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GENETICS

The moral status of the embryo post-Dolly

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Cameron and Williamson have provided a provocative and timely review of the ethical questions prompted by the birth of Dolly. The question Cameron and Williamson seek to address is “In the world of Dolly, when does a human embryo acquire respect?”. Their initial discussion sets the scene by providing a valuable overview of attitudes towards the embryo, summarising various religious, scientific, and philosophical viewpoints. They then ask, “What has Dolly changed?” and identify five changes, the first being that fertilisation is no longer required to create an embryo. Following this analysis they then ask when an embryo created other than by fertilisation begins to acquire respect. This paper explores the ethical and legal issues highlighted by Cameron and Williamson’s paper.

“respect”. As they correctly state, respect is commonly accorded to embryos on various grounds, whether due to their value to others, their potential, or their developmental status.² However, a moral analysis requires that we provide justifiable reasons for these grounds. In so doing, we understand the reasons for respect and thus the form that this respect will take. Those who, on religious grounds, consider life has moral significance from the first development of an embryo, will consider the embryo should be accorded the respect a person should receive. Others, who attribute moral status only to human beings able to value their own existence, may still accord an embryo respect, although perhaps neither the level, nor the form of respect they would accord a rational human being.

However, the account the authors give has virtually no moral content. It is not clear why the authors believe that respect should be owed. What they attempt to do is to try to find stages in development, which, in cloning or other radical new technologies, are significantly analogous to the stages in normal sexual reproduction where people are disposed to accord respect. But there are huge problems with this approach. Since they have no account to give, at least not in this paper, of whatever it is in virtue of which respect is owed, the juggling with stages is in a sense meaningless. What matters ethically is not whether or not people do accord this sort of respect but whether or not they are justified in so doing.

Initially, they suggest that intention is significant to determining when a cloned embryo should be afforded respect. They suggest that a cloned embryo, “only acquires ethical value when both the intention and capability for development into a person are simultaneously realised”.² However, it is not clear why intention is relevant to the moral status of the entity in question and hence to the respect that ought to be accorded to it. Imagine two *in vitro* embryos, one was created with the intention and the opportunity of implanting it into a uterus in the hope that it would result in a baby and eventually a normal adult human being. The other was destined to be a research embryo with no intention to implant and no planned opportunity of achieving its potential. Unfortunately, a negligent Australian lab assistant mixes the embryos up and, horror of horrors, the scientists come back to the bench and cannot remember or

Cloning has hit the headlines once again, with news that scientists in South Korea have used the techniques developed to clone Dolly the sheep to create what are almost certainly cloned human embryos.¹ The post-Dolly era has created new ethical dilemmas, such as whether it is morally right for a parent to clone themselves to create a child. However, we will argue that the issues Cameron and Williamson raise are not novel, but are nevertheless important in the post-Dolly era.² Their concern to establish the respect due to a cloned embryo raises familiar issues surrounding the moral status of the embryo. Similarly, their discussion of the fact that fertilisation can no longer be seen as the starting point of the development of a human being highlights the ongoing need to alter our terminology and understanding in the light of scientific developments.

The question Cameron and Williamson seek to address is “In the world of Dolly, when does a human embryo acquire respect?”. Their initial discussion sets the scene by providing a valuable overview of attitudes towards the embryo, summarising various religious, scientific, and philosophical viewpoints.² They then ask, “What has Dolly changed?” and identify five changes, the first being that fertilisation is no longer required to create an embryo.² Following this analysis they then ask when does an embryo created other than by fertilisation begins to acquire respect.

A recurrent difficulty with Cameron and Williamson’s discussion is their use of the term

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Abbreviations: CNR, cell nuclear replacement; HFEA, Human Fertilisation and Embryology Act 1990; IVF, *in vitro* fertilisation

discover which was which. There is clearly a moral imperative to treat one of them with respect and not the other. The embryos are, in all other respects similar and since they are clones, we will assume that their genetic composition and stage of development is also exactly similar. The idea that one of them be owed respect and the other not, or that a simple decision as to which was going to be implanted would accord one of them respect that the other would by that decision lack, is bizarre if not incoherent. Consider that both these embryos are then implanted "to be on the safe side". What does the "intention" that accompanies one of them and not the other add to its moral status?

