[122]

This 'argument from genetics', as Valerie Hartouni describes it, is motivated by the best of humanist intentions – to 'preserve the idea of originality, authenticity, individuality, and natural diversity' of human life.[123] But:

> In the process of being discursively reassembled as a thoroughly geneticized entity, ... this creature has undergone a slight but significant transmogrification. In other words, although genetic essentialism may allow for the recuperation of "singularity", it also profoundly complicates what are conventionally regarded as other equally integral or constitutive aspects of identity – conventional notions of agency and responsibility, for example, of freedom and autonomy.[124]

It is a limited conception of human rights which, in trying to ascribe dignity to human beings, eviscerates the human subject of the capacity for self-definition and self-determination in the name of the protection of a subject which is defined by its own genetic identity. The capacity for the transformation of what it is to be human is thus restricted by pre-existing concepts like 'nature' and 'biology', which, as we have seen, are utilised to do legal work in quite unconvincing ways.

The influence of genetic determinism is entirely understandable – in a culture in which much seems to be up for grabs, and also when bodies and identities are seen to be 'constructed' by various discursive practices,[125] the gene can appear to

121 Note 73 at 116.

122 Id at 118, footnotes omitted.

123 Id at 127.

124 Id at 127–8.

125 See Hyde A, *Bodies of Law* (1997) for this approach to legal constructions of bodies.

be a locus of authenticity and certainty. In a world in which the source and limits of human identity are challenged from a host of directions,[126] genetic essentialism can provide an antidote to the anxieties produced by the blurred boundaries which are a corollary of these developments. 'The genome appears as a "solid" and immutable structure that can mark the borders and police the boundaries between humans and animals, man and machine, self and other, "them" and "us"'[127] But by reducing human identity to a chemical code or sequence, it simultaneously blurs the distinction between human and non-human life, and indeed between humans themselves.[128]

The apotheosis of the gene has been aided in important ways by the development, in a relatively short space of time, of a human rights discourse which postulates a human genome that is natural, sacrosanct and inviolable as the conceptual basis of human dignity. If, as has hopefully become clear by now, this approach is replete not only with inconsistencies but invidious consequences for our conception of humanity, then what are the alternatives? Re-thinking the trajectory of human rights in the sphere of biomedical and genetic technologies is part of a larger dilemma of which human cloning is only an especially controversial example. But in the short space that follows, I will tentatively spell out an alternative theoretical basis for human rights law, and make a couple of practical suggestions based on this different conceptual framework.

A. A Constitutive Theory of Human Rights Law

Laurence Tribe, in an influential article in the early 1970s,[129] argued that legal regulation of any technology must take into account the ways in which those technologies redefine the values and the ends of human life, and in fact *reconstitute* the character of the individuals and the societies that use them.[130] The question – what are the *human* rights implications of a technology? – cannot be answered by simplistic recourse to intuitive concepts like 'nature' or 'biology', but rather by an exploration of how it is that the technology in question reconstitutes human life itself.[131] And law, too, is a technology which is constitutive of human identity and human values.[132]

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126 Including the development of artificial intelligence, virtual reality, and cyberspace. See generally the essays contained in Sheehan JJ & Sosna M (eds), *The Boundaries of Humanity: Humans, Animals, Machines* (1991).

127 Nelkin & Lindee, n71 at 43.

128 The Human Genome Project shows us that humans differ from the chimpanzee by only one base pair out of one hundred – 1 per cent – and from each other by less than 0.1 per cent: id at 126.

129 See n1.

130 See also Donna Haraway's concept of the 'cyborg' (in Haraway DJ, *Simians, Cyborgs, and Women. The Reinvention of Nature* (1991) ch 8; and Haraway DJ, *Modest_ Witness@Second_Millenium.FemaleMan@Meets_OncoMouse*™ (1997)), and Bruno Latour's concept of the 'hybrid' (in Latour B, *We Have Never Been Modern* (1993)) for other attempts to explain and theorise the impact of technology on the constitution of the 'human'.

131 Note 1 at 657–8.

132 See Tribe, n66 at 228.

One of the problems with the way in which the role of legal regulation has been conceived in relation to cloning is that proponents of instrumental reasoning on the one hand, [133] and of intuitively-determined social ends on the other, [134] tend to think about these two forms of knowledge as being separate, or, at best, as complementary to each other.[135] But my point is that this debate *cannot* be carried on without acknowledging the powerful cultural (so-called 'intuitive', irrational, or imaginary) forces at play, and that these forces are intimately related to the nature of the scientific practices. There is a *connection* between a scientific practice which values and naturalises progress, and which is unreflective and uncritical about its own possibilities and limits, and, on the other hand, a cultural logic which generates fears and anxieties about precisely that open-ended set of promises and *lack* of limits. Law (in the form of criminal sanctions) has been conscripted as a blunt means of supplying such a limit. But if law has been seen to date primarily as an (inadequate) means of controlling science when it gets out of control, it is perhaps more helpful to view legal regulation as an important and powerful technology, which is *itself* productive or constitutive of the human life created by the new reproductive technologies, including human cloning.[136]

Such a constitutive conception of law and technologies of reproduction is particularly suitable to an analysis which applies human rights norms. Underlying the claim that cloning violates human dignity is the notion that human clones will be somehow *less* than human – that they will be *monstrous*. Although the natural law tradition of thinking about human rights has tended to obscure the fact,[137] human rights also always had a transformative function – the delicate accommodation of *new* conceptions of what it means to be human in a way which does not compromise the simultaneous claim to universality. Arguably, this is

133 See, for example, Brock, n96.

134 Often referring to the opposition to cloning expressed in both high and popular culture: see Elshtain JB, 'To Clone or Not to Clone', in Nussbaum & Sunstein, n16 at 185; and generally Tracy D, 'Human Cloning and the Public Realm: A Defense of Intuitions of the Good', in Nussbaum and Sunstein, n16.