In the next paragraph the authors change tack slightly and say²:

The most important stage in the development of an embryo created outside the womb, such as a Dolly embryo, is implantation, as without successful implantation the embryo cannot develop into a human being. Its potential to develop is theoretical until it is implanted; on implantation, it becomes real. Upon the successful act of implantation the embryo will begin to acquire respect as following implantation development takes place (at least in principle) which, if uninterrupted, leads to the birth of a human being.

This is a different idea and one which has more mileage to it.³ However this too has problems. The first relates to technology. Imagine the perfection of ectogenesis, the artificial womb. In this era research embryos and embryos destined for personhood are all developed in artificial wombs and will never be "implanted". Which has the greater moral status and why?

The authors' argument also embraces the potentiality argument. It is saying that once the entity is embarked upon a developmental path which could lead to the creation of a morally important embryo, it has moral importance because of that fact. There are many well known objections to this form of the potentiality argument. The main problem is, of course, that eggs are not omelettes, acorns are not oak trees and we all share one important piece of inexorable potential, we are all potentially dead meat, but that does not accord any of us a reason to treat us now as if we were already dead meat.⁴ So we need a different sort of argument, an argument that tries to say something about what the embryo is—rather than what it might become. There are of course sophisticated potentiality arguments that require different considerations for their rebuttal but since the authors do not mention them, they will not be addressed here.⁵

The authors then move on to consider the status of in vitro fertilisation (IVF) embryos. They conclude that they "are entitled to some respect if only modest 'because they are alive and because they are regarded by others as morally valuable'".² They consider, however, that "cells in culture from an individual are not due this respect even if they are being prepared for use with the intention of implantation so as to create an individual".² Their argument thus appears to grant IVF embryos respect but not embryos created by a process such as cell nuclear replacement (CNR). Yet the authors do not, as argued, provide any clear justification for this moral distinction. They accord IVF embryos respect on the grounds that they are regarded as morally valuable by others. Yet, could not the same principle apply to embryos created by CNR? The Catholic Church has condemned cloning. However, it has been suggested by a Catholic writer that a cloned human embryo would have

the same moral status as an embryo created by IVF. As Ford has commented⁶:

It makes no moral difference whether the embryo is naturally conceived, produced through in vitro fertilization, or is a cloned human embryo. Once formed, a human embryo is ethically inviolable.

After discussing implantation, the authors then assert that¹⁴:

After implantation, when the process of acquiring respect begins, the embryo acquires more respect as the pregnancy progresses, with quickening being an important stage. Respect continues to increase until viability.

In expanding their view that respect for the embryo increases during pregnancy, the authors refer to the growing value a mother may place on the fetus and, conversely, the reluctance of doctors to perform an abortion after the first trimester. However, while such matters may demonstrate the value accorded to the embryo, they do not articulate the underlying reasons for that value and hence provide justification for such judgements. Is it simply increased probability of survival as an adult? If so, that will vary between rich and poor, and will depend upon the genetic composition of parents, whether there is a war going on, and a whole range of other issues. If it is not an increase in probability, then what is it?

In concluding their argument, the authors, as quoted above, consider that from the time of viability the embryo should be entitled to full respect as a human being. They state²:

As gestation progresses past the earliest stage of viability, the unborn fetus is increasingly respected. As it moves from dependent to independent and acquires the ability to survive outside the uterus, it must be regarded, legally and ethically, as a legal person entitled to the full set of rights of any other individual.

This paragraph alone contains complex and problematic issues. The authors place importance on the idea of independence. However, there is a sense in which none of us are capable of that and certainly in complex modern societies, most people require assistance and are in some sense dependent. Is the person attached to a heart/lung machine or a dialysis machine independent or not? Why is independence of the mother so important?

The authors also argue that from viability, the fetus should be regarded legally and ethically as a legal person entitled to the full set of rights of any other individual. They then point out that in Australia, as in England, the law only recognises the child in the womb as a legal person following birth.⁷ They then comment that it is "difficult for an embryo or fetus to have any rights while it is in the womb".² However, this phrase needs to be qualified. It is of course impossible for the fetus itself to be able to exercise any rights while in the womb. However, it is perfectly possible to ascribe rights to an embryo, which must then be protected by others. It is the extent of these rights which the law seeks to set out. To date, as set out above, English law does not deem an embryo a legal person. One reason for this is that if embryos were afforded legal personhood, this would lead to the existence of competing legal interests. For example, English law respects the right of

a competent adult to refuse treatment.⁸ Thus, a competent pregnant woman advised to undergo a caesarean section is lawfully entitled to refuse her consent to the operation.⁹ If the fetus were to be deemed a legal entity, this would lead to the mother's rights conflicting with the fetus' right to life. To date English law has not wanted to create such a conflict.

As the authors comment, the law frequently does ascribe rights to the fetus in the womb, albeit that, where the fetus survives, these are not exercisable until birth. However, again, such rights are currently weighed against competing concerns. Hence, the child disabled in utero due to the actions of his parents may be able to sue his father, but not his mother under English law.¹⁰ In 1976, when the applicable Act was passed, this position was justified on various grounds, one being that in practice a claim would only be brought against a mother where the father wanted to use this as a weapon in a dispute. However, it may be an issue which needs to be revisited.¹¹ The authors say that the unborn fetus "must be regarded, legally and ethically, as a legal person entitled to the full set of rights of any other individual";² yet at the same time acknowledge the difficulties involved from a legal perspective. Even if the authors' ethical arguments are accepted, this is an area where ethical concerns may not necessarily translate into laws we would wish to adopt.¹²

TERMINOLOGY

The second issue Cameron and Williamson identify is that scientific developments may cause us to re-evaluate the terminology we use. As they point out, the traditional definition of an embryo as "a developing unborn human during the first 8 weeks after conception"² would not include a "Dolly embryo", where "conception" is deemed to include the process of fertilisation. Yet, if we consider the group of cells formed following CNR to be an embryo, we need to adopt a broader definition, such as that suggested by Ford, which they cite. He defines an embryo as¹³:

A totipotent single-cell, group of contiguous cells, or a multicellular organism which has the inherent actual potential to continue species specific ie typical, human development, given a suitable environment.

The need for clarification of terms such as "embryo" is important, not solely in the ethical debate, but also to ensure clarity in areas of regulation.

This was highlighted in a recent English case.¹⁴ The Human Fertilisation and Embryology Act 1990 (HFEA)¹⁵ established the Human Fertilisation and Embryology Authority, which regulates the creation and use of embryos created outside the body. Parties wishing to create, keep, or use such embryos must be licensed under the terms of the Act and are subject to its restrictions. The Act states¹⁶:

In this Act, except where otherwise stated—(a) embryo means a live human embryo where fertilisation is complete, and (b) references to an embryo include an egg in the process of fertilisation, and, for this purpose, fertilisation is not complete until the appearance of a two cell zygote.

The question which came before the court was whether an embryo created using CNR fell within the terms of the Act, given that such embryos were not created by fertilisation. If they did not, by definition, their creation and use would be held to be unregulated. The government considered an

embryo created by CNR did fall within the remit of the Act. However, Bruno Quintavalle, acting on behalf of the Pro-Life Alliance sought a declaration that this was not the case. If successful in their case, the Pro-Life Alliance hoped to force Parliament to consider the issue in full.

In the High Court, the claimant (that is, the Pro-Life Alliance) was successful.¹⁷ The judge declared that human embryos created by CNR were not "embryos" within the meaning of the Act and were thus not subject to the regulation set out in the Act. Parliament thus moved quickly to pass legislation to ensure that reproductive cloning, whereby an embryo could be created by CNR and placed in a woman, would be unlawful.¹⁸ Subsequently, the Court of Appeal allowed the appeal, a decision subsequently affirmed by the House of Lords.¹⁹ An embryo created using CNR was to be subject to the requirements of the HFEA. This was held to be within the *purpose* set out by Parliament in the Act.

Although this is not the place for a detailed legal analysis, some general principles can be drawn. Where developments take place, as in this case, which were not contemplated by Parliament, the courts may interpret legislation to give effect to the purpose intended by the legislature. Statutes are held to be "always speaking". Thus, for example, a tape recording was held to fall within the meaning of the word "document", since both function to transmit information.²⁰ However, the courts are not in theory the legislature and thus must be concerned to interpret existing legislation, rather than create new law.

The decisions in the Court of Appeal and the House of Lords have received both support²¹ and criticism²² and it is not proposed here to analyse whether the judiciary adhered to their role as interpreters of the law or moved into a legislative role. Whatever view is taken of the decisions, what emerges clearly is the difficulty of legislating in areas such as these, which are subject to technological advances.