135 Though intuitive or instinctive repulsion to cloning is given considerable credence in the National Bioethics Advisory Commission's discussion of ethical issues (above n20: see generally ch 4, especially at 63, 67, 71), the role of such discourse in *legal* regulation is not explored.

136 Tribe, n1 at 657–8. Franklin, n119, makes the important point that *law*, just as much as science, co-produces the human life of the reproductive revolution:
'The new kinship is one that can be controlled from within: it is not only assisted nature, it is nature redesigned. It is a nature that *requires* intervention, as well as legal clarification, in order to express itself .... What *is* novel [about the new reproductive genetics] is that the resultant kinships will embody this intervention; that is, these persons will have been physically and morally enabled to come into existence by virtue of the conjoining of science, technology and law .... *future children will embody the Bill which enabled them to be born.* This is a reproductive cycle in a novel sense. A child [Louise Brown, the first child produced by in vitro fertilisation in 1978] is technologically conceived who embodies the need for a law; a law is brought into being because of this child's birth; the law will bring into being other children who will embody it' (at 127, emphasis in original).

137 Morsink J, 'The Philosophy of the Universal Declaration' (1984) 6 *Human Rights Q* 309 argues that the natural rights tradition exerts a continuing influence on international human rights law, and that its status is unresolved. See also Knoppers, n86 at 24; and Waldron J, *'Nonsense Upon Stilts'. Bentham, Burke and Marx on the Rights of Man* (1987) at 163.

precisely what human rights achieve when they bring within the fold of the 'human' that which was traditionally defined as being *not fully human*,[138] as it has in recent international law on the human rights of women,[139] children,[140] and indigenous peoples.[141]

B. Human Rights and Regulation of Genetic and Biomedical Technologies

That human rights transform and reconstitute our understanding of what it means to be human must be the starting point in thinking about a new, more sophisticated approach to protecting human rights while pursuing genetic and biomedical applications in human reproduction. This approach leads me to make two tentative recommendations for changes to international legal regulation of genetics and biomedicine. Firstly, a lot more critical attention needs to be given to the concept of human dignity.[142] It has been used as an essentialised, largely reactionary principle, in a way which mistakes 'nature' for 'law of nature' (and the influence of the natural law tradition on international human rights law cannot be excluded here). There *is* evidence of the evolution of a more sophisticated human rights framework in the area of human genetics and biomedicine, which uses human dignity merely as a *starting* point for the development of more specific principles and rules. In the Council of Europe Convention, we can see the concepts of human 'identity', and respect for human 'integrity', not only at the level of the individual but at the level of the species, beginning to emerge.[143] Similarly, central to the UNESCO Declaration are the concepts of genetic 'diversity' and genetic 'heritage'.[144] The development of these principles is important because it provides a different conceptual basis for opposing or, what is more likely, regulating and managing, certain kinds of interventions or practices. They are interesting developments, or evolutions, of concepts much better known to us from the international law relating to the *environment* – both natural and cultural. Their transformation and redeployment in the context of human rights law will be a challenging development.

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138 For a different formulation of this argument, though one with which I don't entirely agree, see Rorty, R, 'Human Rights, Rationality, and Sentimentality', in Shute S & Hurley S (eds), *On Human Rights: The Oxford Amnesty Lectures 1993*.

139 *Convention on the Elimination of All Forms of Discrimination Against Women* (opened for signature 18 December 1979, ATS 1983 No 9, entered into force generally 3 September 1981).

140 *Convention on the Rights of the Child* 1990, n95.

141 See ILO Convention No 107 of 1957, ILO Convention No 169 of 1989, and more recently the United Nations' *Draft Declaration on the Rights of Indigenous Peoples*.

142 In relation to the claim that cloning violates human dignity, Ruth Macklin argued before the National Bioethics Advisory Commission that proponents of this view 'owe us a more precise account of just what constitutes a violation of human dignity if no individuals are harmed and no one's rights are violated. Dignity is a fuzzy concept and appeals to dignity are often used to substitute for empirical evidence that is lacking or sound arguments that cannot be mustered', in Kolata, n13 at 19. A criticism along similar lines is made by Robertson, n22 at 1410.

143 Council of Europe, *Convention on Human Rights and Biomedicine*, Preamble and Article 1.

144 UNESCO, *Universal Declaration on the Human Genome and Human Rights*, Preamble, and Articles 1 and 2 b).

My second point is that law, especially human rights law, is involved in what turns out to be a quite traditional role. This may seem like a surprising claim at first blush, but the novelty of the scientific issues should not distract us from the unremarkable role of law here. We need a more sophisticated account of the way in which law as *technology* works with science to produce acceptable reproductive and genetic practices. These questions are not limited to cloning, but extend to all of the so-called 'new' (and indeed 'old') reproductive practices. I think that law should take active responsibility for its role in regulating science, and not just take the categories thrown up by science and cultural mythology for granted. These categories refuse to interrogate the new form of the human to which these technologies give rise. Law, especially human rights, is a particularly useful tool or technique in this context because it enables us simultaneously to invoke and *privilege* the 'human', whilst *renewing* what we mean by human. In this sense, as a powerful technology of empowerment of new forms of what it means to be human, human rights are involved in answering some very traditional questions indeed.