This is an issue discussed by Gogarty in this journal, after the Court of Appeal decision, but prior to that in the House of Lords.²³ As he sets out, the traditional approach to drafting legislation has been to set out "specific and succinct" legislation. The effect of such an approach is, he argues, as follows²³:

This promotes clarity in the law, allowing a clear demarcation between what is legal and illegal, and clearly delineating the extent of civil rights and obligations. Scientists and researchers should not be encumbered by uncertainty regarding what research they can validly undertake. Community concerns are assuaged by clear laws.

These are concerns we must take seriously if the law is to be just. As Rawls set out²⁴:

This precept [that there is no offense without a law] demands that laws be known and expressly promulgated, that their meaning be clearly defined ... for if, say, statutes are not clear in what they enjoin and forbid, the citizen does not know how he is to behave.

However, as Gogarty points out, on the other hand, "comprehensiveness and precision can lead to convoluted and confusing language, narrow the ambit of the law, and render it rigid and inflexible".²³ He sees this problem particularly in the area of advancing technology, such as cloning.

Gogarty therefore suggests that, as a result, legislation in such areas should not follow the usual, prescriptive approach. Instead, it should seek to identify the type of practice to be outlawed. Instead of asking "What is the exact technique we wish to control?", legislators should ask, "Where do the differences lie between what we will allow to occur and what we will not?"²³ He refers with approval to the approach taken in the drafting of the Human Reproductive Cloning Act 2001. This states: "A person who places in a woman a human embryo which has been created otherwise than by fertilisation is guilty of an offence".¹⁸

The Act does not provide definitions of terms such as embryo or fertilisation, no doubt in an attempt to avoid the difficulties which emerged with the HFEA. Instead it sets out a "class of practice"²³ to be deemed unlawful. Whilst such an approach to drafting has attractions, it would be a mistake to think that it resolved the difficulties associated with changing technologies. First, while we may be able to anticipate where there may be changes in the future, the very fact that scientific developments are not always predictable makes it hard to determine when exactly a less prescriptive approach should be adopted.

Secondly, the Human Reproductive Cloning Act itself demonstrates a further difficulty. In this particular instance, avoiding the use of definitions leaves uncertainty as to the attributes of a "human embryo". The HFEA prohibits the mixing of animal and human gametes without a licence.¹⁶ However, the combination of human and animal cells through CNR would not be regulated by the HFEA unless the embryo were deemed a "human embryo". If such an embryo were created, would it be an offence to place this inside a woman? Does "human" in the context of the statute mean fully human or partially human?²⁵

It may be suggested that this is a poor example to use, since it is the fact that the word "human" is used in conjunction with the term embryo that creates the difficulty. This, it might be argued should not be allowed to restrict using terms such as "embryo" without further definition, in order to avoid the *Quintavalle* problem. However, although we may be able to reach agreement on the organism to which the term "embryo" should apply, other terms may not be so clear.

At first sight, when referring to human tissue, the term "tissue" might appear clear. To each of us, it will convey a meaning. However, investigations into the retention of organs and body parts following postmortem, revealed different understandings of this apparently straightforward term. As the Interim Report of the Bristol Royal Infirmary Inquiry commented, clinicians and pathologists understood it to cover a spectrum from samples on slides to whole organs.²⁶ This was in contrast to the understanding of the word "tissue" in "everyday language". Forms seeking consent for postmortems frequently referred to the word "tissue" without further explanation, as a result of which the report considered that the forms had failed to provide enough clarity.²⁶

Applying these concerns back to the context of legislation, we can see a paradox that both prescriptive and less prescriptive approaches may provide difficulties of interpretation. Following *Quintavalle*, it is right that we should seek ways to avoid the difficulties which emerged. However, it is suggested that drafting less prescriptive legislation in areas of technological development may not be the panacea it initially appears. Particularly in cases where the criminal law is at issue, legislation should err on the side of clarity, putting present-day certainty ahead of possible future uncertainty.²⁷

In summary as Cameron and Williamson suggest, the post-Dolly era raises important issues, such as the status of a

human embryo created by CNR and the difficulties caused as a result of our changing understandings and the subsequent need to alter our terminology. As we have argued, we do not consider that these particular issues are new, though they are nevertheless important. The status of the CNR embryo invokes the familiar debate about the moral status of the human embryo. Similarly, the need to adapt our terminology raises familiar concerns, not solely in relation to the ethical debate, but also in terms of regulation. The fundamental question in relation to cloning remains²⁸: namely whether, and if so for what purposes, it is morally right to create a human clone?

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